

## The Skeptic's Dictionary

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"The only thing infinite is our capacity for self-deception."

### Introduction

I

The Skeptic's Dictionary: A Guide for the New Millennium provides definitions, arguments and essays on subjects supernatural, occult, paranormal and pseudoscientific. I use the term 'occult' to refer to any and all of these subjects. The reader is forewarned that The Skeptic's Dictionary does not try to present a "balanced" account of occult subjects. If anything, this book is a Davidian counter-balance to the Goliath of occult literature. I hope that an occasional missile hits its mark. Unlike David, however, I have little faith, and do not believe Goliath can be slain. Skeptics can give him a few bumps and bruises, but our words will never be lethal. Goliath cannot be taken down by evidence and arguments. However, many of the spectators may be swayed by our performance and recognize Goliath for what he so often is: a false messiah. It is especially for the younger spectators that this book is written. I hope to expose Goliath's weaknesses so that the reader will question his strength and doubt his promises.

Another purpose of The Skeptic's Dictionary: A Guide for the New Millennium is to provide references to the best skeptical materials on whatever topic is covered. So, for example, if that pesky psychology teacher won't let up about auras being inexplicable occult phenomena, you can consult your Skeptic's Dictionary and become pesky yourself with more than a general skepticism about occult phenomena.

The Skeptic's Dictionary: A Guide for the New Millennium is aimed at four distinct audiences: the open-minded seeker, who makes no commitment to or disavowal of occult claims; the soft skeptic, who is more prone to doubt than to believe; the hardened skeptic, who has strong disbelief about all things occult; and the believing doubter, who is prone to believe but has some doubts. The one group this book is not aimed at is the true-believer in the occult. If you have no skepticism in you, this book is not for you.

The open-minded seeker has not had much experience with occult phenomena beyond some religious training, but does not dismiss out of hand reports of aura readings, alien abductions, ESP, dowsing, channeling, ghosts, etc. The soft skeptic suspends judgment on occult issues and appeals to inexperience, as well as to epistemological skepticism, as reasons for deferring judgment. The hardened skeptic is a disbeliever in all or most occult claims. The believing doubter is attracted to the occult and is a strong believer in one or more (usually more) occult areas, but is having some doubts about the validity of occult claims.

My beliefs are clearly that of a hardened skeptic. I don't pretend that I have no experience or knowledge of these matters. For me, the evidence is overwhelming that it is highly probable that any given occult claim is mistaken or conscious fraud. Earlier in my life I was a seeker. Looking back, I wish I had had a book like The Skeptic's Dictionary. This book will provide the seeker with arguments and a reference book of the best skeptical literature on occult claims. Though clearly it is my hope that the seeker will become skeptical, I do not hope the seeker will just take my word--or anybody's word--for it, but will investigate and think about these matters before coming to a decision.

The Skeptic's Dictionary will provide the soft skeptic with evidence and arguments, as well as references to more evidence and arguments, on occult issues. In my view, there is sufficient evidence available to convince most reasonable soft skeptics that most occult claims are more probably false than true. However, the soft skeptic recognizes that it does not follow from that fact (if it is a fact) that one should commit oneself to what seems most probable to the rational mind. The soft skeptic often holds that rationality is a value and that the idea that the rational life is the best one for human beings cannot be proven logically, scientifically or any other way. By way of argument, all one can do is appeal to the consequences of choosing the rational over the irrational life. Also, it seems to be true that belief in the irrational is as appealing to the true believer as belief in the rational is to the hardened skeptic. According to many soft skeptics, whether one chooses a life devoted to rationality or irrationality is a matter of faith. For a good period of my adult life, I was a soft skeptic who believed that my commitment to rationality was as much an act of faith as my earlier commitment to Catholicism had been. For years I remained open to the possibility of all sorts of occult phenomena. My studies and reflections in recent years have led me to the conclusion that there is a preponderance of evidence against the reasonableness of belief in any occult phenomena. I have also concluded that choosing rationality over irrationality is not an act of faith at all. To

even pose the question as one requiring thought to answer demonstrates the futility of claiming everything can be reduced to faith. For, one must use reason to argue for faith. And while I do not deny that the consequences of believing in the occult are often beneficial, I do deny that such consequences have anything to do with establishing the reality of occult phenomena. A soft skeptic would have to agree that there is a monumental difference between a believed entity and a real entity. I would agree with the soft skeptic that it is impossible to know anything empirical with absolute certainty. However, I think it is obvious that probabilities do us just fine in this life. We have plenty of ways in many, many cases to distinguish among empirical claims that are of differing degrees of probability. It seems to me nonsense to claim, as Charles Peirce and William James did, that the consequences of a belief establish its validity and that anything with real consequences is real [see Peirce's fatuous argument for the reality of God or James's famous "Will to Believe"]. If I can get some shopkeeper to believe in my psychic hundred dollar bills so that I can keep spending in his shop as long as he believes my psychic money is real, does any reasonable person believe that my imaginary money is real? Try to spend the psychic dollars in a shop where the shopkeeper isn't deluded or doesn't have faith in invisible money.

The hardened skeptic doesn't need much more in the way of evidence or argument to convince him or her that any given occult claim is probably based on error or fraud. Still, *The Skeptic's Dictionary* has something for the hardened skeptic, too: it will provide ammunition against the incessant arguments of true believers. Most hardened skeptics don't feel it is worth their time to investigate every crackpot idea that comes their way. They dismiss them out of hand. The following is a letter from an English woman who works in an office in Austria where most of the others lack much skepticism:

I work in an office where most of my colleagues believe in living their lives by some wacky theory. If I make cuttings of my rather profusely growing plants then I am told it isn't the right moon day, although all my plants grow wonderfully due to good compost and regular fertilizer. If I say I am going to the hairdresser then someone looks it up on their desktop moon calendar to see if it's the right day. All colleagues with back pain are running off to the "Wunderheiler", a traditionally trained doctor who does "laying of hands" (I suggested they lose weight and take up swimming instead), or they are constantly swallowing some herbal tablets which they have purchased at some ridiculous price from a specialist shop. I have one colleague who won't come to my apartment because I live in the roof and the apex would only concentrate "harmful energy waves" and she is convinced that my health will suffer (I am incredibly healthy) and has some Chinese Fen Chewy (sounds like) [feng shui] theory of which she is convinced. I recently had problems with a mouth abscesses and was told by another colleague to make a mouth rinse with cold pressed sunflower oil. Now even with my rudimentary biological knowledge this would seem like a silly idea which could actually encourage more bacteria to find a nice home in my mouth. Another told me (and in a very severe tone) to rub my gums with lemon peel to get vitamin C into my membranes, and I told her I wasn't aware that the lining of the mouth was a permeable membrane! I am surrounded by all this humbug and they all get very annoyed when I debate their theories and am skeptical. (But what can one expect from a Scorpio)

Under most conditions simply rejecting quackery is intelligent and justified. Often, however, it is better to provide a seeker, soft skeptic or the doubting believer with arguments, both specific and general. But if one's antagonists are true-believers like this woman's office mates, it is probably a waste of time to provide evidence and arguments in response.

Finally, *The Skeptic's Dictionary* will provide the doubting believer with information and sources to consult that will provide, if not a balanced picture, at least a multifaceted one, of your concern about the power of crystals or color therapy or levitation, etc. It will help the doubter resolve his or her doubts. For, while there will be a few skeptics who can go through all this literature and come out doubting everything, including the skeptical claims, I think the vast majority will emerge as hardened skeptics, not Pyrrhonists.

As already stated, the one group that this book is not designed for is the true believer. My studies have convinced me that arguments or data critical of their beliefs are always considered by the true believer to be insignificant, irrelevant, manipulative, deceptive, unauthoritative, unscientific, unfair, biased, closed-minded, irrational and/or diabolical. (It is perhaps worth noting that except for the term diabolical, these are the same terms the hardened skeptic uses in describing the studies and evidence presented by true believers.) Hence, I am sure that the only interest a true believer would have in *The Skeptic's Dictionary* would be to condemn and burn it without ever having read it.

II

'Skepticism' may refer to a person's general attitude or state of mind, namely one of doubting or questioning. Often, however, 'skepticism' refers specifically to doubt or disbelief regarding supernatural or paranormal claims. 'Skepticism' may also refer to the philosophical doctrine that absolute knowledge is impossible and that inquiry must be a process of doubting in order to acquire approximate or relative certainty.

The Skeptic's Dictionary is concerned with skepticism in each of its meanings, but the motivation for the book was undoubtedly the author's doubts and disbeliefs about occult, paranormal, psychic and religious phenomena. Taking my cue from Nietzsche, I divide skeptics into two types: Apollonian and Dionysian.

The Apollonian Skeptic is committed to clarity and rationality. To the Apollonian Skeptic, all things supernatural are essentially vague and irrational. The Dionysian Skeptic, on the other hand, is committed to passion and instinct, and may actually embrace religion because of its vagueness (Charles Peirce) or irrationality (Tertullian, Kierkegaard). The Apollonian Skeptic looks upon belief in God as on par with belief in the Easter Bunny and belief in immortality as being on par with belief in astral projection. The supernatural is rejected by the Apollonian Skeptic not because he or she knows these matters are false, but because they go against the Apollonian Skeptic's grain. The Dionysian Skeptic, however, believes in supernatural things not because they are known to be true, but because they fit the Dionysian Skeptic's feelings and instincts. The Apollonian Skeptic sees no reason to believe in supernatural matters; the Dionysian Skeptic sees no reason not to believe in them. The Apollonian Skeptic sees all the arguments and evidence put forth in support of religious or occult tenets as inept, fraudulent, deceptive, weak, insubstantial or ludicrous. The Dionysian Skeptic sees the Apollonian Skeptic as stubborn and unwilling to risk error for the sake of a possible, sublime truth.

Who's right? Psychologically speaking, I suppose we have to say that they are both right. It would not be healthy to go against one's natural disposition. Is it reasonable, though, to expect each side to be tolerant of the other? William James, who divided up believers and non-believers in a somewhat similar way, thought that this was reasonable. I disagree. Both types of skeptic think that the other type is foolish, not in error. How could it be healthy to tolerate people one thinks of as fools? I grant that in polite society we rarely express our true feelings about one another and that skeptics are no exception. Skeptics are notorious for providing arguments for their positions. Pascal's "Wager Argument" is a gasser to the Apollonian Skeptic; Russell's "Why I Am Not a Christian" is lunacy to the true believer. I don't know of a single case where an Apollonian Skeptic became a believer in the supernatural because of arguments, or of a Dionysian Skeptic becoming an atheist because of an experience.

In fact, most atheists and most believers in the supernatural are not skeptics--but they should be. They tolerate one another or argue with one another because they believe the evidence supports their own point of view and they believe that ultimately any reasonable person would agree with them if only they saw things correctly. They don't think of those who think differently than they do simply as fools; they think of them as ignorant or stupid or misguided. It has been my experience that intelligence, knowledge and education are not essentially connected to the tendency to believe or disbelieve in the supernatural or the occult. As William James put it, our temperament determines these tendencies for us. The value of either type of belief is to be found in its fruits, he said. And, as Nietzsche put it, 'our values spring from us like fruits on the tree; what cares the philosopher if the fruits be rotten.' The problem is that from where I'm standing someone else's fruits appear rotten while mine appear healthy. From where another is standing, it is just the opposite. Pity that we cannot taste each other's fruits.

This book is, therefore, not intended as a set of arguments for the Apollonian Skeptic to use against believers in occult matters. It is especially intended for those who are by temperament Apollonian but who, for whatever reason, hesitate to follow their nature. We live in a society which caters much more to the believer in the occult than to the non-believer. Fear of punishment, of ostracism, and of ridicule are great hindrances to seeking one's own way. But unhappiness surely awaits you if your beliefs or values are chosen by others and do not suit you. One might call this book the counterpart of the medieval scholastic's faith seeking understanding. If you are already an Apollonian Skeptic at heart, the material which follows will help you understand what you already reasonably believe.

## FAQ

(Frequently Asked Questions)

Q. Who made you God?

A. I suppose you mean what gives me the right to question beliefs thousands of years old held by millions of people. You may think it arrogant and unbecoming to challenge cherished beliefs, especially since many of those who hold these beliefs are much wiser and more intelligent than I am. The alternative, as I see it, is either to accept matters on faith without thinking about them or to think and critically examine things only until they begin to conflict with established beliefs and at that point assume I don't know what I am doing. Neither alternative appeals to me.

I try to understand the limitations of the human mind and base my beliefs on the best evidence available, using the best methods of inquiry available, carefully considering the best arguments. All my beliefs are tentative even though I consider them more likely to be true than false.

I have no preconceived notions about what should be true or false nor do I begin with a creed and set out to defend it. Like all humans, I am fallible. I prefer to have my errors corrected, however; rather than defend them in perpetuity.

Q. Are skeptics skeptical of skepticism?

A. This question is often asked by those who think it is akin to Augustine's question "Can I doubt that I am doubting?" The answer is "No, if the doubter is Augustine or Descartes, but Yes if the doubter is Glanvill or Hume." (Read R.H. Popkin's History of Skepticism or The High Road to Pyrrhonism if you want to examine this issue in depth.)

Q. Can science answer all our questions?

A. No. Science can only answer empirical questions.

Q. Can science answer all empirical questions?

A. Yes, but many of the answers will be wrong.

Q. Why aren't you skeptical of science? You don't question scientists who make questionable claims about global warming, ozone depletion, rain forests, the Big Bang, evolution, vaccination, AIDS, aspartame, etc. Why?

A. Science has a set of public methods for investigating, debating, arguing, and resolving empirical disputes. These disputes are best dealt with by scientists in the scientific arena. I don't attack pseudoscience or quackery simply because I disagree with their claims. I disagree with their unscientific and antiscientific methodologies and their inability to resolve empirical issues because much of what they claim is metaphysical, not empirical. I disagree with their asserting they have cures for anything which ails you when their only proof is self-validation, insight, intuition, or testimonials of satisfied customers.

There are some people who call themselves skeptics who specialize in taking sides on both controversial and relatively non-controversial issues, e.g., Brian and Elisabeth Carnell's Skepticism.net. Personally, I think such issues as global warming ought to be left to the scientists to debate. Posting criticisms of the theory is fine by me, but they ought to be posted on a science page, not a skepticism page. Otherwise, you might as well call anyone who disagrees with anyone else a skeptic. This seems foolish, since it makes everyone a skeptic, except those people who have no disagreement with anyone, and they're dead so who cares about them.

Q. Are all skeptics atheists?

A. No. Some skeptics are atheists, some are agnostics and some are theists. In this regard, skeptics are like scientists and baseball players.

Q. Isn't skepticism a kind of religion with its own faith in science?

A. No. Skepticism is not a set of beliefs nor does it involve practicing any rituals, advocating any particular way of life, or worshipping anyone or any thing. The belief in science is not based on faith but on evidence. Furthermore, the belief in science is not unconditional. Scientific theories are always tentative and subject to modification, unlike religious dogmas. Science attempts to root out error, not perpetuate it by disallowing challenges to beliefs, as religions do.

Q. Why do you only criticize New Age and Eastern religions. Why don't you expose frauds like Joseph Smith (Mormonism), Jesus Christ and Mohammed?

A. The major religions have been criticized in detail by many scholars and non-scholars (religious advocates attacking other religions for not being the "true" religion). There is no lack of critical articles on the major religions. My entries on atheism, devils, exorcism, faith, God and miracles will have to suffice as oblique criticism of the major religions. Furthermore, there are many sites on the WWW run by ex-Mormons, ex-Catholics, ex-Muslims, etc., which criticize the major religions.

On the other hand, the Eastern and New Age religions are not as well known, or are inadequately known, in the U.S. Nor is there much critical material available for one inquiring into their main ideas.

I may make an exception for Joseph Smith, only because his story is an American one, is relatively recent and there is abundant historical data available regarding his escapades.

Q. Why do you criticize "alternative" medicine only? Why don't you have entries that are critical of the questionable claims, practices, and errors of medical science, such as vaccination or circumcision?

A. To expect me to be as skeptical of medical science as I am of naturopathy, homeopathy, traditional Chinese medicine, therapeutic touch, aromatherapy, etc., is unreasonable. It is not because they are fallible that I am skeptical of these "alternative" health practices, but because they are based upon false or questionable assumptions and generally do not follow scientific methods to establish beliefs. It does not follow from my criticism of "alternative" health practices that I think traditional medicine is flawless. I do not criticize alternative health practices because their practitioners err or misdiagnose. I criticize them because I believe their methods are fundamentally unsound and incapable of weeding out error.

Furthermore, "alternative" practitioners often do not care that their methods are unsound because they deceive themselves into thinking that what they are doing is justified because "it works," i.e., they have seen the results (confirmation bias) and they have a lot of satisfied customers (the pragmatic fallacy). These fundamental human tendencies are common in pseudoscience, but are guarded against by scientists by requiring specific logical and scientific tests of causal claims.

I do not believe that traditional medicine is infallible. I would criticize traditional medicine if it were fundamentally flawed, i.e., if it were based upon metaphysical or false or questionable assumptions. There may be specific procedures which most medical doctors follow or recommend which turn out to be harmful or useless. Nevertheless, I would not reject all medicine because of errors by medical doctors. It would be foolish to reject science because of errors by scientists.

Q. Why don't you have entries critical of literary and political theories such as Marxism, postmodernism, deconstructionism? There's a lot of nonsense being claimed in these areas.

A. I have chosen to restrict myself to claims related to the occult, supernatural, paranormal and pseudoscientific, or to frauds and hoaxes. I don't see my task as criticizing every bit of nonsense that comes down the pike. There are advocates and critics galore in politics and academia, not to mention the Sunday pundits from Palookaville, who debate this kind of stuff endlessly. Anyone interested will have little difficulty in finding material pro and con for social, political or literary theories.

Q. Why don't you have entries on superstitions and urban legends?

A. The Skeptic's Dictionary is not an attempt to ferret out every false or questionable claim, not even those with widespread adherence. The occult, the paranormal, the supernatural and the pseudoscientific more-or-less define the limits of my inquiries here.

Q. What do skeptics believe in?

A. Skepticism is not a set of beliefs, so there may not be very many beliefs which are held by all skeptics. Even if there were, such beliefs might not reveal anything about skepticism, for these same beliefs may be held by many who are not skeptics.

Q. Are skeptics more immoral than non-skeptics.

A. It depends on what you mean by 'immoral'. I guess we are if you consider it immoral to doubt the claims of people like Uri Geller, Edgar Cayce, Sai Baba, Charles Berlitz, J.Z. Knight, Frederick Lenz, L. Ron Hubbard, Joel D. Wallach, Deepak Chopra or Andrew Weil. I don't know of any studies, however, which show that skeptics commit more murders, rapes, robberies, or molest more children than non-skeptics.

Q. Do skeptics believe there is a reason for existing?

A. Some do. Some don't. I believe that any purpose to a person's life is given to that life by that person. In other words, if you choose to do meaningful things, your life is meaningful. If you choose to live a meaningless existence, then your life is meaningless.

Q. Why do you hate Amway?

A. I don't hate Amway. But I am still fascinated that the Amway entry in The Skeptic's Dictionary has been one of the most popular entries for five years running. I added an entry on multi-level marketing. I am not going to do separate entries for other MLM schemes, however. I created the Skeptic's Refuge to, in part, expose frauds on the Internet, but that turned out to be a ridiculous idea, since the frauds are like weeds: the more you beat them up, the more they like it and proliferate. Even restricting myself to frauds with a paranormal, occult, supernatural or pseudoscientific foundation has proved to be a task I cannot keep up with. Not that Amway is a fraud, of course. It is legal pyramid scheme.

Q. Where did you get the saying "The only thing infinite is our capacity for self-deception."

A. I made it up. It's a hyperbole but I like the feeling it expresses. Or maybe I'm suffering from cryptomnesia.

Q. Do you think that logic and rational analysis can help you understand such things as love or laughter?

A. Yes, to a large extent, but as with anything requiring experience, the internal perspective is not reducible to that of the external observer. Feelings and moods can be studied scientifically, but there is a subjective element to all experience which transcends science. Transcending science is not the same, however, as transcending nature. Subjective experience does not transcend nature and to think that because something can't be reduced to the terms of an external observer one has opened the door to the supernatural is a delusion in my view.

Q. Skeptics are so negative. Why can't you be more positive?

A. Being negative can be very positive. Let me explain. There is a difference between being nihilistic and being negative in the sense of being cautious and critical before believing a claim or accepting an explanation for something. A nihilist denies the value of everything. To me, many religious people are nihilists since they deny the value of anything in this world. The leaders of religions often reject family, reproduction, the joys of the body, the pleasures of art and nature. Many saints reject this world and live as hermits or join monastic orders, rejecting human society. These are the real nihilists, the ones who are negative in a pathological way. Think of it this way: are you being "negative" when you tell a child not to play in the street or when you criticize a neighbor who sells pornography to children? Being critical and cautious, rejecting ideas, behaviors and beliefs, is often very positive in its effects.

Q. Real skeptics are agnostic; you have strong opinions and beliefs. How can you call yourself a skeptic?

A. It is true that the word 'skeptic' derives from the Greek word skeptikos (thoughtful or reflective), and a skeptic is often thought of as an inquirer, one who carefully considers things. And it is true that philosophical skepticism as advanced by the likes of the Pyrrhonists and Academic Skeptics focused on providing ways to cast doubt on any proposition. Their main concern seems to have been to demonstrate that there can be no absolute certainty. The most radical of Philosophical Skeptics maintain that one cannot even be certain that nothing is certain.

However, nothing in particular follows from accepting that apodictic claims are impossible to demonstrate. It does not follow, for example, that because nothing is certain one should suspend judgment on all claims and believe nothing. Nor does it follow that because nothing is certain one should follow the customs and traditional beliefs of one's society. Nor does it follow that because nothing is certain any belief is as good as any other belief. Nor does it follow that because nothing is certain every belief is an equal act of irrational faith. Though each of the above inferences has been drawn by various people, none of them is a valid logical inference from the proposition nothing is certain.

My choosing to believe some things and not believe others is not a direct consequence of my philosophical skepticism. I accept that nothing is certain, but the only thing that seems to follow from that is that none of my beliefs are absolutely certain, i.e., without possibility of error. Probabilities are the best we can hope for and probabilities seem to be sufficient for daily living and for science. Those who have a need for absolute certainty may not accept this but I believe their rejection of probability as sufficient for human purposes is based on feelings and emotions, not thought.

I hope it is obvious that by 'probability' I do not mean 'mathematical probability.' The mathematical probability that the sun will rise in the east tomorrow may be zero, but the probability upon which humans may reasonably rest their expectations is very, very high. Epistemologically speaking, I cannot say with absolute certainty that the sun will rise in the east tomorrow. But, if I am driving east in the morning, I will

bring my sunglasses and not feel in the least that I am acting on faith or that I could just as well get where I want to go by heading west.

Finally, the word 'skeptic' is used today to refer either to one who instinctively or habitually doubts, questions, or disagrees with assertions or generally accepted conclusions or one who doubts the existence of God and the claims of revelation or a philosophical skeptic, i.e., one who believes that absolute knowledge is impossible and that inquiry must be a process of doubting in order to acquire approximate or relative certainty. Each of these meanings is consistent with the practice of systematically rejecting as highly improbable occult, supernatural, paranormal and pseudoscientific claims.

Q. Real skeptics are open-minded; you are closed-minded towards beliefs in the occult, supernatural and paranormal. How can you call yourself a skeptic?

A. Being open-minded does not mean that one has an obligation to examine every crackpot idea or claim made. I have spent years examining occult and supernatural claims. When someone says they've been abducted by aliens, but they have no physical evidence of their abduction, I feel no need to investigate the issue further. If their only proof is that they can't remember what happened to them for a few hours or days--a common claim by alleged abductees--then my hunch is that there is a natural explanation for their memory loss. For example, they're lying because they don't want anyone to know where they really were, or they passed out from natural or self-induced causes; they then dreamt or hallucinated.

When someone claims to be God or to hear voices he says come from God, I assume he is mistaken or a fraud. Am I closed-minded? I don't think so. However, many years ago, when I heard for the first time about UFOs and alien abductions, I would have been closed-minded had I not investigated the matters. I have also studied many cases of people who claimed to be gods or reincarnations of dead persons. So, when a young man in Texas who thinks he's a god shoots at federal agents, it neither surprises me nor does it instill in me any urge to investigate the man's divinity claim. Am I closed-minded? Again, I don't think so. Once a person has studied an issue in depth, to be open-minded does not mean you must leave the door open and let in any harebrained idea that blows your way. Your only obligation is to not lock the door behind you. If someone claims to have alien body parts or vehicle parts, by all means let's examine the stuff. If someone is turning water into wine or raising the dead by an act of will, I'll be the first to reconsider my opinion about human divinities.

An open-minded person who is inexperienced and uninformed will need to be willing to investigate issues that an experienced and informed person need not pursue. An open-minded thinker must find things out for herself, but once she has found them out she does not become closed-minded simply because her opinion is now informed! So, the next time you hear some defender of astral projection, past-life regression or alien abductions accuse a skeptic of being "closed-minded," give thought to the possibility that the skeptic isn't closed-minded. Perhaps she has arrived at an informed belief.

Q. Your arguments are always one-sided. You never give the arguments in favor of ESP, magick, miracles, or inventions which claim to violate the laws of nature. Why? To be fair, shouldn't you be giving both sides of the issue?

A. If I had written a different book, say one called A Critical Thinker's Approach to Weird Beliefs, my arguments would be different. In that case, I would have presented the best arguments from any side on an issue and let the reader decide which argument, if any, to accept. But I didn't write that kind of book. I wrote a book which would provide the reader with the best skeptical arguments and references to the best skeptical literature on occult, supernatural, paranormal and pseudoscientific claims. Non-skeptical materials on these matters are abundant. My purpose is to provide some balance in an otherwise unbalanced publishing world.

Q. What good is skepticism? Really, what value is there in being skeptical?

A. Carl Sagan's essay on the Baloney Detection Kit in The Demon-Haunted World says it best. I think skepticism is most valuable when seeking and evaluating information. Recently, I have been researching mental illness, especially depression and bipolar disorder. One book I'm reading is by a psychiatrist, another by an M.D. who is neither a psychiatrist nor a practicing physician. The psychiatrist is an active researcher and practitioner; the non-psychiatrist did not do an internship after graduating from Harvard Medical School, but went to India for several years on some sort of spiritual quest. The non-psychiatrist, Andrew Weil, is famous; the psychiatrist is not. The non-psychiatrist has his own public television specials, his own WWW page and a couple of best-selling books, including one called Spontaneous Healing. There is one page devoted to depression in the book. The author says something like "the only thing I've ever seen which works for depression is" and then he lists a few vitamins, minerals and amino acids, as well as aerobic exercise. He gives no reasons as to why these remedies might work. The reader must believe on faith that they do.

The psychiatrist, on the other hand, lists dozens of physical disorders whose effects mimic those of depression. I am led to believe that some people might appear to be depressed because of a vitamin or mineral deficiency or because of lack of exercise. I am also led to believe that real depression is a neurochemical problem of extreme complexity. The psychiatrist cites research and case studies, and makes arguments to support his points.

I am skeptical of Dr. Weil's claim. To accept on faith what he says could prove disastrous. Doubting claims which might prove harmful seems to be one good reason for being skeptical.

A person I know claims he is being followed by the FBI and the CIA. He claims license plates which begin with a 5 are bad and the drivers of such vehicles are out to get us. I am skeptical of these claims because this person is insignificant and is likely to be of no interest to any government agency except perhaps the IRS. He has no explanation for how the bad guys all have license plates which start with the same number. I have no good reasons for believing his claims. They are most likely false and the result of delusions caused by an imbalance in his brain chemistry. Being skeptical of his claims keeps me from accepting falsehoods and delusional notions whose value is dubious at best.

But why a general skepticism regarding supernatural, occult or paranormal claims? Basically the same reasons as given above: requiring evidence and arguments for claims, not taking claims on faith, rejecting delusional notions because of their dubious truth and practical value, distinguishing between competent and incompetent argument and research, and accepting as probable those claims which are supported by solid evidence, seem imminently reasonable and practical.

In fact, I find it appalling that anyone would wonder why I choose not to base my beliefs on wishes, desires, hopes, falsehoods, delusions, fantasies, fictions, and deceptions.

Furthermore, the value of skepticism can be seen by examining history. The medieval and Spanish Inquisitions and the Holocaust were the result of arrogance and dogma. A religious or political institution governed by skeptics would be much more humane and healthy than one governed by arrogant dogmatists. Both toleration and modern scientific methodologies emerged from seventeenth century British Empiricism, which, at its core, rejected the Rationalist's love of metaphysics and demand for absolute certainty. Few of us are well-served by politicians who proclaim, as California governor Pete Wilson did, that he is "absolutely certain" that a man committed the crimes of rape and murder for which he was convicted 16 years ago. Thomas Martin Thompson may be guilty of rape and murder. He may even deserve to die. But no one, not even Pete Wilson, can be absolutely certain Thompson committed those crimes.

Q. Didn't Descartes, with his cogito ergo sum, prove that at least some things are absolutely certain, e.g., that I exist?

A. Descartes thought he proved that it is absolutely certain that God exists and a whole lot of other things. See his Meditations on First Philosophy. Many of the claims which Descartes claimed were absolutely certain are referred to as analytic claims: their truth is a matter of convention and depends entirely upon semantics or syntax, not empirical discovery. Other claims Descartes thought were absolutely certain, such as the claim that "God exists," are neither absolutely certain nor analytic. "2+2=4" is true for certain definitions of '2', '+' and '=' and '4' and false for other definitions, e.g., adding 2 raindrops to 2 raindrops does not give 4 raindrops, and mixing 2 liters of water with 2 liters of alcohol does not yield 4 liters of liquid. Words or signs rarely have meanings independent of other words and signs. Whether a statement is true or not depends upon what it means, and what it means depends upon its context--especially the context of its interconnectedness with other words or signs--and the background against which the meaning of the words and signs are learned.

Q. How do you respond to criticisms of skepticism like that of Robert Anton Wilson, who labels skeptics as "irrational rationalists" and accuses skeptics of launching a "New Inquisition"?

A. First, I would say that Wilson doesn't know the difference between a philosophical Skeptic and an ordinary skeptic. Secondly, I would agree with what Carl Sagan wrote in *The Demon-Haunted World*: "no skeptic compels belief...New Agers are not...being called up before criminal tribunals, nor whipped for having visions, and they are certainly not being burned at the stake" (Sagan p. 301). Being open-minded shouldn't mean being gullible. There is little virtue in being so uncritical as to consider every idea the equal of every other idea. Reasonable people learn from experience and distinguish ideas which have failed from those which those have passed rigorous empirical tests. Reasonable people don't believe things just because they are possibly true. Reasonable people distinguish probable from improbable ideas and notions. Reasonable people trust impersonal testing such as control group, double-blind studies, and have learned from experience the dangers of wishful thinking, communal reinforcement, confirmation bias, cold reading, and subjective validation. One does not become irrational or an inquisitor by criticizing and



challenging claims that are near zero in probability. The charge is especially ludicrous in an age where an ordinary skeptic is not nearly as likely as a channeler or a medium to be a guest on a popular television program such as Oprah Winfrey or Larry King. Skeptics are certainly not persecuted, but they are not considered mainstream entertainment and they do not get nearly the hearing that New Age or UFO stories get. The real Inquisitors had the backing of the people, as well as the backing of the Church. Most scientists might be skeptical of most paranormal and supernatural claims, but that kind of skepticism has no weight or authority in Science. And, sad to say, the vast majority of people seem sympathetic not with skeptics but with those we criticize. If skeptics are engaging in an inquisition it is the strangest inquisition imaginable, run as it is by no central authority and led by people the masses don't recognize and would ignore or shout down if they did recognize.

Q. How do you get out of bed in the morning? I mean, if you have no faith, what can you hope for? If you can't pray to God, how can you deal with life's tragedies? If you can't believe in fairies, ghosts and magical things like crystals and mermaids, how can life be interesting for you? Yours seems to be a cold, dull, sad existence, void of any magic.

A. I suppose I could just stay in bed and delude myself that I actually am up and about, that I shot a 64 at Pebble Beach, that I discovered a cure for cancer, that my parents are still alive in another town and that I brokered the first long-lasting peace in the Middle East. Even though I could delude myself into believing that it is possible that my delusions are not really delusions, would I thereby make my life "magical"? Would my false hope be better than no hope at all? I don't think so.

I have faced my share of life's sufferings and troubles, some of them when I was young and believed in God, but most of them when I was older and an atheist. I can't say that belief in God made it any easier, much less that it gave me hope in a time of need. Knowing that others have suffered more than I have and that one cannot live without expecting a fair amount of pain and suffering, gives me more solace than belief in God. I would wonder, if I believed in God, why such cruelty and misery are allowed. I would not be comforted by the notion that it is a mystery but surely it is for some good reason. Why should such an idea comfort me? If your government took away your only child and told you it was for a good reason, would that comfort you? If I believed that God was allowing excessive misery for some good reason, that would make it more, not less, difficult for me to accept it.

There is nothing dull about a life without fairies, Easter bunnies, devils, ghosts, magic crystals, etc. Life is only boring to boring people. True, it is difficult to enjoy the simple pleasures of a walk in the park or a trip to the beach when your best friend has just been murdered. It is impossible to enjoy a good book or study a new subject in depth to expand one's knowledge when your house and all your worldly possessions have just been destroyed by fire. The joy of traveling is extinguished by being robbed. You cannot control the murderer, the lightning, the thief. But you may be able to control how you respond to them. You may not be able to overcome grief alone, and having a loving companion and family makes it easier to deal with life's tragedies. I must say, however, that I have not seen the evidence that theists deal with human suffering any better than atheists do. How we face suffering has more to do with our character, our biology and our luck than it does with our belief or disbelief in magic or higher powers.

R. T. Carroll - July 31, 1997

#### Abracadabra

Abracadabra is a mystical word used to magically invoke benevolent spirits for protection against disease. The expression is also used by modern magicians as they pretend to invoke paranormal or supernatural powers to aid in their illusions. This magical formula may be related to the word 'abraxas', which was found on many amulets during the last years of the Roman Empire and is thought to have originated with the Gnostics or the Egyptians. In any case, abracadabra is just as effective as abraxas or hocus-pocus.

#### Acupuncture

Acupuncture is a traditional Chinese medical technique for manipulating chi (ch'i or qi) in order to balance the opposing forces of yin and yang. Chi, an alleged "energy" which permeates all things, is believed to flow through the body along 14 main pathways called meridians. When yin and yang are in harmony, chi flows freely within the body and a person is healthy. When a person is sick, diseased, or injured it is believed that there is an obstruction of chi along one of the meridians. Acupuncture consists of inserting needles through particular points on the body, allegedly removing unhealthy obstructions of chi and thereby restoring the distribution of yin and yang. Sometimes the needles are twirled, heated, or even stimulated with weak electrical current, ultrasound or certain wavelengths of light. But no matter how it is

done, scientific research over the past twenty years has failed to demonstrate that acupuncture is effective against any disease.

A variation of traditional acupuncture is called auriculotherapy or ear acupuncture. It is a method of diagnosis and treatment based on the unsubstantiated belief that the ear is the map of the bodily organs. A problem with an organ such as the liver is to be treated by sticking a needle into a certain point on the ear which is supposed to be the corresponding points for that organ. Similar notions about a part of the body being an organ map are held by iridologists (the iris is the map of the body) and reflexologists (the foot is the map of the body). A variation of auriculotherapy is staplepuncture, a method of treatment which puts staples at key points on the ear hoping to do such wonderful things as help people stop smoking. There is no supportive scientific evidence for any of these theories or practices.

Acupuncture has been used in China for more than 4,000 years to alleviate pain and cure disease. Traditional Chinese medicine is not based upon knowledge of modern physiology, biochemistry, nutrition, anatomy or any of the known mechanisms of healing. Nor is it based on knowledge of cell chemistry, blood circulation, nerve function, or the existence of hormones or other biochemical substances. There is no correlation between the meridians used in traditional Chinese medicine and the actual layout of the organs and nerves in the human body. The National Council for Reliable Health Information (NCRHI) notes that of the 46 medical journals published by the Chinese Medical Association, none of them is devoted to acupuncture or other traditional Chinese medical practices. (NCRHI was formerly known as The National Council Against Health Fraud, Inc. It is a private nonprofit, voluntary health agency that focuses upon health misinformation, fraud, and quackery as public health problems.) Nevertheless, it is estimated that somewhere between 10 and 15 million Americans spend approximately \$500 million a year on acupuncture for everything from relieving pain to treating drug addiction to fighting AIDS.

The UCLA medical schools has one of the largest acupuncture training courses in the United States for licensed physicians. The 200-hour program teaches nearly 600 physicians a year. According to the American Academy of Medical Acupuncture, about 4,000 U.S. physicians have training in acupuncture.\*

Despite a lack of scientific support, acupuncture is used in the treatment of depression, allergies, asthma, arthritis, bladder and kidney problems, constipation, diarrhea, colds, flu, bronchitis, dizziness, smoking, fatigue, gynecologic disorders, headaches, migraines, paralysis, high blood pressure, PMS, sciatica, sexual dysfunction, stress, stroke, tendonitis and vision problems. Thus, it seems that while China is moving forward in the scientific treatment of illness and disease, many in America and other parts of the world are moving backward, looking for metaphysical answers to their physical problems.

In March, 1996, the Federal Drug Administration (FDA) classified acupuncture needles as medical devices for general use by trained professionals. Until then, acupuncture needles had been classified as Class III medical devices, meaning their safety and usefulness was so uncertain that they could only be used in approved research projects. Because of that "experimental" status, many insurance companies, as well as Medicare and Medicaid, had refused to cover acupuncture. This new designation has meant both more practice of acupuncture and more research being done using needles. It also means that insurance companies may not be able to avoid covering useless or highly questionable acupuncture treatments for a variety of ailments. Nevertheless, Wayne B. Jonas, director of the Office of Alternative Medicine at the National Institutes of Health in Bethesda, MD, has said that the reclassification of acupuncture needles is "a very wise and logical decision". The Office of Alternative Medicine is very supportive (i.e. willing to spend good amounts of tax dollars) on new studies of the effectiveness of acupuncture. However, because of the nature of acupuncture, what will be tested in America and other western countries, will not be acupuncture, but something much more narrow. We will be testing the effectiveness of sticking needles into muscles. If doing this lowers blood pressure, for example, it will not be a validation of acupuncture because traditional Chinese acupuncture is not a scientific theory, but a metaphysical one. And metaphysical theories can't be empirically tested. How a physical needle affects a metaphysical entity such as chi is not likely to be addressed by those testing acupuncture. Of course, the positive side of this is that traditional acupuncture can't be disproved, either. There is a perfect harmony here between proof and disproof: each is impossible.

Perhaps the most frequently offered defense of acupuncture by its defenders in both the East and West is the pragmatic defense: acupuncture works! What does that really mean? It certainly does not mean that sticking needles into one's body opens up blocked chi. At most, it means that it relieves some medical burden. The NCAHF has issued a position paper which asserts that "Research during the past twenty years has failed to demonstrate that acupuncture is effective against any disease" and that "the perceived effects of acupuncture are probably due to a combination of expectation, suggestion, counter-irritation, operant conditioning, and other psychological mechanisms...." In short, most of the perceived beneficial effects of acupuncture are probably due to the power of suggestion and the placebo effect.

The most common claim of success by acupuncture advocates is in the area of pain control. Studies have shown that many acupuncture points are more richly supplied with nerve endings than are the surrounding skin areas. There is some research which indicates sticking needles into certain points affects the nervous system and stimulates the body's production of such natural painkilling chemicals as endorphins and

enkephalins, and triggers the release of certain neural hormones including serotonin. Another theory suggests that acupuncture blocks the transmission of pain impulses from parts of the body to the central nervous system. These theories regarding chemical stimulation and blockage of nerve signals are empirically testable. They are couched in terms of the western scientific view of the body's anatomical and neurological system. Even here, however, most of the evidence for the effectiveness of acupuncture is identical to the majority of evidence we have for any so-called "alternative" health practice: it is mainly anecdotal. Unfortunately, for every anecdote of someone whose pain was relieved by acupuncture there is another anecdote of someone whose pain was not relieved by acupuncture. For some, the relief is real but short-lived. The treatment is akin to anesthesia. The patient has to be assisted with walking afterwards, driven home, feels good for awhile, and then the pain returns within a day or two. All we know for sure right now is that sticking needles in people at various traditional acupuncture points often seems to be effective in alleviating pain. However, most pain researchers agree that 30% to 35% of subjects' pain improves from suggestion or the placebo effect no matter what treatment is used.

There are other difficulties which face any study of pain. Not only is pain measurement entirely subjective, traditional acupuncturists evaluate success of treatment almost entirely subjectively, relying on their own observations and reports from patients, rather than objective laboratory tests. Furthermore, many individuals who swear by acupuncture (or therapeutic touch, reiki, iridology, meditation, mineral supplements, etc.) often make several changes in their lives at once, thereby making it difficult to isolate significant causal factors in a control study.

If control studies show that sticking needles into people really does help drug addicts or cure AIDS, will acupuncturists claim vindication? Will they say that chi flows along the same paths as the blood and nerve impulses, that there is a parallel universe to the physical one, a sort of pre-established harmony between chi/yin/yang and the physical body? Theoretically, whatever is demonstrated regarding the stimulation of endorphins, for example, may be claimed to be also due to chi, despite the uselessness and superfluousness of the theory. But what happens if it turns out that sticking needles into people doesn't lower high blood pressure or cure bronchitis? Will that be taken as proof that chi is a chimera?

Some of the acupuncture studies supported by the Office of Alternative Medicine at the National Institutes of Health try to mimic traditional control group studies, but no control study can test for the presence of chi, yin, yang or any other metaphysical entity. Some studies have been tried where patients were randomly divided into those who would receive treatment with acupuncture and those who would receive "sham acupuncture." The latter treatment consisted of acupuncture needles being inserted at the "wrong" points (i.e., not one of the 500 traditional points). It seems very unwise to compare people stuck with a needle in a "right" point versus a "wrong" point, unless you already know that sticking people can help alleviate pain and you are just trying to find the right place to stick them. The false point stickings were said to be analogous to a placebo treatment, but are they? If better results are achieved by sticking the traditional points, does that confirm traditional acupuncture? Of course not. What such a result would show is that after 4,000 years the Chinese had figured out the best places to stick to relieve pain, etc. But no such study will reveal if chi was unblocked or if yin and yang are in or out of harmony. Control studies using objective measurements of treatment success could determine, however, how much of the success of acupuncture is due to nothing more than subjective assessment by interested parties. Such studies could also determine whether any effects of acupuncture are short-term or long-term.

Finally, is any harm being done to people who are undergoing acupuncture? Well, besides those who are not being treated for diseases or injuries which modern medicine could treat effectively, there are some other risks. There have been some reports of lung and bladder punctures, some broken needles, and some allergic reactions to needles containing substances other than surgical steel. Acupuncture may be harmful to the fetus in early pregnancy since it may stimulate the production of adrenocorticotrophic hormone (ACTH) and oxytocin which affect labor. Then of course, there is always the possibility of infection from unsterilized needles.

#### Ad Hoc Hypothesis

An ad hoc hypothesis is one created to explain away facts that seem to refute one's theory. Ad hoc hypotheses are common in paranormal research and in the work of pseudoscientists. For example, ESP researchers have been known to blame the hostile thoughts of onlookers for unconsciously influencing pointer readings on sensitive instruments. The hostile vibes, they say, made it impossible for them to duplicate a positive ESP experiment. Being able to duplicate an experiment is essential to confirming its validity. Of course, if this objection is taken seriously, then no experiment on ESP can ever fail. Whatever the results, one can always say they were caused by paranormal psychic forces, either the ones being tested or others not being tested.

Martin Gardner reports on this type of ad hoc hypothesizing reaching a ludicrous peak with parapsychist Helmut Schmidt who put cockroaches in a box where they could give themselves electric shocks. One would assume that cockroaches do not like to be shocked and would give themselves shocks at a chance

rate or less, if cockroaches can learn from experience. The cockroaches gave themselves more electric shocks than predicted by chance. Schmidt concluded that "because he hated cockroaches, maybe it was his pk that influenced the randomizer!" (Gardner, p. 59)

Ad hoc hypotheses are common in defense of the pseudoscientific theory known as biorhythm theory. For example, there are very many people who do not fit the predicted patterns of biorhythm theory. Rather than accept this fact as refuting evidence of the theory, a new category of people is created: the arrhythmic. In short, whenever the theory does not seem to work, the contrary evidence is systematically discounted. Advocates of biorhythm theory claimed that the theory could be used to accurately predict the sex of unborn children. However, W.S. Bainbridge, a professor of sociology at the University of Washington, demonstrated that the chance of predicting the sex of an unborn child using biorhythms was 50/50, the same as flipping a coin. An expert in biorhythms tried unsuccessfully to predict accurately the sexes of the children in Bainbridge's study based on Bainbridge's data. The expert's spouse suggested to Bainbridge an interesting ad hoc hypothesis, namely, that the cases where the theory was wrong probably included many homosexuals with indeterminate sex identities!

Astrologers are often fond of using statistical data and analysis to impress us with the scientific nature of astrology. Of course, a scientific analysis of the statistical data does not always pan out for the astrologer. In those cases, the astrologer can make the data fit the astrological paradigm by the ad hoc hypothesis that those who do not fit the mold have other, unknown influences that counteract the influence of the dominant planets.

Using ad hoc hypotheses is not limited to pseudoscientists. Another type of ad hoc hypothesis occurs in science when a new scientific theory is proposed which conflicts with an established theory and which lacks an essential explanatory mechanism. An ad hoc hypothesis is proposed to explain what the new theory cannot explain. For example, when Wegener proposed his theory of continental drift he could not explain how continents move. It was suggested that gravity was the force behind the movement of continents, though there was no scientific evidence for this notion. In fact, scientists could and did show that gravity was too weak a force to account for the movement of continents. Alexis du Toit, a defender of Wegener's theory, argued for radioactive melting of the ocean floor at continental borders as the mechanism by which continents might move. Stephen Jay Gould noted that "this ad hoc hypothesis added no increment of plausibility to Wegener's speculation." (Gould, p. 160)

Finally, rejecting explanations that require belief in occult, supernatural or paranormal forces in favor of simpler and more plausible explanations is called applying Occam's razor. It is not the same as ad hoc hypothesizing. For example, let's say I catch you stealing a watch from a shop. You say you did not steal it. I ask you to empty your pockets. You agree and pull out a watch. I say, "Aha!, I was right. You stole the watch." You reply that you did not steal the watch, but you admit that it was not in your pocket when we went into the store. I ask you to explain how the watch got into your pocket and you say that you used telekinesis: you used your thoughts to transport the watch out of a glass case into your pocket. I ask you to repeat the act with another watch and you say "ok." Try as you will, however, you cannot make a watch magically appear in your pocket. You say that there is too much pressure on you to perform or that there are too many bad vibes in the air for you to work your powers. You have offered an ad hoc hypothesis to explain away what looks like a good refutation of your claim. My hypothesis that the watch is in your pocket because you stole it, is not an ad hoc hypothesis. I have chosen to believe a plausible explanation rather than an implausible one. Likewise, given the choice between believing that my headache went away of its own accord or that it went away because some nurse waved her hands over my hand while chanting a mantra, I will opt for the former every time.

It is always more reasonable to apply Occam's razor than to offer speculative ad hoc hypotheses just to maintain the possibility of something supernatural or paranormal.

## Afrocentrism

Afrocentrism is a pseudohistorical political movement that erroneously claims that African-Americans should trace their roots back to ancient Egypt because it was dominated by a race of black Africans. Some of Afrocentrism's other claims are: the ancient Greeks stole their main cultural achievements from black Egyptians; Jesus, Socrates and Cleopatra, among others, were black; and Jews created the slave trade of black Africans.

The main purpose of Afrocentrism is to encourage black nationalism and ethnic pride as a psychological weapon against the destructive and debilitating effects of universal racism.

Some of Afrocentrism's leading proponents are Professor Molefi Kete Asante of Temple University; Professor Leonard Jeffries of City University of New York; and Martin Bernal, author of Black Athena.

One of the more important Afrocentric texts is the pseudo-historical *Stolen Legacy* (1954) by George G. M. James. Mr. James claims, among other things, that Greek philosophy and the mystery religions of Greece and Rome were stolen from Egypt; that the ancient Greeks did not have the native ability to develop philosophy; and that the Egyptians from whom the Greeks stole their philosophy were black Africans. Many of James' ideas were taken from Marcus Garvey (1887-1940), who thought that white accomplishment is due to teaching children they are superior. If blacks are to succeed, he said, they would have to teach their children that they are superior.

James's principal sources were Masonic, especially *The Ancient Mysteries and Modern Masonry* (1909) by the Rev. Charles H. Vail. The Masons in turn derived their misconceptions about Egyptian mystery and initiation rites from the eighteenth century work of fiction *Sethos, a History or Biography*, based on *Unpublished Memoirs of Ancient Egypt* (1731) by the Abbe Jean Terrason, a professor of Greek. Terrason had no access to Egyptian sources and he would be long dead before Egyptian hieroglyphics could be deciphered. But Terrason knew the Greek and Latin writers well. So he constructed an imaginary Egyptian religion based upon sources which described Greek and Latin rites as if they were Egyptian (Lefkowitz). Hence, one of the main sources for Afrocentric Egyptology turns out to be Greece and Rome. The Greeks would have called this irony. I don't know what Afrocentrists call it.

James's pseudo-history is the basis for other Afrocentric pseudo-histories such as *Africa, Mother of Western Civilization* by Yosef A.A. ben-Jochannan, one of James's students, and *Civilization or Barbarism* by Cheikh Anta Diop of Senegal.

Afrocentrism is being taught in many universities and colleges, and is the basis of an entire curriculum for children in two Milwaukee schools.

### Agnosticism

Agnosticism is the position of believing that knowledge of the existence or non-existence of God is impossible. It is often put forth as a middle ground between theism and atheism. Understood this way, agnosticism is skepticism regarding all things theological. The agnostic holds that human knowledge is limited to the natural world, that the mind is incapable of knowledge of the supernatural. Understood this way, an agnostic could also be a theist or an atheist. The former is called a fideist, one who believes in God purely on faith. The latter is sometimes accused by theists of having faith in the non-existence of God, but the accusation is absurd and the expression meaningless. The agnostic atheist simply finds no compelling reason to believe in God.

The term 'agnostic' was created by T. H. Huxley (1825-1895), who took his cue from David Hume and Immanuel Kant. Huxley says that he invented the term to describe what he thought made him unique among his fellow thinkers:

They were quite sure that they had attained a certain "gnosis" -- had more or less successfully solved the problem of existence; while I was quite sure I had not, and had a pretty strong conviction that the problem was insoluble.

'Agnostic' came to mind, he says, because the term was "suggestively antithetic to the 'gnostic' of Church history, who professed to know so much about the very things of which I was ignorant...." Huxley seems to have intended the term to mean that metaphysics is, more or less, bunk. In short, he seems to have agreed with Hume's conclusion at the end of *An Enquiry Concerning Human Understanding*:

When we run over libraries, persuaded of these principles, what havoc must we make? If we take in our hand any volume; of divinity or school metaphysics, for instance; let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion.\*

Kant's *Critique of Pure Reason* resolved some of the main epistemological issues raised by Hume, but at the expense of rejecting the possibility of knowing anything beyond appearances of phenomena. We can't know God but the idea of God is a practical necessity, according to Kant.

### Akashic Record

The Akashic record is an imagined spiritual realm, supposedly holding a record of all events, actions, thoughts and feelings that have ever occurred or will ever occur. Theosophists believe that the Akasha is an "astral light" containing occult records which spiritual beings can perceive by their special "astral

senses" and "astral bodies". Clairvoyance, spiritual insight, prophecy and many other untestable metaphysical and religious notions are made possible by tapping into the Akasha.

## Alchemy

Alchemy is an occult art and pseudoscience. Its practitioners' main goals have been

to turn base metals (like lead or copper) into precious metals (like gold or silver) (the transmutation motif); to create an elixir or potion or metal which could cure all ills (the medical motif), and discover an elixir which would lead to immortality (the transcendence motif).

The magical substance that was to transmute metals, to be the universal panacea and to serve as the key to immortality was called the philosopher's stone.

Alchemy is based on the belief that there are four basic elements--fire, air, earth and water--and three essentials: salt, sulfur and mercury. Great symbolic and metaphysical systems have been built from these seven pillars of alchemy. Ancient Chinese and Egyptian occult literature are said to be the foundation upon which alchemy is based. Alchemy was very popular in medieval Europe where one of the most sacred books of the alchemists was allegedly written by the Egyptian god Thoth, known as Hermes Trismegistus (Hermes = the thrice-blessed). (Hermes was the Greek god who served as a messenger and delivered the souls of the dead to Hades.) In 1455, a manuscript entitled Corpus Hermeticum began circulating in Florence, Italy. It was allegedly a compilation of the alchemical, astrological and magical knowledge of the Egyptian god. However, it is now known that the work was of European origin and dates from somewhat after the time Thoth prospered. The work is full of magic spells and incantations and other useless occult notions.

Today, the transmutation motif is largely ignored, while the transcendence and medical motifs are still going strong in areas such as homeopathy and aromatherapy. Many modern alchemists combine their occult art with astrology, acupuncture, hypnosis and a wide variety of New Age spiritual quests. Unlike modern chemistry, which grew out of alchemy, the ancient art is heavily spiritual. Alchemists may have been the first ones to try out their ideas by devising experiments, but because of their intensely metaphysical purposes and beliefs, alchemists did not develop modern scientific methods. Alchemy never separated itself from the supernatural, the magical and the superstitious. Perhaps that is why it is still popular, even though it has accomplished practically nothing of lasting value. Alchemists never transmuted metals, never found a panacea, and never discovered the fountain of youth.

Some alchemists did make contributions to the advancement of knowledge, however. For example, Paracelsus (1493-1541) introduced the concept of disease to medicine. He rejected the notion that disease is a matter of imbalance or disharmony in the body, even though this view is favored by modern alchemists. Instead, Paracelsus maintained that disease is caused by agents outside of the body which attack it. He recommended various chemicals to fight disease.

Alchemy continues to prosper among the anti-scientific. Robin Murphy, for example, has joined alchemy with homeopathy and astrology to create his own brand of alternative medicine. The Alchemical Institute advertises Alchemical Hypnotherapy for those seeking a New Age empowerment therapy based on occult pseudoscience. Alchemist John Reid promises health and success in the search for the QUINTESSENCE! It should be noted that science as we know it was able to develop only when the search for essences and the quintessence of things was abandoned.

## Alien Abductions

"...despite the fact that we humans are great collectors of souvenirs, not one of these persons [claiming to have been aboard a flying saucer] has brought back so much as an extraterrestrial tool or artifact, which could, once and for all, resolve the UFO mystery." Philip Klass

There is a widespread, though erroneous, belief that alien beings have traveled to earth from some other planet and are doing reproductive experiments on a chosen few. Despite the incredible nature of this belief and a lack of credible supportive evidence, a cult has grown up around the belief in alien visitations and abductions.

According to the tenets of this cult, aliens crashed at Roswell, New Mexico, in 1947. The U.S. Government recovered the alien craft and its occupants, and has been secretly meeting with aliens ever since in a place known as Area 51. The rise in UFO sightings is due to the increase in alien activity on earth. The aliens are abducting people in larger numbers, are leaving other signs of their presence in the form of so-called crop circles, are involved in cattle mutilation, and occasionally provide revelations such as the Urantia Book to selected prophets. The support for these beliefs about aliens and UFOs consists mostly of speculation,

fantasy, fraud, and unjustified inferences from questionable evidence and testimony. UFO devotees are also convinced that there is a government and mass media conspiracy to cover-up the alien activities, making it difficult for them to prove that the aliens have landed.

It is highly probable that there is life elsewhere in the universe and that some of that life is very intelligent. There is a high mathematical probability that among the trillions of stars in the billions of galaxies there are millions of planets in age and proximity to a star analogous to our Sun. The chances seem very good that on some of those planets life has evolved. It is true that until very recently [Jan. 1996], there has not been significant observational evidence that there is even one other planet outside our solar system. Nevertheless it seems highly unlikely that our part of the universe came about in a completely unique way. If so, there should be planets and moons and asteroids, etc., in all the galaxies and around many of the stars in those galaxies. The probability seems high, therefore, that there is intelligent life elsewhere in the universe, though it is possible that we are unique.

We should not forget, however, that the closest star (besides our Sun) is so far away from Earth that travel between the two would take more than a human lifetime. The fact that it takes our Sun about 200 million years to revolve once around the Milky Way gives one a glimpse of the perspective we have to take of interstellar travel. We are 500 light-seconds from the sun. The next nearest star to earth's sun (Alpha Centauri) is about 4 light-years away. That might sound close, but it is actually something like 24 trillion miles away. Even traveling at one million miles an hour, it would take more than 2,500 years to get there. To get there in twenty-five years would require traveling at more than 100 million miles an hour for the entire trip.\* Our fastest spacecraft, Voyager, travels at about 40,000 miles an hour and would take 70,000 years to get to Alpha Centauri.\*

Despite the probability of intelligent life on other planets, any signal from any planet in the universe broadcast in any direction is unlikely to be in the path of another inhabited planet. It would be folly to explore space for intelligent life without knowing exactly where to go. Yet, waiting for a signal might require a wait longer than any life on any planet might last. Finally, if we do get a signal, the waves carrying that signal left hundreds or thousands of years earlier and by the time we tracked its source down, the sending planet may no longer be habitable or even exist.

Thus, while it is probable that there is intelligent life in the universe, traveling between solar systems in search of that life poses some serious obstacles. Such travelers would be gone for a very long time. We would need to keep people alive for hundreds or thousands of years. We would need equipment that can last for hundreds or thousands of years and be repaired or replaced in the depths of space. These are not impossible conditions, but they seem to be significant enough barriers to make interstellar and intergalactic space travel highly improbable. The one thing necessary for such travel that would not be difficult to provide would be people willing to make the trip. It would not be difficult to find many people who believe they could be put to sleep for a few hundred or thousand years and be awakened to look for life on some strange planet. They might even believe they could then gather information to bring back to Earth where they would be greeted with a ticker tape parade down the streets of whatever is left of New York City.

#### Abduction and Rape?

Despite the fact of the improbability of interplanetary travel, it is not impossible. Perhaps there are beings who can travel at very fast speeds and have the technology and the raw materials to build vessels that can travel at near the speed of light or greater. Have such beings come here to abduct people, rape and experiment on them? There have been many reports of abduction and sexual violation by creatures who are small and bald; are white, gray or green; have big craniums, small chins, large slanted eyes, and pointed or no ears. How does one explain the number of such claims and their similarity? The most reasonable explanation for the accounts being so similar is that they are based on the same movies, the same stories, the same television programs and the same comic strips.

The alien abduction story that seems to have started the cult beliefs about alien visitation and experimentation is the Barney and Betty Hill story. The Hills claim to have been abducted by aliens on September 19, 1961. Barney claims the aliens took a sample of his sperm. Betty claims they stuck a needle in her belly button. She took people out to an alien landing spot, but only she could see the aliens and their craft. The Hills recalled most of their story under hypnosis a few years after the abduction. Barney Hill reported that the aliens had "wraparound eyes," a rather unusual feature. However, twelve days earlier an episode of "The Outer Limits" featured just such an alien being (Kottmeyer). According to Robert Schaeffer, "we can find all the major elements of contemporary UFO abductions in a 1930 comic adventure, Buck Rogers in the 25th Century."

The Hill's story has been repeated many times. There is a period of amnesia following the alleged encounter. There is then usually a session of hypnosis, counseling or psychotherapy during which comes the recollection of having been abducted and experimented on. The only variation in the abductees'

stories is that some claim to have had implants put in them and many claim to have scars and marks on their bodies put there by aliens. All describe the aliens in much the same way.

Whitley Strieber, who has written several books about his alleged abductions, came to the realization he had been abducted by aliens after psychotherapy and hypnosis. Strieber claims that he saw aliens set his roof on fire. He says he has traveled to distant planets and back during the night. He wants us to believe that he and his family alone can see the aliens and their spacecraft while others see nothing. Strieber comes off as a very disturbed person, but one who really believes he sees and is being harassed by aliens. He describes his feelings precisely enough to warrant believing he was in a very agitated psychological state prior to his visitation by aliens. A person in this heightened state of anxiety will be prone to hysteria and be especially vulnerable to radically changing behavior or belief patterns. When Strieber was having an anxiety attack he consulted his analyst, Robert Klein, and Budd Hopkins, an alien abduction researcher. Then, under hypnosis, Strieber started recalling the horrible aliens and their visitations.

Hopkins demonstrated his sincerity and investigative incompetence on the public television program Nova ("Alien Abductions," first shown on February 27, 1996). The camera followed Hopkins through session after session with a very agitated, highly emotional "patient". Then Nova followed Hopkins to Florida where he cheerfully helped a visibly unstable mother inculcate in her children the belief that they had been abducted by aliens. In between more sessions with more of Hopkin's "patients", the viewer heard him repeatedly give plugs for his books and his reasons for showing no skepticism at all regarding the very bizarre claims he was eliciting from his "patients". Dr. Elizabeth Loftus was asked by Nova to evaluate Hopkin's method of "counseling" the children whose mother was encouraging them to believe they had been abducted by aliens. From the little that Nova showed us of Hopkins at work, it was apparent that Mr. Hopkins encouraged the creation of memories, though Hopkins claims he is uncovering repressed memories. Dr. Loftus noted that Hopkins did much encouraging of his "patients" to remember more details, as well as giving many verbal rewards when new details were brought forth. Dr. Loftus characterized the procedure as "risky" because we do not know what effect this "counseling" will have on the children. It seems we can safely predict one effect: they will grow up thinking they've been abducted by aliens. This belief will be so embedded in their memory that it will be difficult to get them to consider that the "experience" was planted by their mother and cultivated by alien enthusiasts like Hopkins.

John Mack

Another alien enthusiast is Harvard psychiatrist Dr. John Mack, who has written books about his patients who claim to have been abducted by aliens. Many of Mack's patients have been referred to him by Hopkins. Dr. Mack claims that his psychiatric patients are not mentally ill (then why is he treating them?) and that he can think of no other explanation for their stories than that they are true. However, until the good doctor or one of his patients produces physical evidence that abductions have occurred, it seems more reasonable to believe that he and his patients are deluded or frauds. Of course, the good doctor can hide behind academic freedom and the doctor/patient privacy privilege. He can make all the claims he wants and refuse to back any of them up on the grounds that to do so would be to violate his patients' rights. He can then publish his stories and dare anyone to take away his academic freedom. He is in the position any con person would envy: he can lie without fear of being caught.

Dr. Mack also appeared on the Nova "Alien Abductions" program. He claimed that his patients are otherwise normal people, which is a debatable point if his patients are anything like Hopkin's patients who appeared on the program. Mack also claimed that his patients have nothing to gain by making up their incredible stories. For some reason it is often thought by intelligent people that only morons are deceived or deluded and that if a person's motives can be trusted then his or her testimony can be trusted, too. While it is true that we are justified in being skeptical of a person's testimony if she has something to gain by the testimony (such as fame or fortune), it is not true that we should trust any testimony given by a person who has nothing to gain by giving the testimony. An incompetent observer, a drunk or drugged observer, a mistaken observer, or a deluded observer should not be trusted, even if he is as pure as the mountain springs once were. The fact that a person is kind and decent and has nothing to gain by lying does not make him or her immune to error in the interpretation of their perceptions.

One thing Dr. Mack did not note is that his patients gain a lot of attention by being abductees. Furthermore, no mention was made of what he and Hopkins have to gain in fame and book sales by encouraging their clients to come up with more details of their "abductions". Mack received a \$200,000 advance for his first book on alien abductions. Mack also benefits by publicizing and soliciting funds for his Center for Psychology and Social Change and his Program for Extraordinary Experience Research. Dr. Mack, by the way, is very impressed by the fact that his patients' stories are very similar. He also believes in auras and has indicated that he believes that some of his wife's gynecological problems may be due to aliens. Harvard keeps him on staff in the name of academic freedom.

Another contributor to the mythology of alien abductions is Robert Bigelow, a wealthy Las Vegas businessman who likes to use his money to support paranormal research (see entry on Charles Tart) and who partially financed a Roper survey on alien abductions. The survey did not directly ask its 5,947



respondents if they had been abducted by aliens. Instead it asked them if they had undergone any of the following experiences:

--Waking up paralyzed with a sense of a strange person or presence or something else in the room.

--Experiencing a period of time of an hour or more, in which you were apparently lost, but you could not remember why, or where you had been.

--Seeing unusual lights or balls of light in a room without knowing what was causing them, or where they came from.

--Finding puzzling scars on your body and neither you nor anyone else remembering how you received them or where you got them.

--Feeling that you were actually flying through the air although you didn't know why or how.

Saying yes to 4 of the 5 "symptoms" was taken as evidence of alien abduction. A sixty-two page report, with an introduction by John Mack, was mailed to some 100,000 psychiatrists, psychologists and other mental health professionals. The implication was that some 4 million Americans or some 100,000,000 earthlings have been abducted by aliens. As Carl Sagan wryly commented: "It's surprising more of the neighbors haven't noticed." The timing of the mailing was impeccable: shortly before the CBS-TV miniseries based on Strieber's *Intruders*.

Some of those who claim to have been abducted by aliens are probably frauds, some are very stressed, and some are probably suffering from a severe psychiatric disorder, but most seem to be fairly normal people who are especially fantasy-prone. Most do not seem to be money grabbers, using their weird experiences as a chance to get on television or to have movies made of their lives. In other words, the testimony is often, if not mostly, made by reasonably normal people without known ulterior motives. If their claims were not so bizarre, it would be indecent to distrust many of them. Defenders of the reasonableness of belief in alien abductions point to the fact that not all of the stories can be accounted for by confabulation. However, hypnosis and other suggestive means are often used to access memories of abduction. Hypnosis is not only an unreliable method of gaining access to accurate memories, it is a method that can be very easily used to implant memories. Furthermore, it is known that people who believe they have been abducted by aliens are very fantasy prone. Being fantasy-prone is not an abnormality, if abnormality is defined in terms of minority belief or behavior. The vast majority of humans are fantasy prone, otherwise they would not believe in God, angels, spirits, immortality, devils, ESP, Bigfoot, etc. A person can function "normally" in a million and one ways and hold the most irrational beliefs imaginable, as long as the irrational beliefs are culturally accepted delusions. Little effort is put forth to try to find out why people believe the religious stories they believe, for example, but when someone holds a view outside of the culture's accepted range of delusional phenomena, there seems to be a need to "explain" their beliefs.

#### Shared Cultural Delusions

Those who claim to have been abducted by aliens may be neither crazy nor telling the truth. It might be better to think of them as sharing a cultural delusion. They are similar to the people who have near-death experiences of going down the dark tunnel to the bright light, or who see Jesus beckoning to them. These shared experiences do not prove that the experiences were not fantasies. They are likely due to similar brain states in the near-death experience, and similar life experiences and death expectations. The alternatives are not either that they are totally crazy or that they really did die, go to another world, and return to life. There is a naturalistic explanation in terms of brain states and shared cultural beliefs.

Alien abductees might also be seen as similar to mystics. Both believe they have experienced something denied to the rest of us. The only evidence for their experience is their belief that it happened and the account they give of it. There is no other evidence. The comparison of abductees to mystics is not as farfetched as it might at first seem. The accounts of mystical experiences fall into two basic categories: the ecstatic and the contemplative. Each type of mysticism has its history of anecdotes and testimonials. Like the stories of abductees, the stories of each type of mystic are very similar. Ecstatic mystics tend to describe their indescribable experiences in terms clearly analogous to sexual ecstasy. Going from darkness into the light recalls the birth experience. The contemplative mystics describe their experience of perfect peace and bliss in ways which are reminiscent of a good night's sleep. In the more advanced stages of mysticism, the experience is clearly analogous to death: a state of total unity, i.e., no diversity, no change, no anything. In short, the fact that mystical experiences are described in similar ways by mystics born in different countries and in different centuries is not evidence of the authenticity of their experiences. The similarity speaks more to the uniformity of human experience. Every culture knows of birth, sex and death.

Abductees are very much analogous not only to mystics, but to medieval nuns who believed they'd been seduced by devils, to ancient Greek women who thought they'd had sex with animals, and to women who believed they were witches. The abductees' counselors and therapists are like the priests of old who do not challenge delusional beliefs, but encourage and nurture them. They do everything in their power to establish their stories as orthodox. It will be very hard to find an abductee who has not been heavily influenced in their belief by reading stories of aliens, or books like Strieber's *Communion* or *Intruders*, or by seeing movies featuring aliens. It will be even more difficult to find an abductee who has not been greatly encouraged in their delusion by a counselor like Hopkins or a therapist like Mack. Given a great deal of encouragement by a believing community, and reinforced by the high priests of the alien abduction cult, it is not very difficult to understand why there are so many people today who believe they have been abducted by aliens.

Yet, if there are beings clever enough to travel around the universe today, there probably were some equally intelligent beings who could have done so in ancient or medieval times. The delusions of the ancients and the medievals are not couched in terms of aliens and spacecraft because these are our century's creations. We can laugh at the idea of gods taking on the form of swans to seduce beautiful women, or of devils impregnating nuns, because they do not fit with our cultural prejudices and delusions. The ancients and medievals probably would have laughed at anyone who would have claimed to have been picked up by aliens from another planet for sex or reproductive surgery. The only reason anyone takes the abductees seriously today is because their delusions do not blatantly conflict with our cultural beliefs that intergalactic space travel is a real possibility and that it is highly probable that we are not the only inhabited planet in the universe. In other times, no one would have been able to take these claims seriously.

Of course, we should not rule out wishful thinking as being at work here. Although, it is a bit easier to understand why someone would wish to have a mystical experience than it is to grasp why anyone would want to be abducted by an alien. But the ease with which we accept that a person might want to have a mystical experience is related to our cultural prejudice in favor of belief in God and the desirability of union with God. The desire to transcend this life, to move to a higher plane, to leave this body, to be selected by a higher being for some special task...each of these can be seen in the desire to be abducted by aliens as easily as in the desire to be one with God or to have an out-of-body experience (OBE).

It is possible, too, that abductees may be describing similar hallucinations due to similar brain states, as Michael Persinger argues. Likewise, the ecstatic and contemplative accounts of mystics may be similar due to similar brain states associated with bodily detachment and a sense of transcendence. Using electrodes to stimulate specific parts of the brain, Persinger has duplicated the feelings of the sensed presence and other experiences associated with near-death-experiences (NDEs), OBEs, mystical experience and the alien abduction experience. The language and symbols of birth, sex and death may be nothing but analogues for brain states. Shared recollections of experiences do not prove that the experiences were not delusions. The experience which abductees think of as an alien abduction experience may be due to certain brain states. These states may be associated with sleep paralysis or other forms of sleep disturbances, including mild brain seizures. Sleep paralysis is a condition which occurs in that state just before a person drops off to sleep (the hypnagogic state) or just before they fully awaken from sleep (the hypnopompic state). The condition is characterized by being unable to move or speak. It is often associated with a feeling that there is some sort of presence, a feeling which often arouses fear but is also accompanied by an inability to cry out. The paralysis may last only a few seconds or longer. The description of the symptoms of sleep paralysis is very similar to the description many alien abductees give of what they remember experiencing. Sleep paralysis is thought by some to account for not only many alien abduction delusions, but also other delusions involving paranormal or supernatural experiences.

There are, of course, certain psychiatric disorders which are characterized by delusions. Many people with these disorders are treated with drugs which affect the production or functioning of neurotransmitters. The treatments are very successful in eliminating the delusions. Persinger has treated at least one person with anti-seizure medication which effectively stopped her from having recurring experiences of the type described by alien abductees and those with sleep paralysis. Countless schizophrenics and manic-depressives, when properly medicated, cease having delusions about God, Satan, the FBI, the CIA, and aliens.

Even though the stories of alien abduction do not seem plausible, if there were physical evidence even the most hardened skeptic would have to take notice. Unfortunately, the only physical evidence that is offered is insubstantial. For example, so-called "ground scars" allegedly made by UFOs have been offered as proof that the aliens have landed. However, when scientists have examined these sites they have found them to be quite ordinary and the "scars" to be little more than fungus and other natural phenomena.

Many abductees point to various scars and "scoop marks" on their bodies as proof of abduction and experimentation. These marks are not extraordinary in any way and could be accounted for by quite ordinary injuries and experiences.

The most dramatic type of physical evidence would be the "implants" which many abductees claim the aliens have put up their noses or in various other parts of their anatomy. Budd Hopkins claims he has examined such an implant and has MRIs (magnetic resonance imaging) to prove numerous implant claims. When Nova put out an offer to abductees to have scientists analyze and evaluate any alleged implants, they did not get a single person willing to have their so-called implants tested or verified. So, of all the evidence for abduction, the physical evidence seems to be the weakest.

### Allopathy

Allopathy is a term used by homeopaths, naturopaths, chiropractors and other advocates of alternative health practices to refer to traditional medicine. My Random House Dictionary of the English Language (unabridged edition) defines allopathy as "the method of treating disease by the use of agents that produce effects different from those of the disease treated (opposed to homeopathy)." The word was invented by homeopath Samuel Hahnemann as a term for those who are other than homeopaths. In America, the term has not caught on and is used mainly by "alternative" practitioners and some osteopaths.

### Alphabiotics

Alphabiotics is an alternative medical practice which is based on the notion that "all disease is the result of an imbalance and lack of Life Energy." Health depends on "aligning" and "balancing" this energy. Energy medicine has been popular in ancient China for centuries, where the energy is called ch'i and in India where it is called prana. Energy medicines are based upon variants of the metaphysical theory known as vitalism.

In energy medicine, this energy is believed to be not only the source of life, but of health as well. And since this energy is non-physical, it is outside the bounds of scientific control or study. Only spiritual healers using spiritual (i.e., non-scientific) means can "unblock", "align", "harmonize", "unify" or "balance" this energy.

Alphabiotics is the brainchild of Dr. V. B. Chrane who started practicing it in the 1920's near Abilene, Texas. It was "established as a unique new profession by Dr. Virgil Chrane, Jr., on December 28, 1971", according to Virgil Chrane, Jr., and the practice is still flourishing with Virgil Jr. and his son, Dr. Michael Chrane.

### Alpha Waves

Alpha waves are oscillating electrical voltages in the brain. They oscillate in the range of 7.5-13 cycles per second. Because alpha waves occur in relaxed states such as meditation and under hypnosis, they have been mistakenly identified as desirable. Alpha waves also occur under unpleasant conditions and when one is not relaxed. They are not a measure of peace and serenity, nor are they indicative of an altered state of consciousness. Alpha waves are indicative of lack of visual processing and lack of focus: the less visual processing and the more unfocused, generally the stronger the alpha waves. If you close your eyes and don't do any deep thinking or concentrating on vivid imagery, your alpha waves will usually be quite strong.

There is no evidence that "When asleep, the brain goes into a "repair and rebuild" mode under alpha wave energy," as an ad for a protein supplement claims. Nor is there evidence that the brain is more insightful, creative or productive while producing alpha waves. Some think that increasing alpha waves can enhance the immune system and lead to self-healing or prevention of illness. This belief seems to be based on the notion that since alpha waves increase while meditating and relaxed, they are indicative of lack of stress, which can only be good for you. However, alpha waves can occur when one is not relaxed. Hence, increasing alpha waves is no guarantee that one is reducing stress, much less is it proof that one is enhancing one's immune system.

You can, however, learn to control a computer using your alpha and mu waves (the latter appear to be associated with the motor cortex because they diminish with movement or the intention to move). And, you can even compose music with your brain waves, as Dr. Miller has done.

### Altered States of Consciousness

An altered state of consciousness (ASC) is a brain state which significantly differs from baseline or normal consciousness. It is not the brain state itself, however, that constitutes an ASC. The brain state is an objective matter, but I would hesitate to equate it with an EEG reading, for example. Otherwise, we would end up counting sneezing, coughing, sleeping, being in a coma and being dead as ASCs. Brain state readings reveal brain activity or inactivity, but I do not think they are a good measure of ASCs. Alpha waves, for example, have been identified with an ASC, but they actually measure visual processing in the brain.

The baseline brain state might be best defined by the presence of two important subjective characteristics: the psychological sense of a self at the "center" of one's perception and a sense that this self is identified with one's body. States of consciousness where one "loses" the sense of identity with one's body or with one's perceptions are definitely ASCs. Such states may be spontaneously achieved, instigated by such things as trauma, sleep disturbance, sensory deprivation or overload, neurochemical imbalance, or fever. They may also be induced by social behavior, such as frenzied dancing or chanting. And they may be induced by ingesting psychotropic drugs.

It is doubtful that the hypnotic state is truly an ASC, though it often resembles one. The hypnotic state more closely resembles certain amnesiacs who can be primed by being shown certain words. Later they have no conscious recollection of having been shown the words but they give evidence of implicit memory of the words. I don't think I would call amnesia an ASC.

There is no evidence that ASCs can transport one into a transcendent realm of higher consciousness or truth, though this myth is widely believed thanks to parapsychologists such as Charles Tart. There are a variety of feelings associated with ASCs, some of which are quite pleasant, even if delusional and self-deceptive. The mystical experience, for example, may be little more than a brain state. Michael Persinger has been able to duplicate the sense of presence, the sense of leaving the body, and other feelings associated with mysticism by electrically stimulating the brain. Many people have duplicated religious experiences by using drugs such as LSD and mescaline. Most religions identify the ideal state as an ASC: losing one's body and one's self, and uniting with some sort of Divine Being. In this sense, to seek an ASC is to seek to kill your sense of self.

#### Alternative Health Practices

Health or medical practices are called "alternative" if they are based on untested, untraditional or unscientific principles, methods, treatments or knowledge. "Alternative" medicine is often based upon metaphysical beliefs and is frequently anti-scientific. Because truly "alternative" medical practices would be ones that are known to be equally or nearly equally effective, most "alternative" medical practices are not truly "alternative." If the "alternative" health practice is offered along with traditional medicine, it is referred to as "complementary" medicine.

It is estimated that "alternative" medicine is a \$15 billion a year business. Traditionally, most insurance companies have not covered "alternative" medicine, but American Western Life Insurance Company is typical of a growing trend. It offers a network of about 300 providers in California, Arizona, Colorado, New Mexico and Utah specializing in acupuncture, aromatherapy, biofeedback, chiropractic, herbal medicine, massage, naturopathy, reflexology and yoga, among other therapies. Also, Mutual of Omaha Insurance Co. has reimbursed clients for the costs of a non-surgical "alternative" therapy for heart disease. Dr. Dean Ornish, an internist and director of the Preventive Medicine Research Institute in Sausalito, developed the therapy, which includes a vegetarian diet, meditation and exercise. Mutual of Omaha was quick to note that they were not opening the door to covering all forms of "alternative" therapies. They considered Dr. Ornish's treatment to have been proven to be effective.

The National Institutes of Health's Office of Alternative Medicine has supported a number of research studies of unorthodox cures, including the use of shark cartilage to treat cancer and the effectiveness of bee pollen in treating allergies. The most popular "alternative" therapies are relaxation techniques, chiropractic, herbal medicine and massage. Very few scientific studies are done by "alternative" practitioners. Indeed, many disdain science in favor of metaphysics, faith, and magical thinking.

On the other hand, many questionable products touted as cure-alls or as cures for serious illnesses such as cancer or heart disease are promoted with scientific gobbledygook and misrepresentation or falsification of scientific studies. Jodie Bernstein, Director of the FTC's Bureau of Consumer Protection, offers the following list of signs of quackery:

\*\* The product is advertised as a quick and effective cure-all for a wide range of ailments.

\*\* The promoters use words like scientific breakthrough, miraculous cure, exclusive product, secret ingredient or ancient remedy.

\*\* The text is written in "medicalese" - impressive-sounding terminology to disguise a lack of good science.

\*\* The promoter claims the government, the medical profession or research scientists have conspired to suppress the product.

\*\* The advertisement includes undocumented case histories claiming amazing results.

\*\* The product is advertised as available from only one source.

The general rule is "if it sounds too good to be true, it probably is."

DAILY MAIL (London)

Hidden risks in alternative therapies (December 21, 1998).

"Potentially life-threatening problems have been caused by treatments such as homeopathy, acupuncture and chiropractic, a survey has found. Hepatitis B infections, nerve damage, allergic reactions and delayed diagnoses of cancer were reported by GPs to researchers at the University of Exeter's Department of Complementary Medicine. It wants tighter controls on alternative therapies, which have not been properly tested and are mostly unregulated.

One in ten of the 686 GPs reported serious side-effects suspected to have been triggered by complementary therapies. A further third reported non-serious side effects such as inappropriate treatment. About half the serious side-effects, including nerve damage, spinal cord compression and worsening of existing conditions, resulted from spinal manipulation, usually by chiropractic or osteopathic techniques, according to the survey published in the International Journal of Risk and Safety in Medicine. Acupuncture was blamed for two hepatitis B infections and a lodged broken needle, aromatherapy triggered allergic reactions and hypnotherapy caused one patient to suffer severe hallucinations.

Homeopathy was held responsible for at least one 'avoidable death' from pneumonia, there were delays in cancer diagnosis and asthmatics needed hospital treatment after being told to stop medication."

Why Is "Alternative" Health Care So Popular?

The New England Journal of Medicine reported on a study in January 1993 which showed that about one-third of American adults sought some sort of unorthodox therapy during the preceding year. Why is "alternative" health care [AHC] so popular? There are several reasons.

Drugs and surgery are not part of AHC. Fear of surgery and of the side effects of drugs alienate many people from traditional medicine. AHC is attractive because it does not offer these frightening types of treatments. Furthermore, traditional medicine often harms patients. AHC treatments are usually inherently less risky and less likely to cause direct harm.

Selective thinking and confirmation bias can easily lead one to focus on cases where surgeons amputate the wrong limb, remove the wrong part of the brain, or kill a patient by administering too much anaesthetic or radiation. Many people ignore the millions of patients who are alive and well today because of surgery or drugs. They focus instead on the cases of patients who die after "routine" surgery, who are permanently disabled because of an adverse reaction to a drug, or who are killed by a deranged nurse acting as a self-appointed "mercy" killer.

This fear and skepticism regarding drug treatment, hospitalization, and surgery is not without foundation. Some harm is caused by malpractice, some is the tragic but inevitable outcome of unpredictable reactions to drugs or surgery. Because there are often legal issues involved, physicians and hospitals are often not forthcoming with details of patient deaths for which they might be responsible. Confidence in medicine erodes with each report of "therapeutic misadventures."

Are these "therapeutic misadventures" rare? As far as I know, there has never been a national study of the issue. There was a study done in New York in 1991 (The Harvard Medical Practice Study) which found that nearly 4 percent of patients were harmed in the hospital and 14 percent of these died, presumably of their hospital-inflicted injuries. Lucian L. Leape, a Boston physician, extrapolated from this data that as many as 180,000 Americans may be dying each year of medical injuries suffered at the hands of medical care providers. He notes, for dramatic effect, that this is the equivalent of three jumbo-jet crashes every two days. ("Truth about human error in hospitals," by Abigail Trafford, editor of the Washington Post's health section, printed in the Sacramento Bee, March 21, 1995, p. B7.)

On the other hand, the risks of being positively harmed by an "alternative" practitioner such as homeopath, for example, are negligible when compared to the risks of being harmed by a traditional physician dispensing powerful drugs and performing risky surgeries. This is because a homeopath is not intervening in any significant way. The doses they give are not likely to have any effect on anyone. A homeopath is not likely to ever kill a patient by mistake. "Alternative" medical treatments are essentially non-interventionist and their risks are generally negative, not positive. The harm to the patients comes not from positive intervention but from not getting treatment (drugs or surgery) which would improve their health and increase their life span.

While it is true that traditional medicine is not without its risks--even fatal risks--it is unreasonable to reject it altogether on these grounds. Reasonable people can't ignore the diabetics now alive and well, thanks to their drugs, or the millions of people who owe their lives to vaccinations against lethal or crippling diseases. We can't ignore the millions whose pain is gone thanks to surgery, or who owe their continuing existence to successful medical treatment involving both drugs and surgery.

A reasonable response to the very real risks of treatment by traditional health care providers is to take greater responsibility for one's treatment. A reasonable patient cannot have blind faith in his or her physician, no matter how godlike the doctor may seem or try to present himself. (A very dear friend of mine who lived to be 80 thanks to pills and surgery, found great humor in telling her physicians she knew M.D. stands for "medical divinity.") We have to become more knowledgeable of the drugs prescribed to us. We have to participate more in our own treatment, which means we have to ask lots of questions and assume nothing. We can't assume that the drug the nurse wants us to swallow is the one our physician has prescribed. (Just ask, "What's this pill?" You should know whether you're supposed to take it or not.) We need to seek second and third opinions, which doesn't mean look for another doctor who will tell you what you want to hear. It means do research. Read about your illness and the prescribed treatment for it. We can never eliminate risk altogether when we must depend on human beings, fallible and imperfect as we are. But we can reduce our risk by being more responsible for our health care and being less passive. Some faith in the competence of our health care providers is necessary, but it need not be blind faith. You may have to have surgery to have a limb removed or an artery widened, but you may need to make sure that the surgeon ready to operate doesn't think he's supposed to remove your gall bladder. The young boy who was to have a leg amputated and had written in large ink letters on his good leg "NOT THIS ONE" may have gotten a laugh from the hospital personnel. We can admire the boy's humor, but it is his lack of blind faith that is most admirable to a skeptic.

Traditional medicine often fails to discover the cause of an illness or to relieve pain. This is true of AHC as well. But traditional practitioners are not as likely to express hopefulness when their medicine fails. "Alternative" practitioners often encourage their patients to be hopeful even when the situation is hopeless.

When traditional medicine does discover the cause of an illness, it often fails to offer treatment that is guaranteed to be successful. Again, AHC offers hope when traditional medicine can't offer a safe and sure cure. A local television news anchor rejected chemotherapy for her breast cancer in favor of Gerson Therapy. Pat Davis followed a rigorous 13-hour-a-day regimen of diet (green vegetables and green juices), exercise, and coffee enemas (four a day) developed by Dr. Max Gerson. Davis' mother had had breast cancer twice, undergoing chemotherapy and a mastectomy. Davis knew the dangers of chemotherapy and the effects of breast surgery. She refused to accept that there were no alternatives. Gerson therapy gave her hope. When it was clear that the Gerson treatment was ineffective, Davis agreed to undergo chemotherapy. She died four months later on March 20, 1999, at the age of 39, after two and one half years of fighting her cancer. Could chemotherapy have saved her had she sought the treatment earlier? Maybe. The odds may have been against her, but the slim hope offered by scientific medicine was at least a real hope. The hope offered by Gerson is a false hope through and through.

AHC often uses "natural" remedies. Many people believe that what is natural is necessarily better and safer than what is artificial (such as pharmaceuticals). Just because something is natural does not mean that it is good, safe or healthy. There are many natural substances that are dangerous and harmful. There are also many natural products that are ineffective and of little or no value to one's health and well-being.

AHC is often less expensive than traditional medicine. This fact has made "alternative" treatments attractive to Health Maintenance Organizations (HMOs) and to insurance companies, both of whom are coming to realize that it is cheaper and thus more profitable to offer "alternative" treatments. If "alternative" therapies were truly alternatives, it would make no sense to pay more for the same quality treatment. However, most so-called "alternative" therapies are not truly alternatives; they are not equally effective treatments. Thus, the fact that they are cheaper is of little significance.

AHC is often sanctioned by state governments, which license and regulate "alternative" practices and even protect "alternative" practitioners from attacks by the medical establishment. Chiropractors, for example, won a major restraint-of-trade lawsuit against the American Medical Association in 1987. A federal judge permanently barred the AMA from "hindering the practice of chiropractic." Being government licensed,

regulated and protected is seen as legitimizing AHC. Actually, much of the licensing and regulation is aimed at protecting the public from frauds and quacks.

Many doctors of traditional medicine treat diseases first and people secondly. "Alternative" practitioners are often "holistic," claiming to treat the mind, body and soul of the patient. Many people are attracted to the spiritual and metaphysical connections made by AHC practitioners. Many AHC patients claim that their "healers" treat them as persons and seem to care about them, whereas traditional doctors often seem to lack good "bedside manner."

Traditional physicians often work out of large hospitals or HMOs and see hundreds or thousands of patients for their specialized needs. "Alternative" therapists, on the other hand, often work out of their homes or small offices or clinics, and see many fewer patients. More importantly, those who seek help from a traditional physician usually do not care what his or her personal religious, metaphysical or spiritual beliefs are. Those who seek "alternative" medicine often are attracted to the personality and worldview of their practitioner. For example, a person with diabetes who goes to an endocrinologist probably will not be interested in his or her physician's belief in chi or any other spiritual or metaphysical notions. Whether the doctor believes in God or the soul is irrelevant. What matters is the doctor's knowledge and experience with the disease. If the doctor is kind and personable, that is all the better. A cold and indifferent "alternative" practitioner would not have much business. A cold and indifferent traditional physician may have patients standing in line for treatment if he or she is an excellent physician.

Many people apparently do not understand that traditional medicine has the same shortcomings as all other forms of human knowledge: it is fallible. It also is correctable. Systems of thought that are fundamentally metaphysical in nature are not testable and can therefore never be proven incorrect. Hence, once they get established they tend to become dogmatically adhered to and never change. The only way to change dogma is to become a heretic and set up your own counter-dogma. When scientific medicine errs, it errs in ways that can be corrected. Treatments and practices that are ineffective or harmful are eventually rejected.

"Alternative" practices and treatments are often based upon faith and belief in metaphysical entities such as chi and lend themselves to ad hoc hypotheses to explain away failure or ineffectiveness. In scientific medicine there will be disagreement and controversy, error and argument, testing and more testing, etc. Decisions will be made by fallible human beings engaging in the fallible practice of scientific medicine. Some of those decisions will be bad decisions, but in time they will be discovered for what they are and treatments which were once standard will be rejected and replaced with other treatments. Medicine will grow, it will progress, it will change dramatically. Homeopathy, iridology, reflexology, aromatherapy, therapeutic touch, etc. will not change in any fundamental ways over the years. Their practitioners do not challenge each other, as scientific medicine requires. Instead, "alternative" practitioners generally do little more than reinforce each other.

"Alternative" therapies appeal to magical thinking. Ideas with little scientific backing, such as those of sympathetic magic, are popular among "alternative" practitioners and their clients. Traditional medicine is rejected by some simply because it is not magical. While traditional medicine may sometimes seem to work miracles, the miracles of modern medicine are based on science not faith.

The main reason people seek "alternative" health care, however, is because they think it "works." That is, they feel better, healthier, more vital, etc., after the treatment. Those who say "alternative" medicine "works" usually mean little more than that they are satisfied customers. For many AHC practitioners, having satisfied customers is all the proof they need that they are true healers. In many cases, however, a person's condition would have improved had he or she done nothing at all. But since the improvement came after the treatment, it is believed that the improvement must have been caused by the treatment (the post hoc fallacy and the regressive fallacy). In many cases, the successful treatment is due to nothing more than the placebo effect. In some cases, treatment by traditional medicine causes more harm than good and the improvement one feels is due to stopping the traditional treatment rather than to starting the "alternative" one. (One reason spiritual healers in pre-modern medicine times may have had better success rates on the battlefield than traditional healers is due to the fact that traditional healers often harmed their patients: e.g., infecting them while treating them. Spiritual healers, who did nothing to the wound, didn't infect the patient, who often healed thanks to the body's own internal healing mechanisms.)

In many cases, the cure was actually effected by the traditional medicine taken along with the "alternative" therapy, but the credit is given to the "alternative." Also, many so-called cures are not really cures at all in any objective sense. The patient may have been misdiagnosed in the first place, so no cure actually took place. Also, a patient subjectively reports that he or she "feels better" and that is taken as proof that the therapy is working. Psychological effects of therapies are not identical to objective improvements, however. A person may feel much worse but actually be getting much better. Conversely, a person may feel much better but actually be getting much worse.

Finally, many advocates of "alternative" therapies refuse to admit failure. When comedian Pat Paulsen died while receiving "alternative" cancer therapy in Tijuana, Mexico, his daughter did not accept that the

therapy was useless. Rather, she believed that the only reason her father died was because he had not sought the "alternative" therapy sooner. Such faith is common among those who are desperate and vulnerable, common traits among those who seek "alternative" therapies.

#### Amulets

Amulets are ornaments, gems, scrolls, etc., worn as charms against evil. Amulets are often inscribed with magical incantations.

#### Amway (Quixtar)

Amway is the largest multi-level marketing (MLM) organization in the world. It is a multi-billion dollar a year company based on the sale of products as varied as soap, water purifiers, vitamins, and cosmetics. Amway proponents are fond of asserting that their products are of the highest quality, their company is very large (several million distributors and several billion dollars in annual sales), and does business with such giants as Coca-Cola and MCI.

In Amway, one is recruited as an "independent" distributor of Amway products by buying a couple of hundred dollars worth of the products from the one who recruits you, known as your "upline." Every distributor in turn tries to recruit more distributors. Income is generated by sales of products by the distributor plus "bonuses" from sales of his or her recruits and their recruit-descendents.

Here is a description from an Amway distributor as to how it works.

It goes like this:

If I buy \$200 of stuff from Amway this month, I'll get a 3% bonus check (3% of \$200 = \$6). If I share the opportunity with nine others, and we each buy \$200 of stuff from Amway this month, they each were responsible for \$200 and will get \$6, but I'm responsible for \$2000, moving me to the 12% level. I get \$240. However, I'm responsible for paying the bonuses of the people right below me - \$54 - so I keep \$186. I make more because I did more, I found nine people who wanted to buy at a discount and get a bonus for doing it. After I reach the 25% bonus level there are other bonuses that kick in, but they're all based on the volume of product flow, not on signing people up or having lots of people (Bob Queenan, personal correspondence).

Amway defenders take offense at describing this method of sales and recruitment as akin to a pyramid or chain letter scheme. It is true that MLM as practiced by Amway is not an illegal pyramid scheme. Amway has been taken to court for being an illegal pyramid and the courts have ruled that since Amway does not charge people either for joining Amway or for the privilege of recruiting others as distributors, it is not an illegal pyramid. Illegal pyramids and chain letters have no product. Amway has lots of household products: from laundry detergent to vitamins, from cosmetics to water filters. Amway is a legal pyramid scheme.

#### The Legal Pyramid

There are several distinct aspects of MLM schemes that justify calling them legal pyramid schemes. One is the aspect of the chain or line of distributors whose income depends primarily not on their own sales of Amway products but on sales made by others whom they've recruited. The actual practice gets fairly complicated. Here is how Bob Queenan, cited above, describes it:

Now we get into the actual mechanisms. While my product volume is low, it makes sense to combine my order with other orders to reduce the paperwork that Amway has to deal with. So the way I order from Amway is to call my "upline" and place my order. My upline combines my order with others and calls Amway directly. Amway would normally ship direct to the upline, and we'd all go over and pick up our products. In my actual case, I live too far away from my upline to make that practical, so I order through my upline, but get direct shipments from Amway.

Do I sell to other distributors? No, we all buy direct from Amway.

Do other distributors order their products through me? Yes, I combine the orders and send them to Amway.

Do I get money from my distributors? Yes, for the products they buy. I write a combined check to Amway.

Do I profit if my distributors buy more? Yes, I do -- so do they, but yes, I do.



Is my bonus from their money? It's from the bonus pot, which is filled with money saved by not paying middlemen.

Am I missing something here? Haven't the distributors become their own middlemen? Aren't the distributors selling to each other? Isn't income mainly generated by recruiting new members to the organization? Isn't Amway Corporation the big winner in this scheme?

An Amway customer is not just buying a detergent, but is recruited into being a minister of a faith with a complicated bookkeeping scheme. Why not just go to your local store and buy soap, you ask? Because the agent is someone you know, or who knows someone you know, who's invited you over for coffee to tell you about a great opportunity. Odds are good that you'll either buy something out of politeness or a genuine need for soap or vitamins, etc. Perhaps you will become an agent yourself. Either way, the agent (distributor) who sold you the soap or vitamins makes money. If you become an agent (distributor) then part of every sale you make goes to your recruiter. The new recruit is drawn into the system not primarily by the attractiveness of selling Amway products door to door, but by the opportunity to sell Amway itself to others who, hopefully, will do the same. The products seem secondary to the process of recruitment. Yet, the distributors will learn to talk about little else than the product and its "quality." What justifies MLM schemes is the high quality of their products. What entices the recruit, however, is likely to be the attractiveness of making money from others' sales, not the products themselves.

Do the Numbers Add Up?

According to Amway, their annual sales amounts to about \$7 billion and there are 3 million distributors. Thus, the average distributor's sales amounts to about \$2,333/yr. If 30% of that is profit, the average distributor makes \$700/yr. Klebniov claims that the average income is \$780, but the average distributor buys \$1,068 worth of Amway goods himself and also has expenses such as telephone bills, gas, motivational meetings, publicity material and other expenses to expand the business. "The average active distributor sells only 19% of his products to non-Amway affiliated consumers," according to Klebniov. "The rest is either personally consumed or sold to other distributors." In the United States, the Federal Trade Commission requires Amway to label its products with the message that 54% of Amway recruits make nothing and the rest earn on average \$65 a month. No such labels are required in other countries, but the facts are clear. Most people who get involved in Amway will not make money.

Far from boosting their incomes, the vast majority of those who become Amway distributors, particularly those in 'the system', are likely to end up losing money.

The majority of the wealth of the tiny number of top-ranked distributors in this country comes not just from the sale of Amway products but from selling motivational materials and organizing seminars and rallies for the people below them (Thompson).

Amway has made a very few people very rich while paying its foot soldiers more in inspiration than in cash (Thompson). There is nothing particularly unique about this in the history of business. What is unique is the faith, devotion and hope that the foot soldiers have.

Is Amway a cult?

Critics of Amway have compared it to a cult whose main product is Amway itself. Amway folk do resemble religious devotees in some respects. They have great faith in their company, its products, and the hope for wealth and early retirement. They attend seminars and meetings that are reminiscent of revivalist meetings, where the power of positive thinking replaces (or is accompanied by) faith in Jesus. Instead of a parade of souls healed by faith, Amway faithful are treated to testimonials of early retirement with plenty of money. While there have been some accusations of persecution of those who have left the flock, by and large Amway devotion seems harmless enough. Amway doesn't seem to differ much from other zealous big corporations which preach positive thinking about the business of business in endless motivation seminars and retreats, books, tapes, brochures, among other things (Klebniov).

Graham Baldwin of the United Kingdom compares an Amway motivational meeting to a revival or cult meeting. The former University chaplain tries to help people break away from religious cults with his program called "Catalyst." Soon after one of his broadcasts, he got a call from a man

who explained how the group he had joined a year earlier was slowly taking over his life. There were the huge monthly meetings at venues like Wembley Conference Centre where he and thousands of other followers were worked into a passionate frenzy then told to go out and find as many new recruits as possible; there was a powerful doctrine that frowned on television, newspapers and other 'negative' influences; there was the strict dress code and advice on how to bring up children and relate to loved ones; there was the fear that to quit would mean giving up hope of a happy future.

However, having seen the television show featuring Baldwin, the man now alleged that he was being subjected to mind control techniques and being manipulated by those above him. He wanted advice on making a possible break. Baldwin asked which cult the man was in.

"It's not a cult. It's not a religion. It's something called Amway" (Thompson).

To some of Amway's critics, Amway may look like a religious cult, but to others it just looks like a shell game. The ministers of the faith work their magic by constantly calling your attention to the quality of their products, their concern with ethics, the wealth of their company, their association with Coca-Cola or MCI, the claim that they don't have to pay the middleman or advertising costs, and the numerous testimonials of the faithful who have passed through the valley of death and have arrived on the mountaintop with buckets of gold. Meanwhile, you do not notice that the products are secondary to the process of recruiting new distributors of those products. You do not notice that the wealth and associations of the company are irrelevant to its promises of wealth to the millions of distributors recruited. You do not notice that many costs, such as mailing, handling, doing forms, advertising, and driving personal vehicles to deliver or pick up products, are picked up by the distributors themselves. You do not notice that even though some people make a decent or more than decent living exclusively through Amway, the chances of all or most distributors making such wealth are absurdly small. You do not notice that while the leaders talk about ethics they are stimulating resentment and greed. And of course you never hear the testimonials of those who feel cheated by Amway; dissidents are not allowed to give their testimony at revival meetings.

The shell game gets even more complicated because when it is pointed out that most people who are Amway distributors either lose money (they buy more products from Amway than they sell) or make a very modest income, the ministers of the faith don't respond honestly and directly by saying that that is what should be expected from such a system. Instead they claim that no one said you would get rich quick at Amway, no one promised great wealth with little work. Those who fail do so because they are failures. They don't work hard enough. They don't devote enough time to their distributorship and recruitment. The failures need motivation!

#### The Dissidents

Paul Klebnirov writes that...

Former distributors and Amway officials say that like many movements based on a cult of personality, Amway's attitude toward any insider critical of the organization has bordered on paranoia. Edward Engel was Amway's chief financial officer until 1979; he resigned over a disagreement with DeVos and Van Andel [the founding fathers of Amway] on how to run the Canadian operations. This apparently branded him a traitor; he says he and his family received threats for years after his resignation. "It was a Big Brother organization," says Engel today. "Everyone assumed that the phones were tapped, and that Amway had something on everybody."

In 1983 Engel's former secretary, Dorothy Edgar, was helping the Canadians in their investigation of the company. She was roughed up in Chicago, after she was told to "stay away from Amway." Engel, who picked her up after the incident, says he believes her story. Amway would not comment on the incident.

There was extremely bad publicity in 1982 when a former distributor, Philip Kerns, quit to write a damaging expose called "Fake it Till You Make It." Kerns charges that Amway used private detectives to follow him and rough him up. Kerns' expose prompted the "Phil Donahue Show" and "60 Minutes" to run uncomplimentary pieces on Amway. Amway's recruitment dropped off; with it, sales plunged an estimated 30% in the early 1980s.

In 1984, another former Amway insider, Donald Gregory, says he started to write a book on Amway, but the company obtained a gag order against Gregory in a Grand Rapids court" (Klebnirov).

Even so, the vast majority of Amway distributors are probably decent people who believe in the quality and value of Amway products and who are in it to make money in a legal and ethical way. They are not responsible for what the founders or "uplines" do. They are not making wild promises about making millions of dollars with just a few hours of work a week to their friends. The average Amway distributor is undoubtedly not like James Vagyi.

#### Amway comes to Hungary

Now that capitalism has come to many former communist nations in Europe, Amway has spread its ever-replicating roots into countries such as Hungary and Poland. James Vagyi, the lead recruiter in Hungary, tells potential recruits that the minimum income is about \$9,000 a month [700,000 forints]. Mr. Vagyi says to a group of potential recruits, "If 10 million people were persuaded for 40 years to build socialism in Hungary, you can each find six people to do this." If those six find six who find six who find six, you will be

rich in no time. Mr. Vagyi shows his audience a videotape that ends with a message from Amway's co-founder, Richard DeVos: "Ethics and caring for people are the fundamentals of Amway's business." Maybe. But apparently some distributors have cynical views of ethics and the only people they seem to really care for are themselves. Still, isn't this true in every business? Aren't there always a few bad apples who give the whole group a bad reputation?

Is the appeal to greed or to need?

It isn't very likely that the majority of Amway's distributors follow Vagyi's example. Nor do they follow the example of Michael Aspel who used a curious recruitment video in London. The video "features couples who live in enormous detached houses and have luxury cars, talking about how much freedom and independence the Amway opportunity has given them. The narrative tells how the company is built on "ethics and integrity" and how it has helped "thousands improve the quality of their lives" (Thompson).

Furthermore, there is no doubt most Amway meetings are not like the one described by Paul Klebniov:

One weekend this summer over 12,000 enthusiastic people gathered for a rally in Richmond, Va. A handful were wealthy distributors of Amway Corp's products; the rest wanted to be. The meeting began with a prayer and a Pledge of Allegiance. On stage, Bill Britt, the master Amway distributor who organized the rally, introduced the other top distributors, who had arrived in their Cadillacs and Mercedes, flaunting expensive furs and jewelry. With the introduction of each of these role models, the crowd cheered.

Stories such as Klebniov's inevitably lead to the question, Does Amway encourage fraud? The answer is No. However, one of the main criticisms made of Amway and other MLM organizations, is that they inevitably encourage unscrupulous people to defraud the gullible into thinking that with a little hard work they can become rich beyond their wildest dreams. These unscrupulous people become rich themselves, not by selling Amway products but by selling the concept of Amway and "inspirational materials" such as books, tapes, seminars, etc., aimed at motivating a person to think positively. Critics argue that while it is possible to make a decent living selling Amway products, a realistic person should not expect more than a supplement to one's income from selling the products. The real money is in recruiting people into Amway. The really big money is in selling motivational materials, i.e., hope.

## Ancient Astronauts

### Ancient Astronauts and Erich von Däniken's Chariots of the Gods?

The term 'ancient astronauts' designates the speculative notion that aliens are responsible for the most ancient civilizations on earth. The most notorious proponent of this idea is Erich von Däniken, author of several popular books on the subject. His Chariots of the Gods? Unsolved Mysteries of the Past, for example, is a sweeping attack on the memories and abilities of ancient peoples. Von Däniken claims that the myths, arts, social organizations, etc., of ancient cultures were introduced by astronauts from another world. He questions not just the capacity for memory, but the capacity for culture and civilization itself, in ancient peoples. Prehistoric humans did not develop their own arts and technologies, but rather were taught art and science by visitors from outer space.

Where is the proof for von Däniken's claims? Some of it was fraudulent. For example, he produced photographs of pottery that he claimed had been found in an archaeological dig. The pottery depicts flying saucers and was said to have been dated from Biblical times. However, investigators from Nova (the fine public-television science program) found the potter who had made the allegedly ancient pots. They confronted von Däniken with evidence of his fraud. His reply was that his deception was justified because some people would only believe if they saw proof ("The Case of the Ancient Astronauts," first aired 3/8/78, done in conjunction with BBC's Horizon and Peter Spry-Leverson)!

However, most of von Däniken's evidence is in the form of specious and fallacious arguments. His data consists mainly of archaeological sites and ancient myths. He begins with the ancient astronaut assumption and then forces all data to fit the idea. For example, in Nazca, Peru, he explains giant animal drawings in the desert as an ancient alien airport. The fact that the lines of the drawing would be useless as a runway for any real aircraft because of their narrowness is conveniently ignored by von Däniken. The likelihood that these drawings related to the natives' science or mythology is not considered. He also frequently reverts to false dilemma reasoning of the following type: "Either this data is to be explained by assuming these primitive idiots did this themselves or we must accept the more plausible notion that they got help from extremely advanced peoples who must have come from other planets where such technologies as anti-gravity devices had been invented." His devotion to this theory has not dwindled, despite contrary evidence, as is evidenced by still another book on the subject, Arrival of the Gods : Revealing the Alien Landing Sites at Nazca (1998).

There have been many critics of von Däniken's notions, but Ronald Story stands out as the most thorough. Most critics of von Däniken's theory point out that prehistoric peoples were not the helpless, incompetent, forgetful savages he makes them out to be. (They must have at least been intelligent enough to understand the language and teachings of their celestial instructors--no small feat!) It is true that we still do not know how the ancients accomplished some of their more astounding physical and technological feats. We still wonder how the ancient Egyptians raised giant obelisks in the desert and how stone age men and women moved huge cut stones and placed them in position in dolmens and passage graves. We are amazed by the giant carved heads on Easter Island and wonder why they were done, who did them, and why they abandoned the place. We may someday have the answers to our questions, but they are most likely to come from scientific investigation not pseudoscientific speculation. For example, observing contemporary stone age peoples in Papua New Guinea, where huge stones are still found on top of tombs, has taught us how the ancients may have accomplished the same thing with little more than ropes of organic material, wooden levers and shovels, a little ingenuity and a good deal of human strength.

We have no reason to believe our ancient ancestors' memories were so much worse than our own that they could not remember these alien visitations well enough to preserve an accurate account of them. There is little evidence to support the notion that ancient myths and religious stories are the distorted and imperfect recollection of ancient astronauts recorded by ancient priests. The evidence to the contrary--that prehistoric or 'primitive' peoples were (and are) quite intelligent and resourceful--is overwhelming.

Of course, it is possible that visitors from outer space did land on earth a few thousand years ago and communicate with our ancestors. But it seems more likely that prehistoric peoples themselves were responsible for their own art, technology and culture. Why concoct such an explanation as von Däniken's? To do so may increase the mystery and romance of one's theory, but it also makes it less reasonable, especially when one's theory seems inconsistent with what we already know about the world. The ancient astronaut hypothesis is unnecessary. Occam's razor should be applied and the hypothesis rejected.

## Angels

Angels are bodiless, immortal spirits, limited in knowledge and power. The Bible-based religions--Judaism, Christianity, and Islam--believe God created angels to worship Him. Not all God's angels acted angelically, however. Some angels, led by Satan, rebelled against a life of submission, and were cast out of Heaven. These bad angels were sent to Hell and are known as devils.

Not all angels are created equal. From top to bottom, the celestial hierarchy includes seraphim, cherubim, thrones; dominions, virtues, powers; principalities, archangels, and angels. Angels have different functions. Some do nothing but worship their Lord. Others are sent to deliver messages to creatures on earth. Some are sent as protectors of earthlings. Still others are sent to do battle with devils, who are viewed as initiators of evil temptations.

Even though angels are spirits and devoid of a physical nature, believers in angels have had no problem depicting and describing them. Angels, say their advocates, are invisible but can take the form of visible things. Angels are usually depicted with wings and looking like human adults or children. The wings are undoubtedly related to their work as messengers from God, who lives in the sky. The anthropomorphizing is understandable. Depiction enhances belief. But a bodiless creature cannot be depicted. A depiction of a creature of less than human stature would be undignified and unworthy of celestial creatures. Nevertheless, it is puzzling how a bodiless creature thinks and feels. To talk of a spirit as a non-bodily creature seems to be akin to talking of a "round square." Trying to imagine thinking or feeling occurring independently of a body is like trying to imagine the spherical shape of a ball occurring independently of the ball.

Since angels are invisible but capable of taking on visible forms, it is understandable that there have been many "sightings." Literally anything could be an angel and any experience could be an angel-experience. The existence of angels cannot be disproved. The down side of this tidy picture is that angels cannot be proved to exist, either. Everything that could be an angel could be something else. Every experience that could be due to an angel could be due to something else. Belief in angels, angel sightings and angel experiences is entirely a matter of faith.

Even if they exist only in the imagination, however, angels can be very useful. They can serve as monitors of behavior and protectors of children. A parent can try to control a child's behavior by convincing the child that an angel is always watching over him or her. The angel is presented as being a kind of guardian, but the child will hopefully realize that the angel is also keeping track of all deeds, good and bad, even those done when mommy and daddy aren't around. The guardian angel is a comforting and versatile concept, and is the basis for many myths. Much entertainment in books, films and television programs is based on the concept of the guardian angel, often transformed into a superhuman master of occult powers.

Traditional religionists are not the only ones who love angels. New Age mythmakers have made an industry out of angels. Dozens of books connecting angels with everything from guidance in daily life to talking to the dead to psychic healing are published every year. Sales of angel figurines and other material products are brisk. As one lofty soul put it: "Gently guided by angels, we nurture and cherish the creative soul that heals itself."

### Angel Therapy

Angel therapy is a type of New Age Therapy based on the notion that communicating with angels is the key to healing. Angel therapists believe they facilitate healing by helping their patients get in touch with angels who will guide the patient in the right direction.

Susan Stevenson, a hypnotherapist who practices past life regressive therapy, sees angels everywhere.

My life seems to be teeming with angelic connections, and the momentum is building. Have you noticed this in your own life? Angelic reminders that they are with us- 'whispers' in our ear, 'taps' on the shoulder, brushes of air across your skin or changes in air pressure, 'flutters' from deep inside, glints of light and color- all these gentle hints to pay closer attention to their presence. Think back- have you been paying attention, listening, responding? I know I certainly have been. Doreen Virtue, Ph.D., in her newest book "Angel Therapy", says that this increased activity is directly related to the approaching millennium.

I assume Dr. Virtue is referring to the increased activity of New Age millennial thinkers whose presence is growing, whose momentum is building, and whose deep flutterings continue to slap reason in the face while the candle in the dark gets dimmer and dimmer.

### Anoxia (Cerebral)

Cerebral anoxia is the lack of oxygen to the brain. If severe, it can cause irreversible brain damage. Less severe cases can cause sensory distortions and hallucinations. Cerebral anoxia has been cited by some researchers as the cause of near-death experiences (NDEs).

### Anomalous Cognition

Anomalous cognition is a term coined by Science Applications International Corporation (SAIC) to refer to ESP, including telepathy, clairvoyance, precognition and remote viewing. SAIC also refers to psychokinesis as anomalous perturbation.

### Anomalous Perturbation

Anomalous perturbation is a term coined by Science Applications International Corporation (SAIC) to refer to psychokinesis. SAIC also refers to ESP as anomalous cognition.

### Anomaly

An anomaly (literally, no law or rule) is an irregular or unusual event which does not fit a standard rule or law. For example, a frog when dropped should move through the air towards the ground, according to the law of gravity. If the frog were to remain suspended in mid-air, such levitation would be an anomaly. If it were discovered, however, that the frog was being suspended in mid-air by electromagnetic devices, the anomaly would dissolve.

Anything weird, abnormal, strange, odd, or difficult to classify is considered an anomaly.

In science, an anomaly is something which cannot be explained by currently accepted scientific theories. Sometimes the new phenomenon leads to new rules or theories, e.g., the discovery of x-rays and radiation.

### Anthropometry

Anthropometry is the study of human body measurement for use in anthropological classification and comparison.

In the 19th and early 20th centuries, anthropometry was a pseudoscience used mainly to classify potential criminals by facial characteristics. For example, Cesare Lombroso's *Criminal Anthropology* (1895) claimed that murderers have prominent jaws and pickpockets have long hands and scanty beards. The work of Eugene Vidocq, which identifies criminals by facial characteristics, is still used nearly a century after its introduction in France.

The most infamous use of anthropometry was by the Nazis, whose Bureau for Enlightenment on Population Policy and Racial Welfare recommended the classification of Aryans and non-Aryans on the basis of measurements of the skull and other physical features. Craniometric certification was required by law. The Nazis set up certification institutes to further their racial policies. Not measuring up meant denial of permission to marry or work, and for many it meant the death camps.

Today, anthropometry has many practical uses, most of them benign. For example, it is used to assess nutritional status, to monitor the growth of children, and to assist in the design of office furniture.

## Anthroposophy

### Anthroposophy, Rudolf Steiner and Waldorf Schools

The Austrian-born Rudolf Steiner (1861-1925) was the head of the German Theosophical Society from 1902 until 1912, at which time he broke away and formed his Anthroposophical Society. He may have abandoned the divine wisdom for human wisdom, but one of his main motives for leaving the theosophists was that they did not treat Jesus or Christianity as special. Steiner had no problem, however, in accepting such Hindu notions as karma and reincarnation. By 1922 Steiner had established what he called the Christian Community, with its own liturgy and rituals for Anthroposophists. Both the Anthroposophical Society and the Christian Community still exist, though they are separate entities.

It wasn't until Steiner was nearly forty and the 19th century was about to end that he became deeply interested in the occult. Steiner was a true polymath, with interests in agriculture, architecture, art, chemistry, drama, literature, math, medicine, philosophy, physics and religion, among other subjects. His doctoral dissertation at the University of Rostock was on Fichte's theory of knowledge. He was the author of many books and lectures, many with titles like *The Philosophy of Spiritual Activity* (1894), *Occult Science: An Outline* (1913), *Investigations in Occultism* (1920) and *How to Know Higher Worlds*. He was also much attracted to Goethe's mystical ideas and worked as an editor of Goethe's works for several years. Much of what Steiner wrote seems like a rehash of Hegel. He thought Marx had it wrong, that it really is the spiritual that drives history. Steiner even speaks of the tension between the search for community and the experience of individuality, which, he believed, are not really contradictions but represent polarities rooted in human nature.

His interests were wide and many but by the turn of the century his main interests were esoteric, mystical, and occult literature. Theosophists were sympathetic to occult and mystical beliefs. Steiner was especially attracted to two theosophical notions: (1) there is a special spiritual consciousness that provides direct access to higher spiritual truths; and (2) spiritual evolution is hindered by being mired in the material world.

Steiner may have broken away from the Theosophical Society but he did not abandon the eclectic mysticism of the theosophists. Steiner thought of his Anthroposophy as a "spiritual science." Convinced that reality is essentially spiritual, he wanted to train people to overcome the material world and learn to comprehend the spiritual world by the higher, spiritual, self. He taught that there is a kind of spiritual perception that works independently of the body and the bodily senses. Apparently, it was this special spiritual sense which provided him with information about the occult.

According to Steiner, people existed on Earth since the creation of the planet. Humans, he taught, began as spirit forms and progressed through various stages to reach today's form. Humanity, Steiner said, is currently living in the Post-Atlantis Period, which began with the gradual sinking of Atlantis in 7227 BC ... The Post-Atlantis Period is divided into seven epochs, the current one being the European-American Epoch, which will last until the year 3573. After that, humans will regain the clairvoyant powers they allegedly possessed prior to the time of the ancient Greeks (Boston).

Steiner's most lasting and significant influence, however, has been in the field of education. In 1913 at Dornach, near Basel, Switzerland, Steiner built his Goetheanum, a "school of spiritual science." This would be a forerunner of the Steiner or Waldorf schools. The term "Waldorf" schools comes from the school Steiner was asked to open for the children of workers at the Waldorf-Astoria cigarette factory in Stuttgart, Germany, in 1919. The owner of the factory had invited Steiner to give a series of lectures to his factory

workers and apparently was so impressed he asked Steiner to set up the school. The first U.S. Waldorf school opened in New York City in 1928. Today, the Steinerians claim that there are more than 600 Waldorf schools in over 32 countries with approximately 120,000 students. About 125 Waldorf schools are said to be currently operating in North America. There is even a non-accredited Rudolf Steiner College offering degrees in Anthroposophical Studies or in Waldorf Education.

Steiner designed the curriculum of his schools around notions that he apparently got by special spiritual insight into the nature of Nature and the nature of children. He believed we are each comprised of body, spirit and soul. He believed that children pass through three seven-year stages and that education should be appropriate to the spirit for each stage. Birth to age 7, he claimed, is a period for the spirit to adjust to being in the material world. At this stage, children best learn through imitation, he said. (So did Aristotle, by the way.) Academic content is held to a minimum during these years. Children are told fairy tales, but do no reading until about the second grade. They learn about the alphabet and writing in first grade.

According to Steiner, the second stage of growth is characterized by imagination and fantasy. Children learn best from ages 7 to 14 by acceptance and emulation of authority. The children have a single teacher during this period and the school becomes a "family" with the teacher as the authoritative "parent".

The third stage, from 14 to 21, is when the astral body is drawn into the physical body, causing puberty. These anthroposophical ideas are not part of the standard Waldorf school curriculum, but apparently are believed by those in charge of the curriculum. Waldorf schools leave religious training to parents, but they tend to be spiritually oriented and are based on a generally Christian perspective.

Even so, because they are not taught fundamentalist Christianity from the Bible, Waldorf schools are often attacked for encouraging paganism or even Satanism. This may be because they emphasize the relation of human beings to Nature and natural rhythms, including an emphasis on festivals, myths, ancient cultures and various celebrations. The Sacramento Unified School District abandoned its plan to turn Oak Ridge Elementary into a Waldorf magnet school after many of the parents complained about it and at least one teacher complained of Satanism. The School District put the Waldorf program in a new location and is now being sued in federal court for violation of separation of church and state by PLANS, Inc., a group of Waldorf School Critics.

Some of the ideas of the Waldorf School are not Steiner's, but try to harmonize with the master's spiritual insights. For example, television viewing is discouraged because of its typical content and because it discourages the growth of the imagination. This idea is undoubtedly attractive to parents since it is very difficult to find anything of positive value for young children on television. When children are very young they should be socializing, speaking, listening, interacting with nature and people, not sitting in a catatonic trance before the boob tube. I don't know what the Waldorf teachers think of video games, but I would be very surprised if they didn't discourage them for their dehumanizing depictions of violent behavior as well as for their stifling of the imagination.

Waldorf schools also discourage computer use by young children. The benefits of computer use by children has yet to be demonstrated, though it seems to be widely believed and accepted by educators who spend billions each year on the latest computer equipment for students who often can barely read or think critically, and have minimal social and oral skills. Waldorf schools, on the other hand, may be as daffy over the arts as public schools are over technology. What the public school consider frills, Waldorf schools consider essential, e.g., weaving, knitting, playing a musical instrument, woodcarving, painting, etc

One of the more unusual parts of the curriculum involves something Steiner called "eurythmy," an art of movement that tries to make visible what he believed were the inner forms and gestures of language and music. According to the Waldorf FAQ, "it often puzzles parents new to Waldorf education, [but] children respond to its simple rhythms and exercises which help them strengthen and harmonize their body and their life forces; later, the older students work out elaborate eurythmic representations of poetry, drama and music, thereby gaining a deeper perception of the compositions and writings. Eurythmy enhances coordination and strengthens the ability to listen. When children experience themselves like an orchestra and have to keep a clear relationship in space with each other, a social strengthening also results."

Perhaps the most interesting consequence of Steiner's spiritual views was his attempt to instruct the mentally and physically handicapped. Steiner believed that it is the spirit that comprehends knowledge and the spirit is the same in all of us, regardless of our mental or physical differences.

Most critics of Steiner find him to have been a truly remarkable man, most decent and admirable. Unlike many other "spiritual" gurus, Steiner seems to have been a truly moral man who didn't try to seduce his followers and who remained faithful to his wife. There is no question that he made contributions in many fields, but as a philosopher, scientist and artist he rarely rises above mediocrity and is singularly unoriginal. His spiritual ideas seem less than credible and are certainly not scientific. Some of his ideas on education, however, are worth considering. He was correct to note that there is a grave danger in developing the imagination and understanding of young people if schools are dependent upon government. State funded education will likely lead to emphasis on a curriculum that serves the State, i.e.,

one mainly driven by economic and social policies. Education is driven not by the needs of children, but by the economic needs of society. The competition that drives most of public education may benefit society, but it probably does not benefit most individuals. An education where cooperation and love, rather than competition and resentment, marked the essential relationship among students might be more beneficial to the students' intellectual, moral and creative well-being.

On the other hand, it is likely that some of anthroposophy's weirder notions about astral bodies, Atlantis, etc., will get passed on in a Waldorf education, even if Steiner's philosophical theories are not part of the curriculum for children. Is it that hard to defend love and cooperation without having to ground them in some cosmic mist? Why does one have to leap into the realm of murky mysticism in order to defend criticizing the harm done to the individual by a life spent in pursuit of material possessions with little concern for what is being done to other human beings or to the planet? Why does one have to blame lack of spirituality for the evil around us? One might as well blame too much spirituality for our problems: the spiritual people think so little of this material world that they don't do enough to make it a better place. Why can't people tell stories, dance and sing, play music, create works of art and study chemistry, biology and physics to learn about the natural world, without the whole process being seen either as a means to job security and material wealth or as harmonizing one's soul with cosmic spirituality?

Children should be burdened with neither spirituality nor materialism. They should be loved and be taught to love. They should be allowed to grow in an atmosphere of cooperation. They should be introduced to the best we have to offer in nature, art and science in such a way that they do not have to connect everything either to their souls or to their future jobs. Unfortunately, most children have parents and their parents would not stand for such an education.

## Apophenia

There is currently a controversial debate concerning whether unusual experiences are symptoms of a mental disorder, if mental disorders are a consequence of such experiences, or if people with mental disorders are especially susceptible to or even looking for these experiences. --Dr. Martina Belz-Merk

Apophenia is the spontaneous perception of connections and meaningfulness of unrelated phenomena. The terms was coined by K. Conrad in 1958 (Brugger).

Peter Brugger of the Department of Neurology, University Hospital, Zurich, gives examples of apophenia from August Strindberg's *Occult Diary*, the playwright's own account of his psychotic break:

He saw "two insignia of witches, the goat's horn and the besom" in a rock and wondered "what demon it was who had put [them] ... just there and in my way on this particular morning." A building then looked like an oven and he thought of Dante's *Inferno*.

He sees sticks on the ground and sees them as forming Greek letters which he interprets to be the abbreviation of a man's name and feels he now knows that this man is the one who is persecuting him. He sees sticks on the bottom of a chest and is sure they form a pentagram.

He sees tiny hands in prayer when he looks at a walnut under a microscope and it "filled me with horror."

His crumpled pillow looks "like a marble head in the style of Michaelangelo." Strindberg comments that "these occurrences could not be regarded as accidental, for on some days the pillow presented the appearance of horrible monsters, of gothic gargoyles, of dragons, and one night ... I was greeted by the Evil One himself..."

According to Brugger, "The propensity to see connections between seemingly unrelated objects or ideas most closely links psychosis to creativity ... apophenia and creativity may even be seen as two sides of the same coin." Some of the most creative people in the world, then, must be psychoanalysts and therapists who use projective tests like the Rorschach test or who see patterns of child abuse behind every emotional problem. Brugger notes that one analyst thought he had support for the penis envy theory because more females than males failed to return their pencils after a test. Another spent nine pages in a prestigious journal describing how sidewalk cracks are vaginas and feet are penises, and the old saw about not stepping on cracks is actually a warning to stay away from the female sex organ.

In statistics, apophenia is called a Type I error, seeing patterns where none, in fact, exist. It is highly probable that the apparent significance of many unusual experiences and phenomena are due to apophenia, e.g., EVP, numerology, the Bible code, anomalous cognition, ganzfeld "hits", most forms of divination, the prophecies of Nostradamus, remote viewing, and a host of other paranormal and supernatural experiences and phenomena.



## Appeal to Authority

The appeal to authority is a fallacy of irrelevance when the authority being cited is not really an authority. E.g., to appeal to Einstein to support a point in religion would be to make an irrelevant appeal to authority. Einstein was an expert in physics, not religion. However, even if he had been a rabbi, to appeal to Rabbi Einstein as evidence that God exists would still be an irrelevant appeal to authority because religion is by its very nature a controversial field. Not only do religious experts disagree about fundamental matters of religion, many people believe that religion itself is false. Appealing to non-experts as if they were experts, or appealing to experts in controversial fields, as evidence for a belief, are equally irrelevant to establishing the correctness of the belief.

The irrelevant appeal to authority is a type of genetic fallacy, attempting to judge a belief by its origin rather than by the arguments for and against the belief. If the belief originated with an authoritative person, then the belief is held to be true. However, even authoritative persons can hold false beliefs.

Appeals to authority do not become relevant when instead of a single authority one cites several experts who believe something is true. If the authorities are speaking outside of their field of expertise or the subject is controversial, piling up long lists of supporters does not make the appeal any more relevant. On any given controversial matter there are likely to be equally competent experts on different sides of the issue. If a controversial claim could be established as true because it is supported by experts, then contradictory beliefs would be true, which is absurd. The truth or falsity, reasonableness or unreasonableness, of a belief must stand independently of those who accept or reject the belief.

Finally, it should be noted that it is not irrelevant to cite an authority to support a claim one is not competent to judge. However, in such cases the authority must be speaking in his or her own field of expertise and the claim should be one that other experts in the field do not generally consider to be controversial. In a field such as physics, it is reasonable to believe a claim about something in physics made by a physicist that most other physicists consider to be true. Presumably, they believe it because there is strong evidence in support of it. Such beliefs could turn out to be false, of course, but it should be obvious that no belief becomes true on the basis of who believes it.

## Applied Kinesiology

Applied kinesiology is a New Age theory and therapy created by George Goodheart, D.C. According to the International College of Applied Kinesiology, applied kinesiology "is based on chiropractic principles and requires manual manipulation of the spine, extremities and cranial bones as the structural basis of its procedures." However, Goodheart and his followers unite chiropractic with traditional Chinese medicine (among other things) and not only accept the notion of ch'i and the meridians of acupuncture, they posit a universal intelligence of a spiritual nature running through the nervous system. They believe that muscles reflect the flow of ch'i and that by measuring muscle resistance one can determine the health of bodily organs. For example, practitioners claim that they can determine nutritional deficiencies by testing muscle resistance. This is an empirical claim and has been tested (Kenny, "Applied Kinesiology Unreliable for Assessing Nutrient Status," *Journal of the American Dietetic Association*, 88:698-704, 1988.). The test showed that the claim is false. Other claims made by practitioners are supported mainly by anecdotes supplied by advocates. No reputable scientific journal has ever published a paper supporting the validity of applied kinesiology, according to Janice Lyons, R.N.

Applied kinesiology should not be confused with kinesiology proper, which is the scientific study of the principles of mechanics and anatomy in relation to human movement.

## Apport

An apport is an object allegedly materializing during a séance. Believers see apports as signs or gifts from spirits. Skeptics see them as evidence of conjuring.

Good magicians and good mediums can produce objects seemingly out of nowhere and nothing. They can also make objects seem to disappear. When a medium does this it is referred to as a deport.

## Area 51

"Area 51" is a part of an off-limits military base near Groom Dry Lake in Nevada. UFOers are sure it is used to hide aliens from us. The state of Nevada recently designated a barren 98-mile stretch of Route 375,

which runs near Area 51, as the Extraterrestrial Highway. Such a move is no doubt proof of a government attempt to throw us off the track and think there is not a cover-up when there is one. This is a cover-up of the cover-up, typical of government agencies when dealing with sensitive information regarding UFOs and aliens.

Since you can be shot if you try to trespass on the military base where Area 51 is located, UFO tourists must view the sacred ground from a distant vantage point. Many do this, hoping for a glimpse of a UFO landing. Apparently, our government has a treaty with the aliens that allows them to fly into this area at will, as long as we can experiment on them and try to duplicate their aircraft. You don't really think that any human could have come up with the idea of the Stealth Bomber, do you?

Skeptics don't doubt that something secret is going on in Area 51. And what is going on may be more sinister than building secret aircraft or developing new weapons. "Sixty Minutes" did a segment where Leslie Stahl suggested that area 51 might be an illegal dumping ground for toxic substances. If so, Area 51 might turn out to be hazardous to your health in more ways than one. Several former workers at Area 51 and widows of former workers have filed lawsuits against the government for injuries or death resulting from illegal hazardous waste practices. So far the government has been protected from such suits because of "national security." In fact, the government does not even acknowledge the existence of the base known as Area 51. Such denials, of course, do little more than provide more ammo for those who claim there is a government conspiracy to cover up just about anything it's ever been involved in.

### Argument From Design

The argument from design is one of the "proofs" for the existence of God. In its basic form, this argument infers from the intelligent order and created beauty of the universe that there is an intelligent Designer and Creator of the universe. The argument has been criticized for begging the question: it assumes the universe is designed in order to prove that it is the work of a designer. The argument also suppresses evidence: for all its beauty and grandeur, the universe is also full of, well, to be delicate, let us say that the universe is also full of nasties. I suppose I should be more specific, but I think the reader knows the kind of thing I mean: babies born without brains, good people suffering monstrous tortures such as neurofibromatosis, evil people basking in the sun and enjoying power, reputation, etc. Volcanoes erupting, earthquakes rattling the planet, hurricanes and tornadoes blindly wiping out thousands of lives a day. Is it unfair to call these things the nasties, what is blithely referred to by theists as non-moral evil or physical evil? To say, as many defenders of Intelligent Design do, that these nasties only seem nasty to us but we are ignorant of God's plan and vision and cannot know how good these nasties really are, is self-refuting. If we can't know what's good and what's not, we can't know whether the design, if any, is good or bad.

### Paley's Argument

One of the argument's more famous variations involves an analogy with a watch. William Paley (1743-1805), the Archdeacon of Carlisle, writes in his *Natural Theology* (1802):

In crossing a heath, suppose I pitched my foot against a stone and were asked how the stone came to be there, I might possibly answer that for anything I knew to the contrary it had lain there forever; nor would it, perhaps, be very easy to show the absurdity of this answer. But suppose I had found a watch upon the ground, and it should be inquired how the watch happened to be in that place, I should hardly think of the answer which I had before given, that for anything I knew the watch might have always been there.

The reason, he says, that he couldn't conceive of the watch having been there forever is because it is evident that the parts of the watch were put together for a purpose. It is inevitable that "the watch must have had a maker," whereas the stone apparently has no purpose revealed by the complex arrangement of its parts.

### Darrows Response

One could, of course, attack Paley's argument at this point and say, as Clarence Darrow did, that some stones would be just as puzzling as a watch; for, they are complex and could easily have been designed by someone for some purpose we are unaware of, and, in any case "on close inspection and careful study the stone...is just as marvelous as the watch." Be that as it may, Paley's point was not that watches are inherently more interesting than stones. His point was that a watch could be seen to be analogous with the creation of the universe. The design of the watch implies an intelligent designer. This fact, says Paley, would not be diminished even if we discovered that the watch before us was the offspring (no pun intended) of another watch. "No one," he says, "can rationally believe that the insensible, inanimate watch, from which the watch before us issued, was the proper cause of the mechanism we so much admire in it-- could be truly said to have constructed the instrument, disposed its parts, assigned their office,

determined their order, action, and mutual dependency, combined their several motions into one result, and that also a result connected with the utilities of other beings."

Paley then goes on to claim that "every manifestation of design which existed in the watch, exists in the works of nature, with the difference on the side of nature of being greater and more, and that in a degree which exceeds all computation." The implication is that the works of nature must have had a designer of supreme intelligence to have contrived to put together such a magnificent mechanism as the universe. According to Darrow, this 'implication' is actually an assumption.

To say that a certain scheme or process shows order or system, one must have some norm or pattern by which to determine whether the matter concerned shows any design or order. We have a norm, a pattern, and that is the universe itself, from which we fashion our ideas. We have observed this universe and its operation and we call it order. To say that the universe is patterned on order is to say that the universe is patterned on the universe. It can mean nothing else.\*

The problem with Paley's analogy is that the belief that the universe shows orderliness and purpose is an assumption. One quality of a good analogical argument is that the characteristics cited as shared characteristics must be truly shared characteristics. If there is doubt that one of the items being compared (the universe) possesses the most significant shared characteristic (of being orderly and purposive), then the analogical argument is not a sound one.

### Hume's Argument

Another philosopher, David Hume (1711-1776), took up the design analogy a few years before Paley, in his Dialogues Concerning Natural Religion. One of the characters, Philo, suggests that "If the universe bears a greater likeness to animal bodies and to vegetables than to the works of human art, it is more probable that its cause resembles the cause of the former than that of the latter, and its origin ought rather to be ascribed to generation or vegetation than to reason or design." (Book VII) "The world," says Philo, "plainly resembles more an animal or a vegetable than it does a watch or knitting-loom. Its cause, therefore, it is more probable, resembles the cause of the former. The cause of the former is generation or vegetation. The cause, therefore, of the world we may infer to be something similar or analogous to generation or vegetation." Hume, apparently thought the analogy was a joke, but perhaps Paley is still laughing from that Great Carrot Patch in the Sky.

I might find this watch analogy more convincing of Divine Purpose if, while observing it in his imaginary scenario, Paley's watch suddenly and for no reason shot a lightning bolt through his forehead. That would be more in harmony with the universe I have come to know and love. If the watch could give AIDS to anyone who touched it, or contaminate his progeny for endless generations, then I might be convinced that this watch is like the universe and indicative of a Grand Designer.

### The Apparent Designed Order

Finally, there is a common and popular argument that lists facts about nature that, if they were different, would mean that our planet or life on our planet would not exist. We wouldn't be here, it is noted,

if the sun were just slightly farther away or half as powerful

if the axis of the earth were slightly different

if the moon were larger or closer or farther away

if gravity weren't such a weak force

if DNA didn't replicate

if molecules were larger or smaller

if there were sixty planets in our solar system

if carbon didn't exist

if the speed of light were half what it is

if genetic mutation did not happen

if the rotation of the earth were one-tenth of what it is

Furthermore, look at all the signs of design:

salmon, eels, birds, butterflies and whales are able to migrate and find the same breeding and feeding grounds year after year  
human reason which can conceive God  
natural ecological systems

One cannot deny the facts. If things were different then things would be different. But they aren't different, so what is the point of this argument? The sun will be unable to support life on this planet some day. It is already unable to support life on several other planets. What does this fact prove about design? Nothing. The axis of the earth has been different and will be different again. Someday this planet will be uninhabitable. What does that prove about design, intelligent or otherwise? Nothing. We can't deny that if millions of factors did not occur, we wouldn't be here. So what? Many of these factors did not exist in the past and will not exist in the future on this planet. There was a time when there was no life on this planet and there will be a time when no life exists here in the future. There was a time when this planet did not exist and there will be a time in the future when it will not exist. What does that prove about design? Nothing. There are countless planets that exist which do not have the conditions necessary for life. What do they prove about design? Nothing.

One might argue that the odds are a billion billion to one that all these circumstances just happened to coincide that makes life on earth possible. But since we're here, the odds are 100% that it can happen. Cressy Morrison once argued

Suppose you put ten pennies, marked from one to ten, into your pocket and give them a good shuffle. Now try to take them out in sequence from one to ten, putting back the coin each time and shaking them all again. Mathematically we know that your chance of first drawing number one is one in ten; of drawing one and two in succession, one in 100; of drawing one, two and three in succession, one in 1000, and so on; your chance of drawing them all, from number one to number ten in succession, would reach the unbelievable figure of one in ten billion.

By the same reasoning, so many exacting conditions are necessary for life on the earth that they could not possibly exist in proper relationship by chance. The earth rotates on its axis 1000 miles an hour at the equator; if it turned at 100 miles an hour, our days and nights would be ten times as long as now, and the hot sun would likely burn up our vegetation each long day while in the long night any surviving sprout might well freeze.

Morrison begs the question. The earth with life on it is here. The odds are 1/1 of its existing. In any case, if I had 20 billion years to pull ten numbered pennies out of my pocket, the odds of me drawing out the coins in sequence at least once are very good.

But why chip away at this argument from rarity when we can use the sledgehammer?

... rarity by itself shouldn't necessarily be evidence of anything. When one is dealt a bridge hand of thirteen cards, the probability of being dealt that particular hand is less than one in 600 billion. Still, it would be absurd for someone to be dealt a hand, examine it carefully, calculate that the probability of getting it is less than one in 600 billion, and then conclude that he must not have been dealt that very hand because it is so very improbable. --John Allen Paulos, *Innumeracy: Mathematical Illiteracy and its Consequences*

Are there naturalistic and mechanistic explanations for ecological systems and what is called "animal wisdom"? Of course. Does this prove they were not designed? Of course not. Nor does their existence prove design. Do we have to posit a God to explain how human reason came to exist with its ability to conceive of an infinite being? Of course not. Does this mean there is no God? Of course not. But it does mean that this argument from design is little more than an exercise in begging the question. It has to assume design in order to prove it.

Argument From Ignorance

(Argumentum Ad Ignorantiam)

The argument from ignorance is a logical fallacy of irrelevance occurring when one claims that something is true only because it hasn't been proved false, or that something is false only because it has not been proved true. A claim's truth or falsity depends upon supporting or refuting evidence to the claim, not the lack of support or refutation from an opponent of the claim. I can't prove that Einstein's theory of relativity is true, but that is hardly relevant to the truth or falsity of the theory. I can't prove it is false that aliens have visited this planet but that does not have any relevance to the issue of whether the claim is true.

The argument from ignorance fallacy does not involve claiming that any person is ignorant. If you think of ignorance as being without knowledge, the name of this fallacy may not be as misleading as it would otherwise be. The fallacy occurs when reasoning from the lack of knowledge that a position is true to the conclusion that an opposing position is therefore true. Still, this fallacy might be better called 'the fallacy from lack of sufficient evidence to the contrary.'

The argument from ignorance seems to be more seductive when it can play upon wishful thinking. People who want to believe in astral projection, for example, may be more prone to think that the lack of evidence to the contrary of their desired belief is somehow relevant to supporting it.

## Aromatherapy

Aromatherapy is a term coined by French chemist René Maurice Gattefossé in the 1920's to describe the practice of using essential oils taken from plants, flowers, roots, seeds, etc., in healing. The term is a bit misleading, since the aromas of oils, whether natural or synthetic, are generally not themselves therapeutic. Aromas are used to identify the oils, to determine adulteration, and to stir the memory, but not to directly bring about a cure or healing. It is the "essence" of the oil--its chemical properties--that gives it whatever therapeutic value the oil might have. Furthermore, vapors are used in some but not all cases of aromatherapy. In most cases, the oil is rubbed onto the skin or ingested in a tea or other liquid. Some aromatherapists even consider cooking with herbs a type of aromatherapy.

The healing power of essential oils is the main attraction in aromatherapy. It is also the main question for the skeptic. There is very little evidence for all the claims made by aromatherapists regarding the various healing properties of oils. Most of the support for the healing power of such substances as tea tree oil is in the form of anecdotes such as the following:

In the plane on my way to India [from Europe] a few years ago, my index finger began throbbing violently. A rose thorn had lodged in it two days before, as I pruned my roses. It was now turning septic. I straight away applied tea tree oil undiluted to the finger. By the time I arrived in Bangalore, the swelling had almost gone and the throbbing had stopped (Daniele Ryman, Aromatherapy).

This kind of post hoc reasoning abounds in the literature of alternative health care. What would be more convincing would be some control studies such as the following:

Professor Tomas Riley of the Department of Microbiology at the University of Washington has published a paper in [blah blah scientific journal] which demonstrates that tea tree oil kills many bacteria present in common infections, including some staphylococci and streptococci.\*

When references are made to other aromatherapists, they are usually of the following type:

Marguerite Maury prescribed rose for frigidity, ascribing aphrodisiac properties to it. She also considered rose a great tonic for women who were suffering from depression (Daniele Ryman, Aromatherapy, p. 205).

Such testimonials are never met with skepticism or even curiosity as to what evidence there is for them. They are just passed on as if they were articles of faith.

Besides personal experience, the only kind of research aromatherapists seem interested in is in reading what other aromatherapists have said or believed about plants or oils. The practitioners and salespersons of aromatherapeutic products seem singularly uninterested in scientific testing of their claims, many of which are empirical and could be easily tested. Of course, there are many aromatherapists who make non-testable claims, such as claims regarding how certain oils will affect their "subtle body," bring balance to their chakra, restore harmony to their energy flow, return one to their center, or contribute to spiritual growth. Aromatherapy is said to restore or enhance mental, emotional, physical or spiritual health. Such claims are essentially non-testable. They are part of New Age mythology and can't really engender any meaningful discussion or debate.

When aromatherapists get into professional debates about empirical matters it is generally over such matters as whether natural oils are superior to synthetic ones, though even here references to scientific studies of the issue are sought in vain. The way aromatherapist Daniele Ryman, a defender of natural oils, treats the subject of "lavender" is typical. In her book, Aromatherapy, she gives some botanical and historical information about the plant, including a claim by Matthiolo, a 16th century botanist, that lavender is a panacea which can cure epilepsy, apoplexy and mental problems. She tells us that the principal constituents of lavender are alcohols such as borneol, geraniol and linalool; esters such as geranyle and linalyl; and terpenes such as pinene and limonene. Lavender also contains a high percentage of phenol, a strong antiseptic and antibiotic. She also notes that while many essential oils are very toxic, lavender is one of the least toxic of all oils. Then she tells us that lavender is "the oil most associated with burns and healing of the skin." She says lavender is "very effective in treating cystitis, vaginitis, and

leucorrhoea." Furthermore, as an herbal tea, lavender "is also good as a morning tonic for convalescents, as a digestive after meals, for rheumatic conditions, and at the first appearance of a cold or flu." To prevent varicose veins, Ryman advises that you "massage the legs with an oil consisting of 3 drops cypress oil, 2 drops each of lavender and lemon oil, and 1 ounce of soy oil" (p. 143). Nowhere does she give any indication that anyone anywhere has done any control studies with lavender to test any of these claims. Now, it's true that expressions such as 'very effective' and 'is good' are not very precise, but they are not complete weaslers like 'helps' (which is what she says lavender in your bath will do for cellulite). And 'most associated' with burns doesn't actually say that it will do any good for burns. Still, I think these claims can be made precise enough to test, though I doubt if Ryman or most other aromatherapists have any interest in doing such tests.

For some reason, Ryman doesn't say much about lavender's use to reduce stress in her chapter on lavender. However, in a section on "Insomnia" she says that "lavender is a gentle narcotic, recommended for mental and physical strain." There has been a study done, not mentioned by Ryman, which compared the effects on intensive care patients of aromatherapy using lavender, massage therapy and rest. The study concluded that rest was best (Dunn).

I would not reject aromatherapy out of hand, however. When I have a cold and a stuffy nose, I'll use Vicks VapoRub, a mixture of camphor, menthol and eucalyptus oil. Strictly speaking, I suppose I am a practicing aromatherapist. However, when I look at what people who call themselves aromatherapists claim, I have to conclude that aromatherapy is a mostly a pseudoscientific alternative medical therapy. It is a mixture of folklore, trial and error, anecdote, testimonial, New Age spiritualism and fantasy. What aromatherapy lacks is a knack for sniffing out non-sense.

#### Astral Body

The astral body is one of seven bodies each of us has, according to Madame Blavatsky. The astral body is the seat of feeling and desire and has an aura. How the physical body and the other alleged bodies interact is unknown, but it is said to be by some sort of occult force. The astral body is said to be capable of leaving the other bodies for an out-of-body experience known as astral projection.

#### Astral Projection

Astral projection is a type of out-of-body experience (OBE) in which the astral body leaves its other six bodies and journeys far and wide to anywhere in the universe. The notion that we have seven bodies (one for each of the seven planes of reality) is a teaching of theosophist Madame Blavatsky. On its trips, the astral body perceives other astral bodies rather than their physical, etheric, emotional, spiritual, etc. bodies. In an ordinary OBE, such as remote viewing or the out-of-body near-death experience, there is a separation of a person's consciousness from his or her body. In the near-death out-of-body experience, there may be the experience of hovering above and perceiving one's body and environs, and hearing conversations of surgeons or rescue workers tinkering with one's body. In astral projection, it is the astral body, not the soul or consciousness, that leaves the body. The astral body, according to Madame Blavatsky, is the one that has an aura. It is also the seat of feeling and desire, and is generally described as being connected to the physical body during astral projection by an infinitely elastic and very fine silver cord, a kind of cosmic umbilical cord or Ariadne's thread.

There is scant evidence to support the claim that anyone can project their mind, soul, psyche, spirit, astral body, etheric body, or any other entity to somewhere else on this or any other planet. The main evidence is in the form of testimonials.

#### Astrology

...as above, so below...

"Astrology, as it is presently practiced (in either its traditional or psychological form), has no relevance to understanding ourselves, or our place in the cosmos. Modern advocates of astrology cannot account for the underlying basis of astrological associations with terrestrial affairs, have no plausible explanation for its claims, and have not contributed anything of cognitive value to any field of the social sciences. Further, astrology does not have the theoretical\conceptual resources to resolve its own internal problems adequately, or external anomalies, or to adjudicate between conflicting astrological claims or systems." -- I.W. Kelly, *Modern Astrology: A critique*, p. 931.

"You shouldn't dismiss as incredible the possibility that a long enough search might reveal a golden grain of truth in astrological superstition." -- Johannes Kepler

Astrology, in its traditional form, is a type of divination based on the theory that the positions and movements of celestial bodies (stars, planets, sun, and moon) at the time of birth profoundly influence a person's life. In its psychological form, astrology is a type of New Age therapy used for self-understanding and personality analysis. (This entry concerns traditional astrology. See the entry on astrotherapy for a discussion of psychological astrology.)

The most popular form of traditional astrology is Sun Sign Astrology, the kind found in many daily newspapers which publish horoscopes. A horoscope is an astrological forecast. The term is also used to describe a map of the zodiac at the time of one's birth. The zodiac is divided into twelve zones of the sky, each named after a constellation which originally fell within its zone (Taurus, Leo, etc.). The apparent paths of the sun, the moon, and the major planets all fall within the zodiac. Because of the precession of the equinoxes, the equinox and solstice points have each moved westward about 30 degrees in the last 2,000 years. Thus the zodiacal constellations named in ancient times no longer correspond to the segments of the zodiac represented by their signs. In short, had you been born at the same time on the same day of the year 2,000 years ago, you would have been born under a different sign.

Traditional Western astrology may be divided into tropical and sidereal. (Astrologers in non-Western traditions use different systems.) The tropical, or solar, year is measured relative to the sun and is the time (365 days, 5 hr, 48 min, 46 sec of mean solar time) between successive vernal equinoxes. The sidereal year is the time (365 days, 6 hr, 9 min, 9.5 sec of mean solar time) required for the earth to complete an orbit of the sun relative to the stars. The sidereal year is longer than the tropical year because of the precession of the equinoxes, i.e., the slow westward shift of the equinoctial points along the plane of the ecliptic at a rate of 50.27 seconds of arc per year, resulting from precession of the earth's axis of rotation. Sidereal astrology uses the actual constellation in which the sun is located at the moment of birth as its basis; tropical astrology uses a 30-degree sector of the zodiac as its basis. Tropical astrology is the most popular form and it assigns its readings based on the time of the year, while generally ignoring the positions of the sun and constellations relative to each other. Sidereal astrology is used by a minority of astrologers and bases its readings on the constellations near the sun at the time of birth.

One of the common arguments in favor of astrology is the fallacious argument from popularity and tradition: astrology is believed by millions of people and it has survived for thousands of years. These claims are true, but are irrelevant to the "truth" of astrology. The ancient Chaldeans and Assyrians engaged in astrological divination some three thousand years ago. By 450 B.C.E. the Babylonians had developed the 12-sign zodiac, but it was the Greeks--from the time of Alexander the Great to their conquest by the Romans--who provided most of the fundamental elements of modern astrology.

The spread of astrological practice was arrested by the rise of Christianity, which emphasized divine intervention and free will. During the Renaissance, astrology regained popularity, in part due to rekindled interest in science and astronomy. Christian theologians, however, warred against astrology, and in 1585 Pope Sixtus V condemned it. At the same time, the work of Kepler and others undermined astrology's tenets.

### Is Astrology Testable?

A second argument in favor of astrology is that it is testable and there is evidence that the data supports the hypothesis that there is a causal connection between heavenly bodies and human events. For example, according to the so-called Mars effect, great athletes are born not made. This claim is based on a statistical analysis of birth dates of great athletes and the position of Mars when they were born. It is said that the correlation is greater than one would expect by chance. Others disagree and claim the evidence does not show a correlation that would not be expected by chance. However, even if there were a significant correlation between the position of Mars at one's birth and one becoming an exceptional athlete, that would not imply or even indicate that there is a causal connection between the position of a planet and the kind of endeavors one is likely to be good at here on earth. Correlation between x and y is not a sufficient condition for reasonable belief that x causes y. Even a statistically significant correlation between x and y is not a sufficient condition for reasonable belief in a causal connection, much less for the belief that x causes y. Correlation does not prove causality.

Correlation may not prove causality, but it is extremely attractive to defenders of astrology. For example: "Among 3,458 soldiers, Jupiter is to be found 703 times, either rising or culminating when they were born. Chance predicts this should be 572. The odds here: one million to one" (Gauquelin). I'm willing to assume that all the statistical data which shows a significant correlation between various planets rising, falling, culminating, or whatever else they might be seen as doing, is accurate. However, it would be more surprising if of all the billions and billions of celestial motions conceivable, there weren't a great many that could be significantly correlated with dozens of mass events or individual personality traits.

For example, defenders of astrology are fond of noting that 'the length of a woman's menstrual cycle corresponds to the phases of the moon' and 'the gravitational fields of the sun and moon are strong enough to cause the rising and falling of tides on Earth.' If the moon can affect the tides, then surely the moon can affect a person. But what is the analog to the tides in a person? We are reminded that humans begin life in an amniotic sea and the human body is 70 percent water! If oysters open and close their shells in accordance with the tides, which flow in accordance with the electromagnetic and gravitational forces of the sun and moon, and humans are full of water, then isn't it obvious that humans must be influenced by the moon as well? It may be obvious, but the evidence from moon studies does not support it.

Astrologers emphasize the importance of the positions of the sun, moon, planets, etc., at the time of birth. But why are the initial conditions more important than all subsequent conditions for one's personality and traits? Why is the moment of birth chosen as the significant moment rather than the moment of conception? Why aren't other initial conditions such as one's mother's health, the delivery place conditions, forceps, bright lights, dim room, back seat of a car, etc., more important than whether Mars is ascending, descending, culminating or fulminating? Why isn't the planet Earth, much closer to us at birth, considered a major influence on who we are and what we become?

Other than the sun and the moon and an occasional passing comet or asteroid, most planetary objects are so distant from us that any influences they might have on anything on our planet are likely to be wiped out by the influences of the sun and moon. Earth, and the people and things on earth that a person comes in direct contact with, are likely to be more important as influencing factors in our lives than distant heavenly bodies. What's more, if it turns out that we can determine specific effects from specific birthplace conditions, then we can control those conditions to bring about beneficial results. On the other hand, even if it were true that the position of the stars and planets is more important to your life than whether your birth was a difficult one under horrendous conditions, there is nothing we can do about the stars and there is a limit to how much control we can have over the time of a person's birth. (I am glad I won't be an astrologer in the age of test tube babies. How would I know when my client was 'born'? The birthing process isn't instantaneous. There is no single moment that a person is born. The fact that some official somewhere writes down a time of birth is irrelevant. Do they pick the moment the water breaks? the moment the first dilation occurs? when the first hair or toenail peeks through? when the last toenail or hair passes the last millimeter of the vagina or belly surface? when the umbilical cord is cut? when the first breath is taken? or the moment when the physician or nurse looks at a clock or watch [no doubt magically free from the possibility of inaccuracy] to note the time of birth?)

No one would claim that in order to grasp the effect of the moon on the tides or potatoes one must understand initial conditions of the Singularity before the Big Bang, or the positions of the stars and planets at the time the potato was harvested. If you want to know what tomorrow's low tide will be you do not need to know where the moon was when the first ocean or river was formed, or whether the ocean came first and then the moon, or vice-versa. Initial conditions are less important than present conditions to understanding current effects on rivers and vegetables. If this is true for the tides and plants, why wouldn't it be true for people?

#### Correlation Is Not Causality

This fascination with correlation is also found in the reasoning of those who try to make every ancient megalithic site into an astronomical observatory of some sort. Defenders of astrology should note what Aubrey Burl wrote of such reasoning.

The odds are in favour of a good celestial sightline occurring fortuitously in almost any circle. Examine a site like Grey Croft, Cumberland,...27.1 x 24.4 m in diameter with twelve stones and an outlier, there appear to be so many possible lines and so many possible targets that to discover nothing would be improbable (Burl, 50).

Also, while it is true that the odds are inconceivably large that anyone would make more than 20 straight passes at the craps table, it's happened. Given enough craps games, the inconceivable will become the frequent. In short, what seems to defy the "laws" of statistics, may not do so when examined more carefully.

Finally, there are those who defend astrology by pointing out how accurate professional horoscopes are. A colleague of mine, a history teacher with a Ph.D. in history from the University of California at Davis, practices astrology. Of course, he's high tech and has a computer program to help him do his readings. He is aware of all the arguments against astrology and even admits that logically it shouldn't work. But it does, he believes. This concept of 'works' is intriguing. What does it mean?

Basically, to say astrology works means that there are a lot of satisfied customers. It does not mean that astrology is accurate in predicting human behavior or events to a degree significantly greater than mere chance. The main support for this argument is in the form of anecdotes and testimonials. There are many satisfied customers who believe that their horoscope accurately describes them and that their astrologer



has given them good advice. Such evidence does not prove astrology so much as it demonstrates the effects of cold reading, the Forer effect, and confirmation bias. Good astrologers give good advice, but that does not validate astrology. There have been several studies which have shown that people will use selective thinking to make any chart they are given fit their preconceived notions about themselves and their charts. Many of the claims made about signs and personalities are vague and would fit many people under many different signs. Even professional astrologers, most of whom have nothing but disdain for Sun Sign Astrology, can't pick out a correct horoscope reading at better than a chance rate. Yet, astrology continues to maintain its popularity, despite the fact that there is scarcely a shred of scientific evidence in its favor. Even the First Lady of the United States, Nancy Reagan, and her husband, Ronald, consulted an astrologer while he was the leader of the free world. From which I can only conclude that astrologers have more influence than the stars do.

Is it possible that I am who I am because of the position of the planets, stars, moons, comets, asteroids, quasars, black holes, etc., at the moment of my birth? Yes, it is possible. Do I have any reason to think that this possibility is more likely than the opposite possibility, namely, that these matters are insignificant and irrelevant to my 'destiny'? No. I can't find a single good reason for believing any of this. But I am a Taurus and we all know how stubborn I should be.

#### Astrotherapy

The value of astrology. . .is not its power to predict what the gods have in store for humans, but its ability to reveal the god-like powers that reside in the depths of every human being.  
--Glen Perry, Ph.D.

Questions of truth or falsity belong to the realm of the rational and are irrelevant to the value of the imaginal. . . .To insist that Moon/Saturn contacts must needs be depressive or Mars/Pluto explosive (in other words, actually true) is to kill the imaginal and rob it of its power to be therapeutic. . . .Astrology viewed as an imaginal discipline conveniently avoids all questions of whether it is true or not, diffusing much of its critics [sic] furor.  
--Brad Kochunas

I do not know why I believe what I believe, as it comes from the heart and not the head.  
--Brad Kochunas

Astrology is part of our past, but astrologers have given no plausible reason why it should have a role in our future.  
--I. W. Kelly

Astrotherapy uses astrology as a guide to the transformation of personality, to self-actualization and self-transcendence. Astrology is studied for its power to aid in psychological healing and growth. As far as I know, there are no licenced "astrotherapists." The term is used to refer to counselors and therapists of all sorts who use astrology in their counseling and therapy.

According to defenders of astrotherapy, most critics of astrology misunderstand how human destiny is actually linked to the heavens. Frederick G. Levine, author of *The Psychic Sourcebook: How to Choose and Use a Psychic* (New York: Warner Books, 1988), claims that modern astrologers are more holistic than their ancient counterparts. The contemporary astrologer doesn't believe in anything so crude as direct causal connection between the heavenly bodies and a person's destiny. He or she believes in the interrelatedness of all things.

[T]here are larger patterns of energy that govern all interactions in the universe and...these patterns or cycles are reflected in the movements of stars and planets in the same way they are reflected in the movements of people and cultures. Thus it is not that planetary motions cause events on earth, but simply that those motions are indicators of universal patterns.

To back up his claim, Levine cites Linda Hill, whose credentials he establishes by noting that she has been "a New York astrological consultant of 14 years' [sic] experience." Says Ms. Hill, "I don't think anyone knows exactly why it works; it just works. Carl Jung used the term synchronicity. It's simply a synchronization....We are somehow synchronized to the celestial patterns that were present at our birth."

In short, astrotherapy uses astrology as a kind of projective personality test, useful for unleashing one's hidden creative powers, for delving into the subconscious mind to discover hidden beliefs, drives, truths, and perhaps even one's cosmic synchronicity!

Dane Rudhyar is seen as the father of astrotherapy. In the 1930s he applied Jungian psychological concepts to astrology. He liked Jung's notion that the psyche seeks psychic wholeness or "individuation," a process Rudyhar believed is evident in the horoscope.

Rudyhar's work is carried on today by Glen Perry, who boasts a Ph.D. in clinical psychology from the Saybrook Institute in San Francisco, a regionally accredited (WASC) graduate school "dedicated to fostering the full expression of the human spirit and humanistic values in society." In astrotherapy, says Dr. Perry, "astrology is used to foster empathy for the client's internal world and existing symptoms, and promote positive personality growth and fulfillment." He thinks astrology is both a theory of personality and a diagnostic tool, yet he provides neither arguments nor evidence to support this notion. Here is an example of how astrotherapy uses astrology:

...Saturn opposed Venus in the natal chart indicates not simply "misfortune in love," but the potential to love deeply, enduringly, and responsibly along with the patience and determination to overcome obstacles. While realization of this potential may require a certain amount of hardship and suffering, to predict only hardship and suffering with no understanding of the potential gains involved is shortsighted at best and damaging at worst.

How Perry knows this is not made clear. Other claims, equally profound, do not require argument or evidence because they are vacuous: "the horoscope symbolizes the kind of adult that the individual may become." Still other claims are nearly unintelligible: "What the individual experiences as a problematic situation or relationship can be seen in the chart as an aspect of his or her own psyche. In this way, the horoscope indicates what functions have been denied and projected, and through what circumstances (houses) they will likely be encountered." "Simply put," says Perry, "the goal is to help the client realize the potentials that are symbolized by the horoscope." What systematic analysis and methodological tools he used to arrive at this notion are not mentioned, much less how one could go about verifying the specific symbolizations of any given horoscope. He does, however, seem to rely heavily upon questionable psychological concepts promoted by Jung and Freud.

Another astrotherapist, Brad Kochunas, makes it clear that one of the chief virtues of applying astrology to the inner life rather than to outward patterns of behavior, is that it takes astrology out of the realm of the scientific, where it has not fared too well when it has been thoroughly examined. Kochunas calls this concern with the psyche "the imaginal perspective" and says it

is not concerned with whether something is true or not but rather with its usefulness for the task at hand. Questions of truth or falsity belong to the realm of the rational and are irrelevant to the value of the imaginal. It is the functional validity and not the factual validity which is primary for the imaginal perspective. Does something work for a person? Is it useful in the sense of providing depth, meaning, value, or purpose to an individual or community? If so, then there is little call for its cultural degradation, it has power.

Here he proudly cites Barbara Sproul's *Primal Myths* (San Francisco: Harper & Row, 1979). At least Kochunas, unlike Perry, firmly locates astrotherapy in mythology and proudly proclaims it to be outside of the realm of science. His message seems to be very simple and straightforward: If you can find satisfied customers, you have a valid myth.

Max Heindel, on the other hand, extends astrotherapy to all forms of healing and calls it a science, declaring it to have two basic laws: "the Law of Compatability [sic]" and "the law of Systemic Receptibility." A brief quotation from Heindel's work will demonstrate to the astute reader why I will not bother to review these "laws."

At the time of conception the Moon was in the degree which ascends at birth (or its opposite); the vital body was then placed in the mother's womb as a matrix into which the chemical elements forming our dense body are built. The vital body emits a sound similar to the buzz of a bumblebee. During life these etheric sound waves attract and place the chemical elements of our food so that they are formed into organs and tissues. So long as the etheric sound waves in our vital body are in harmony with the keynote of the archetype, the chemical elements wherewith we nourish our dense body are properly disposed of and assimilated, and health prevails no matter whether we are stout or thin, of rosy complexion or sallow, or whatever the outward appearance. But the moment the sound waves in the vital body vary from the archetypal key-note, this dissonance places the chemical elements of our food in a manner incongruous with the lines of force in the archetype. . . .

The general rule is: From the time of the New Moon to that of the Full Moon stimulants produce the greatest effect and sedatives are weakest. Decrease the dose of stimulants and increase that of sedatives. The exception is: When the Moon increasing approaches a conjunction to Saturn give larger doses of stimulants and smaller doses of sedatives.

We are not told from what ancient spirit these theories were channeled and we are left to guess at the origin of such thoughts. One will search in vain for anything resembling ordinary science in Heindel's writings. One will find, however, a belief in the music of the spheres.

What is one to make of the new astrology which seems to place itself outside of the realm of empirical testing and outside of a concern for empirical truth or falsity? This is seen as progress by the astropsychologists, but for those of us who prefer our delusions to be rooted in terra firma, astrotherapy is just one more in a long line of "crazy" therapies.

## Atheism

Atheism is the disbelief in God. An atheist must believe that humans created God rather than the other way around. To say that man created or invented God is to say that the vast majority of humans are deluded. It should go without saying that being deluded is not the same as being mentally unbalanced, but since some defenders of belief in God (e.g., D.E. Trueblood in *The Trustworthiness of Religious Experience*) do not seem to know this, we mention it.

How do atheists explain the origin of this delusion and its persistence? It has been argued by philosophers such as Thomas Hobbes (1588-1679) and Baruch de Spinoza (1632-1677) that belief in God originated in fear and superstition. And it has been argued by the likes of Sigmund Freud and Karl Marx that the delusion persists because belief in God satisfies the wishes for a protective father and for immortality, or it acts as an opiate against the misery and suffering of human existence. This world can't be all there is, says the theist. It's too awful. There must be an afterlife where the evil are punished and the good are rewarded. Life would be meaningless otherwise. Nonsense, says the atheist. We make our own meaning. But there would be no good or evil without God, says the theist. Nonsense, says the atheist. As Bertrand Russell put it: if things are good only because of God's fiat, then God is not Good by nature. If God is good by nature and doesn't create goodness by fiat, then goodness exists independently and prior to God; thus, we don't need God for goodness to exist. I think it goes without saying that we don't need God for evil to exist.

Believers in God either think that there is evidence to support their belief or they think that there is no reason not to believe in God. The former often find the arguments of atheists to be inept, fraudulent, deceptive, weak, insubstantial or ludicrous. The latter see atheists as stubborn and unwilling to risk error for the sake of a possible, sublime truth. Neither seems to apply the same scrutiny to their own arguments and beliefs that they do to their opponents.

The two types of believers share one thing in common: they want to believe in their delusion so badly that they deceive themselves into thinking they are being perfectly rational and reasonable in the pursuit of their delusion or that atheists are irrational and unreasonable in rejecting the same. Many also share a common motive: their belief gives them a sense of power and superiority, often leading them to destroy anything or anyone who opposes them, and to hurl benedictions over the miseries of the world, including miseries they themselves have caused. Believers feel they have the power of esoteric knowledge, which seems to the atheist to be the ultimate ego trip. Being so special doesn't just spice life up; it gives it a meaning and significance it would not otherwise have and dooms atheists to meaningless and insignificant lives.

For most believers, however, the belief in God is just something they have taken for granted all their lives. They learned belief at their mother's knee, as Russell put it. The belief gives order and meaning to their lives. It joins them to a community of believers, giving them confidence in themselves and their beliefs. The theist's belief is validated by all the important people in his or her life. If you grow up with the fairies, you'll be a candidate for fairy belief. If you grow up with God, if everyone important in your life reinforces the belief in God, you'll see proofs everywhere for what you know in your heart is true. Communal reinforcement of the belief in God may be the main force behind its seeming so reasonable to believers. For not only is one's belief constantly reinforced, so too are the arguments one makes. The reinforcement of belief is finalized by the authority of a few respectable, intelligent, kindred spirits. People may not come to believe in God just because some saint or scientist or Nobel Prize winner in literature gives his or her seal of approval to it, but people are made to feel more comfortable in their belief if they think they are in good company.

Millions of children grow up in a world of angels, holy communion, God the Father-Son-& Holy Ghost, and Jesus the Divine Savior. The lack of logic or rationality to any of it isn't even noticed. For such children, it seems as natural to believe in transubstantiation as it does to believe in electricity. They are taught mathematics side-by-side with the catechism. The absurdity of the juxtaposition is not noticed. For many people, it is as natural to believe in fairies and witches and evil eyes, etc., as it is to believe that fire is warm. But this is all irrelevant to whether there are fairies or witches, or gods, etc.

An atheist on the other hand, will most likely have to develop and defend his or her belief in an antagonistic community. If John Stuart Mill is right about the value of dissent, then there is little danger of

atheism becoming a mere prejudice, as theism is for many people. Being forced to defend a belief gives it strength and vitality. Having a belief constantly reinforced, or worse, not allowing challenges to it, leads to prejudice: beliefs held without really knowing why or whether they are worthy of maintenance.

#### Design or Blind Mechanism?

The theist thinks that life only makes sense if God exists. Why then does it seem obvious to atheists that everything makes just as much if not more sense if there is no God? Why does the universe seem perfectly intelligible to the atheist as an undesigned mechanism governed solely by natural, impersonal forces?

An atheist looks at the universe and what is known about it and sees that its alleged perfect order and design is pretty imperfect. They look at individual items which are wonderful in function but ridiculous in design and are led to think no omniscient being would design it this way. As Russell put it: who couldn't come up with a better world if given omnipotence, omniscience and billions of years to do it? An omniscient, omnipotent being might well be expected to use a much simpler and more effective design for the universe and most of the things in it. The very complexity and inherent defects of structures indicate, as Clarence Darrow noted, the lack of design and the result of natural forces working with no particular purpose in mind. You can use a complicated clamp to hold a few sheets of paper, but a paper clip is a much more elegant device for such a purpose. The orbits of the planets around our sun are a wonder to behold, but the asteroid belt, meteors, and comets crashing into planets is a strange touch for an omnipotent, all-good Creator. A healthy child has no match for exultation and hopefulness, but conjoined twins and other "freaks" of nature, as well as myriad genetic birth defects, seem unworthy of benevolent design. The atheist sees a woman with a 200 pound tumor and thinks such a grotesque evil can't be allowed by an omnipotent, all-Good God. But the patient and her parents think God helped the surgeons remove it and save her life. They don't blame God for the tumor but credit Him with its removal. They may even maintain that God had some fine and noble purpose in causing such suffering. The atheist finds such rationalization to be little more than ad hoc hypothesizing.

The typical theistic response to the previous line of reasoning is to consider it impertinent. God is not bound by human conceptions of perfection or adequate design. What may appear inelegant, inefficient or imperfect to us may be just right according to God. But if one takes this line of reasoning to its logical conclusion, then we can safely say nothing about God at all. I maintain that the minimum standard God should be held to is what a reasonably competent group of intelligent humans could come up with. If this God can't do any better than that, then "perfection" has no meaning when applied to this being. If one maintains that the ways of God are essentially inscrutable, then anything goes. God could be anything, even pure evil, in that case.

Of course, some things are complex by their very nature or are necessarily complex given the purposes they are to accomplish. And some good arises from violent collisions and eruptions, and from facing challenges created by natural defects such as blindness and cerebral palsy. The atheist does not maintain that only a universe immediately comprehensible and pleasurable to a six-year old would be worthy of an Almighty Creator. The stealth bomber, for example, is very complex, but necessarily so. However, to complicate a design beyond necessity is to ask for trouble. Whomever wrote the computer code for the browser you are using to read this should have written code that is as simple as possible to accomplish its goals. Another browser could accomplish the same goals but be filled with unnecessary complexity. An impartial programmer could look at the two codes and tell you who was the more competent programmer. The rest of us use the programs and perhaps can't tell the difference between the two. Nevertheless, the simpler program will be judged to be the better designed by those who create computer programs.

The concept of a magnificent being who is responsible for everything but who is playing a cosmic game of hide and seek leads the atheist to ask: Why would such a being as God be so frivolous? The whole idea of creation, commands, required worship, rewards and punishments, etc., clears up nothing. Many children are asked to memorize the answer to the question "Why did God make me?" and the answer is "To know, love, honor, serve and obey Him." To a child, this might sound good. He or she has a solemn, mysterious duty towards a being who only reveals Himself or His wishes on special occasions and only to specially selected persons. How many children memorizing their catechisms are hoping that God will pick them for a special revelation?

When an atheist hears of people having visions or hearing voices the recipients think are of divine origin, or of people performing magical or miraculous feats, many ask, following David Hume (1711-1776), which is more likely? that God spoke to this person or that they are deluded or perpetrating a fraud? Which is more likely, that the laws of nature have been violated by special powers or that there has been illusion, delusion, fraud, and/or error? Hume maintained that any reasonable person, maintaining the most basic principles of reasonableness, cannot believe in divine visions, voices or miracles on the basis of testimony, even firsthand testimony, without abandoning those very principles. Atheists find Hume's reasoning to be elegant and reasonable.

According to the atheist, God was invented not once, of course, but many times in many cultures. The similarities of invention may be due to the similarities of human nature and experience. Birth, sex, illness, injury, overcoming Nature, death, etc. are universal experiences. The images of God and God-experiences, as well as the utility of the invention, are reflected in such universally shared experiences as the need for protection against Nature and one's enemies, and the fear of death.

Or the similarities of religious experience and belief may be due to the similarity of neurophysiology in humans of different cultures. Michael Persinger, for example, has been able to duplicate the sense of presence, the sense of leaving the body, and other feelings associated with mysticism by electrically stimulating the brain. Many people have duplicated religious experiences by using drugs such as LSD and mescaline. It is probably no accident that many primitive religions used drugs, frenetic dancing and chanting, fasting, etc., and other means of neurochemically altering their consciousness, in order to make contact with the world of spirits. Hallucinations and dreams have often been seen as links to the divine. However, the link that holds these experiences together may not be an objectively experienced God, but a subjective set of perceptions triggered in the same way in the same parts of the brain causing similar experiences and feelings.

## Atlantis

Atlantis is a legendary island in the Atlantic west of Gibraltar, said by Plato to have been a utopia that sunk beneath the sea during an earthquake. Some controversial theories have equated ancient Thera with Atlantis. Thera is a volcanic Greek island in the Aegean Sea that was devastated by a volcanic eruption in 1625 BCE. Until then it had been associated with the Minoan civilization on Crete.

To many, however, Atlantis is not just a lost continent. It is a lost world. The Atlanteans were extraterrestrials who destroyed themselves with nuclear bombs or some other extraordinarily powerful device. Atlantis was a place of advanced civilization and technology. Lewis Spence, a Scottish mythologist who used "inspiration" instead of scientific methods, attributes Cro-Magnon cave paintings in Europe to displaced Atlanteans (Feder, 130). Helena Blavatsky and the theosophists of the late 19th century invented the notion that the Atlanteans had invented airplanes and explosives and grew extraterrestrial wheat. The theosophists also invented Mu, a lost continent in the Pacific Ocean. Psychic healer Edgar Cayce claimed to have had psychic knowledge of Atlantean texts which assisted him in his prophecies and cures. J.Z. Knight claims that Ramtha, the spirit she channels, is from Atlantis.

The serious investigator of the myth of Atlantis must read Ignatius Donnelly's *Atlantis: the Antediluvian World* (1882). In the spirit of von Däniken, Velikovsky and Sitchin, Donnelly assumes that Plato's myth is true history. Much of the popularity of the myth of Atlantis, however, must go to popular writers such J.V. Luce (*The End of Atlantis*, 1970) and Charles Berlitz, the man who popularized the Bermuda Triangle and the discovery of Noah's Ark. His *Doomsday, 1999 A.D.* (1981) comes complete with maps of Atlantis and drawings by J. Manson Valentine

Unfortunately for the New Age Atlanteans, there is no credible and convincing archaeological or geological evidence for either Atlantis or Mu. That has not stopped people like Graham Hancock from concocting theories to the contrary. To paraphrase Whitehead, the belief in Atlantis, the ancient and great civilization, is just another footnote to Plato.

## Auras

An aura, according to New Age metaphysics, is a colored outline, or set of contiguous outlines, allegedly emanating from the surface of an object. Auras are not to be confused with the aureoles or halos of saints, which are devices of Christian iconography used to depict the radiance of light associated with divine infusion. In the New Age, even the lowly amoeba has an aura, as does the mosquito and every lump of goat dung. The aura supposedly reflects a supernatural energy field or life force that permeates all things. Human auras allegedly emerge from the chakras. Under ordinary circumstances, auras are only visible to certain people with a special psychic power. However, with a little bit of training, or with a special set of Aura Goggles with "pinacyanole bromide" filters (available at your local New Age Head Shop), anyone can see auras. You may also use Kirlian photography to capture auras on film. At least that is what New Age spiritualists believe.

On the other hand, you may also see auras if you have a migraine, a certain form of epilepsy or other visual system or brain disorder. Most aura training exercises involve staring at an object placed against a white background in a dimly lit room. What one sees is due to retinal fatigue and other natural perceptual processes, not the unleashing of hidden psychic powers. Something similar happens when you stare at certain colored or black and white patterns. Vision is not the verbatim recording of the outside world. When looking at a colored object, for example, the eye does not transmit to the brain a continuous series of

duplicate impressions. The brain itself supplies much of the visual perception. In short, even if auras are perceived, that is not good evidence that there is an energy field in the physical or supernatural world corresponding to the perceptions.

Some psychics claim that the specific colors in auras have specific meanings. Edgar Cayce, for example, not only gave a meaning to each of seven colors, he also connected each color with a note on the musical scale, a planet in the solar system, and possible health disorders. Robert Bruce, an aura expert in his own mind, objects to the notion that specific colors have specific meanings. In his view, even colors have auras, so what color clothing you have on will affect the color of your aura. According to Bruce,

The human aura is both an energy field and a reflection of the subtle life energies within the body. These energies make us what we are and in turn, are affected by our surroundings and life style. The aura reflects our health, character, mental activity and emotional state. It also shows disease - often long before the onset of symptoms.

The notion that auras reflect health is a common one among true believers. The problem is, what color reflects what condition? There is no consensus on what the colors mean, which makes it difficult if not impossible to devise an empirical test to determine whether there is any correlation between specific colors and specific diseases. In other words, reading auras is something like reading Rorschach tests with the added difficulty of each psychic potentially seeing a different pattern.

For every other object of color we have scientific devices which can measure any energy emitted from the object, as well as the wavelengths of light reflected from the object. Even though equipment exists capable of measuring extremely minute energy levels, no one has ever detected an aura or the alleged energy that gives rise to an aura using scientific equipment. Human tissue is about a million times less sensitive than something like a PET scanner, yet we are supposed to believe that some special people can "see" what cannot otherwise be detected. Or we are supposed to believe that we all have the power to see auras but somehow we have repressed or never trained our psychic selves to unleash the power within.

Furthermore, the best aura reader in the West was tested before a live television audience and failed miserably, just as her sisters who claim to feel the energy radiating around every human body have failed to demonstrate the validity of therapeutic touch. The Berkeley Psychic Institute (BPI) sent their top aura reader for a chance to win \$10,000 if she could prove her powers. She agreed that the devised test was a fair and accurate one. The test was televised on a program hosted by Bill Bixby. James Randi put up the \$10,000. The psychic was presented with about twenty people on stage and was asked if she could see their auras. She said that she could see the auras and that they all had one and they emanated at least a foot or two above each person's head. The twenty aura-wearing people then went offstage. A curtain was lifted, revealing a number of partitions behind which only some of the twenty people were standing. Thus, Bixby and the psychic were looking at twenty partitions but only several of them had a person behind it. The psychic was asked if she could see any auras creeping up above the partitions. She said she could. To get her ten grand all she had to do was correctly identify each partition that had a person behind it. She was to do this by seeing each person's aura above the partition. The audience was given an aerial camera view of the proceeding. Well, the psychic claimed that she saw an aura above all the partitions and that there was a person behind each partition. The partitions were removed, revealing about 6 people behind the partitions. The psychic didn't even seem surprised. She might console herself that 6 out of 20 is not bad in a hostile arena.

Of course, the test only demonstrates the lack of aura reading power of one person, not that there is no such thing as an aura or that auras are not indicative of mental, emotional and physical health or sickness. However, Randi's offer is still open to any psychic who wants to try it, except that now the prize is over \$1,000,000. Why is there not a line of psychics outside Randi's house? If what the psychics say is true about auras and reading them, taking this money would be easier than taking candy from a baby. Even if there are no poor psychics who need the money, they might still demonstrate their powers and give the prize to their favorite charity.

The Berkeley Psychic Institute has a special place in my heart. One day a few years ago, I noticed a poster from BPI on a bulletin board near my office at Sacramento City College. In addition to information about BPI, the poster exclaimed: You may not be psychotic, you may be psychic! I wrote a note to our school psychologist who handled the "psychologically challenged" at the time. I told her I was concerned about the poster. She wrote me back and asked me how in the world did I know that she had attended BPI. (If I occasionally express a bit of disdain for psychologists and therapists, please keep in mind that I have had a traumatic adulthood, dotted with experiences such as this one.)

I was familiar with BPI from their work at an annual local affair. Every year in May at the University of California at Davis there is a Whole Earth Festival reminiscent of the sixties. For three days the campus is filled with tie-dyed shirts, psychedelic music, incense burning, children with flowers in their hair, marijuana smoking, gurus, massages with scented oils, handcrafts, the latest in New Age healing and religion, karma patrol (for those who overdose on drugs), etc. The Aura Reading Booth is run by BPI. For a few dollars, one sits in a chair in the great outdoors with the music playing, the incense wafting, and people swaying while

someone from BPI reads your aura. Actually, the BPI psychic uses colored crayons to fill in a piece of paper pre-printed with a series of outlines in the vague shape of a person. Then the psychic tells you what your aura reveals. They only charge a few dollars and for the longest time I considered their activity a harmless parlor game. But now I feel I should put up posters near their booth saying, If you see auras, you may not be psychic; you may have a brain or vision disorder. See your physician ASAP.

### Aura Therapy

Aura therapy is a type of New Age healing that detects and treats disease by reading and manipulating a person's aura. According to aura therapists, the aura is an energy field surrounding the body and exhibits signs of physical disease before the body itself exhibits either signs or disease. There is no scientific basis for belief in auras, much less for the validity of aura therapy. Yet, like many other alternative therapies, the popularity of such beliefs continues to grow.

The most popular form of aura therapy is therapeutic touch. It is taught in many nursing programs and practiced in many hospitals, despite its lack of scientific support. There are many other forms of aura therapy that are just as valid as therapeutic touch, however.

Aura-Soma is described as "an holistic soul therapy in which the vibrational powers of colour, crystals and natural aromas combine with light in order to harmonise body, mind and spirit of mankind." Aura-Soma is allegedly an ancient healing practice that was re-discovered by clairvoyant Englishwoman Vicky Wall in the mid-eighties who claims her special gift is the ability to see people's auras.

Beverli Rhodes uses lazer-wand crystal energy in her aura therapy. She says that crystals help in finding "disturbances in the auric field" and that

by using your laser crystal wand energies and your own energies, which will fuse with that of the wand, you can bring about relief and in time a cure. As crystals have their very own special electromagnetic field [the aura] this can be used to balance our own aura's. As disease appears firstly in the auric field, it would seem logical that one would begin to heal and clear the problem at the source.

Yes, very logical, indeed, in a world of assumptions such as that the proper way to assist stressed clients is by concentrating the lazer-wand on the 3rd eye (6th Chakra) area for 1 minute. Rhodes also claims that it is "necessary to re-programme your crystal first so that it may ready itself to clear the disharmony that exists in the auric field of the client in order to heal the specific illness." Do not try this at home alone! Reprogramming your crystal can be very dangerous!

Dr. J.M. Shah uses Kirlian photography and gem therapy to treat heart disease. Like other aura therapists, Dr. Shah believes that when disease enters one of our several bodies there is reduction in energy. He takes Kirlian photographs of the fingers to discover disease. He assumes that changes in the Kirlian photos are due to changes in the aura rather than to changes in moisture or other natural phenomena. Once he has detected disease by photo misreading, he uses rubies to "open the heart" of those who have bad hearts. He advises, however, that the rubies have to be energized and their negativity removed before they can be effective in treatment. For supportive medical treatment, he puts photos of his patients in a "radiation cabinet" with rubies.

With such therapies available to help heal our many wounds, it is amazing that there is any sickness left in the world.

### Automatic Writing

Automatic writing is writing allegedly directed by a spirit or by the unconscious mind. Advocates of automatic writing claim that the process allows one to access one's higher self, as well as other intelligences and entities, for information and guidance; to recall previously irretrievable data from the subconscious mind; and to unleash spiritual energy for personal growth and revelation. According to psychic Ellie Crystal, entities from beyond are constantly trying to communicate with us. Apparently, we all have the potential to be another James Van Praagh. One 19th century medium, Hélène Smith, even invented a Martian alphabet to convey messages from Mars to her clients in the Martian language, which apparently had a strong resemblance to Ms. Smith's native language French (Randi, 22).

Modern spirits do not limit themselves to the invasion of pens and pencils. They are so eager to communicate that they are apt to take over an electronic device such as your computer keyboard, your tape recorder, VCR, television, cellular phone or brain cells if they can find any.

Modern skeptics consider automatic writing to be little more than a parlor game, although sometimes useful for self-discovery and for getting started on a writing project. The likelihood that it is spirits who are controlling the writing is equal to the likelihood that it is the patient who communicates through the facilitator in facilitated communication.

It is likely that many unconscious desires and ideas are expressed in automatic writing, but they are unlikely to be any more profound than one's conscious notions. Personal growth may be enhanced by automatic writing if it is evaluated reflectively and with intelligence. By itself, automatic writing is no more likely to produce self-growth or worthwhile revelation than any other human activity. Some people have even had such bad experiences doing automatic writing that they are convinced that Satan is behind it. For some minds, apparently it is better not to know what's lurking in the cellar.

## Avatar

An avatar is a variant phase or version of a continuing basic entity, such as the incarnation in human form of a divine being. Avatar is also the name of a New Age self-help course based upon changing a person's life by training the person to manage his or her beliefs. According to Jack Raso, "Avatar's fundamental doctrine is that people have a natural ability to create or 'discreate' any reality at will. This alleged ability stems from a hypothetical part of consciousness that proponents call 'SOURCE.'"

According to their promotional material,

Avatar awakens you to a natural ability you already have to create and discreate beliefs. With this skill, you can restructure your life according to the blueprint that you determine. One discovery many people on the Avatar course make is that what you are believing is less important than the fact that you are believing it. Avatar empowers you to realize that there aren't "good" beliefs and "bad" beliefs. There are only the beliefs that you wish to experience and the beliefs you prefer not to experience. Through the tools that the course presents you with, you create an experience of yourself as the source, or creator, of your beliefs. From that place, it's very natural and easy to create the beliefs that you prefer.

These notions seem so obviously a mixture of the true, the trivial and the false that one hesitates to comment on them. Of course we all have the ability to create and discreate beliefs. I can believe in Avatar or angels, for example, or I can disbelieve in them. Of course I can restructure my life by creating for myself a set of beliefs based on my imagination and desires. But why should I, unless my current beliefs are false or harmful, i.e., "bad." What does it mean to say, for example, that trains are less important than the fact that I believe in trains? This claim is either trivially true or it is nonsensical. Does this mean that the existence of trains is less important than whether or not I believe in them? If so, the claim is absurd. If it means, that if I don't believe in trains, I won't try to catch a train, then the claim is trivially true. Finally, if there are no good or bad beliefs then how did the people at Avatar come upon the belief that their course has any value? And what difference does it make whether anyone believes in Avatar belief management techniques?

## Ayurvedic Medicine & Deepak Chopra

If you can wiggle your toes with the mere flicker of an intention, why can't you reset your biological clock?

If you could live in the moment you would see the flavor of eternity and when you metabolize the experience of eternity your body doesn't age.

Ayurveda is the science of life and it has a very basic, simple kind of approach, which is that we are part of the universe and the universe is intelligent and the human body is part of the cosmic body, and the human mind is part of the cosmic mind, and the atom and the universe are exactly the same thing but with different form, and the more we are in touch with this deeper reality, from where everything comes, the more we will be able to heal ourselves and at the same time heal our planet. --Deepak Chopra

Ayurvedic medicine is an "alternative" medical practice that claims it is the traditional medicine of India. Ayurveda is based on two Sanskrit terms: ayu meaning life and veda meaning knowledge or science. Since the practice is said to be some 5,000 years old, what it considers to be knowledge or science may not coincide with the most updated information available to Western medicine. In any case, most of the ancient treatments are not recorded and what is called traditional Indian medicine is, for the most part, something developed in the 1980s by the Maharishi Mahesh Yogi (Barrett) who brought Transcendental Meditation to the western world.

Ayurvedic treatments are primarily dietary and herbal. Patients are classified by body types, or prakriti, which are determined by proportions of the three doshas. The doshas allegedly regulate mind-body



harmony. Illness and disease are considered to be a matter of imbalance in the doshas. Treatment is aimed at restoring harmony or balance to the mind-body system. Vata, composed of air and space, allegedly governs all movement in the mind and body and must be kept in good balance. Too much vata leads to "worries, insomnia, cramps and constipation....Vata controls blood flow, elimination of wastes, breathing and the movement of thoughts across the mind." Vata also controls the other two principles, Pitta and Kapha. Pitta is said to be composed of fire and water; it allegedly governs "all heat, metabolism and transformation in the mind and body. It controls how we digest food, how we metabolize our sensory perceptions, and how we discriminate between right and wrong." Pitta must be kept in balance, too. "Too much [Pitta] can lead to anger, criticism, ulcers, rashes and thinning hair." Kapha consists of earth and water. It "governs all structure and lubrication in the mind and body. It controls weight, growth, lubrication for the joints and lungs, and formation of all the seven tissues--nutritive fluids, blood, fat, muscles, bones, marrow and reproductive tissues." Too much Kapha leads to "lethargy, weight gain, possessive behavior, congestion and allergies."

On the basis of the above metaphysical physiology, Ayurveda recommends such things as: to pacify Kapha eat spicy foods and avoid sweet foods, except for honey but don't heat the honey. Avoid tomatoes and nuts. Turkey is fine but avoid rabbit and pheasant. If you've got too much Pitta then try this: eat sweet foods and avoid the spicy. Eat nuts. To reduce Vata: eat sweet, sour and salty foods; avoid spicy foods. Nuts are good and so are dairy products.

How any of the above is known, or how anyone could possibly test such claims, is apparently of little concern to Ayurvedic advocates.

#### Meditation & Quantum Physics

Quantum healing is healing the bodymind from a quantum level. That means from a level which is not manifest at a sensory level. Our bodies ultimately are fields of information, intelligence and energy. Quantum healing involves a shift in the fields of energy information, so as to bring about a correction in an idea that has gone wrong. So quantum healing involves healing one mode of consciousness, mind, to bring about changes in another mode of consciousness, body. --Deepak Chopra

Meditation is also a significant therapy in Ayurveda. Except for the benefits of relaxation and meditation, there is no scientific evidence to support any of the many astounding claims made on behalf of Ayurvedic medicine. Even the claims made for the significant health benefits of Transcendental Meditation have been greatly exaggerated and distorted (Wheeler).

What are some of the claims made for Ayurveda? For these we turn to Deepak Chopra, a graduate of Harvard Medical School and a former leader of the Maharishi Mahesh Yogi's Transcendental Meditation program. Chopra claims that perfect health is a matter of choice and that he can identify your dosha and its state of balance or imbalance simply by taking your pulse. He claims that allergies are usually caused by poor digestion. He claims you can prevent and reverse cataracts by brushing your teeth, scraping your tongue, spitting into a cup of water, and washing your eyes for a few minutes with this mixture. According to Chopra, "contrary to our traditional notions of aging, we can learn to direct the way our bodies metabolize time" (Wheeler). Chopra also promotes aromatherapy based on the Ayurvedic metaphysical physiology. He sells oils specifically aimed at appeasing Vata, Pitta or Kapha. The evidence for such claims is unmythologically lacking.

Dr. Chopra has done more than any other single person to popularize the Maharishi's Ayurvedic medicine in America, including some New Age energy concepts that boldly and falsely assert a connection between quantum physics and consciousness. According to Chopra, "We are each a localized field of energy and information with cybernetic feedback loops interacting within a nonlocal field of energy and information." He claims we can use "quantum healing" to overcome aging. Chopra believes that the mind heals by harmonizing or balancing the "quantum mechanical body" (his term for prana or chi). He says that "simply by localizing your awareness on a source of pain, you can cause healing to begin, for the body naturally sends healing energy wherever attention is drawn." Or, as he also puts it, "If you have happy thoughts, then you make happy molecules." This "quantum mysticism" has no basis in physics and represents a leap of the metaphysical imagination (Stenger).

The notion that ancient Hindu mysticism is just quantum physics wrapped in metaphysical garb seems to have originated with Fritjof Capra in his book *The Tao of Physics: An Exploration of the Parallels Between Modern Physics and Eastern Mysticism* (1975). The book's first two parts are excellent expositions on ancient religions and modern physics. The third part, which tries to connect the two is an abysmal failure and about the purest poppycock this side of Bombay. Nevertheless, it has been this third part which has influenced numerous New Age energy medicine advocates to claim that quantum physics proves the reality of everything from chi and prana to ESP. The idea that there is such a connection is denied by most physicists but books like Capra's and Gary Zukav's *The Dancing Wu Li Masters: An Overview of the New Physics* (1976) overshadow and are much more popular than more sensible books written by physicists.

Chopra and other defenders of Ayurveda, following Capra and Zukav, are fond of claiming that modern physics has substantially validated ancient Hindu metaphysics. However, physicist Heinz R. Pagels, author of *The Cosmic Code: Quantum Physics as the Language of Nature* vehemently rejects the notion that there is any significant connection between the discoveries of modern physicists and the metaphysical claims of Ayurveda. "No qualified physicist that I know would claim to find such a connection without knowingly committing fraud," says Dr. Pagels.

The claim that the fields of modern physics have anything to do with the "field of consciousness" is false. The notion that what physicists call "the vacuum state" has anything to do with consciousness is nonsense. The claim that large numbers of people meditating helps reduce crime and war by creating a unified field of consciousness is foolishness of a high order. The presentation of the ideas of modern physics side by side, and apparently supportive of, the ideas of the Maharishi about pure consciousness can only be intended to deceive those who might not know any better.

Reading these materials authorized by the Maharishi causes me distress because I am a man who values the truth. To see the beautiful and profound ideas of modern physics, the labor of generations of scientists, so willfully perverted provokes a feeling of compassion for those who might be taken in by these distortions. I would like to be generous to the Maharishi and his movement because it supports world peace and other high ideals. But none of these ideals could possibly be realized within the framework of a philosophy that so willfully distorts scientific truth (Pagels).

Chopra gives hope to the dying that they will not die and hope to the living that they can live forever in perfect health. But his hope seems to be a false hope based on an unscientific imagination seeped in mysticism and cheerily dispensed gibberish. Science is unnecessary to test Ayurvedic claims since "the masters of Ayurvedic medicine can determine an herb's medicinal qualities by simply looking at it (Wheeler)."

#### Deception and Expanding The Market

As would be expected of a guru spreading false hope, Chopras' trustworthiness has been compromised. In 1991, Chopra, when president of the American Association of Ayurvedic Medicine, submitted a report to the *Journal of the American Medical Association*, along with Hari M. Sharma, MD, professor of pathology at Ohio State University College of Medicine, and Brihaspati Dev Triguna, an Ayurvedic practitioner in New Delhi, India. Chopra, Sharma and Triguna claimed they were disinterested authorities and were not affiliated with any organization that could profit by the publication of their article. But

they were intimately involved with the complex network of organizations that promote and sell the products and services about which they wrote. They misrepresented Maharishi Ayur-Veda as India's ancient system of healing, rather than what it is, a trademark line of "alternative health" products and services marketed since 1985 by the Maharishi Mahesh Yogi, the Hindu swami who founded the Transcendental Meditation (TM) movement (Skolnick).

Chopra spends much of his time writing and lecturing from his base in California where he is not licensed to practice medicine. He charges \$25,000 per lecture performance, where he spouts out a few platitudes and give spiritual advice while warning against the ill effects of materialism. His audiences are apparently not troubled by his living in a \$2.5 million house in La Jolla, California, where he parks his green Jaguar, which he can easily afford since he has amassed millions of dollars from the sales of his books, tapes, herbs, appearances, etc. Chopra is much richer and certainly more famous than he ever was as an endocrinologist or as chief of staff at New England Memorial Hospital. He left traditional medicine behind in 1981 when Triguna convinced him that if he didn't make a change he'd get heart disease. Shortly after that he got involved in Transcendental Meditation. In 1984 Chopra met the Maharishi himself and in 1985 Chopra became director of the Maharishi Ayurveda Health Center for Stress Management in Lancaster, Massachusetts. Soon he was an international purveyor of herbs and tablets through Maharishi Ayurvedic products.

Perhaps the greatest deception of Ayurveda is that it cares for the person, not just the body as traditional medicine does. As Chopra puts it, "The first question an Ayurvedic doctor asks is not, 'What disease does my patient have?' but, 'Who is my patient?'"\* That may be the question, but it is not a person that the doctor is healing. It is the "quantum body" or the "mind-body"; it is the dosha that needs balancing. Taking a person's pulse and telling them their dosha is unbalanced and they should eat more nuts or less spicy foods, etc., hardly shows concern for the patient as a person. Not using a current photo on your web site or on the jacket of your latest book, which would show how you are aging, is deceptive, especially since you claim to know how to overcome aging.

Self-deception is rampant in the alternative health arena, and Chopra has had his share. In *Return of the Rishi* he reveals what attracted him to Transcendental Meditation: it helped him overcome his dependence on alcohol, tobacco and coffee. The man was stressed by his job and his lifestyle contributed to that stress. He committed the pragmatic fallacy and became a true believer because he was now happy. Fine, but he

since has gone on to try to confirm TM and Ayurveda with quantum physics, pseudoscientific writings and seminars. Even though his patients died while he was claiming he had given them perfect health, he maintained his position. And, when association with TM itself became too stressful and a hindrance to his success, he left.\* (Chopra had heard that Bill Moyers wouldn't include him in his PBS series Healing and the Mind because of Chopra's association with a "cult.") He now runs the Chopra Center for Well Being in La Jolla, California, where the mission is "to heal, to love, to transform and to serve." It is not a medical center, for Chopra has no license to practice medicine in California. It is a spiritual center, where you can come to "better understand the power of your body, mind and spirit connection to both your inner and outer universe." Because many of those who come to this center are sick, one might call it a faith healing center. There are a few other things one might call it, but they might arouse Chopra's legal staff, who are fond of suing critics of their employer.

Chopra has also admitted in so many words that his Ageless Body, Timeless Mind: The Quantum Alternative to Growing Old plagiarized Professor Robert Sapolsky's contribution to Behavioral Endocrinology. Sapolsky is the author of chapter 10, "Neuroendocrinology of the Stress-Response." He sued Chopra in 1997 for lifting large chunks of his work without proper attribution.

Of course, Chopra has a web site where he will be honored to take your money for one of his many books, tapes, or seminars. We should not be too harsh with our guru, however. It is understandable that he would give up working in medicine in favor of working in religion. In medicine you are surrounded by sick people and constantly reminded of your own mortality. It is difficult work, often very stressful and unrewarding. As Chopra himself put it: "It's frustrating to see patients again and again, and to keep giving them sleeping pills, tranquilizers and antibiotics, for their hypertension or ulcers, when you know you're not getting rid of the problem or disease."\* Also, while taking care of others, a physician might fail to take care of himself and come to require sleeping pills, tranquilizers, something to lower the blood pressure and relieve the stress in himself. In religion, on the other hand, you can surround yourself only with sycophants who demand to be deluded and deceived because it makes them feel so healthy and happy. By turning to metaphysics instead of biology, one avoids the risk of being proved wrong. It is much easier to dispense hope based on nothing to miserable people than it is to accept harsh and sometimes brutal reality while maintaining health, optimism and happiness. It is much easier, for some people, to face life by deceiving themselves into thinking they alone are in charge of what is real and what is true. It is much easier to find confirming evidence for a worldview than it is to do nuts-and-bolts research. It is certainly much more enjoyable to chat with Oprah Winfrey and rub elbows with the rich and famous than to watch another cancer patient die.

#### Why Are Chopra and Ayurveda So Popular?

The popularity of Chopra and Ayurveda is a testament to the failure of modern life and modern medicine to satisfy deep longings for simplicity, trust, a clean and wholesome environment, something to counteract the fragmentation, alienation and isolation that many people feel.\* Hope is a powerful narcotic. Representing peace and love, caring and respect, as well as esoteric knowledge for the masses, "alternative" medicines will always be popular. And, the fact is that the "alternatives" often put people like Chopra on a much healthier track than they were on before they got involved with Ayurveda, qigong, Polar Reflex Quantum Energy Dynamics (it may not exist yet, but give it time), etc. Most people would be better off if they followed some of the sensible recommendations of the "alternatives": eat less and don't stuff yourself with fatty and sugary foods with near zero nutritional value, relax, don't smoke or drink or use other drugs to try to make you feel better, don't take things so seriously, treat other people kindly and with respect, spend more time with friends and family building relationships, quit worrying about being so successful and rich or famous, be concerned about what you put into your body and what all of us are putting into our air and water. Philosophy can serve these interests. But most people also want some sort of assurance that this is not all there is, that This is NOT It. They want to believe in immortality and "alternatives" like Ayurveda fulfill this need. The hypocrisy of a materialist advising them that materialism is the root of all evil easily slips by. But I would ask, if Ayurveda is so wonderful and has been practiced in India for thousands of years, why doesn't Dr. Chopra return to India to live? Likewise, why don't all those who praise the wonders of traditional Chinese medicine (TCM) return to China? The answer seems obvious: the wonders of Ayurveda and TCM have been greatly exaggerated. China and India are the two largest countries in the world but there has not been a run of people in the west emigrating to either country. Why? Because the chances of living a healthier, wealthier, richer life are better in America than in either India or China. Neither country is the place anyone would hold up as a paradigm of healthy people. China ranks 81st, India ranks 134th and the USA ranks 24th in overall level of health, according to the World Health Organization (click here for WHO pdf file explaining the rankings). Life expectancy is much greater in North America than in China or India. In 1998, life expectancy in the United States was 72.9 years for men and 83.3 years for women. In India the figures are 62.3 years for men and 63.7 years for women. China's life expectancy in 1998 was 68.3 years for men and 71.1 years for women. Does Deepak Chopra really believe that nutritional deficiency is a bigger problem in North America than in India? Does he really believe that people live longer, happier, healthier lives in India and China than here? If so, why does he stay? Can he say with a straight face: I have come from the promised land to this barren desert and I will stay here to lead you to perfect health in my new Jaguar.

I'll let Dr. Chopra have the last word: I in fact don't believe in the existence of time. That's one thing I have to tell you, and the other is that I don't take myself or what I am doing seriously.\*

#### Aztec (New Mexico) UFO Hoax

The Aztec UFO Hoax was the work of Variety columnist Frank Scully who was hoaxed by two con men, Silas M. Newton and Leo A. Gebauer. Scully liked the hoax so much he wrote a book based on it: Behind the Flying Saucers. Scully claimed that a UFO had landed in Hart Canyon 12 miles northeast of Aztec in March of 1948 and sixteen humanoid bodies were discovered at the crash site inside a metal disk that was 99.99 (not 100) feet in diameter. A conspiring military secretly removed the craft and the bodies for their sinister research. No one in the area noticed the crash or the military activity, however. With no witnesses, Newton and Gebauer could play wildly with the truth.

Newton and Gebauer were involved in oil exploration finance schemes. Their hoax was perpetrated to get investors. They claimed they had built a machine that would find oil and natural gas deposits using alien technology. J.P. Cahn of the San Francisco Chronicle had some of the "alien" metal tested and determined it was aluminum. Cahn's account of the phony alien ship appeared in True magazine in 1952. Several people who had been swindled by Newton and Gebauer came forward. One of their victims, Herman Glader, a millionaire from Denver, pressed charges and the pair were convicted of fraud and related charges in 1953. (They had charged \$18,500 for a "tuner" which could be bought at surplus stores for \$3.50 at the time.)

The Aztec story was revived in 1986 by William Steinman and Wendelle Stevens in their privately-published book called UFO Crash at Aztec.\* It was revived again in 1998 when Linda Mouton Howe, a UFO and Art Bell mainstay, claimed she had government documents that proved the Aztec crash. What she had was a rumor eight times removed from the source, Silas Newton, that eventually ended up in a memo written to J. Edgar Hoover. Newton told George Koehler about 3-foot tall aliens and their saucer; Koehler told Morley Davies who told Jack Murphy and I. J. van Horn who told Rudy Fick who told the editor of the Wyandotte Echo in Kansas City where it was read by an Air Force agent in the Office of Special Investigations who passed on the story to Guy Hottel of the FBI who sent a memo to his boss (Thomas).

The citizens of Aztec have seen how Roswell has turned UFO mania into a profitable tourist attraction and have followed suit. In March of 2000 they celebrated their 3rd annual Aztec UFO Festival. The festival was started as a way to raise money for the town's library. There must be a better way.

#### Bach's Flower Therapy

"Bach's flower therapy" is a type of homeopathic aromatherapy developed in the 1930s by British physician Edward Bach (1886-1936). Bach claimed to have psychically or intuitively discovered the healing effects of 38 wildflowers. His "discoveries" were arrived at by "inspirations." For example, while on a walk he had an inspiration that dew drops on a plant heated by the sun would absorb healing properties from the plant. He claimed that all he needed to do was hold a flower or taste a petal and he could intuitively grasp its healing powers. From these intuitions he went on to prepare "essences" using pure water and plants.

Bach claimed that these wildflowers have a soul or energy with an affinity to the human soul. The flower's spiritual energy is transferable to water. Devotees drink a homeopathic concoction of flower essence, mineral water and brandy in order to get the flower soul to harmonize their own soul's energy. According to Desde San Felipe y Santiago de Montevideo of Uruguay, flower remedies "do work." Bach thought that illness is the result of "a contradiction between the purposes of the soul and the personality's point of view." This internal war leads to negative moods and energy blocking, which causes a lack of "harmony" which leads to physical diseases. "Each of the 38 flowers of the Bach system is used to balance specific emotional pains or, in advanced stages of the lack of balance, to remit physical symptoms" [personal correspondence]. I have no idea what is meant by saying that this therapy "works," but I do not see how it could be tested since its main claims are metaphysical not empirical.

Dr. Bach seems tame compared to the pioneering work of others who have followed in his petals. In California it has been discovered that the humble Forget-Me-Not is good for "increasing your awareness of karmic relationships beyond the threshold." And Mugwort is good "for awareness of dreams and conscious control of one's psychic life."

#### Backwards Satanic Messages

## (Backmasking)

An alleged practice of certain evil people, especially rock musicians, of saying or singing words which, when listened to backwards contain evil messages such as "My sweet Satan"\* or "Kill yourself."

Since most people do not listen to their music backwards, the belief in such messages seems to be predicated upon one or two false notions. Either [1] the brain can be influenced subliminally by garbled words whose meaning is directly grasped by the subconscious or [2] the conscious mind translates clear speech into reverse speech where the "true" meaning is understood by the subconscious mind. In either case, the subconscious mind allegedly then directs the conscious mind to believe bad things or do bad deeds. There is no evidence that such mechanisms exist.

The belief in the existence and efficacy of backwards satanic messages probably derives from the ancient practice of mocking Christianity by saying prayers backwards at the witch's Sabbath. The belief is mainly popular among certain fundamentalist preachers who cannot look at anything without wondering how Satan is involved.

The Beatles used tapes played backwards for musical effect in some of their recordings, though they allegedly put in backwards or subliminal messages announcing Paul McCartney's death when he was much alive. Jimmy Page, guitarist and occultist, is said to have inserted the backwards message "here's to my sweet Satan" into his "Stairway to Heaven." The former was clearly intentional; the latter is said to be accidental by many of those who have listened but have not heard. It is likely that many listeners are hearing what they want to hear or are hearing what others tell them they will hear.

One practical problem emerged with using this backhanded way to communicate: the only way to hear the messages is to destroy your record. There were at least two benefits to such destruction, however: the increased sales of records and the birth of rap music.

## Ball Lightning

Ball lightning is described as a luminous sphere which seems to appear out of nowhere and vanish into thin air. It varies in size from two to ten inches in diameter. It usually is seen shortly before or after, or during, a thunderstorm. Its duration varies from a few seconds to a few minutes. "The lifetime of ball lightning tends to increase with size and decrease with brightness. Balls that appear distinctly orange and blue seem to last longer than average....Ball lightning usually moves parallel to the earth, but it takes vertical jumps. Sometimes it descends from the clouds, other times it suddenly materializes either indoors or outdoors or enters a room through a closed or open window, through thin nonmetallic walls or through the chimney."\*

Some have speculated that ball lightning is a plasma ball, but that theory has been dismissed because a "hot globe of plasma should rise like a hot-air balloon" and that is not what ball lightning does. Many physicists have speculated that ball lightning must be due to electrical discharges. For example, Russian physicist Pyotr Kapitsa thinks ball lightning is an electrodeless discharge caused by a standing UHF waves of unknown origin present between the earth and a cloud.\* According to another theory, "outdoor ball lightning is caused by an atmospheric maser-- analogous to a laser, but operating at a much lower energy-- having a volume of the order of many cubic kilometers."\*

Two New Zealand scientists, John Abrahamson and James Dinniss, believe ball lightning consists of "fluffy balls of burning silicon created by ordinary fork lightning striking the earth."

According to their theory, when lightning strikes the ground, the minerals are broken down into tiny particles of silicon and its compounds with oxygen and carbon. The tiny charged particles link up into chains, which go on to form filamentary networks. These cluster together in a light fluffy ball, which is borne aloft by air currents. There, it hovers as ball lightning, or a burning orb of fluffy silicon emitting the energy absorbed from the lightning in form of heat and light, until the phenomenon burns itself out.\*

Ball lightning has been observed since ancient times and by thousands of people in many different places. Most physicists seem to believe that there is little doubt that it is a real phenomenon. But there is still disagreement as to what it is and what causes it.

## Barnum Effect

The Forer Effect (A.K.A. The P.T. Barnum Effect and Subjective Validation)

"We have something for everyone." --P.T. Barnum

The Forer or Barnum effect is also known as the subjective validation effect or the personal validation effect. (The expression, "the Barnum effect," seems to have originated with psychologist Paul Meehl, in deference to circus man P.T. Barnum's reputation as a master psychological manipulator.)

Psychologist B.R. Forer found that people tend to accept vague and general personality descriptions as uniquely applicable to themselves without realizing that the same description could be applied to just about anyone. Consider the following as if it were given to you as an evaluation of your personality.

You have a need for other people to like and admire you, and yet you tend to be critical of yourself. While you have some personality weaknesses you are generally able to compensate for them. You have considerable unused capacity that you have not turned to your advantage. Disciplined and self-controlled on the outside, you tend to be worrisome and insecure on the inside. At times you have serious doubts as to whether you have made the right decision or done the right thing. You prefer a certain amount of change and variety and become dissatisfied when hemmed in by restrictions and limitations. You also pride yourself as an independent thinker; and do not accept others' statements without satisfactory proof. But you have found it unwise to be too frank in revealing yourself to others. At times you are extroverted, affable, and sociable, while at other times you are introverted, wary, and reserved. Some of your aspirations tend to be rather unrealistic.

Forer gave a personality test to his students, ignored their answers, and gave each student the above evaluation. He asked them to evaluate the evaluation from 0 to 5, with "5" meaning the recipient felt the evaluation was an "excellent" assessment and "4" meaning the assessment was "good." The class average evaluation was 4.26. That was in 1948. The test has been repeated hundreds of times with psychology students and the average is still around 4.2.

In short, Forer convinced people he could successfully read their character. His accuracy amazed his subjects, though his personality analysis was taken from a newsstand astrology column and was presented to people without regard to their sun sign. The Forer effect seems to explain, in part at least, why so many people think that pseudosciences "work". Astrology, astrotherapy, biorhythms, cartomancy, chiromancy, the enneagram, fortune telling, graphology, etc., seem to work because they seem to provide accurate personality analyses. Scientific studies of these pseudosciences demonstrate that they are not valid personality assessment tools, yet each has many satisfied customers who are convinced they are accurate. However, the many personal or subjective validations of such pseudosciences are of no relevance to their accuracy.

The most common explanations given to account for the Forer effect are in terms of hope, wishful thinking, vanity and the tendency to try to make sense out of experience, though Forer's own explanation was in terms of human gullibility. People tend to accept claims about themselves in proportion to their desire that the claims be true rather than in proportion to the empirical accuracy of the claims as measured by some non-subjective standard. We tend to accept questionable, even false statements about ourselves, if we deem them positive or flattering enough. We will often give very liberal interpretations to vague or inconsistent claims about ourselves in order to make sense out of the claims. Subjects who seek counseling from psychics, mediums, fortune tellers, mind readers, graphologists, etc., will often ignore false or questionable claims and, in many cases, by their own words or actions, will provide most of the information they erroneously attribute to a pseudoscientific counselor. Many such subjects often feel their counselors have provided them with profound and personal information. Such subjective validation, however, is of little scientific value.

Psychologist Barry Beyerstein believes that "hope and uncertainty evoke powerful psychological processes that keep all occult and pseudoscientific character readers in business." We are constantly trying "to make sense out of the barrage of disconnected information we face daily" and "we become so good at filling in to make a reasonable scenario out of disjointed input that we sometimes make sense out of nonsense." We will often fill in the blanks and provide a coherent picture of what we hear and see, even though a careful examination of the evidence would reveal that the data is vague, confusing, obscure, inconsistent and even unintelligible. Psychic mediums, for example, will often ask so many disconnected and ambiguous questions in rapid succession that they give the impression of having access to personal knowledge about their subjects. In fact, the psychic need not have any insights into the subject's personal life; for, the subject will willingly and unknowingly provide all the associations and validations needed. Psychics are aided in this process by using cold reading techniques.

David Marks and Richard Kamman argue that

once a belief or expectation is found, especially one that resolves uncomfortable uncertainty, it biases the observer to notice new information that confirms the belief, and to discount evidence to the contrary. This self-perpetuating mechanism consolidates the original error and builds up an overconfidence in which the arguments of opponents are seen as too fragmentary to undo the adopted belief.

Having a pseudoscientific counselor go over a character assessment with a client is wrought with snares that can easily lead the most well intentioned of persons into error and delusion.

Barry Beyerstein suggests the following test to determine whether the apparent validity of the pseudosciences mentioned above might not be due to the Forer effect, confirmation bias, or other psychological factors. (Note: the proposed test also uses subjective or personal validation and is not intended to test the accuracy of any personality assessment tool, but rather is intended to counteract the tendency to self-deception about such matters.)

A proper test would first have readings done for a large number of clients and then remove the names from the profiles (coding them so they could later be matched to their rightful owners). After all clients had read all of the anonymous personality sketches, each would be asked to pick the one that described him or her best. If the reader has actually included enough uniquely pertinent material, members of the group, on average, should be able to exceed chance in choosing their own from the pile.

Beyerstein notes that "no occult or pseudoscientific character reading method has successfully passed such a test."

The Forer effect, however, only partially explains why so many people accept as accurate occult and pseudoscientific character assessment procedures. Cold reading, communal reinforcement, and selective thinking also underlie these delusions. Also, it should be admitted that while many of the assessment claims in a pseudoscientific reading are vague and general, some are specific. Some of those that are specific actually apply to large numbers of people and some, by chance, will be accurate descriptions of a select few. A certain number of specific assessment claims should be expected but they are of little scientific import in validating the overall assessment.

There have been numerous studies done on the Forer effect. Dickson and Kelly have examined many of these studies and concluded that overall there is significant support for the general claim that Forer profiles are generally perceived to be accurate by subjects in the studies. Furthermore, there is an increased acceptance of the profile if it is labeled "for you". Favorable assessments are "more readily accepted as accurate descriptions of subjects' personalities than unfavorable" ones. But unfavorable claims are "more readily accepted when delivered by people with high perceived status than low perceived status." It has also been found that subjects can generally distinguish between statements that are accurate (but would be so for large numbers of people) and those that are unique (accurate for them but not applicable to most people). There is also some evidence that personality variables such as neuroticism, need for approval, and authoritarianism are positively related to belief in Forer-like profiles. Unfortunately, most Forer studies have been done only on college students.

### Begging the Question

Begging the question is what one does in an argument when one assumes what one claims to be proving.

An argument is a form of reasoning whereby one gives a reason or reasons in support of some claim. The reasons are called premises and the claim one tries to support with them is called the conclusion.

If one's premises entail one's conclusion, and one's premises are questionable, one is said to beg the question.

The following argument begs the question.

We know God exists because we can see the perfect order of His Creation, an order which demonstrates supernatural intelligence in its design.

The conclusion of this argument is that God exists. The premise assumes a Creator and Designer of the universe exists, i.e., that God exists. In this argument, the arguer should not be granted the assumption that the universe exhibits intelligent design, but should be made to provide support for that claim.

The following argument also begs the question.

Abortion is the unjustified killing of a human being and as such is murder. Murder is illegal. So abortion should be illegal.

The conclusion of the argument is entailed in its premises. If one assumes that abortion is murder then it follows that abortion should be illegal because murder is illegal. Thus, the arguer is assuming abortion should be illegal (the conclusion) by assuming that it is murder. In this argument, the arguer should not be granted the assumption that abortion is murder, but should be made to provide support for this claim.

The following is another example of begging the question.

Paranormal phenomena exist because I have had experiences that can only be described as paranormal.

The conclusion of this argument is that paranormal phenomena exist. The premise assumes that the arguer has had paranormal experiences, and therefore assumes that paranormal experiences exist. The arguer should not be granted the assumption that his experiences were paranormal, but should be made to provide support for this claim.

Here is a final example of begging the question.

Past-life memories of children prove that past lives exist because the children could have no other source for their memories besides having lived in the past.

The conclusion of this argument is that past lives exist. The premise assumes that children have had past lives. The arguer should not be granted the assumption that children have had past lives but should be made to support the claim. (Saying the memories could have no other source than a past life is to assume that past lives exist. This should not be granted but argued for.)

### Bermuda Triangle

The Bermuda Triangle (a.k.a. the Devil's Triangle) is a triangular area in the Atlantic Ocean bounded roughly at its points by Miami, Bermuda, and Puerto Rico. Legend has it that many people, ships and planes have mysteriously vanished in this area. How many have mysteriously disappeared depends on who is doing the locating and the counting. The size of the triangle varies from 500,000 square miles to three times that size, depending on the imagination of the author. (Some include the Azores, the Gulf of Mexico, and the West Indies in the "triangle.") Some trace the mystery back to the time of Columbus. Even so, estimates range from about 200 to no more than 1,000 incidents in the past 500 years. Howard Rosenberg claims that in 1973 the U.S. Coast Guard answered more than 8,000 distress calls in the area and that there have been more than 50 ships and 20 planes to go down in the Bermuda Triangle within the last century.

Many theories have been given to explain the extraordinary mystery of these missing ships and planes. Evil extraterrestrials, residue crystals from Atlantis, evil humans with anti-gravity devices or other weird technologies, and vile vortices from the fourth dimension are favorites among fantasy writers. Strange magnetic fields and oceanic flatulence (methane gas from the bottom of the ocean) are favorites among the technically-minded. Weather (thunderstorms, hurricanes, tsunamis, earthquakes, high waves, currents, etc.) bad luck, pirates, explosive cargoes, incompetent navigators, and other natural and human causes are favorites among skeptical investigators.

There are some skeptics who argue that the facts do not support the legend and that there is no mystery to be solved, nothing that needs explaining. The number of wrecks in this area is not extraordinary, given its size, location and the amount of traffic it receives. Many of the ships and planes that have been identified as having disappeared mysteriously in the Bermuda Triangle were not in the Bermuda Triangle at all. Investigations to date have not produced scientific evidence of any unusual phenomena involved in the disappearances. Thus, any explanation, including so-called scientific ones in terms of methane gas being released from the ocean floor, magnetic disturbances, etc., are not needed. The real mystery is how the Bermuda Triangle became a mystery at all.

The modern legend of the Bermuda Triangle began soon after five Navy planes [Flight 19] vanished on a training mission during a severe storm in 1945. The most logical theory is that lead pilot Lt. Charles Taylor's compass failed. The trainees' planes were not equipped with working navigational instruments. The group was disoriented and simply, though tragically, ran out of fuel. No mysterious forces were likely to have been involved other than the mysterious force of gravity on planes with no fuel. It is true that one of the rescue planes blew up shortly after take-off, but this was likely due to a faulty gas tank rather than to any mysterious forces.

Over the years there have been dozens of articles, books, and television programs promoting the mystery of the Bermuda Triangle. In his study of this material, Larry Kushe found that few did any investigation into the mystery. Rather, they passed on the speculations of their predecessors as if they were passing on the mantle of truth. Of the many uncritical accounts of the mystery of the Bermuda Triangle, no one has done more to create this myth than Charles Berlitz, who had a bestseller on the subject in 1974. After examining the 400+ page official report of the Navy Board of Investigation of the disappearance of the Navy planes in 1945, Kushe found that the Board wasn't baffled at all by the incident and did not mention alleged radio transmissions cited by Berlitz in his book. According to Kushe, what isn't misinterpreted by Berlitz is fabricated. Kushe writes: "If Berlitz were to report that a boat were red, the chance of it being some other color is almost a certainty." (Berlitz, by the way, did not invent the name; that was done by Vincent Gaddis



in "The Deadly Bermuda Triangle," which appeared in the February, 1964, issue of Argosy, a magazine devoted to fiction.)

In short, the mystery of the Bermuda Triangle became a mystery by a kind of communal reinforcement among uncritical authors and a willing mass media to uncritically pass on the speculation that something mysterious is going on in the Atlantic.

## Bible Code

The Bible (or Torah) Code is a code alleged to have been intentionally embedded in the Bible. The code is revealed by searching for equidistant letter sequences (ELS). For example, start with any letter ("N") and read every nth letter ("D") thereafter in the book, not counting spaces. If an entire book such as Genesis is searched, the result is a long string of letters. Using different values for "N" and "D", one can generate many strings of letters. Imagine wrapping the string of letters around a cylinder in such a way that all the letters can be displayed. Flatten the cylinder to reveal several rows with columns of equal length, except perhaps the last column which might be shorter than all the rest. Now search for meaningful names in proximity to dates. Search horizontally, vertically, diagonally, any which way. A group of Israeli mathematicians did just this and claimed that when they searched for names in close proximity to birth or death dates (as published in the Encyclopedia of Great Men in Israel) they found many matches. Doron Witztum, Eliyahu Rips and Yoav Rosenberg published their findings in the journal Statistical Science (1994, Vol. 9, No. 3, 429-438) under the title of "Equidistant Letter Sequences in the Book of Genesis." The editor of the journal commented:

When the authors used a randomization test to see how rarely the patterns they found might arise by chance alone they obtained a highly significant result, with the probability  $p=0.000016$ . Our referees were baffled: their prior beliefs made them think the Book of Genesis could not possibly contain meaningful references to modern-day individuals, yet when the authors carried out additional analyses and checks the effect persisted.

That is, the probability of getting the results they did was 16 out of one million or 1 out of 62,500. The authors state: "Randomization analysis shows that the effect is significant at the level of 0.00002 [and] the proximity of ELS's with related meanings in the Book of Genesis is not due to chance." Harold Gans, a former cryptologist at the US Defense Department, replicated the work of the Israeli team and agreed with their conclusion. Witztum later claimed that, according to one measure, the probability of getting these results by chance is 1 in 4 million. Though he has apparently changed his mind and now claims that the probability is  $p = 0.00000019$  (1 out of 5.3 million). Jason Browning, a creation scientist, claims that the first five books of the Bible contain hidden word patterns that have been "shown mathematically to be impossible to have occurred by chance." Browning does not mention who did the math for him.

As further evidence of the statistical significance of their results, the Israeli team analyzed the Hebrew version of the Book of Isaiah and the first 78,064 characters of a Hebrew translation of Tolstoy's War and Peace. They found many names in close proximity to birth or death dates, but the results were statistically insignificant. (The Book of Genesis used in their study, the Koren version, has 78,064 characters.)

What does this all mean? To some it means that the patterns in Genesis are intentional and that God is the ultimate author of the code. If so, should the Book of Isaiah, and any other book in the Bible that fails the ELS test, be dumped? Should we conclude that these statistics verify the claim that the Jews are the chosen people of God or that no more names should be added to list of Great Men in Israel unless they pass the ELS test? Unless other religions can duplicate such statistically improbable results, the mathematically minded supernaturalist might well consider them to be imposters. Should we translate all the sacred books of all the religions of the world into Hebrew and see how many great men of Israel are encoded there? Many of us are at a loss at what to make of such astounding numbers.

Can a computer really read the mind of God? Apparently. For on this theory God dictated in His favorite language, Hebrew, a set of words which are more or less intelligible if taken at face value, containing stories of creation, floods, fratricide, wars, miracles, etc., with many moral messages. But this Hebrew God chose his words carefully, encoding the Bible with prophecies and messages of absolutely no religious value.

Many, however, are not at a loss at all. Some Christian "creation scientists" are claiming the Bible Code provides scientific proof of God's existence. If they are right, they should convert to Judaism. Doron Witztum can't do that, since he is already a Jew. But he has taken the work done on Genesis a bit further than his colleagues. Witztum went on Israeli television and claimed that the names of the sub-camps on a map of Auschwitz appeared remarkably close to the phrase "in Auschwitz." The odds of such occurring, he said, are "one in a million." Some of his students did the math and claim their mentor was off by "a factor of 289,149." Witztum's math may not be as good as his intentions, but it is difficult to see what those intentions might be. Was God revealing in an odd way that the sub-camps of Auschwitz are in Auschwitz?

Michael Drosnin and admirers of his popular book, *The Bible Code*, are claiming that decoding the Bible allegedly leads to the discovery of prophecies and profound truths of a secular nature, not all of which are related to the Jews. Drosnin claims that the Bible is the only text in which these encoded phrases are found in a statistically significant pattern, and that the chance of this being a random phenomenon is unlikely. Using the ELS method, Drosnin claims that the assassination of Yitzhak Rabin was foretold in the Bible. He also claims that the assassinations of Anwar Sadat and the Kennedy brothers are encoded in Biblical ELS. At last, someone has found a truly useful purpose for computers: doing ELS analyses of Biblical texts in search of hidden messages of a secular nature. The Lord loveth a puzzle.

Not everybody agrees with the Drosnin hypothesis, including Harold Gans, the retired Defense Department cryptologist who corroborated the work of Witztum, Rips and Rosenberg. Gans has published a statement regarding *The Bible Code* and other similar books. In part, the statement reads

The book states that the codes in the Torah can be used to predict future events. This is absolutely unfounded. There is no scientific or mathematical basis for such a statement, and the reasoning used to come to such a conclusion in the book is logically flawed. While it is true that some historical events have been shown to be encoded in the Book of Genesis in certain configurations, it is absolutely not true that every similar configuration of "encoded" words necessarily represents a potential historical event. In fact, quite the opposite is true: most such configurations will be quite random and are expected to occur in any text of sufficient length. Mr. Drosnin states that his "prediction" of the assassination of Prime Minister Rabin is "proof" that the "Bible Code" can be used to predict the future. A single success, regardless of how spectacular, or even several such "successful" predictions proves absolutely nothing unless the predictions are made and evaluated under carefully controlled conditions. Any respectable scientist knows that "anecdotal" evidence never proves anything.

Dr. Eliyahu Rips, one of the authors of the study that started the Bible Code craze, has also made a public statement regarding Drosnin's Bible Code.

I do not support Mr. Drosnin's work on the Codes, nor the conclusions he derives....All attempts to extract messages from Torah codes, or to make predictions based on them, are futile and are of no value. This is not only my own opinion, but the opinion of every scientist who has been involved in serious Codes research.

Professor Menachem Cohen, a celebrated Bible scholar at Bar-Ilan University, has criticized Witztum et al. on two counts: (1) there are several other Hebrew versions of Genesis for which ELS does not produce statistically significant results; and (2) the appellations given to the Great Men in Israel was inconsistent and arbitrary. The Professor makes some good points, but perhaps this just proves that the Koren version is the correct one and that the appellations chosen are the most fitting for these great men of Israel.

Other critics, such as Brendan McKay, have done their own analysis of *War and Peace* with remarkably different results than those reported by Witztum et al. Many critics, however, have done little more than use ELS to find names, dates, etc., in various books, a feat already known by even the puniest of statisticians to be unremarkable. However, Drosnin seemed to ask for such when he said "When my critics find a message about the assassination of a prime minister encrypted in *Moby Dick*, I'll believe them." McKay promptly produced an ELS analysis of *Moby Dick* predicting not only Indira Ghandi's assassination, but the assassinations of Martin Luther King, John F. Kennedy, Abraham Lincoln, and Yitzhak Rabin, as well as the death of Diana, Princess of Wales. Mathematician David Thomas did an ELS on Genesis and found the words "code" and "bogus" close together not once but 60 times. What are the odds of that happening? Does this mean that God put in a code to reveal that there is no code? The way of the Lord is mysterious, indeed.

## Bigfoot

[a.k.a. Abominable Snowman of the Himalayas, Mapinguari (the Amazon), Sasquatch, Yowie (Australia) and Yeti (Asia)]

"There is a Yeti in the back of everyone's mind; only the blessed are not haunted by it."--an old Sherpa

Bigfoot is an apelike creature reportedly sighted hundreds of times in the U.S. (most often in the Pacific Northwest) and around the world since the mid-19th century. The creature is variously described as standing 7-10 ft (2-3 m) tall and weighing over 500 lb (227 kg), with footprints 17 in. (43 cm) long. The creature goes by many names, but in northern California it is known as "Bigfoot." The creature is big business along a stretch of US-101 in southern Humboldt County known as the Redwood Highway. Numerous shops line the roadway, each with its own gaping Bigfoot chainsaw-carved out of majestic redwood.

Most scientists discount the existence of such a creature because the evidence supporting belief in the survival of a prehistoric bipedal apelike creature of such dimensions is scant. The evidence consists mainly of testimony from Bigfoot enthusiasts, footprints of questionable origin, and pictures that could easily have been of apes or humans in ape suits. There are no bones, no scat, no artifacts, no dead bodies, no mothers with babies, no adolescents, no explanation for how a species likely to be communal has never been seen in family or group activity, no evidence that any individual, much less a community of such creatures, dwells anywhere near all the "sightings," etc. In short, the evidence points more towards hoaxing and delusion than real discovery. The Bigfoot legend seems to be primarily a function of enthusiastic fans of the paranormal, aided greatly by the mass media's enthusiastic catering to such enthusiasm. Yet, some believers dismiss all such criticism and claim that Bigfoot exists in another dimension and travels by astral projection. No wonder the creature is so hard to locate!

Besides the testimonials of enthusiastic fans, footprints and film provide the bulk of the evidence provided by proponents of Bigfoot. Of the few footprints available for examination in plaster casts, there is such great disparity in shape and configuration that the evidence "suggests many independent pranksters" (Dennett, 1996).

Probably the most well-known evidence for belief in Bigfoot's existence is the film shot by Bigfoot hunters Roger Patterson and Bob Gimlin on Oct 20, 1967, at Bluff Creek in northern California. The film depicts a walking apelike creature with pendulous breasts. Its height is estimated at between 6' 6" and 7' 4"; its weight at nearly one ton. Over thirty years have passed, yet no cryptozoologist has returned to the site and found any further evidence of the creature.

A group of Bigfoot enthusiasts calling themselves the North American Science Institute claim that they spent over \$100,000 to prove the film is of a genuine Bigfoot. However, according to veteran Hollywood director John Landis, "that famous piece of film of Bigfoot walking in the woods that was touted as the real thing was just a suit made by John Chambers" who helped create the ape suits in Planet of the Apes (1968). Howard Berger, of Hollywood's KNB Effects Group, also has claimed that it was common knowledge within the film industry that Chambers was responsible for a hoax that turned Bigfoot into a worldwide cult. According to Bobbie Short, Chambers denied these allegations in an interview and claims that Landis started the rumor about Chambers making the suit. According to Mark Chorvinsky, Chambers was involved in another Bigfoot hoax (the so-called "Burbank Bigfoot") but apparently Short did not ask him about that incident nor did he interview Landis for his version of the story. Believers in Bigfoot, such as Short and Loren Coleman, reject the hoax theory and maintain that the film is not of a man in an ape suit but is footage of a genuine Bigfoot.

According to David J. Daegling and Daniel O. Schmitt, "it is not possible to evaluate the identity of the film subject with any confidence." Their argument centers on uncertainties in subject and camera positions, and the reproducibility of the compliant gait by humans matching the speed and stride of the film subject.

Bigfoot is also the name of a fine Barleywine brewed by Sierra Nevada of Chico, California. (It is called a wine because it has an alcohol content of 8% and can't legally be called a beer in California.)

## Bio-Ching

Bio-ching is the union of the modern pseudoscience of biorhythms and the ancient superstitious mysticism of the I Ching. Bio-ching was created by Roderic Sorrell, D.D. and Amy Max Sorrell, D.D., who describe themselves as "therapists" on their twin websites. The Sorrells use a computer program that spits out something from the I Ching for each of the 512 biorhythmic combos of their system. In short, they've added an electronic fortune cookie (with equivalent wisdom) to the biorhythm chart.

They prepared for their great innovation by living on a houseboat in San Francisco Bay for several years, "sampling the New Age Emporium that is California." There they learned of "the meridian energy of acupuncture, the power of the deep massage of Roling" and "the esoteric practices of Taoist meditation." They studied "herbal healing" and "were introduced to the newly emerging electronic approaches to the mind: sound and light stimulation of the mind's beta, alpha, theta and delta waves, and biofeedback." On the side, they became reiki masters.

The Sorrells describe themselves as deliriously happy and at peace with the world in their new home of Truth or Consequences, New Mexico. They want to make you happy, too, and help you achieve inner tranquility or fix whatever physical or spiritual inadequacy you might have. So, they are offering private retreats (minimum of 3 days) for couples, partners and friends for \$250 per day per person. In addition to spiritual counseling, you get room and board for this price. For \$500 more you can do a 3-day retreat on their houseboat at a nearby lake. While there ask them about their union of water and reiki to form the new therapy of aqua-reiki. Ask about their "sound and light machine," their "bio-feedback machine," and their "subliminal tapes."

Bio-ching might well be called a folie à deux deux.\*

\*A folie à deux is the presence of the same delusion in two persons closely associated with one another. When two deluded persons bring together two follies to form a new delusion we have the classic folie à deux deux.

## Bioharmonics

If someone is eating a disharmonic diet then there is no harmony in the bioenergy.--Linda Townsend

If [non-physical] bioenergetic fields exist, then some two hundred years of physics, chemistry, and biology has to be re-evaluated.--Victor J. Stenger

Bioharmonics is a New Age pseudoscience, which Linda Townsend claims is "the science that studies bioenergy motions and interactions with other energy sources." She should know; she invented it, more or less.

Bioharmonics is one of many "energy" medicines to have emerged in recent years. All have in common the belief in energies distinct from heat, electromagnetic, nuclear, and other measurable energies. New Age energy is not detectable by modern scientific equipment, though some advocates employ useless gadgets touted as scientific machinery capable of harnessing, collecting, distributing, etc. some mysterious energy. Some are also fond of jargon and attempt to relate this energy to quantum physics. These energies are either indistinguishable from or related to chi or prana or chakras. Some claim they can feel this energy (therapeutic touch). Some claim they can see it (auras) and that it can be photographed (Kirlian photography). Some have claimed they could harness energy and promote healing or sexual prowess (Reich). Many have claimed that these energies are related to the spirit world.

## bioharmonics and bioenergy

Townsend's writing indicates that she does not understand bioenergy the way biochemists do. In conventional biochemistry, bioenergy refers to "the readily measurable exchanges of energy within organisms, and between them and their environment, which occur by normal physical and chemical processes."\* She writes:

In my personal research with bioenergy testing, I always find an irregularity that seems to be related to the physical condition whatever that condition may be. This has raised some questions about bioenergy being an expression of biochemistry. Therefore, if bioenergy and biochemistry have a mutual influence on each other, correcting bioenergy irregularities may also effect balancing the biochemistry.

These are not the claims of someone knowledgeable of biochemistry.

Townsend never quite defines 'bioenergy,' but her theory is that it needs to be "harmonized." She will even sell you a Harmonizer for \$1,295, which will help "to retune those weaken [sic] disharmonious areas of the body commonly found over sites of illnesses." She also recommends polarizers (\$80-\$120) and magnets. The polarizers are "non-magnetic devices filled with kelp, other plant life and minerals specifically chosen for their ability to attract cosmic light energy, also called 'chi' or 'life force' energy." How she knows kelp attracts chi is not clear.

While Townsend does not define 'bioenergy', she does claim that there are three layers of bioenergy fields: the outer layer, the mid layer, and the inner layer.

The outer layer of the bioenergy field of a healthy person begins about six inches or more out from the body. The left side would be an overall counterclockwise motion and the right would be clockwise motion with a one way motion pulling another non-magnetic energy up the vertical mid lines in the front and back of the body. This is the same pattern as found over a bipolar magnet. This layer reveals [sic] the overall bioenergy health condition which is categorized into the bioenergy stages.

The mid bioenergy layer begins about two inches from the body and extends to the outer layer. It reveals the one way motions of main meridian line systems or what some might call "chi" flows at the hands and feet. In a healthy person this one-way energy motion comes into the left side and out the right. This is the layer that tends to show the most abnormalities found over organs and tissues.

The inner bioenergy layer reveals the one way motions of the lesser meridian line systems. It also reveals the unique patterns of energy stored in bone marrow, where physical regeneration and healing begin.

Ms. Townsend hasn't published any studies but she implies that the Harmonizer can "help" with many ailments, including cancer, diabetes, heart conditions, Parkinson's disease and paralysis. She says she has

testimonials to back up these claims, though she is careful to disclaim any medical benefit for her products:

We do not claim that any medical conditions have been improved by BioHarmonics; we only have seen that bioenergy imbalances can be improved....This research is not medically related in any way and should not be considered in any matter to be beneficial for medical conditions....There are no guarantees offered expressed or implied.

Presumably, she thinks such disclaimers protect her from lawsuits or from being criminally charged with practicing medicine without a license. She does claim, however, that

Frequency in BioHarmonics is merely a catalyst that influences energy motions. In my research, it is the bioenergy motion reactions to other energy sources that is the most important part...there is no one frequency that will work on every person with the same disease....What is really needed is the missing harmonics of bioenergy motions for the individual person because it is this weakness that hinders natural healing.

She also claims that her Harmonizer is better than others because her harmonics are in twos and other devices are in threes and "the main harmonics of the bioenergy of the body are in twos." How she knows this, or what it even means, is not clear.

Townsend makes numerous unsubstantiated, meaningless, or inane claims such as the color blue "dominates the left side of a healthy body in the outer bioenergy layer and is found in the blood bioenergy. It is also found at the nerve branches of several vertebra in the spine." And, "Red dominates the right side of the body in the outer bioenergy layer. It is opposite and attracting to Blue." She seems to have derived these notions from one of the great American quacks, Dinshah P. Ghadiali, who invented Spectro-Chrome Therapy. She claims he influenced her early theories.

On the side, Ms. Townsend sells organic dog food, apparently to enhance canine bioharmonics. She also will be selling vitamins, minerals, flower essences, and homeopathics soon.

The danger, of course, of all such energy medicine is that people with real and treatable diseases will not get proper care. It is true that alternative practitioners can help some people by the placebo effect and by providing attention, love and care. However, there is no evidence that any of these energy medicines or quack medical devices has cured anyone's arthritis, cancer or other serious disorder.

## Biorhythms

The theory of biorhythms is a pseudoscientific theory that claims our daily lives are significantly affected by rhythmic cycles overlooked by scientists who study biological rhythms. Biochronometry is the scientific study of rhythmicity and biological cycles or "clocks," such as the circadian (from the Latin *circa* and *dia*; literally, "about a day"). Circadian rhythms are based upon such things as our sensitivity to light and darkness, which is related to our sleep/wakefulness patterns. Biorhythms is not based upon the scientific study of biological organisms. The cycles of biorhythm theory did not originate in scientific study, nor have they been supported by anything resembling a scientific study. The theory has been around for over one hundred years and there has yet to be a scientific journal that has published a single article supporting the theory. There have been some three dozen studies supporting biorhythm theory but all of them have suffered from methodological and statistical errors (Hines, 1998). An examination of some 134 biorhythm studies found that the theory is not valid (Hines, 1998). It is empirically testable and has been shown to be false. Terence Hines believes that this fact implies that biorhythm theory "can not properly be termed a pseudoscientific theory." However, when the advocates of an empirically testable theory refuse to give up the theory in the face of overwhelming evidence against it, it seems reasonable to call the theory pseudoscientific. For, in fact, the adherents to such a theory have declared by their behavior that there is nothing that could falsify it, yet they continue to claim the theory is scientific.

Biorhythm theory is based more on numerology, testimonials and the Forer effect, mass media hype, and intuition than on scientific study. The theory originated in the nineteenth century with Wilhelm Fliess, a Berlin physician, numerologist and good friend and patient of Sigmund Freud.<sup>1</sup> Fliess was fascinated by the fact that no matter what number he picked he could figure out a way to express it in a formula with relation to either 23, 28 or both.<sup>2</sup> The latter number he associated with menstruation and thus when he was convinced that all the world is governed by 23 and 28, he called the 28-day period "female" and the 23-day period "male." In 1904, several years after Fliess's discovery, Dr. Hermann Swoboda of the University of Vienna, claimed he discovered these same periods on his own. In the 1920s, Alfred Teltscher, an Austrian engineering teacher, added the 'mind' period of 33 days, based upon his observation that his students' work followed a 33-day pattern. The theory was popularized in the 1970s by George Thommen (*Is This Your Day? How Biorhythm Helps You Determine Your Life Cycles*) and Bernard Gittleson (*Biorhythm--A Personal Science*). Neither book provides scientific evidence for biorhythms. They consist of

little more than speculation and anecdotes. However, by now the static idea of periods was replaced with the dynamic notion of cycles, which are now known as the physical, emotional and intellectual cycles. Interestingly, not only did the "female" period become the emotional cycle, but both men and women are said to share the same physical and emotional cycles of 23 and 28 days respectively. One might have expected that, given the different hormonal natures of males and females, the sexes might have at least some unique and distinct rhythmic cycles.

New cycles have been added in recent years. There is the 38-day intuitional cycle, the 43-day aesthetic cycle, and the 53-day spiritual cycle. Others claim there are cycles that are combinations of the three primary cycles. The passion cycle is the physical joined with the emotional cycle. The wisdom cycle is the emotional joined with the intellectual cycle. And the mastery cycle is the intellectual joined with the physical cycle.

However many cycles there are, the function is the same: to predict what kind of day one is likely to have.

Generally speaking, the more positive a cycle is at any given point in time, the better one is able to interact in that arena. For example, high emotional level tends to mean that a person is more stable, is better able to make relationship decisions, and so on. This is not to say that when the cycle is in the negative range that the person is not doing well in that arena, rather, it means that it is harder to do well. --Plan exams when your Intellectual cycle is high. [Facade]

At the moment of birth, according to the theory, the biorhythmic cycles are set to zero. Knowing your birthday, the number of days you have lived and where in each cycle you are can be determined for any given day. A biorhythmic chart for July 24, 1998, for someone born four days earlier would look like this:

The line going through the middle is the zero line. A cycle is said to be in a positive phase when above the zero line and in a negative phase when below the zero line. A cycle begins in an ascent for the first fourth of a cycle, then half of the cycle is in descent, then the last quarter of the cycle ascends back to the zero line. The cycles repeat until you die. Should you live to be something like 58 years and 66 days old, you will reach the point at which the physical, emotional and intellectual cycles return to the same point on the zero line. For some, this is a moment of "rebirth."

According to the theory, when certain points on the cycles are reached a person may enjoy special strength or suffer special weakness. "Switch point days," when cycles cross the zero line on the ascent or descent, are "critical" days. Performance on critical days is supposedly very poor. It has even been predicted that people are especially accident prone on critical days. This empirical claim is easily testable. It has been tested and shown to be false. However, any cycle with an odd number of days does not have an exact day in the middle, a fact which has led some "experts" to do some slippery math. For example, one "scientific study" said to support biorhythm theory claims that something like 60% of all accidents occur on critical days but critical days make up only 22% of all days. If true, this statistic would not likely be due to chance and biorhythm advocates could justifiably claim their theory had been confirmed by this data. However, biorhythmists include both the day before and the day after a switch point day as "critical" days. Thus, an accurate statistic would be something like about 60% of all accidents occur on about 60% of all days, which is to be expected by chance (Hines).

In any case, according to the theory, critical days are days you want to know about in advance so you can prepare for them. For example, if you are scheduled to take a test that will measure your thinking ability, make sure you do not take the test on a day when your intellectual cycle is at a critical or a low point. Of course, to do well one must also get a good night's sleep, be generally healthy, eat properly, and study, but those preparations will do you no good if your intellectual cycle is not in the right spot. On the other hand, if you are a long distance runner, try to pick your next race date so that you are at a peak on your physical cycle. Of course, you must train properly, eat well, get sufficient rest, be healthy, etc., but these will not suffice if your physical cycle is at the wrong point.

The worst day of all, according to the classical (3-cycle) theory, is the "triple critical," the day when all three cycles are at a switch point. Next worst is the "double critical", when two cycles meet at the switch point. As you can imagine, it gets very complicated tracing all these cycles on their ascents, descents, switch points, etc. But it does not take a mathematician to figure out that it is going to be easy to find cases that fit the theory. For example, the physical cycle is 23 days long. That means that every 11.5 days is a physical cycle switch over day. So, the odds of, say, having a heart attack on a given physical switch over day are about 1 in 11. Most people would agree that having a heart attack is having a bad physical day. One valid empirical test of the theory would be to collect data on heart attack victims and see if significantly more than 9% (1 out of 11) had their heart attacks on physical switch over days. Instead, the usual evidence given by believers is an anecdote about Clark Gable or someone else who had a heart attack on a switch over day. There are thousands of heart attack victims each year and 1 out of 11 of them would be predicted by chance to have the attack on a switch over day. So, finding several individual cases of people who have serious physical problems on a critical physical day is to be expected, not wowed at.

The ho-hum response that anecdotes such as the Clark Gable story should evoke from a reasonable person should put one to sleep when you consider that biorhythmists generally count the day before and after a critical day as being just as bad as critical days. This means that 6 out of every 23 days (26% of our days) are danger days for the body. Thus, the odds are about one in four that any given person who has a bad physical day is at a "critical" point. Anecdotes of people having bad physical days are particularly inconsequential given such odds. A meaningful test of the theory might be to study heart attack victims. If significantly greater than 25% of the sample have attacks on a critical days, then you have a scoop.

Another typical but useless test of the theory is to keep track of how accurate the theory is by charting each day and keeping a diary of your days. Actress Susan St. James, a fervid believer in biorhythms, once described on a television talk show how she had done this. If her chart predicted a low emotional day, she was upset that day. If her chart predicted a physical high, she felt great that day. On a day when her intellectual cycle was at a low, she couldn't think straight about anything. In some circles this is known as the self-fulfilling prophecy, the power of suggestion or subjective validation. Whatever you call it, it isn't science.

To demonstrate the folly of using subjective validation to count as support for biorhythm theory, James Randi had George Thommen, president of Biorhythm Computers, Inc., do a biorhythm chart for Randi and his secretary. One of the listeners to Randi's radio program was selected for an experiment. She was to be given her own personal chart and she was to keep a day-by-day diary for two months and to rate her chart for accuracy. She reported that the chart had been "at least ninety percent accurate." The devious Randi had actually sent her his own chart. He told the subject that he had done this by mistake. She agreed to check her diary with her real chart, which Randi gave her. She reported that the new chart was even more accurate than the other one. Actually, she'd been given Randi's secretary's chart. This kind of data retrofitting is common among believers in such pseudosciences as astrology, graphology and biorhythms. In fact, similar tests of subjective validation, with identical results, have been done on astrological charts and graphological readings. Randi's deception, of course, was not intended to disprove biorhythms, but to call attention to the problem of subjective validation, something consistently overlooked by devotees of astrology, graphology and biorhythms.

Biorhythms is a pseudoscience because there have been several meaningful tests of the theory, all failing to support it (Hines, 1991), yet its advocates refuse to give up the theory. Advocates of this theory have more ad hoc hypotheses to explain away disconfirming evidence than Galapagos has islands. My favorite is the hypothesis that some people are arrhythmic some or all of the time. Any contrary case can be explained away by reference to the case being arrhythmic. Another favorite ad hoc hypothesis concerns Thommen's claim that he could predict with 95% accuracy the sex of a child by the biorhythms of the mother. If, during conception, the mother's physical (masculine) cycle was at a high point, a boy was likely. If, during conception, the mother's emotional (female) cycle was at a high point, a girl was likely. A study done by W.S. Bainbridge, a professor of sociology at the University of Washington, concluded that using the biorhythm theory your chances of predicting the sex of the child were 50/50, the same as flipping a coin. A defender of the theory suggested to Bainbridge that the cases where the theory was wrong probably included many homosexuals, who have indeterminate sex identities!

When the anecdotes don't fit the theory, biorhythmists are likely to change the theory. For example, one of the more common ways to defend the theory has been to point out that great feats occur when high in a cycle. Defenders of the theory commonly cite the example of Mark Spitz (born 2/10/50) being in a high physical and emotional phase when he won seven gold medals in the 1972 Olympics.

Note how Spitz's emotional and physical cycles converged on September 5, the day of the Munich massacre. Coincidence? Not to inquiring minds. No doubt this is evidence of synchronicity. Note, too, that his intellectual cycle was very low during this period. Why not conclude that he did so well physically because his mind was inactive. Thus, he was not distracted by doing any serious thinking, a known hindrance to athletic performance. Of course, the simplest theory is that he did so well because he was a damn good swimmer! Those of a logical bent might use Occam's razor to reject biorhythms in favor of this simpler explanation.

However, Reggie Jackson, who was inaugurated into Baseball's Hall of Fame and was born on May 18, 1946, had the greatest day in his brilliant career on October 18, 1977. On that day he hit three consecutive home runs on three consecutive pitches off three different pitchers to help the New York Yankees win the game and the World Series against the Los Angeles Dodgers. Jackson's cycles were all in the low end of their negative phases on that day.

Russ Streiffert has an explanation: "Studies have shown that location in the graphic data may be less important than trend or which way your [sic] going. This is a dynamic interpretation as opposed to earlier views. Briefly starting at the bottom of the graph we have increasing resource discharge (available)...then maximum discharge across the center line...then decreasing discharge approaching the top. Starting back down we have increasing recharge (unavailable)...maximum recharge across the center line...then decreasing recharge approaching the bottom. In the graph above, notice how Mr. Jackson's resources appear charged (available) and synchronized on October 18, 1977. While this does not constitute proof

that these cycles contributed to his achievements, it appears to be an excellent correlation and is certainly not disproof. " The studies that have shown this are not cited by Mr. Streiffert.

So, when the data seems to conflict with what would be predicted by the theory, we are to engage in a new kind of interpretation. Reggie Jackson was not in a negative phase of all cycles; he was "charged and synchronized." We are to think in terms of recharging our energy as we ascend in a cycle, and discharging energy as we descend (or is it the other way around?). In this dynamic and energetic view, even days in the negative phase of a cycle can be good and days in the positive cycle can be bad and vice-versa, depending upon whether they are ascending or descending, charging or discharging, available or unavailable. Such constructions may make it impossible to refute the theory, but they render it untestable and so slippery as to be of little use for predicting the future. What was a pseudoscientific theory because its advocates continued to support it even though it failed all scientific empirical tests, is now a pseudoscience because it claims to be a scientific theory but it is not empirically testable. Everything can be made to fit the theory, even contrary readings such as those of Mark Spitz and Reggie Jackson, who deserve more credit for their accomplishments than biorhythm theory can provide.

## Notes

1 Freud's letters to Fliess were preserved, much to Freud's dismay. They were first published in English as *Origins of Psychoanalysis: Letters to Wilhelm Fliess Drafts and Notes, 1887-1902*. Edited by Marie Bonaparte, Anna Freud and Ernst Kris, translation by Eric Mosbacher and James Strachey (London: Imago Pub. Co., 1954). A more recent translation by Jeffrey Moussaieff Masson is available: *The Complete Letters of Sigmund Freud to Wilhelm Fliess, 1887-1904* (Cambridge, Mass.: Belknap Press of Harvard University Press, 1985). Fliess's masterpiece is entitled *The Rhythm of Life: Foundations of an Exact Biology* (Leipzig: 1906). There is a discussion of Freud, Fliess and biorhythms in Frank Sulloway's *Freud: Biologist of Mind* (Cambridge, Mass.: Harvard University Press, 1993).

2 How did Fliess come up with his theory about the magic of the numbers 23 and 28? Martin Gardner writes:

Fliess's basic formula can be written  $23x + 28y$ , where  $x$  and  $y$  are positive or negative integers. On almost every page Fliess fits this formula to natural phenomena, ranging from the cell to the solar system....He did not realize that if any two positive integers that have no common divisor are substituted for 23 and 28 in his basic formula, it is possible to express any positive integer whatever. Little wonder that the formula could be so readily fitted to natural phenomena! [Gardner pp. 134-135]

Blavatsky, Helena Petrovna

## Theosophy

"We assert that the divine spark in man being one and identical in its essence with the Universal Spirit, our "spiritual Self" is practically omniscient, but that it cannot manifest its knowledge owing to the impediments of matter. Now the more these impediments are removed, in other words, the more the physical body is paralyzed, as to its own independent activity and consciousness, as in deep sleep or deep trance, or, again, in illness, the more fully can the inner Self manifest on this plane. This is our explanation of those truly wonderful phenomena of a higher order, in which undeniable intelligence and knowledge are exhibited. " [Madame Blavatsky]

"...we are imprisoned in the body, like an oyster in his shell." [The Socrates of Plato, Phaedrus]

To the philosopher, the body is "a disturbing element, hindering the soul from the acquisition of knowledge..."

"...what is purification but...the release of the soul from the chains of the body?" The Socrates of [Plato, Phaedo]

Theosophy, or divine wisdom, refers either to the mysticism of philosophers who believe that they can understand the nature of God by direct apprehension, without revelation, or it refers to the esotericism of eclectic collectors of mystical and occult philosophies who claim to be handing down the great secrets of some ancient wisdom.

Theosophical mysticism is indebted to Plato (c. 427-347 BCE), Plotinus (204/5-270) and other neo-Platonists, and Jakob Boehme (1575-1624), among others. It experienced its last great Western philosophical burst in 19th century German Idealism. The mystical tradition continues to be a strong element in many non-Western philosophies, such as Indian philosophy.



Theosophic esotericism begins with Helena Petrovna Blavatsky (1831-1891) usually known as Madame Blavatsky, one of the co-founders of the Theosophical Society in New York in 1875. The esoteric theosophical tradition of Blavatsky is indebted to several philosophical and religious traditions: Zoroastrianism, Hinduism, Gnosticism, Manichaeism, the Cabala, among others.

Her harshest critics consider Madame Blavatsky to be "one of most accomplished, ingenious, and interesting impostors in history." Her devoted followers consider her to be a saint and a genius. [They claim she discovered the true nature of light either by clairvoyance or intuition alone, without any need for scientific training or communication with other scientists.] Since these characteristics are not contradictory, it is possible she was both a fraud and a saintly genius. Much of what is believed about Blavatsky originates with Madame herself, her devoted followers or her enemies. Nevertheless, a few things seem less dubious than others. She seems clearly to have been widely traveled and widely read. Blavatsky claims she spent several years in Tibet and India being initiated into occult mysteries by various "masters" (mahatmas or adepts) especially the Masters Morya and Koot Hoomi, who had "astral" bodies. These Adepts were said to dwell in the Himalayas, Egypt, Tibet and other exotic places. They are known for their extraordinary psychic powers and are the sacred keepers of some mysterious "Ancient Wisdom". They are not divine, she said, but more highly evolved than the rest of us mere mortals. (Evolution, according to Blavatsky, is a spiritual process.) Their goal is to unite all humanity in a Great White Brotherhood, despite the fact that they dwell in the remotest regions of the world and apparently have as little contact with the rest of us as possible.

### Blavatsky's Deceptions

Blavatsky seems clearly to have had an overpowering personality. She was knowledgeable of the tricks of spiritualists, having worked for one in Egypt, and in the early days of the Theosophical Society seems clearly to have used trickery to deceive others into thinking she had paranormal powers. She most certainly faked the materialization of a tea cup and saucer, as well as written messages from her Masters, presumably to enhance her credibility. She certainly claimed to have paranormal experiences, but whether she really believed she was clairvoyant or possessed psychic powers, I can't say.

In 1875 she founded the Theosophical Society in New York City in collaboration with Henry Steele Olcott, a lawyer and writer, and W. Q. Judge. She met Olcott in 1874 while he was investigating the spiritualism of the Eddy brothers in Vermont. They continued to meet with other like-minded seekers and together founded their society. A few years later, she and Olcott went to India together and established Theosophical headquarters there. She left under a cloud of suspicion in 1885, having been accused of faking materializations of teachings from her Masters. Back in Europe in 1888 she published her major work *The Secret Doctrine*. The book "is an attempt...to reconcile science, the Ancient Wisdom, and human culture through...cosmology, history, religion, and symbolism." (Ellwood) According to Blavatsky herself, "The chief aim of the...Theosophical Society [was] to reconcile all religions, sects and nations under a common system of ethics, based on eternal verities."

She did not reject religions such as Christianity and Hinduism, but claimed that all religions have an exoteric and an esoteric tradition. The exoteric traditions are unique and distinct for each religion. The esoteric doctrine is the same for all. She claimed to be passing on the wisdom of the shared esoteric doctrines. And even though she had an early association with spiritualism, she eventually claimed that "the spirits of the dead cannot return to earth -- save in rare and exceptional cases...."

One might wonder why, if Theosophy is so ancient and universal, it was so unknown until 1875. Madame had an answer. This was due to "willing ignorance". We humans have lost "real spiritual insight" because we are too devoted to "things of sense" and have for too long been slaves "to the dead letter of dogma and ritualism." "But the strongest reason for it," she said, "lies in the fact that real Theosophy has ever been kept secret." There were several reasons why it was kept secret. "...Firstly, the perversity of average human nature and its selfishness, always tending to the gratification of personal desires to the detriment of neighbours and next of kin. Such people could never be entrusted with divine secrets. Secondly, their unreliability to keep the sacred and divine knowledge from desecration. It is the latter that led to the perversion of the most sublime truths and symbols, and to the gradual transformation of things spiritual into anthropomorphic, concrete, and gross imagery -- in other words, to the dwarfing of the god-idea and to idolatry." [The Key to Theosophy] One wonders, what in the world was any different in the late 19th century? If at that time humans were any less perverse, selfish, materialistic, profane, etc., than they had ever been, this should come as a great shock to all social historians.

### Ancient Wisdom

What was this "Ancient Wisdom" which the theosophists promised to share? It is truly an eclectic compilation of Hindu, Egyptian, Gnostic and other exotic scriptures and teachings, neo-Platonism, and stories like the Atlantis myth. These are philosophies and stories for those who shake and quiver at the

sound of such words as secret, special, spiritual, enlightenment, transformation, esoteric, occult, divine, ancient wisdom, cosmic, vision, dynamics, golden, Isis, mysteries and masters. They promise escape from the evils of the world, especially the body, while providing an explanation for Evil. They claim to know that the reason spiritual progress is so slow in coming is because of all this horrible stuff in the universe called "matter." They promise the power of divinity while providing an explanation for miracles which takes them out of the realm of the supernatural and puts the believer into the center of the spiritual universe. They promise union with some great moral purpose while offering membership in an isolated society of very special beings. But, probably the biggest attraction to joining such an esoteric society is that you don't have to go to college and you don't have to read Kant.

What you do need, though, is a penchant for the occult. This is dangerous stuff, according to Blavatsky, but theosophy can help.

When ignorant of the true meaning of the esoteric divine symbols of nature, man is apt to miscalculate the powers of his soul, and, instead of communing spiritually and mentally with the higher, celestial beings, the good spirits (the gods of the theurgists of the Platonic school), he will unconsciously call forth the evil, dark powers which lurk around humanity -- the undying, grim creations of human crimes and vices -- and thus fall from theurgia (white magic) into goetia (or black magic, sorcery). [What Is Theosophy?]

According to Madame, "...no one can be a true Occultist without being a real Theosophist; otherwise he is simply a black magician, whether conscious or unconscious. " She even thought that mesmerism and hypnotism were occult arts.

Occult sciences are not, as described in Encyclopaedias, "those imaginary sciences of the Middle Ages which related to the supposed action or influence of Occult qualities or supernatural powers, as alchemy, magic, necromancy, and astrology," for they are real, actual, and very dangerous sciences. They teach the secret potency of things in Nature, developing and cultivating the hidden powers "latent in man," thus giving him tremendous advantages over more ignorant mortals. Hypnotism, now become so common and a subject of serious scientific inquiry, is a good instance in point. Hypnotic power has been discovered almost by accident, the way to it having been prepared by mesmerism; and now an able hypnotizer can do almost anything with it, from forcing a man, unconsciously to himself, to play the fool, to making him commit a crime -- often by proxy for the hypnotizer, and for the benefit of the latter. Is not this a terrible power if left in the hands of unscrupulous persons? And please to remember that this is only one of the minor branches of Occultism. [The Key to Theosophy]

Blavatsky may have understood the secret of the divine essence, but I don't think she understood the nature of hypnosis or mesmerism. However, I believe she was right when she claimed that "...the ecstatic trance of mystics and of the modern mesmerists and spiritualists, are identical in nature, though various as to manifestation." [What Is Theosophy?] I believe that none of these so-called "trance" states is a unique state of consciousness, though they are states of mind, states governed by social role-playing rules, a position argued for by many contemporary psychologists including Nicholas P. Spanos.

Where are the plaudits?

The reader may wonder why theosophy isn't universally recognized as the salvation of mankind. For some it may have been the messenger which kept them away. Many people are not likely to take seriously a Russian noblewoman who claimed to have had childhood visions of a tall Hindu who eventually materialized in Hyde Park and became her guru and advisor. Many skeptics scoff at her noble origins and subsequent employment as a circus performer and séance assistant, plus we take seriously the charges of deception for whatever noble motive. For others, it may be the doctrines which keep us away. Despite the stated moral goals, and the desire for peace on earth and good will toward men and women, there is the small problem of astral bodies, evolution of spiritual races, Aryans, paranormal powers, Atlantis, the so-called Ancient Wisdom, etc. To some this may seem better than the Incarnation, transubstantiation and the Trinity, but to skeptics this is just more metaphysical codswallop. Finally, others may be repelled by the self-discipline required of theosophy.

...the foremost rule of all is the entire renunciation of one's personality -- i. e., a pledged member has to become a thorough altruist, never to think of himself, and to forget his own vanity and pride in the thought of the good of his fellow-creatures, besides that of his fellow-brothers in the esoteric circle. He has to live, if the esoteric instructions shall profit him, a life of abstinence in everything, of self-denial and strict morality, doing his duty by all men.

"...every member must be either a philanthropist, or a scholar, a searcher into Aryan and other old literature, or a psychic student." (The Key to Theosophy)

It is not an easy life, pursuing the path of the mahatmas and the Ancient Wisdom, striving to unite all humankind into a Great Brotherhood of spiritually evolved beings with secret knowledge of such great vacation spots for astrals as Atlantis. Plus, perhaps there were inconsistencies or inadequacies in the

secret doctrines, as the group seemed to splinter and dissipate after the death of Madame. Her dream of a Brotherhood of Man remains a dream, although there are Theosophical societies all over the world.

### Blondlot and N-rays

Rene Prosper Blondlot (1849-1930) was a French physicist who claimed to have discovered a new type of radiation, shortly after Roentgen had discovered X-rays. He called it the N-ray, after Nancy, the name of the town and the university where he lived and worked. Blondlot was trying to polarize X-rays when he claimed to have discovered his new form of radiation. Dozens of other scientists confirmed the existence of N-rays in their own laboratories. However, N-rays don't exist. How could so many scientists be wrong? They deceived themselves into thinking they were seeing something when in fact they were not. They saw what they wanted to see with their instruments, not what was actually there (or, in this case, what was not there).

The story of Blondlot is a story of self-deception among scientists. Because many people have the misguided notion that science should be infallible and a fount of absolutely certain truths, they look at the Blondlot episode as a vindication of their excessive skepticism towards science. They relish accounts such as the one regarding Blondlot and the phantom N-rays because it is a story of a famous scientist making a great error. However, if one properly understands science and scientists, the Blondlot episode indicates little more than the fallibility of scientists and the self-correcting nature of science.

Blondlot claimed that N-rays exhibit impossible properties and yet are emitted by all substances except green wood and certain treated metals. In 1903, Blondlot claimed he had generated N-rays using a hot wire inside an iron tube. The rays were detected by a calcium sulfide thread that glowed slightly in the dark when the rays were refracted through a 60 degree angle prism of aluminum. According to Blondlot, a narrow stream of N-rays was refracted through the prism and produced a spectrum on a field. The N-rays were reported to be invisible, except when viewed as they hit the treated thread. Blondlot moved the thread across the gap where the N-rays were thought to come through and when the thread was illuminated it was said to be due to N-rays.

Nature magazine was skeptical of Blondlot's claims, since laboratories in England and Germany had not been able to replicate the Frenchman's results. Nature sent American physicist Robert W. Wood of Johns Hopkins University to investigate Blondlot's discovery. Wood suspected that N-rays were a delusion. To demonstrate such, he removed the prism from the N-ray detection device, unbeknownst to Blondlot or his assistant. Without the prism, the machine couldn't work. Yet, when Blondlot's assistant conducted the next experiment he found N-rays. Wood then tried to surreptitiously replace the prism but the assistant saw him and thought he was removing the prism. The next time he tried the experiment, the assistant swore he could not see any N-rays. But he should have, since the equipment was in full working order.

According to Martin Gardner, Wood's exposure of Blondlot led to the French scientist's madness and death [Gardner, p. 345 n.1]. But were those who verified Blondlot's N-ray experiments stupid or incompetent? Not necessarily, since the issue isn't one of intelligence or competence, but of the psychology of perception. Blondlot and his followers suffered "from self-induced visual hallucinations." [ibid.]

What is the lesson from the Blondlot episode? James Randi writes

...science does not always learn from these mistakes. Visiting Nancy recently and speaking on the subject of pseudoscience, I discussed this example and though I was in the city that gave the name to N-rays, no one in the audience had ever heard of them, or of Blondlot, not even the professors from the University of Nancy!

The fact that Blondlot is not remembered at Nancy ought to be taken as a sign that science does learn from its mistakes. The fact that Blondlot is not considered a prophet in his homeland is a healthy sign that although scientists often make errors, even big ones, other scientists will uncover the errors and get science back on the right path to understanding nature. Those who think that science should be infallible do not understand the nature of science.

### The "Blue Sense"

The "blue sense" is a cop's intuition about impending danger, about whether or not a suspect is guilty, about whether someone's lying, about hunches regarding cases or people. The term is used by Lyons and Truzzi to refer to something akin to psychic power possessed by good cops. "It is that unknown quantity in the policeman's decision-making process that goes beyond what he can see and hear and smell." (Lyons and Truzzi, p. 11)

There have been no studies that have validated the "blue sense," nor is there any evidence that a cop's intuition is infallible.

## Breatharianism

(inedia)

...if food is so good for you, how come the body keeps trying to get rid of it?...Man was not designed to be a garbage can.--Wiley Brooks, 'The Breatharian', Director of the Breatharian Institute

Inedia is the alleged ability to transform one's eating habits to do away with food. Some inediates become breatharians, like the stigmatic Therese Neumann (1898-1962) of Bavaria, who said "one can live on the Holy Breath alone." She claims to have done this from 1926-1962, during which time she says she only consumed her daily serving of transubstantiated bread.

Fasting has long been considered a way to purify one's body and mind. Fasting reminds us of our dependence and weakness. Inediates carry fasting to its limit. If restraint, self-control and reducing one's intake of food and water is good, then eliminating all physical nourishment must be better. Spiritual beings don't need food, water or sleep. Inediates are trying to be spiritual beings. Unfortunately, food, water and sleep are not optional for human beings. Even so, there are those who are ready to believe otherwise.

Recently, Australian Ellen Greve a.k.a. Jasmuheen has been attracting followers to breatharianism. According to Jasmuheen, a former financial advisor, we can get all the nutrition we need from prana, the universal life force. She also claims that light is the ultimate nutriment and is the author of *Living on Light: A Source of Nutrition for the New Millennium*. In her book, she has a 21-day program that will allow the body to live solely on light. She also gives advice on how to stop aging and attain immortality.

She claims she hasn't eaten since 1993; yet, she admits "she drinks herbal teas and confesses to the occasional 'taste orgasm' involving chocolate or ice cream."\*. She also admits that "if I feel a bit bored and I want some flavour, then I will have a mouthful of whatever it is I'm wanting the flavour of. So it might be a piece of chocolate or it might be a mouthful of a cheesecake or something like that."\*

Several interviewers have found her house full of food, but she claims the food is for her husband who was once sent to prison for misappropriating a pension fund. Apparently he hasn't seen the light and is unable to live on prana yet.

Greve runs the Cosmic Internet Academy (C.I.A.) and claims to have 5,000 followers worldwide. People pay over \$2,000 to attend her seminars. There are many, I guess, who are not bothered by the contradiction of saying one needs only prana (or is it light?) but admits to the odd sweet and cup of tea. This "diet" is changing her chromosomes, she says. Her "DNA is changing to take up more hydrogen and is developing from 2 to 12 strands."\* Such gibberish would get many people committed to a mental ward; instead, she makes world tours promoting her book and philosophy.

Greve also claims that the starving of the world would be just fine if they could only be "re-programmed". They starve to death, she says, because the mass media has tricked them into thinking they need food.\*

Unfortunately, several of her followers have starved to death.

Last fall, Greve agreed to be tested by the Australian television program 60 Minutes. After four days of fasting, Dr Berris Wink, president of the Queensland branch of the Australian Medical Association, urged Jasmuheen to stop the test. According to the doctor, Jasmuheen's pupils were dilated, her speech was slow, she was dehydrated and her pulse had doubled. The doctor feared kidney damage if she continued with the fast. The test was stopped. Rather than admit that she is a fraud or deluded, Jasmuheen claimed that she failed because on the first day of the test she had been confined in a hotel room near a busy road, which kept her from getting the nutrients she needs from the air. "I asked for fresh air. Seventy per cent of my nutrients come from fresh air. I couldn't even breathe," she said. (The last three days of the test took place at a mountainside retreat where she could get plenty of fresh air and where she claimed she could now live happily.)\*

The inspiration for breatharianism seems to have been Wiley Brooks who heads The Breatharian Institute of America. For the past thirty years or so, Brooks has been claiming that we don't need food, water or sleep. He claims that adepts and yogis have been doing this for millennia. He offers weekend workshops at a Sierra Nevada mountain retreat for \$425, meals included.

Bridey Murphy

On a dark and dreary day in 1952, Morey Bernstein hypnotized Virginia Tighe. She began speaking in an Irish brogue and claimed that she was Bridey Murphy, a 19th century woman from Cork, Ireland. Bernstein hypnotized Virginia/Bridey many times after that. While under hypnosis, she sang Irish songs and told Irish stories, always as Bridey Murphy. Bernstein's book, *The Search for Bridey Murphy*, became a best-seller. Recordings of the hypnotic sessions were made and translated into more than a dozen languages. The recordings sold well, too. The reincarnation boom in American publishing had begun.

Newspapers sent reporters to Ireland to investigate. Was there a red-headed Bridey Murphy who lived in Ireland in the nineteenth century? Who knows, but one paper--the *Chicago American*--found one in Chicago in the 20th century. Bridie Murphey Corkell lived in the house across the street from where Virginia Tighe grew up. What Virginia reported while hypnotized were not memories of a previous life but memories from her early childhood. Whatever else the hypnotic state is, it is a state where one's fantasies are energetically displayed. Many people were impressed with the details of Tighe's hypnotic memories, but the details were not evidence of past life regression, reincarnation or channeling. They were evidence of a vivid imagination, a confused memory, fraud, or a combination of the three.

As Martin Gardner says, "Almost any hypnotic subject capable of going into a deep trance will babble about a previous incarnation if the hypnotist asks him to. He will babble just as freely about his future incarnations....In every case of this sort where there has been adequate checking on the subject's past, it has been found that the subject was weaving together long forgotten bits of information acquired during his early years" (Gardner).

### Bunyips

Bunyips are legendary spirits or creatures of the Australian Aborigine. Bunyips haunt rivers, swamps, creeks and billabongs. Their main goal in life is to cause nocturnal terror by eating people or animals in their vicinity. They are renowned for their terrifying bellowing cries in the night and have been known to frighten Aborigines to the point where they would not approach any water source where a bunyip might be waiting to devour them.

There are many reports by white settlers who have witnessed bunyips, so cryptozoologists may still be searching for these creatures. They may have some difficulty in locating their prey, though, since Aboriginal tribes do not all give the same visual description of the creature. Some say the bunyip looks like a huge snake with a beard and a mane; others say it looks like a huge furry half-human beast with a long neck and a head like a bird. However, most Australians now consider the existence of the bunyip to be mythical. Some scientists believe the bunyip was a real animal, the diprotodon, extinct for some 20,000 years, which terrified the earliest settlers of Australia.

According to Oodgeroo Noonuccal (Kath Walker) in *Stradbroke Dreamtime*, the bunyip is an evil or punishing spirit from the Aboriginal Dreamtime. Today the bunyip mainly appears in Australian literature for children and makes an occasional appearance in television commercials.

### Cabala

(also caballa, kabala, kaballa, Kaballah, qaballah, etc.)

The Cabala is a collection of esoteric writings of various rabbis and a few medieval Christians, consisting of mystical and numerological interpretations of Hebrew scriptures. The authors of the Cabala treat every letter, word, number, and accent of Scripture as if it were a secret code containing some profound but hidden meaning put there by God for some profound and hidden purpose, including prophecy. The Cabala also provides methods of interpretation of the occult marks on paper that the less spiritually gifted take to be mere words to be understood either literally or figuratively. The purpose of the Cabala is apparently to read God's mind and thereby become one with the divine.

Like all other mystical works and movements, cabalists believe that the only world worth knowing is the divine realm "above" and that one's life on earth should be spent trying to understand the mystery of the "upper level." This transcendental quest represents to the atheist a rejection of the earthly realm of facts, suffering, uncertainty and impotence in favor of a fantasy realm of the imagination and a sharing in eternal bliss and omnipotence. To philosophers such as Nietzsche, mysticism is nihilism's expression of the will to power. Those who are part of the esoteric group are made to feel powerful and superior to outsiders by the magic of their fanciful imaginations.

## Cardiff Giant

The Cardiff Giant is a fake fossil of an antediluvian giant some ten feet high with 21 inch feet. The "fossil" is actually a carved slab of gypsum, sculpted a year or two before its "discovery" in 1869. The fake was the idea of George Hull, a cigar manufacturer and atheist, and a distant relation Stubb Newell, who owned the farm in Cardiff, New York, where the hoax was perpetrated. Experts almost immediately suspected the "fossil" was not a fossil, but their warnings went unheeded. Scientists declaring the fake a fake did not deter visitors, who shelled out 50 cents each to see the "Goliath." Rumor had it that the "fossil" was proof of the Bible's accuracy about giants such as Goliath. The curious came in the hundreds per day to the remote upstate New York farm for a view of Biblical history.

Within a week of its "discovery," Newell sold three-fourths of his interest in the Giant to a syndicate in Syracuse, New York, for \$30,000. Business was so good that P.T. Barnum wanted to get in on the action. He offered to rent the giant for just three months to take on the road with his circus, but Newell and the syndicate wouldn't deal. So Barnum had a duplicate made and charged people to see a fake of the fake. It is said that when both were displayed in New York City at the same time, Barnum's fake of the fake outdrew the real fake (Feder, 36).

Kenneth Feder, in his book on myths and frauds in archaeology, sees the Cardiff Giant episode as a familiar one:

Trained observers such as professional scientists had viewed the Giant and pronounced it be an impossibility, a statue, a clumsy fraud, and just plain silly. Such objective, rational, logical, and scientific conclusions, however, had little impact. A chord had been struck in the hearts and minds of many otherwise levelheaded people, and little could dissuade them from believing in the truth of the Giant. Their acceptance of the validity of the giant was based on their desire...to believe it (Feder, 37).

In short, often the skepticism toward scientific experts is not rooted in the desire to believe only what the evidence supports, but in a desire to believe what one wants to believe regardless of the evidence.

The "fossil" is now on display at the Farmer's Museum in Cooperstown, New York.

## "Carlos"

"Carlos" was the name for a 2000-year-old spirit allegedly channeled by José Alvarez when he toured Australia in 1988 with James Randi. The tour was a hoax intended to demonstrate how easy it is to fool people and how gullible and uncritical the mass media are when covering paranormal or supernatural topics.

Alvarez was trained by Randi to perform as a channeler, including teaching him how to stop his pulse in one arm by taping a ball to the skin and squeezing it in the armpit. "Carlos" developed a large following and was the darling of Australian television. His tour culminated with a performance in the Sydney opera house.

Even after the hoax was revealed, many continued to believe in "Carlos" and his uninspired messages.

## Cartomancy

Cartomancy (literally, divination from cards) is a type of fortune-telling by reading cards such as the tarot.

## Carlos Castaneda

(d. 1998)

"All paths are the same: they lead nowhere."  
---Don Juan

Carlos Castaneda was a best-selling author of a number of books centering on a Mexican Yaqui shaman's pharmacologically induced visions. He called the character Don Juan Matos. Castaneda claimed he was doing anthropology, that his books were not fiction. He was granted a Ph.D. by the UCLA Anthropology Department in 1973 for his third book, *Journey to Ixtlan*. Critics say the work is not ethnographically accurate and is a work of fiction.

Castaneda's books are full of stories of magic, sorcery, out-of-body experiences, etc. His first books hit the market during the 1960s when American culture was fascinated by Druglords such as Timothy Leary. These Druglords believed that the chemical changes in their brains which caused them to perceive the world differently and to perceive different worlds, were entering into a "divine" realm. Getting high meant opening the doors of perception to a higher reality.

Castaneda claimed that he met Don Juan in 1960 at a bus station in Nogales, Arizona. Castaneda was a graduate student in anthropology doing research on medicinal plants used by Indians of the Southwest. He claims that Don Juan made him a sorcerer's apprentice and introduced him to the world of peyote, etc. It is unlikely that a great shaman would pick someone up at a bus stop and make him a disciple, but we'll never know since no one but Castaneda ever met Don Juan. Was Don Juan a hoax? Maybe, but Castaneda's books have sold over eight million copies. How?

Castaneda obviously filled a need. He told good stories and gave enigmatic advice. He gave people hope, especially those who believe that the more modern civilization has become the further it has driven human beings from their spiritual or true nature. But these old shamans still know the way! They know truths your modern scientist has not even dreamed of! And they do hallucinogenics, too! Maybe that is why they thought they could fly and transmogrify into birds and other animals.

In his later years, Castaneda introduced a new way to get high: Tensegrity. It involves meditation, exercises, a luminous egg, an assemblage point, depersonalization, dreaming, and other New Age magic. Tensegrity allegedly leads to the perception of "pure energy," breaking down the barriers to higher consciousness. It is supposed to be based on some ancient magic, known to Indian shamans centuries ago.

#### Cattle "Mutilations"

The term "mutilations" is used by UFO devotees to describe animal corpses with "unusual" or "inexplicable" features. What counts as "unusual" or "inexplicable" is just about any cut, mark, wound, excision, incision, swelling, distention, organ or blood absence, abrasion or bruise. These "mutilations," we are told, are being done by bad aliens. No one has shown either that there are thousands of inexplicable animal deaths around the globe or that, if there are, they are related, much less that they are the result of alien experimentation. These facts, however, are no deterrent to those who are sure we are not alone. To them, these visitors from other worlds are not only responsible for the deaths and mutilations of thousands of cattle, horses, cats and other domestic animals around the globe, they are also responsible for numerous human abductions for the purpose of experimental and reproductive surgery. Furthermore, some of these aliens are destroying crops around the globe in an effort to impress us with their artistic abilities or to communicate to us in strange symbols just how much they like our planet's cattle.

The belief that aliens have been killing and mutilating animals is supported by little more than an argument from ignorance: since there is a lack of evidence that aliens aren't responsible for the deaths or the post mortem conditions of the animals, it follows that the aliens are responsible. Defenders of this view reject the notion that there could be an earthly and naturalistic explanation. They are convinced that aliens need cow blood and organs for their experiments. What seems most convincing to the alien theorists is that "wounds" and missing organs such as the tongue and the genitalia seem completely inexplicable to them in any but mysterious terms, i.e., alien surgeons. Naturalistic explanations in terms of predators (skunks, buzzards, weasels, etc.), insects (such as blowflies), and birds are to no avail, even though the most thorough examination of so-called cattle "mutilations" concluded there was nothing mysterious that needed explaining (see the Rommel report). It is useless to note that insects and animals often devour the vulnerable mucous membranes and the softer parts of dead animals such as the genitalia, instead of trying to burrow through the cowhide. It is pointless to note that incisions to a carcass by the teeth of predators/scavengers often resemble knife cuts. It is of no use to point out that there is little or no blood oozing from the wounds because blood settles, the heart does not pump when an animal is dead, insects devour the blood that does spill out, etc.

Typical of the alien surgeon accounts is that given in *An Alien Harvest* (1989) by Linda Moulton Howe, which includes photographs of wounds described as weird, bizarre, suspicious and inexplicable. She claims that her photos reveal for the first time that tissue gathered from mutilator cuts in Arkansas on March 11, 1989, revealed the following characteristics under microscopic examination: 1) The line is pinpoint thin; 2) The line was subjected to high heat, probably 300 degrees Fahrenheit or above, leaving a hard and darkened edge; 3) The cuts were made rapidly, probably in two minutes or less, because there is no inflammatory cell destruction which typically begins in a few minutes after any trauma to tissue (See contrasting photomicrographs).

The photographs are considered to be "scientific proof" of unnatural happenings, even though the scientific community considers such photos to be of little significance. Even if the photos are not doctored, they need no explanation in terms of alien surgeons. But there is no point in suggesting anything earthly as probably being responsible for the cattle deaths or conditions, since those explanations have already been

ruled out by such experts as Howe. The wounds are too weird, the lack of blood too bizarre, the coincidences too many, they say, for any naturalistic explanation.

Besides, if there were earthly explanations, one could not invoke the favored government conspiracy theory to juice up the story. Cattle "mutilations" are not only associated with UFO sightings, alien abductions and crop circles, they are linked to black helicopter sightings as well. This suggests to the well trained conspiratorial mind that our military forces are testing new weapons on the livestock of unsuspecting citizen ranchers. It shouldn't surprise anyone to find that the military thinks it is ok to experiment on cattle surreptitiously, since they've done it on people in the past. Another possibility, according to UFOlogists, is that the helicopters are UFO's disguised to appear as terrestrial craft. Some even think that the aliens have been in collusion with the Air Force for the past 30 years and that the animal "mutilations" are being performed by aliens with the full knowledge of our military. We allow it because of some sort of treaty the U.S. government supposedly signed with the aliens. You would think that such intelligent beings might have worked out a better arrangement.

Of course, inquiring minds want to know why beings with the intelligence and power to travel billions of miles to our planet would spend their time mutilating cows, experimenting on otherwise unnotable people, or carving up wheat fields. They need cow blood and glands for food and experiments. They are harvesting enzymes and are working on a genetic engineering project that will blend the Gray race (the aliens) with a Nordic race so they can interface with humans better. They are altering cow DNA to create some sort of artificial life form. They are carving up wheat fields with ever more elaborate designs to impress upon us how intelligent they are. Why would they come here and behave so preposterously? They're aliens and are beyond our comprehension. Nothing is preposterous for beings who are beyond our comprehension.

Cayce, Edgar

(1877-1945)

Edgar Cayce is known as one of America's greatest psychics. His followers maintain that Cayce was able to tap into some sort of higher consciousness, such as God or the Akashic record, to get his "psychic knowledge." He used this "knowledge" to predict that California will slide into the ocean and that New York City will be destroyed in some sort of cataclysm. He predicted that in 1958 the U.S. would discover some sort of death ray used on Atlantis. Cayce is one of the main people responsible for some of the sillier notions about Atlantis, including the idea that the Atlantaeans had some sort of Great Crystal. Cayce called the Great Crystal the Tuaoi Stone and said it was a huge cylindrical prism that was used to gather and focus "energy," allowing the Atlanteans to do all kinds of fantastic things. But they got greedy and stupid, tuned up their Crystal to too high a frequency and set off volcanic disturbances that led to the destruction of that ancient world. He made other predictions concerning such things as the Great Depression (that 1933 would be a good year) and the Lindbergh kidnapping (most of it wrong, all of it useless), and that China would be converted to Christianity by 1968. He also claimed to be able see and read auras, but this power was never tested under controlled conditions. However, Edgar Cayce is best known for being a psychic medical diagnostician and psychic reader of past lives.

Cayce was known as "the sleeping prophet" because he would close his eyes and appear to go into a trance when he did his readings (Stern). At his death, he left thousands of accounts of past life and medical readings. A stenographer took notes during his sessions and some 30,000 transcripts of his readings are under the protection of the Association for Research and Enlightenment. However, Cayce usually worked with an assistant (hypnotist and mail-order osteopath Al Layne; John Blackburn, M.D.; homeopath Wesley Ketchum). According to Dale Beyerstein, "these documents are worthless by themselves" because they provide no way of distinguishing what Cayce discerned by psychic ability from information provided to him by his assistants, by letters from patients, or by simple observation. In short, the only evidence for Cayce's psychic doctoring is useless for testing his psychic powers. Nevertheless, it is the volume and alleged accuracy of his "cures" that seem to provide the main basis for belief in Cayce as a psychic. In fact, however, the support for his accuracy consists of little more than anecdotes and testimonials. There is no way to demonstrate that Cayce used psychic powers even on those cases where there is no dispute that he was instrumental in the cure.

It is true, however, that many people considered themselves cured by Cayce and that's enough evidence for true believers. It works! The fact that thousands don't consider themselves cured or can't rationalize an erroneous diagnosis won't deter the true believer. Gardner notes that Dr. J.B. Rhine, famous for his ESP experiments at Duke University, was not impressed with Cayce. Rhine felt that a psychic reading done for his daughter didn't fit the facts. Defenders of Cayce claim that if a patient has any doubts about Cayce, the diagnosis won't be a good one. Yet, what reasonable person wouldn't have doubts about such a man, no matter how kind or sincere he was?

Cayce's defenders provide some classic ad hoc hypotheses to explain away their hero's failures. For example, Cayce and a famous dowser named Henry Gross set out together to discover buried treasure



along the seashore and found nothing. Their defenders suggested that their psychic powers were accurate because either there once was a buried treasure where they looked but it had been dug up earlier, or there would be a treasure buried there sometime in the future (one wonders why their psychic powers didn't discern this).

There are many myths and legends surrounding Cayce: that an angel appeared to him when he was 13 and asked him what his greatest desire was (Cayce allegedly told the angel that his greatest desire was to help people); that he could absorb the contents of a book by putting it under his pillow while he slept; that he passed spelling tests by using clairvoyance; that he was illiterate and uneducated. The New York Times is greatly responsible for the illiteracy myth ("Illiterate Man Becomes a Doctor When Hypnotized," (Sunday magazine section, October 9, 1910). Many of the myths were passed on unchecked by Thomas Sugrue, who believed Cayce had cured him of a disabling illness. In his 1945 book *There is a River: The Story of Edgar Cayce*, Sugrue includes the stories that it was Cayce and not the medical doctors who treated them that were responsible for the cures of Cayce's son ("blindness") and wife ("tuberculosis").

One of the most common reasons given for believing in the psychic abilities of people such as Cayce is the claim that there's no way he could have known this stuff by ordinary means. He must have been told this by God or spirits or have been astrally projected back or forth in space or time, etc. Yet, Cayce's "psychic knowledge" is easily explained by quite ordinary ways of knowing things.

Even though Cayce didn't have a formal education much beyond grammar school, he was a voracious reader, worked in bookstores, and was especially fond of occult and osteopathic literature. (Osteopathy, in his day, was primitive and akin to chiropractic, naturopathy and folk medicine.) He was in contact with and assisted by people with various medical backgrounds. Even so, many of his readings would probably only make sense to an osteopath of his day. Martin Gardner cites Cayce's reading of Cayce's own wife as an example. The woman was suffering from tuberculosis:

.... from the head, pains along through the body from the second, fifth and sixth dorsals, and from the first and second lumbar...tie-ups here, floating lesions, or lateral lesions, in the muscular and nerve fibers which supply the lower end of the lung and the diaphragm...in conjunction with the sympathetic nerve of the solar plexus, coming in conjunction with the solar plexus at the end of the stomach....

The fact that Cayce mentions the lung is taken by his followers as evidence of a correct diagnosis; it counts as a psychic "hit." But what about the incorrect diagnoses: dorsals, lumbar, floating lesions, solar plexus and stomach? Why aren't those counted as diagnostic misses? And why did Cayce recommend osteopathic treatment for people with tuberculosis, epilepsy and cancer?

In addition to osteopathy, Cayce was knowledgeable of homeopathy and naturopathy. He was the first to recommend laetrile as a cancer cure. (Laetrile contains cyanide and is known to be ineffective for cancer.) He also recommended "oil of smoke" for a leg sore; "peach-tree poultice" for convulsions; "bedbug juice" for dropsy; and "fumes of apple brandy from a charred keg" for tuberculosis.

### Celestine Prophecy, The

The *Celestine Prophecy* is the title of a novel by James Redfield. The novel is seen as a spiritual guide for the New Age. One devotee describes it this way.

This book is very simply about how we get and use energy. When we get enough energy, in the right ways, we can "raise our vibration." With a higher vibration we are better able to tap into our psychic and intuitive skills, and thus are better able to discover and live our true purpose in life.

Even Redfield treats his novel as a spiritual guide and basis for a spiritual and material industry. He's started a newsletter for his followers: *The Celestine Journal: Exploring Spiritual Transformation*. He has a sequel, *The Tenth Insight*, said to be "a trip that will take you through portals into other dimensions." And a further sequel, *The Secret of Shambhala; In Search of the Eleventh Insight*. He also has audio tapes and CDs for sale.

Redfield starts with a notion shared by many New Age gurus: the world is emerging into a new spiritual awareness. He puts it this way:

For half a century now, a new consciousness has been entering the human world, a new awareness that can only be called transcendent, spiritual. If you find yourself reading this book, then perhaps you already sense what is happening, already feel it inside.

What is the evidence for this New Age? Vague references to vibrations and energy. For those who don't get it yet, there is vague advice to avoid the negative (you can tell good people by their eyes), stop doubting,

follow your intuitions and premonitions, flow with coincidences, believe in the purposiveness of everything, join thousands of others on the quest, tune into your feelings and evolve to a higher plane.

In the novel, the meaning of life is revealed in an ancient Peruvian manuscript written in Aramaic. It predicts a massive spiritual transformation of society in the late twentieth century. We will finally grasp the secrets of the universe, the mysteries of existence, the meaning of life. The real meaning and purpose of life won't be found in religion and it won't be found in material wealth, but rather in things like auras. The manuscript is full of insights like this and these insights are the way to the transformation. How do we know this? Just look at the restlessness all around you. That's the key. The dissatisfaction and restlessness we feel is the key. We're like caterpillars ready to metamorphosize into butterflies, to burst forth together into the New Age. After all, you can't seek fulfillment if you're fulfilled! Do you think it is a coincidence that coincidences are happening more and more frequently?

...the Manuscript says the number of people who are conscious of such coincidences would begin to grow dramatically in the sixth decade of the twentieth century. He said that this growth would continue until sometime near the beginning of the following century, when we would reach a specific level of such individuals--a level I think of as a critical mass.

I'm not sure but I think he meant to say the seventh decade, not the sixth. The sixth decade of the twentieth century would be the 1950's. Nobody seems to think that the '50s were a time of restlessness. The sixties, however, has entered historical consciousness as a very restless period: the Vietnam War and the anti-war movement; marijuana and LSD, the Civil Rights Movement, assassinations of the Kennedy brothers and Martin Luther King, the Beatles, etc. In any case, the novel has some good advice. Make love, not war. Be neither intimidator, interrogator, aloof nor pitiable. We don't need fear, humiliation, guilt or shame. Contemplate, meditate, and follow your intuitions and dreams as you go through your spiritual evolution. Fact or fiction, it doesn't matter. Truth is what you make it. Life's too short and too complicated to deal with reality. Make your own reality. Subjective validation and communal reinforcement lead to bliss.

This New Age subjectivism and relativism encourage people to believe that reality is whatever you want it to be. The line between fact and fiction gets blurry and obscured. Of course, fiction has its place in a satisfying life, but so should fact. The methods of science may not be perfect, but when it comes to getting the facts straight, they are better than any of the methods developed by New Age gurus.

#### Cellular Memory

"The idea that transplanting organs transfers the coding of life experiences is unimaginable."  
--Dr. John Schroeder, Stanford Medical Center

Cellular memory is the speculative notion that human body cells contain clues to our personalities, tastes and histories, independently of either genetic codes or brain cells. Perhaps the idea for this nonsense began with films such as *Brian's Song*. In that film, the 26-year old Piccolo (played by James Caan) is dying of cancer when Gayle Sayers (played by Billy Dee Williams), his friend and Chicago Bears teammate, visits him in the hospital. Piccolo had been given a transfusion and he asks Sayers if he had donated any blood. When Sayers says yes, Piccolo remarks that that explains his craving for chitlins.

Or perhaps the idea originated with L. Ron Hubbard. In *Dianetics*, he speculated that cellular memory might explain how engrams work.

Maybe the idea came from *Les Mains d'Orlac* by Maurice Renard (1875-1939), a story of a concert pianist who loses his hands in an accident and is given the hands of a murderer in a transplant operation. Suddenly, the pianist has an urge to kill. Several variations of Renard's story have made it into film, including *Orlacs Hände*, a 1935 silent Austrian film, *Mad Love* (1935), *Les Mains D'Orlac* (1960), and *Hands of a Stranger* (1962). A similar story is told by Pierre Boileau and Thomas Narcejac (authors of *Vertigo*) in *et mon tout est un homme* (1965), which was made into the film *Body Parts* in 1991. A prison psychiatrist loses an arm in an accident and is given the arm of an executed psycho-killer. The arm then develops a mind of its own.

More recently, Claire Sylvia, a heart-lung transplant recipient, explained her sudden craving for beer by noting that her donor was an 18-year old male who died in a motorcycle accident. She's even written a book about it, which will soon be made into a movie starring Sally Field. Paul Pearsall, a psychologist and author of *The Pleasure Principle*, also casts his vote for the theory of cellular memory and transfer. Pearsall goes much further in his speculations, however, claiming that "the heart has a coded subtle knowledge connecting us to everything and everyone around us. That aggregate knowledge is our spirit and soul. . . .The heart is a sentient, thinking, feeling, communicating organ." How he knows this is anybody's guess. It may have been channeled to him from aliens or wise persons from the East. Or perhaps he has been reading the fiction of Edna Buchanan, who asks: "What if the soul is contained in DNA? What if DNA is contained in the soul?"

Sylvia Browne teaches a course for an alternative education program in Sacramento entitled Healing Your Body, Mind & Soul. In one two-hour session Ms. Browne will teach anyone "how to directly access the genetic code within each cell, manipulate that code and reprogram the body to a state of normalcy." Despite the preposterous nature of her claims, the course sold out.

And what if you eat too much chicken? Might you grow a beak, start clucking uncontrollably, and develop a craving for seeds? Are those squealing and mooing sounds you hear in the night your diabetic neighbors who are using porcine and bovine insulin? Pity the poor child who received a baboon's heart.

## Chain Letters

### Pyramid Schemes, Chain Letters and Ponzi Schemes

A pyramid scheme is a fraudulent system of making money which requires an endless stream of recruits for success. Recruits (a) give money to recruiters and (b) enlist fresh recruits to give them money.

A pyramid scheme is called a pyramid scheme because of the shape of a pyramid: a three dimensional triangle. If a pyramid were started by a human being at the top with just 10 people beneath him, and 100 beneath them, and 1000 beneath them, etc., the pyramid would involve everyone on earth in just ten layers of people with one con man on top. The human pyramid would be about 60 feet high and the bottom layer would have more than 4.5 billion people!

A diagram might help see this:

1  
10  
100  
1,000  
10,000  
100,000  
1,000,000  
10,000,000  
100,000,000  
1,000,000,000  
10,000,000,000

Thus, in very short order, 10 recruiting 10 and so on would reach 10 billion, well in excess of the earth's population. If the entire population of earth were 5 billion and we all got involved in a pyramid scheme, the bottom layer would consist of about 90 percent of the planet, i.e., about 4.5 billion people. Thus, for 500 million people to be WINNERS, 4.5 billion must be LOSERS.

In a straightforward pyramid scheme, a recruit is asked to give a sum of money, say \$100, to a recruiter. The new recruit then enlists, say, 10 more recruits, to give up \$100 each. In the simplest example, the recruiter keeps all the money he gets from his recruits. In our example, each recruit gives up \$100 in exchange for \$900 (\$100 from each of his 10 recruits minus the \$100 he gave his own recruiter). In order for no one to lose money, the recruiting must go on forever. On a planet with a limited number of people, even if the planet is as large as Earth and has almost 6 billion potential recruits, one runs out of new recruits rather quickly.

Thus, the result of all these schemes is inevitable: at best, a few people walk away with a lot of money, while most recruits lose whatever money they put into the scheme. In fact, the only way anybody can make money through a pyramid scheme or chain letter is if other people are defrauded into giving money upon a promise of getting something in return when it will be impossible for them to get anything at all in return. That is to say, in plain English, these schemes always constitute fraud. They use deception to get money. That is why they are illegal. They are not illegal because they involve recruiting people to recruit other people to recruit other people. That is perfectly legal and is done to some degree in many legitimate businesses. They are not illegal because they involve giving money to people. It is perfectly legal to give money to people. They are illegal because they involve deceiving people in order to get money from them: that is the legal meaning of fraud.

In actual fact, however, no pyramid scheme will ever work this way because the scheme will never get the number of recruits we've been speculating about. All pyramid schemes will begin to die when the later recruits don't sign on in numbers large enough to pay off the earlier recruits. There will always be enough people who will smell the scheme out. There will always be too many people who will say "if it sounds too good to be true that's probably because it is." There may even be a good number of people who will realize that though one person recruiting ten doesn't sound like much, it quickly adds up to unrealistic and

improbable numbers. Also, all it takes is one person to stop the whole thing, either by adamantly persuading recruiters of their indecency, or by reporting them to the police.

greed and wishful thinking

Pyramid schemes are popular because people are greedy and greed can do wonders to a person's thinking. For a person desiring to make a lot of money from a small investment in a short amount of time, wishful thinking often takes over where critical thinking should step in. Wishes become facts. Skeptics become idiots for not getting on board. Desires become reality. Asking questions seems rude and unfriendly. Scam artists know how greed works and all it takes is one con man to get the thing started.

With the odds so stacked against a person, why would one gamble on a pyramid scheme? Greed is only part of the answer. Most pyramid people don't envision themselves anywhere near the bottom layer of the pyramid. Even the most greedy person on the planet would probably see that if one is near the bottom layer of recruits it will be very hard to get new recruits. They have to see themselves near the top in order to envision the immense wealth from minimal effort that is going to come their way.

Furthermore, if I hope to get people involved in a pyramid scheme, the first thing I must do is convince them they are not getting involved in a pyramid scheme. They may know they are illegal. Or they may realize that pyramid schemes are a losing proposition for at least 90 percent of those who get involved. So, I tell them they are joining a club. I give the club a nice name such as The Friendly Investors Club (FIC). I reassure them that the FIC is approved by the IRS and run by a CPA with a Ph.D. who is not an ASS. If I'm really good, my recruits will believe me and the police officers, secretaries, teachers, ministers, etc. whom I recruit. These well-respected, intelligent, honest people will pass on this line to others. If I am really, really good, I will have convinced my recruits not only that they are getting into a legitimate and lucrative Club, but that any earnings are tax-free. I would indicate to recruits that as long as their take in the scheme is less than \$10,000, it wouldn't be taxable because gifts aren't taxable until they exceed \$10,000. I would convince the recruits that, for legal purposes, they would be giving money away and others would be giving money to them.

even the police like pyramid schemes

In 1995-96, at least 67 employees of the Sacramento Police Department, including 45 officers, were investigated for their alleged involvement in a pyramid scheme (Sacramento Bee 10/28/95, 11/1/95 and 11/15 & 16/96). The scheme was similar to five others that had been operating in southern California, also involving police officers and support staff. The main suspect in the Sacramento scheme was a police captain's wife. The chief of police said that he would try to fire at least seven officers and discipline 60 other police department employees. Nine officers were placed on administrative leave and relieved of their guns and badges. According to a prosecutor, the scheme involved more than 200 people. However, only three of the accused faced criminal misdemeanor charges. Reportedly, some in the scheme made tens of thousands of dollars. The minimum amount lost by those who were on the bottom of the pyramid was \$500.

The police pyramid schemes are called "investment clubs" and have attractive names such as "The Friendship Investment Club" and "A Gift Network." They're sold to investors with the assurance that they are perfectly legal, approved by the IRS or a CPA, and that they definitely are not a pyramid scheme.

The Sacramento scheme was called The Freedom Club or something like that. And it was hyped by a police officer as being legal because it required people to sign a waiver claiming that they were making an unconditional gift to the Freedom Club. A local news reporter, Mike Boyd, asked an IRS agent if this waiver meant the Freedom Club wasn't a pyramid scheme. The IRS agent said that since the people who were signing the waiver expected to get back money for the money they were allegedly making a gift of, the money wasn't really a gift. An attorney, also interviewed by Boyd, agreed that just signing a paper saying you're making an unconditional gift didn't make it so if your intention was not to make an unconditional gift. (Receiving gifts, of course, is legal, and tax free if under \$10,000.) The cops and their recruits for the Freedom Club put in at least \$500 each and expected something like \$4,000 in return for their phony gifts, according to Boyd. The Bee reported that sources told them that some Police Department personnel got more than \$10,000 out of the scheme. The WINNERS in the scheme got their money from "gifts" to the Freedom Club from those who later joined the Club. Such schemes continue, if the participants are not caught, until there are not enough new recruits to pay off the old ones. That is, they would continue until there were a good number of people who had "given" away \$500 and got nothing in return because the scheme folded. The scheme would have to fold eventually, because there can't be an endless stream of recruits.

The Sacramento Police Pyramid scheme involved what we might call "pyramid pods". An organizer (Numero Uno) would start the pod by getting six others to join as organizers. Presumably, the six would be ranked depending on when they were recruited. The organizers pay nothing to join the pod but together they must recruit enough people into the pod to buy eight spots at the bottom of their pyramid. Each spot costs \$500. Numero Uno pockets the \$4,000. The pod splits into two pods of seven people (or spots) each,

with a new Numero Uno in each pod (and a new number 2, 3, 4, 5, 6 and 7). Each pyramid pod recruits more people at \$500 for each of eight spots in the pyramid. The two new Numero Unos take their \$4,000 each and the two pods split into 4 pods and those 4 into 16, ad infinitum. To make even more money, some joined more than one pod.

How many in this scheme told the new recruits that 6.7% of those who join will get a 700% return on their investment (\$3,500 on a \$500 investment) as long as 93.3% get nothing? How many advised their recruits to "get in early"?

To have police involved adds a special dimension to this pyramid scheme because (a) officers have ranks and can use their rank for recruiting leverage over those beneath them; (b) officers and ex-officers have positions of authority and trust which will influence potential recruits, especially young people; and (c) police personnel are supposed to enforce the law; when the law enforcers become lawbreakers and encourage others to break the law for monetary gain, respect for law and law officers diminishes.

### Chain Letters

In the money chain letter, the recruiter sends the new recruits a letter with a list of names on it, including the recruiter's name at the bottom of the list. The recruits are asked to send money to the person whose name is at the top of the list and to add his or her name to the bottom. Money is made solely by getting new recruits to join the chain, adding their names to the list and recruiting others to do the same. In theory, eventually each recruit's name will be at the top of millions of lists and receive millions of dollars. In practice, most people will receive nothing. Anyone can break the chain, thus depriving all those on the list of any possible "earnings." But, even if no one broke the chain, 95% of those who sent money out will get nothing in return.

If pyramid schemes are a bad investment, how about chain letters? The principle is basically the same, except that with chain letters, you don't have to deceive yourself as much as with pyramid schemes. You probably know up front that the scheme depends on duping friends into giving money to strangers in exchange for the promise of riches coming to you later on from other strangers. You get a letter with a list of names on it. You are told to send money to the name at the top, delete that name and add your name to the bottom, and recruit 5 or 10 people to do the same by sending them the letter with your name at the bottom.

### Ponzi Schemes

A Ponzi scheme, named after Charles Ponzi who defrauded people in the 1920s using the method, involves getting people to invest in something for a guaranteed rate of return and using the money of later investors to pay off the earlier ones. Who will make money from such a scheme? Those who start it and those who get in early. Does anyone really make money from these schemes. They must, or they would have died off long ago. How? If I start the scheme, I just skim off the top and pay off enough people to make it look like it's working, even if that means buying in again at the bottom. I might even be stupid enough to think that I can keep the scheme going when the recruiting has dried up. I can try to get money quickly by some other scheme. For example, I can take a big chunk of money and go to Las Vegas and hope to hit it big. This happened to a fellow I played Little League Baseball with long before we both grew up. He took his investors' money to the craps table where he "invested" their funds. Unfortunately, his "investments" didn't pay off and he went to prison.

I don't know how many people lost money "investing" in my Little League buddy's scheme, but it could not have been as bad as what happened in Romania in 1993 or what happened in Albania in 1997.\* In both cases, thousands of people with little opportunity for investment of capital were swindled by pyramid scheme operators. Romania's newspapers claimed that millions of Romanians lost their life savings in a scheme called Caritas. Reports from Albania claim that hundreds of thousands of Albanians "have invested their life savings or money they earned working abroad" in one of several outlawed pyramid schemes. "The schemes offered very high interest rates, with the first investors paid from later investors' deposits. They eventually failed when no new investors came in" ("Investment-scam protest turns violent in Albania," by Merita Dhimgjoka, Sacramento Bee, Feb. 6, 1977). Any such scheme is doomed to fail because there cannot be an endless line of "investors." Only greed and self-deception are endless.

### Chakras

According to Tantric philosophy, chakras are points of energy in the human body. There are seven chakras, one for each of the seven bodies we supposedly possess. According to some enlightened people, chakras have colors and give rise to auras, which reveal one's spiritual and physical health, as well as one's karma.

The alleged energy of the chakras is not scientifically measurable, however, and is at best a metaphysical chimera and at worst an anatomical falsehood.

## Channeling

Channeling is a process whereby an individual (the "channeler") claims to have been invaded by a spirit entity which speaks through the channeler. The channeling craze began in earnest in 1972 with the publication of *Seth Speaks* by Jane Roberts and Robert Butts, her husband. They claim that "Seth," a very wise "unseen entity," communicated his wisdom to Jane, who dictated to Butts while she was in a trance. Though Roberts, a somewhat accomplished poet, was obviously very literate and widely read in many religious and occult traditions (including Jung), her advocates portray her as communicating ideas beyond her ability. They take this as proof she was inspired. This is true: Roberts and Butts were probably inspired by the depth of human credulity.

Actress Shirley MacLaine and the ABC television network gave this modern version of ghosts speaking through a medium a modicum of credibility. In 1987, ABC showed a mini-series based on MacLaine's book *Out on a Limb*, which depicts MacLaine conversing with spirits through channeler Kevin Ryerson. One of the spirits who speaks through Ryerson is a contemporary of Jesus called "John." "John" doesn't speak Aramaic--the language of Jesus--but a kind of Elizabethan English. "John" tells MacLaine that she is co-creator of the world with God. MacLaine, a consummate egoist, becomes ecstatic to find out that she is right about a belief she'd expressed earlier, viz., that she IS God (Gardner, 1987).

One of MacLaine's favorite channelers is J.Z. Knight who claims to channel a 35,000 year-old Cromagnon warrior called Ramtha. This preposterous notion has made her famous and wealthy. Some of her patrons pay as much as \$1,000 to attend her seminars where she dispenses such wisdom as "[we must] open our minds to new frontiers of potential."

## Charcot, Dr. Jean-Martin

### Hystero-Epilepsy & Dr. Jean-Martin Charcot (1825-1893)

Charcot was one of the founders of modern neurology. Students came from all over the world to study under him in Paris, including Freud in 1885. Charcot used hypnosis as a diagnostic tool in his study of hysteria and influenced Freud's views on the origin of neurosis. Charcot made a number of important medical discoveries and even has a disease named after him (neurogenic arthropathy is also known as Charcot's joint).

At one point in his illustrious career, Charcot believed that he had discovered a new disease, which he called "hystero-epilepsy." The symptoms included "convulsions, contortions, fainting, and transient impairment of consciousness."\* He showed his students several examples of this new disease during his rounds at Salpêtrière Hospital.

A skeptical student, Joseph Babinski, decided that Charcot had invented rather than discovered hystero-epilepsy. The patients had come to the hospital with vague complaints of distress and demoralization. Charcot had persuaded them that they were victims of hystero-epilepsy and should join the others under his care. Charcot's interest in their problems, the encouragement of attendants, and the example of others on the same ward prompted patients to accept Charcot's view of them and eventually to display the expected symptoms. These symptoms resembled epilepsy, Babinski believed, because of a municipal decision to house epileptic and hysterical patients together (both having "episodic" conditions). The hysterical patients, already vulnerable to suggestion and persuasion, were continually subjected to life on the ward and to Charcot's neuropsychiatric examinations. They began to imitate the epileptic attacks they repeatedly witnessed (McHugh).

Babinski convinced Charcot that hystero-epilepsy was not a disorder and that doctors can induce symptoms in their patients. They separated the "hystero-epileptic" patients from each other and from staff members who had treated them. The patients were moved to the general ward of the hospital. The doctors then treated the patients by ignoring their hysterical behavior and encouraging the patients to work on their recovery. "The symptoms then gradually withered from lack of nourishing attention (McHugh)."

The lesson of Charcot seems lost on many therapists today, in particular the trauma-search (repressed memory) therapists who assume even before meeting their patients that they have probably been sexually abused, repressed the traumatic abuse and will suffer until the memories of abuse are brought to the surface in therapy. These therapists have no difficulty in finding patients who respond to their diagnoses and treatment, even though there is growing evidence that many of the memories of abuse that they elicit are false memories.

## Charms

Charms are things or words believed to possess magic power.

## Chelation Therapy

Chelation therapy consists of slow-drip IV injections of EDTA (ethylenediamine tetraacetic acid), a synthetic amino acid, combined with aerobic exercise, special diet and no smoking. EDTA treatment has been around since the 1940's, when it was developed to treat lead poisoning. The word "chelate" is derived from the Greek word for claw and apparently refers to the alleged removal of plaque and calcium deposits from arteries and veins by EDTA. Advocates claim that there is ample evidence to support the claim that chelation can prevent and cure heart disease, stroke, senility, diabetic gangrene and many other vascular diseases. For example, the Cypher report collected data from several physicians who used chelation to treat patients with vascular diseases. Over 19,000 cases were studied and about 86% showed "a significant enhancement in the arterial perfusion of the upper and lower extremities," according to James P. Carter, M.D., in *Racketeering in Medicine; Hippocrates Forsaken for Profit*. However, the treatments were carried out independently by different physicians and there was no control group. Lack of adequate controls in studies purporting to demonstrate the effectiveness of chelation has been a consistent criticism of skeptics. The evidence in favor of chelation as a cure for heart disease seems to consist mainly of testimonials and subjective patient/physician reports. Advocates claim that it is too expensive to do scientifically controlled studies and that there is a conspiracy by the medical establishment to prevent such studies from being undertaken.

Critics of the therapy in the American Medical Association (AMA) and the Federal Drug Administration (FDA) claim that there is no good scientific evidence supporting the extravagant claims of advocates. Defenders of the therapy claim that the medical establishment has engaged in a half-century of deceit and conspiracy to suppress chelation because of fear it would cut into the profits made by drug therapy and surgery. Advocates claim that chelation is about 10 times cheaper than a coronary bypass with equal or better results. They also claim that scientific medicine bases treatment decisions on politics and economics, not on evidence from controlled studies.

Chelation therapy is not covered by Medicare nor will most insurance companies pay for it. The American Heart Association's Task Force on New and Unestablished Therapies reviewed the available literature on the use of chelation in treating arteriosclerotic heart disease. They found no scientific evidence to demonstrate any benefit from this form of therapy.

Chelation therapy is surely a testable therapy. Advocates maintain that it has been tested and proven to be an effective cure of vascular diseases. Skeptics, which includes the American Medical Association and the American Heart Association, deny that studies support any such claims. Advocates claim that the medical establishment is more interested in making money than in curing diseases. They claim that EDTA is cheap and can't be patented, so there is no big money to be made by pharmaceutical firms. They also claim that surgery is preferred by the medical establishment because it is expensive. To accept the chelation advocates' argument is to accept the notion that the American medical establishment systematically suppresses evidence and persecutes anyone who challenges their monopoly. The conspiracy theory is argued at length by Dr. James P. Carter.

Advocates of "oral chelation" claim it is much cheaper than traditional chelation therapy, but so far there is no charge of conspiracy by traditional chelation advocates, though they seem to consider "oral chelation" misleading and ineffective. One advocate of "oral chelation" claims it costs one tenth of what IV chelation costs and it can "Reduce Your Risk of Heart Attack by as much as 85%."

## Ch'i (Qi)

Ch'i or qi (pronounced "chee" and henceforth spelled "chi") is the Chinese word used to describe "the natural energy of the Universe." This energy, though called "natural," is spiritual or supernatural, and is part of a metaphysical, not an empirical, belief system. Chi is thought to permeate all things, including the human body. Such metaphysical systems are generally referred to as types of vitalism. One of the key concepts related to chi is the concept of harmony. Trouble, whether in the universe or in the body, is a function of disharmony, of things being out of balance and in need of restoration to equilibrium.

Proponents claim to prove the existence and power of chi by healing people with acupuncture or chi kung (qi gong), by doing magic tricks such as breaking a chopstick with the edge of a piece of paper or

resuscitating a "dead" fly, or by martial arts stunts like breaking a brick with a bare hand or foot. When examined under controlled conditions, however, the seemingly paranormal or supernatural feats of masters of chi turn out to be quite ordinary feats of magic, deception, or natural powers.

Vitalism is a popular philosophy in many cultures. Thus, chi has many counterparts: prana (India and therapeutic touch), ki (Japan); Wilhelm Reich's orgone, Mesmer's animal magnetism, Bergson's élan vital (vital force), to name just a few. The concept is very popular among New Age thinking, where it generally goes by the name of energy, though the concept bears no resemblance to the concept as used by physicists.

### Ch'i Kung (Qi Gong)

Ch'i Kung or qi gong (pronounced chee gung and henceforth spelled chi kung) is claimed to be "the science and practice" of chi. Chi Kung literally means energy cultivation. Physical and mental health are allegedly improved by learning how to manipulate chi through controlled breathing, movement, and acts of will. Chi kung masters claim to be able to heal at a distance by manipulating chi. It is even said that one can strengthen the immune system by mastering one's chi.

Most Westerners are vaguely familiar with Kung Fu and Tai Chi, both of which are related to chi kung. The former is a martial art and the latter is a type of exercise, or internal martial art. The former is sometimes known for demonstrations of breaking bricks with bare hands. The latter is known for the graceful poses of its practitioners. These demonstrations, and stories of even more powerful demonstrations, are offered as evidence of the paranormal or supernatural power that comes to those who master chi.

Asian martial arts schools have become very popular in the West. There is certainly a good side to these training centers for children and adults. They encourage attention to diet and physical exercise. They cultivate physical strength and mental self-discipline. Many focus on self-defense, and they boost self-confidence and self-esteem, even if they don't really make one invincible. However, they also often encourage students to believe they can achieve supernatural or paranormal powers, or heal just about any illness by an act of will, by training and discipline under a "master."

What empirical evidence is there for chi or its harnessing? Testimonials and self-validating statements are offered in lieu of controlled scientific tests. Nevertheless, advocates are convinced they are not deluded in their metaphysical explanations. The acupuncturist is convinced he or she is unblocking chi. The reiki therapist and therapeutic touch nurse think they are channeling ki or prana. The Reichians think they can heal the body by harnessing and directing orgone. As a philosophy, chi kung and its relatives may provide one with a sense of harmony, power and meaning. As a metaphysical belief there is no way to disprove the existence of chi. However, explanations of events in terms of controlling and harnessing chi are superfluous by Occam's razor.

### Chiromancy

#### Palmistry or chiromancy

Palmistry is the practice of telling fortunes from the lines, marks, and patterns on the hands, particularly the palms.

Palmistry was practiced in many ancient cultures, such as India, China and Egypt. The first book on the subject appeared in the 15th century. The term 'chiromancy' comes from the nineteenth century palmist who went by the name of Cheiro. (The Greek word for hand is cheir.)

Palmistry was used during the middle ages to detect witches. It was believed that certain spots on the hand indicated one had made a pact with the Devil. Palmistry was condemned by the Catholic Church but in the 17th century it was taught at several German universities (Pickover, 64). Britain outlawed palmistry in the 18th century. It is popular enough in America in the 20th century to deserve its own book in the Complete Idiot's Guide series.

According to Ann Fiery (The Book of Divination), if you are right handed, your left hand indicates inherited personality traits and your right hand indicates your individuality and fulfillment of potential. The palmist claims to be able to read the various lines on your hand. These lines are given names like the life line, the head line, the heart line, the Saturne line. The life line supposedly indicates physical vitality, the head line intellectual capacity, the heart line emotional nature, etc.

Some palmistry mimics metoposcopy or physiognomy. It claims that you can tell what a person is like by the shape of their hands. Creative people have fan-shaped hands and sensitive souls have narrow, pointy



fingers and fleshy palms, etc. There is about as much scientific support for such notions as there is for personology or phrenology. All such forms of divination seem to be based on sympathetic magic and intuition, i.e., prejudice.

The authors of *The Complete Idiot's Guide to Palmistry*, Robin Giles and Lisa Lenard, claim that "palmistry works because your hand changes as you do." They claim to have a few anecdotes to back them up on this, but fail to produce any scientific support for the claim. They also think that cloning makes it much easier for us to understand how palmistry works. "Palmistry is possible because you are represented in your hand. No two hands are alike because you--and your cells--are unique." True, and they are as likely to discover whether I will marry a rich woman or find the job of my dreams by looking at my cells as by looking at my palms.

Although you can often tell a lot about a person by examining his or her hands, there is no scientific support for the claim that you tell such things as whether you will inherit money or find your true love from the lines or marks on your hands. I suspect that many of those who think they have found support for palmistry are guilty of confirmation bias and have found it in the form of anecdotes.

The desire for knowledge of the future seems to be at the root of palmistry and other forms of divining secret knowledge through paranormal revelations. Also, fortune tellers relieve us of the obligation to gather evidence and think about that evidence. Our palmists and graphologists, etc., also relieve us of the difficult task of evaluating the consequences of taking various actions. They absolve us of the responsibility of decision-making. They are great comforts, therefore, to the insecure, the lazy, and the incompetent. Of course, they can also be data points, i.e., they provide one more piece of data that a person can use to make a decision. Some writers even use divination such as the Tarot or the I Ching to give them ideas for characters or plots (Pickover, 40-41). They could do just as well by thumbing through the Bible, a newspaper, a poetry anthology or an Encyclopedia, I would think.

## Chiropractic

The basic theory of chiropractic is that "subluxations" are the cause of most medical problems. A "subluxation" is a misalignment of the spine that allegedly interferes with nerve signals from the brain. Chiropractors think that by adjusting the misalignments they can thereby restore the nerve signals and cure health problems. This theory was first propounded in 1895 by D.D. Palmer, a grocer from Davenport, Iowa. There is little scientific evidence to support the theory. Most support for the theory comes from testimonials of people who claim to have been helped by chiropractic. Whether they were helped because nerves were "unblocked" is not always that clear. Most of these have been people with back pain that has been alleviated by spinal manipulation. This is not to say that chiropractors don't help people with aching backs, including people with chronic back problems. It is the theory of subluxations that has not been supported by scientific studies.

The theory of subluxations maintains that all health problems are due to "blockage" of nerves. It is true that nerves from the spine connect to the organs and tissues of the body and it is true that damage to those nerves affects whatever they connect to, e.g., sever the spinal cord and your brain can't communicate with your limbs, though your other organs can still continue to function. Chiropractic is often holistic and is based upon the belief that the body is basically self-healing. Hence, drugs and surgery are not recommended except in extreme cases. Spinal manipulation allegedly unblocks nerves so the body can heal itself. Chiropractic seems like a materialistic version of Chinese acupuncture used to unblock chi, or therapeutic touch to channel prana. The chiropractor's "needles" are his or her hands and fingers, manipulating nerves rather than the flow of chi. However, the chiropractic theory of subluxations seems to be empirically testable, unlike the metaphysical theory of acupuncture unblocking chi. Why, then, has traditional medicine opposed chiropractic for the most part? Chiropractors rarely are in joint practice with medical doctors, and they are almost never on staff at hospitals. Is there a conspiracy on the part of the American Medical Association (AMA), who fear chiropractors will dip into their profits, as many chiropractors maintain?

The AMA, of course, is partly responsible for chiropractic's reputation as quackery. For years, the AMA made no bones about their disapproval of chiropractic, which was featured in their Committee on Quackery. But the chiropractors fought back and won a significant lawsuit against the AMA in 1976 for restraint of trade. Today, the American College of Surgeons has issued a position paper on chiropractic which sees the two professions as working together. Privately, many battles continue between the medical profession and chiropractic, but publicly the AMA no longer attacks chiropractic. In fact, the AMA may have been shell shocked by the victory of the chiropractors in the courtroom. For, today numerous so-called "complementary medicine" techniques are being allowed to flourish in hospitals and medical clinics around the country without a word of protest from the AMA. The National Institutes of Health has a flourishing division for testing even the most unpromising of alternative health practices. Chiropractors and other "alternative" practitioners have learned one thing from the AMA: it pays to organize and to lobby Congress and state legislatures. The AMA is still the most powerful lobby among health care professionals, but it is

no longer flying solo. Even so, the AMA's lobbying is not the only reason that chiropractic's public image has suffered.

For years chiropractors relied more on faith than on empirical evidence in the form of control studies to back up their claims about the wonders of nerve manipulation. This is changing and to some extent so is the relationship between the medical profession and chiropractic. There is a growing body of scientific evidence that chiropractic is effective in the treatment of many lower back ailments and neck injuries. There is some evidence that chiropractic is effective for the treatment of certain kinds of headaches and other pains. The chiropractor is one of the few alternative health practitioners that medical insurance will generally cover. However, the likelihood that diseases such as cancer, for example, will ever be attributed to nerve blockage seem extremely remote. Making extravagant claims about the wonders of chiropractic, or references to the flow of "life forces" which heal the body or to such notions as "bio-energetic synchronization," are not likely to contribute to the advancement of the discipline into mainstream medicine. Likewise, making claims such as that germ theory is wrong, a common chiropractic claim, does little to make chiropractors seem like advanced medical practitioners. To ignore bacteria and viruses, or to underestimate the role of microbes in infections, as chiropractors are wont to do, are not likely to advance their cause. Every misdiagnosis or mistreatment by a chiropractor undermines the whole profession, rather than only the individual malpractitioner, because of the contentious nature of the theory of subluxations.

There are, of course, horror stories featuring medical doctors. However, very few people take such stories as indictments of the entire profession. They are seen as aberrations, not typical. This is not likely due to the better lobbying efforts of the AMA or to a conspiracy to control the press. It is most likely due to the experiences most people have had with medical doctors and the generally positive effects of modern medicine. In many cases, medical doctors take much greater risks than any chiropractor ever will. Hence, failures by an M.D. can be disastrous or even fatal; rarely will that be the case for a chiropractor. Though this may well change if the current push by chiropractic to become primary care practitioners for infants and children is successful. Pediatrics is much riskier than manipulating the spine of an old man who is there because he doesn't want surgery and he wants to play golf that afternoon.

In short, chiropractic remains controversial, though not in all areas of its practice. It has firmly established itself as an effective treatment for lower back pain. It is attractive because there is no danger from side effects of drugs, since chiropractors don't generally recommend drugs to their patients. It is also attractive because it is seen as an alternative to surgery. And it is attractive because it is generally less expensive than treatment by a physician with drugs or surgery. Though, it should not be assumed that all medical doctors are quick to prescribe drugs or surgery. Many, like their chiropractic brothers and sisters, will recommend selected exercises for specific back problems.

Chopra, Deepak

Ayurvedic medicine & Deepak Chopra

If you can wiggle your toes with the mere flicker of an intention, why can't you reset your biological clock?

If you could live in the moment you would see the flavor of eternity and when you metabolize the experience of eternity your body doesn't age.

Ayurveda is the science of life and it has a very basic, simple kind of approach, which is that we are part of the universe and the universe is intelligent and the human body is part of the cosmic body, and the human mind is part of the cosmic mind, and the atom and the universe are exactly the same thing but with different form, and the more we are in touch with this deeper reality, from where everything comes, the more we will be able to heal ourselves and at the same time heal our planet. --Deepak Chopra

Ayurvedic medicine is an "alternative" medical practice that claims it is the traditional medicine of India. Ayurveda is based on two Sanskrit terms: ayu meaning life and veda meaning knowledge or science. Since the practice is said to be some 5,000 years old, what it considers to be knowledge or science may not coincide with the most updated information available to Western medicine. In any case, most of the ancient treatments are not recorded and what is called traditional Indian medicine is, for the most part, something developed in the 1980s by the Maharishi Mahesh Yogi (Barrett) who brought Transcendental Meditation to the western world.

Ayurvedic treatments are primarily dietary and herbal. Patients are classified by body types, or prakriti, which are determined by proportions of the three doshas. The doshas allegedly regulate mind-body harmony. Illness and disease are considered to be a matter of imbalance in the doshas. Treatment is aimed at restoring harmony or balance to the mind-body system. Vata, composed of air and space, allegedly governs all movement in the mind and body and must be kept in good balance. Too much vata leads to "worries, insomnia, cramps and constipation....Vata controls blood flow, elimination of wastes, breathing and the movement of thoughts across the mind." Vata also controls the other two principles, Pitta and

Kapha. Pitta is said to be composed of fire and water; it allegedly governs "all heat, metabolism and transformation in the mind and body. It controls how we digest food, how we metabolize our sensory perceptions, and how we discriminate between right and wrong." Pitta must be kept in balance, too. "Too much [Pitta] can lead to anger, criticism, ulcers, rashes and thinning hair." Kapha consists of earth and water. It "governs all structure and lubrication in the mind and body. It controls weight, growth, lubrication for the joints and lungs, and formation of all the seven tissues--nutritive fluids, blood, fat, muscles, bones, marrow and reproductive tissues." Too much Kapha leads to "lethargy, weight gain, possessive behavior, congestion and allergies."

On the basis of the above metaphysical physiology, Ayurveda recommends such things as: to pacify Kapha eat spicy foods and avoid sweet foods, except for honey but don't heat the honey. Avoid tomatoes and nuts. Turkey is fine but avoid rabbit and pheasant. If you've got too much Pitta then try this: eat sweet foods and avoid the spicy. Eat nuts. To reduce Vata: eat sweet, sour and salty foods; avoid spicy foods. Nuts are good and so are dairy products.

How any of the above is known, or how anyone could possibly test such claims, is apparently of little concern to Ayurvedic advocates.

### Meditation & Quantum Physics

Quantum healing is healing the bodymind from a quantum level. That means from a level which is not manifest at a sensory level. Our bodies ultimately are fields of information, intelligence and energy. Quantum healing involves a shift in the fields of energy information, so as to bring about a correction in an idea that has gone wrong. So quantum healing involves healing one mode of consciousness, mind, to bring about changes in another mode of consciousness, body. --Deepak Chopra

Meditation is also a significant therapy in Ayurveda. Except for the benefits of relaxation and meditation, there is no scientific evidence to support any of the many astounding claims made on behalf of Ayurvedic medicine. Even the claims made for the significant health benefits of Transcendental Meditation have been greatly exaggerated and distorted (Wheeler).

What are some of the claims made for Ayurveda? For these we turn to Deepak Chopra, a graduate of Harvard Medical School and a former leader of the Maharishi Mahesh Yogi's Transcendental Meditation program. Chopra claims that perfect health is a matter of choice and that he can identify your dosha and its state of balance or imbalance simply by taking your pulse. He claims that allergies are usually caused by poor digestion. He claims you can prevent and reverse cataracts by brushing your teeth, scraping your tongue, spitting into a cup of water, and washing your eyes for a few minutes with this mixture. According to Chopra, "contrary to our traditional notions of aging, we can learn to direct the way our bodies metabolize time" (Wheeler). Chopra also promotes aromatherapy based on the Ayurvedic metaphysical physiology. He sells oils specifically aimed at appeasing Vata, Pitta or Kapha. The evidence for such claims is unmysteriously lacking.

Dr. Chopra has done more than any other single person to popularize the Maharishi's Ayurvedic medicine in America, including some New Age energy concepts that boldly and falsely assert a connection between quantum physics and consciousness. According to Chopra, "We are each a localized field of energy and information with cybernetic feedback loops interacting within a nonlocal field of energy and information." He claims we can use "quantum healing" to overcome aging. Chopra believes that the mind heals by harmonizing or balancing the "quantum mechanical body" (his term for prana or chi). He says that "simply by localizing your awareness on a source of pain, you can cause healing to begin, for the body naturally sends healing energy wherever attention is drawn." Or, as he also puts it, "If you have happy thoughts, then you make happy molecules." This "quantum mysticism" has no basis in physics and represents a leap of the metaphysical imagination (Stenger).

The notion that ancient Hindu mysticism is just quantum physics wrapped in metaphysical garb seems to have originated with Fritjof Capra in his book *The Tao of Physics: An Exploration of the Parallels Between Modern Physics and Eastern Mysticism* (1975). The book's first two parts are excellent expositions on ancient religions and modern physics. The third part, which tries to connect the two is an abysmal failure and about the purest poppycock this side of Bombay. Nevertheless, it has been this third part which has influenced numerous New Age energy medicine advocates to claim that quantum physics proves the reality of everything from chi and prana to ESP. The idea that there is such a connection is denied by most physicists but books like Capra's and Gary Zukav's *The Dancing Wu Li Masters: An Overview of the New Physics* (1976) overshadow and are much more popular than more sensible books written by physicists.

Chopra and other defenders of Ayurveda, following Capra and Zukav, are fond of claiming that modern physics has substantially validated ancient Hindu metaphysics. However, physicist Heinz R. Pagels, author of *The Cosmic Code: Quantum Physics as the Language of Nature* vehemently rejects the notion that there is any significant connection between the discoveries of modern physicists and the metaphysical claims of

Ayurveda. "No qualified physicist that I know would claim to find such a connection without knowingly committing fraud," says Dr. Pagels.

The claim that the fields of modern physics have anything to do with the "field of consciousness" is false. The notion that what physicists call "the vacuum state" has anything to do with consciousness is nonsense. The claim that large numbers of people meditating helps reduce crime and war by creating a unified field of consciousness is foolishness of a high order. The presentation of the ideas of modern physics side by side, and apparently supportive of, the ideas of the Maharishi about pure consciousness can only be intended to deceive those who might not know any better.

Reading these materials authorized by the Maharishi causes me distress because I am a man who values the truth. To see the beautiful and profound ideas of modern physics, the labor of generations of scientists, so willfully perverted provokes a feeling of compassion for those who might be taken in by these distortions. I would like to be generous to the Maharishi and his movement because it supports world peace and other high ideals. But none of these ideals could possibly be realized within the framework of a philosophy that so willfully distorts scientific truth (Pagels).

Chopra gives hope to the dying that they will not die and hope to the living that they can live forever in perfect health. But his hope seems to be a false hope based on an unscientific imagination seeped in mysticism and cheerily dispensed gibberish. Science is unnecessary to test Ayurvedic claims since "the masters of Ayurvedic medicine can determine an herb's medicinal qualities by simply looking at it (Wheeler)."

#### Deception and Expanding The Market

As would be expected of a guru spreading false hope, Chopras' trustworthiness has been compromised. In 1991, Chopra, when president of the American Association of Ayurvedic Medicine, submitted a report to the Journal of the American Medical Association, along with Hari M. Sharma, MD, professor of pathology at Ohio State University College of Medicine, and Brihaspati Dev Triguna, an Ayurvedic practitioner in New Delhi, India. Chopra, Sharma and Triguna claimed they were disinterested authorities and were not affiliated with any organization that could profit by the publication of their article. But

they were intimately involved with the complex network of organizations that promote and sell the products and services about which they wrote. They misrepresented Maharishi Ayur-Veda as India's ancient system of healing, rather than what it is, a trademark line of "alternative health" products and services marketed since 1985 by the Maharishi Mahesh Yogi, the Hindu swami who founded the Transcendental Meditation (TM) movement (Skolnick).

Chopra spends much of his time writing and lecturing from his base in California where he is not licensed to practice medicine. He charges \$25,000 per lecture performance, where he spouts out a few platitudes and give spiritual advice while warning against the ill effects of materialism. His audiences are apparently not troubled by his living in a \$2.5 million house in La Jolla, California, where he parks his green Jaguar, which he can easily afford since he has amassed millions of dollars from the sales of his books, tapes, herbs, appearances, etc. Chopra is much richer and certainly more famous than he ever was as an endocrinologist or as chief of staff at New England Memorial Hospital. He left traditional medicine behind in 1981 when Triguna convinced him that if he didn't make a change he'd get heart disease. Shortly after that he got involved in Transcendental Meditation. In 1984 Chopra met the Maharishi himself and in 1985 Chopra became director of the Maharishi Ayurveda Health Center for Stress Management in Lancaster, Massachusetts. Soon he was an international purveyor of herbs and tablets through Maharishi Ayurvedic products.

Perhaps the greatest deception of Ayurveda is that it cares for the person, not just the body as traditional medicine does. As Chopra puts it, "The first question an Ayurvedic doctor asks is not, 'What disease does my patient have?' but, 'Who is my patient?'"\* That may be the question, but it is not a person that the doctor is healing. It is the "quantum body" or the "mind-body"; it is the dosha that needs balancing. Taking a person's pulse and telling them their dosha is unbalanced and they should eat more nuts or less spicy foods, etc., hardly shows concern for the patient as a person. Not using a current photo on your web site or on the jacket of your latest book, which would show how you are aging, is deceptive, especially since you claim to know how to overcome aging.

Self-deception is rampant in the alternative health arena, and Chopra has had his share. In Return of the Rishi he reveals what attracted him to Transcendental Meditation: it helped him overcome his dependence on alcohol, tobacco and coffee. The man was stressed by his job and his lifestyle contributed to that stress. He committed the pragmatic fallacy and became a true believer because he was now happy. Fine, but he since has gone on to try to confirm TM and Ayurveda with quantum physics, pseudoscientific writings and seminars. Even though his patients died while he was claiming he had given them perfect health, he maintained his position. And, when association with TM itself became too stressful and a hindrance to his success, he left.\* (Chopra had heard that Bill Moyers wouldn't include him in his PBS series Healing and the

Mind because of Chopra's association with a "cult.") He now runs the Chopra Center for Well Being in La Jolla, California, where the mission is "to heal, to love, to transform and to serve." It is not a medical center, for Chopra has no license to practice medicine in California. It is a spiritual center, where you can come to "better understand the power of your body, mind and spirit connection to both your inner and outer universe." Because many of those who come to this center are sick, one might call it a faith healing center. There are a few other things one might call it, but they might arouse Chopra's legal staff, who are fond of suing critics of their employer.

Chopra has also admitted in so many words that his *Ageless Body, Timeless Mind: The Quantum Alternative to Growing Old* plagiarized Professor Robert Sapolsky's contribution to *Behavioral Endocrinology*. Sapolsky is the author of chapter 10, "Neuroendocrinology of the Stress-Response." He sued Chopra in 1997 for lifting large chunks of his work without proper attribution.

Of course, Chopra has a web site where he will be honored to take your money for one of his many books, tapes, or seminars. We should not be too harsh with our guru, however. It is understandable that he would give up working in medicine in favor of working in religion. In medicine you are surrounded by sick people and constantly reminded of your own mortality. It is difficult work, often very stressful and unrewarding. As Chopra himself put it: "It's frustrating to see patients again and again, and to keep giving them sleeping pills, tranquilizers and antibiotics, for their hypertension or ulcers, when you know you're not getting rid of the problem or disease."\* Also, while taking care of others, a physician might fail to take care of himself and come to require sleeping pills, tranquilizers, something to lower the blood pressure and relieve the stress in himself. In religion, on the other hand, you can surround yourself only with sycophants who demand to be deluded and deceived because it makes them feel so healthy and happy. By turning to metaphysics instead of biology, one avoids the risk of being proved wrong. It is much easier to dispense hope based on nothing to miserable people than it is to accept harsh and sometimes brutal reality while maintaining health, optimism and happiness. It is much easier, for some people, to face life by deceiving themselves into thinking they alone are in charge of what is real and what is true. It is much easier to find confirming evidence for a worldview than it is to do nuts-and-bolts research. It is certainly much more enjoyable to chat with Oprah Winfrey and rub elbows with the rich and famous than to watch another cancer patient die.

#### Why Are Chopra and Ayurveda So Popular?

The popularity of Chopra and Ayurveda is a testament to the failure of modern life and modern medicine to satisfy deep longings for simplicity, trust, a clean and wholesome environment, something to counteract the fragmentation, alienation and isolation that many people feel.\* Hope is a powerful narcotic. Representing peace and love, caring and respect, as well as esoteric knowledge for the masses, "alternative" medicines will always be popular. And, the fact is that the "alternatives" often put people like Chopra on a much healthier track than they were on before they got involved with Ayurveda, qigong, Polar Reflex Quantum Energy Dynamics (it may not exist yet, but give it time), etc. Most people would be better off if they followed some of the sensible recommendations of the "alternatives": eat less and don't stuff yourself with fatty and sugary foods with near zero nutritional value, relax, don't smoke or drink or use other drugs to try to make you feel better, don't take things so seriously, treat other people kindly and with respect, spend more time with friends and family building relationships, quit worrying about being so successful and rich or famous, be concerned about what you put into your body and what all of us are putting into our air and water. Philosophy can serve these interests. But most people also want some sort of assurance that this is not all there is, that This is NOT It. They want to believe in immortality and "alternatives" like Ayurveda fulfill this need. The hypocrisy of a materialist advising them that materialism is the root of all evil easily slips by. But I would ask, if Ayurveda is so wonderful and has been practiced in India for thousands of years, why doesn't Dr. Chopra return to India to live? Likewise, why don't all those who praise the wonders of traditional Chinese medicine (TCM) return to China? The answer seems obvious: the wonders of Ayurveda and TCM have been greatly exaggerated. China and India are the two largest countries in the world but there has not been a run of people in the west emigrating to either country. Why? Because the chances of living a healthier, wealthier, richer life are better in America than in either India or China. Neither country is the place anyone would hold up as a paradigm of healthy people. China ranks 81st, India ranks 134th and the USA ranks 24th in overall level of health, according to the World Health Organization (click here for WHO pdf file explaining the rankings). Life expectancy is much greater in North America than in China or India. In 1998, life expectancy in the United States was 72.9 years for men and 83.3 years for women. In India the figures are 62.3 years for men and 63.7 years for women. China's life expectancy in 1998 was 68.3 years for men and 71.1 years for women. Does Deepak Chopra really believe that nutritional deficiency is a bigger problem in North America than in India? Does he really believe that people live longer, happier, healthier lives in India and China than here? If so, why does he stay? Can he say with a straight face: I have come from the promised land to this barren desert and I will stay here to lead you to perfect health in my new Jaguar.

I'll let Dr. Chopra have the last word:

I in fact don't believe in the existence of time. That's one thing I have to tell you, and the other is that I don't take myself or what I am doing seriously.\*

## Chupacabra

The chupacabra ("goat sucker") is an animal said to be unknown to science and systemically killing animals in places like Puerto Rico and Mexico. The creature's name originated with the discovery of some dead goats in Puerto Rico with puncture wounds in their necks and their blood allegedly drained. According to UFO Magazine (March/April 1996) there have been more than 2,000 reported cases of animal mutilations in Puerto Rico in the last two years attributed to the chupacabra.

Puerto Rican authorities maintain that the deaths are due to attacks from groups of stray dogs or other exotic animals, such as the panther, illegally introduced in the island's territory. The director of Puerto Rico's Department of Agriculture Veterinary Services Division, Hector Garcia, has stated that there is nothing unusual or extraordinary about the cases they've observed. One veterinarian said "it could be a human being who belongs to a religious sect, even another animal. It could also be someone who wants to make fun out of the Puerto Rican people."

Like other creatures in the cryptozoologist's barnyard, the chupacabras has been variously described. Some have seen a small half-alien, half-dinosaur tailless vampire with quills running down its back; others have sited a panther like creature with a long snake-like tongue; still others have seen a hopping animal that leaves a trail of sulphuric stench. Some think it may be a type of dinosaur heretofore unknown. Some are convinced that the wounds on animals whose deaths have been attributed to the chupacabra indicate an alien presence. However, they do not attribute the "mutilations" to the aliens themselves, but to one of their pets or experiments gone awry. Such creatures are known as Anomalous Biological Entities [ABEs] in UFO circles.

Those who think the chupacabra is an ABE also believe that there is a massive government and mass media conspiracy to keep the truth hidden from the people, probably to prevent panic. This view is maintained despite the fact that the President of the Puerto Rico House of Representatives Agricultural Commission, Mr. Juan E.[Kike] Lopez, has introduced a resolution asking for an official investigation to clarify the situation. And Inside Edition sent a crew to Puerto Rico to investigate the ABE story. They allegedly ridiculed the Mayor of Canavanas, a witness to the chupacabra, and basically made fun of the the whole idea. In any case, there have been numerous published stories and reports regarding the chupacabra.

Jorge Martin, a Puerto Rican journalist, reports that it has been brought to his attention that the U.S. and Puerto Rican governments have captured two of the creatures. Perhaps there will soon be a film on the ABE autopsy to rival the discredited alien autopsy film. Martin cautions us not to exclude other reasonable possibilities.

The ABEs can also be the product of highly sophisticated genetic manipulations by human agencies. A Chinese-Russian scientist by the name of Dr. Tsian Kanchen, has produced genetic manipulations which have created new species of electronically-crossed plant and animal organisms. Kanchen developed an electronic system whereby he can pick up the bioenergetic field of the DNA of living organisms and transfer it electronically to other living organisms. By these means he has created incredible new breeds of ducks/chickens, with physical characteristics of both species; goats/rabbits, and new breeds of plants such as corn/wheat, peanut/sunflower seeds and cucumber/watermelons. These are produced by linking the genetic data of different living organisms contained in their bioenergetic fields by means of ultra-high frequencies biological linking. If the Russians have created this technology, then without doubt the US and other powers have too. Therefore, it is quite possible that the "Chupacabras" or ABEs could have been developed by humans. [Martin]

Martin goes on to report that a chupacabra has been killed and blood tests have been done on the creature.

The genetic analysis so far has revealed that the blood is in no way compatible with human blood nor with any animal species known to science. The traces ratio of magnesium, phosphorous, calcium and potassium are incompatible with those of normal human blood, they are much too high. The albumen/globuline [RG ratio] was also incompatible. The ratios found do not allow the results of the analysis to be compatible with those of any known animal species.

At present, we can't place the sample with any earthly organism. Therefore it could well be the product of a highly sophisticated genetic manipulation, an organism alien to our own environment or perhaps extraterrestrial.[Martin]

On the other hand, the sightings may not be all that accurate, the "mutilations" not all that strange, and the evidence for these bodies, autopsies and blood tests remains little more than speculation.

### Clairaudience

Clairaudience is an alleged extrasensory ability to hear things that are beyond the range of the ordinary power of hearing, such as voices or messages from the dead.

Clairaudient mediums such as James Van Praagh have undeserved reputations for accuracy. The misconception of there being psychic mediums who can hear the dead is due to (1) mass media error and hype; (2) improper credit given to the application of past knowledge and experience; (3) wishful thinking; (4) selective memory; (5) filling in memories, dreams and premonitions after the fact; (6) lack of understanding of cold reading, The Law of Truly Large Numbers and the Forer effect.

### Clairvoyance or Second Sight

Clairvoyance is an alleged extrasensory ability to see things beyond the range of the power of vision. Clairvoyance is usually associated with precognition or retrocognition. The faculty of seeing into the future is called "second sight" if it is not induced by scrying, drugs, trance, or other artificial means.

People can predict the future. We do it all the time, but we usually, if not always, do it by taking into account our experience, knowledge and surroundings. No doubt much of our anticipation of the future is unconscious and second nature, but it is based on quite natural and mundane abilities not on mysterious or supernatural powers.

The main reasons for belief in such paranormal powers as clairvoyance and clairaudience are (1) the perceived accuracy of psychic predictions; (2) the seemingly uncanny premonitions which many people have, especially in dreams; and (3) the seemingly fantastic odds against such premonitions or predictions being correct by coincidence or chance. However, psychic predictions are not any more accurate than educated guesses. The misconception of there being clairvoyants, such as Jean Dixon, is due to (1) mass media error and hype; (2) improper credit given to the application of past knowledge and experience; (3) wishful thinking; (4) selective memory; (5) filling in memories, dreams and premonitions after the fact; (6) lack of understanding of The Law of Truly Large Numbers and the Forer effect.

Under the heading of mass media error and hype, we include not just cases of error and complicity by silence or ignorance, as in the false claim about Jean Dixon that she predicted the assassination of President Kennedy. We also include cases of fraud by psychics and using the media to spread the lie, such as the case of "psychic" Tamara Rand, producer Dick Maurice and talk show host Gary Grecco of KNTV in Las Vegas. All conspired to deceive the public by claiming that a video tape of a "Dick Maurice Show," on which Rand predicts the assassination attempt by John Hinkley on Ronald Reagan, was done on January 6, 1981. The tape was actually made on March 31, 1991, a day after Hinkley shot Reagan (Steiner).

Some predictions by psychics do come true. So do some predictions by non-psychics. Some predictions come true not because of psychic powers but because of natural powers that help a person anticipate and predict the future based upon past experience and current knowledge. If I wake up in the morning before my wife wakes up and anticipate that she wants me to put the wash in the dryer, am I clairvoyant? No, I am using past experience and knowledge to anticipate what's on her mind. If I predict that there will be a large earthquake in the Mammoth lakes area and there is one, am I clairvoyant? Or am I using my knowledge that there are hundreds of quakes in that area every year? If I predict a plane with red on its tail will crash in April and one does, am I clairvoyant? Or am I using my knowledge of frequency of airline crashes and colors used on plane tail fins?

Many events which have odds of a million to one against their occurring, such as dreams or premonitions which come true, are actually likely to occur thousands of times a day by chance. Furthermore, the Forer effect will ensure that the more vague a dream, premonition or prediction is, the more accurate it will seem. Also, we are often very selective about what we remember. How many dreams have we had that seemed prophetic but which did not come true? We won't remember such dreams. How many people have not gotten on a plane because they had a premonition of disaster, but failed to report it because there was no disaster? We will not read about such cases in the newspapers or see interviews with failed clairvoyants on the evening news. Of course, having a premonition that doesn't pan out does not prove that clairvoyance is impossible. But finding cases of people who have premonitions that do pan out doesn't prove there is clairvoyance. Anecdotes and testimonials are not scientific evidence. What is needed is a controlled test of clairvoyant powers to rule out the possibility of coincidence or natural causes. When such tests are done on people who claim they are clairvoyant, they always fail. Why? It is possible that they always fail because testing makes them fail because it disturbs their attunement to the vibrations of the

paranormal or some such thing.. But it seems more likely that clairvoyants fail controlled tests of their powers because they don't have any special powers. Two things which James Randi has found when he has tested the alleged paranormal powers of psychics is (1) they had never tested their powers under controlled conditions, and (2) those who don't offer preposterous rationalizations for their inability to perform seem genuinely baffled at their failure. Clairvoyants are often not frauds; they genuinely believe in their powers. But they've never tested their powers in any meaningful way.

### Clustering Illusion

The clustering illusion is the intuition that random events which occur in clusters are not really random events. The illusion is due to selective thinking based on a false assumption. For example, it strikes most people as unexpected if heads comes up four times in a row during a series of coin flips. However, in a series of 20 flips, there is a 50% chance of getting four heads in a row (Gilovich). It may seem unexpected, but the chances are better than even that a given neighborhood in California will have a statistically significant cluster of cancer cases (Gawande).

What would be rare, unexpected, and unlikely due to chance would be to flip a coin twenty times and have each result be the alternate of the previous flip. In any series of such random flips, it is more unlikely than likely that short runs of 2, 4, 6, 8, etc., will yield what we know logically is predicted by chance. In the long run, a coin flip will yield 50% heads and 50% tails (assuming a fair flip and a fair coin). But in any short run, a wide variety of probabilities are expected, including some runs which seem highly improbable.

Finding a statistically unusual number of cancers in a given neighborhood--such as six or seven times greater than the average--is not rare or unexpected. Much depends on where you draw the boundaries of the neighborhood. Clusters of cancers that are seven thousand times higher than expected, such as the incidence of mesothelioma in Karian, Turkey, are very rare and unexpected. The incidence of thyroid cancer in children near Chernobyl was one hundred times higher after the disaster (Gawande).

Sometimes a subject in an ESP experiment or a dowser might be correct at a higher than chance rate. However, such results do not indicate that an event is not a chance event. In fact, such results are predictable by the laws of chance. Rather than being signs of non-randomness, they are actually signs of randomness. ESP researchers are especially prone to take streaks of "hits" by their subjects as evidence that psychic power varies from time to time. Their use of optional starting and stopping is based on the presumption of psychic variation and an apparent ignorance of the probabilities of random events. Combining the clustering illusion with confirmation bias is a formula for self-deception and delusion.

A classic study was done on the clustering illusion regarding the belief in the "hot hand" in basketball (Gilovich, Vallone, and Tversky). It is commonly believed by basketball players, coaches and fans that players have "hot streaks" and "cold streaks." A detailed analysis was done of the Philadelphia 76ers shooters during the 1980-81 season. It failed to show that players hit or miss shots in clusters at anything other than what would be expected by chance. They also analyzed free throws by the Boston Celtics over two seasons and found that when a player made his first shot, he made the second shot 75% of the time and when he missed the first shot he made the second shot 75% of the time. Basketball players do shoot in streaks, but within the bounds of chance. It is an illusion that players are 'hot' or 'cold'. When presented with this evidence, believers in the "hot hand" are likely to reject it because they "know better" from experience.

In epidemiology, the clustering illusion is known as the Texas-sharpshooter fallacy. Kahneman and Tversky called it "belief in the Law of Small Numbers" because they identified the clustering illusion with the fallacy of assuming that the pattern of a large population will be replicated in all of its subsets. In logic, this fallacy is known as the fallacy of division, assuming that the parts must be exactly like the whole.

### Codependency

You're codependent for sure if, when you die,  
someone else's life flashes in front of your eyes.

Codependency is a term used to describe a kind of addiction, a relationship addiction. A person is said to be suffering from codependency when they exhibit caring for a loved one who is suffering from a real addiction to drugs or alcohol. The behavior of the caring individual is said to hinder recovery of the real addict by enabling the addict to continue the addiction. Codependency makes it seem as if all caring for addicts is pathological.

...the codependency movement...does not recognize or confront the social and economic realities in people's lives. It does not distinguish the dependencies that are healthy and desirable (loving and needing



others) from those that are economically imposed (such as not having the financial resources to leave a violent marriage). It speaks of self-esteem as if it were air in a balloon, something that can be inflated and deflated with sheer willpower, unrelated to anything that people do, to their experiences in the world, to the context of their lives. --Carol Tavris

This model of codependency has been made popular by the writings of several people, especially Melody Beattie (Codependency No More), Pia Mellody (Facing Codependency), Robin Norwood (Women Who Love Too Much) and Anne Wilson Schaef (Codependency, Misunderstood, Mistreated). According to these people, the codependent suffers from low self-esteem due most likely to child abuse, and is caring mainly to keep the addict addicted so she (it is usually a woman) can feel worthwhile by caring for the sick one. The codependent, they believe, can be helped, as can other addicts, by the 12-step plan of Alcoholics Anonymous.

Some see codependency as pathological itself, indicative of a trend among certain therapists, especially those who call themselves "family counselors," to see child abuse as the root cause of most personal problems. The model these counselors follow seems to be something like the following: child abuse causes low self-esteem, which leads people to abuse drugs or alcohol and other people as well. If only one had a happy childhood, free from abusers, one would have a wonderful life as an adult. The person with problems--the drug addict, the relationship addict, the sex addict, the name-your-craving addict--is a victim. Addict/victims need help. Insurance should pay for this help. Counselors should never be without long lines of addict/victims covered by insurance policies for treatment for their "disease." Society should support the work of these counselors because they have good intentions and, unlike the rest of us, are not in denial. They are especially not in denial about the likelihood that one model, the model of the diseased addict, could adequately fit all alcoholics, all substance abusers, and all other abusers of any craving.

#### Cold Reading

Cold reading refers to a set of techniques used by professional manipulators to get a subject to behave in a certain way or to think that the cold reader has some sort of special ability that allows him to "mysteriously" know things about the subject. Cold reading goes beyond the usual tools of manipulation: suggestion and flattery. In cold reading, salespersons, hypnotists, advertising pros, faith healers, con men and some therapists bank upon their subject's inclination to find more meaning in a situation than there actually is. The desire to make sense out of our experience has led us to many wonderful discoveries, but it has also led some of us to many follies. The manipulator knows that his mark will be inclined to try to make sense out of whatever he is told, no matter how farfetched or improbable. He knows, too, that people are generally self-centered, that we tend to have unrealistic views of ourselves and that we will generally accept claims about us that reflect not how we are or even how we really think we are but how we wish we were or think we should be. He also knows that for every several claims he makes about you which you reject as being inaccurate, he will make one that meets with your approval; and he knows that you will remember the hits he makes and forget the misses.

Thus, a good manipulator can provide a reading of a total stranger, which will make the stranger feel that the manipulator possesses some special power. For example, Bertram Forer has never met you, the reader, yet he offers the following cold reading of you:

Some of your aspirations tend to be pretty unrealistic. At times you are extroverted, affable, sociable, while at other times you are introverted, wary and reserved. You have found it unwise to be too frank in revealing yourself to others. You pride yourself on being an independent thinker and do not accept others' opinions without satisfactory proof. You prefer a certain amount of change and variety, and become dissatisfied when hemmed in by restrictions and limitations. At times you have serious doubts as to whether you have made the right decision or done the right thing. Disciplined and controlled on the outside, you tend to be worrisome and insecure on the inside.

Your sexual adjustment has presented some problems for you. While you have some personality weaknesses, you are generally able to compensate for them. You have a great deal of unused capacity which you have not turned to your advantage. You have a tendency to be critical of yourself. You have a strong need for other people to like you and for them to admire you.

#### Here's Another Reading:

People close to you have been taking advantage of you. Your basic honesty has been getting in your way. Many opportunities that you have had offered to you in the past have had to be surrendered because you refuse to take advantage of others. You like to read books and articles to improve your mind. In fact, if you're not already in some sort of personal service business, you should be. You have an infinite capacity for understanding people's problems and you can sympathize with them. But you are firm when confronted

with obstinacy or outright stupidity. Law enforcement would be another field you understand. Your sense of justice is quite strong.

The last one was from astrologer Sidney Omarr. He's never even met you and yet he knows so much about you (Flim-Flam!, 61). The first one was taken by Forer from a newsstand astrology book.

The selectivity of the human mind is always at work. We pick and choose what data we will remember and what we will give significance to. In part, we do so because of what we already believe or want to believe. In part, we do so in order to make sense out of what we are experiencing. We are not manipulated simply because we are gullible or suggestible, or just because the signs and symbols of the manipulator are vague or ambiguous. Even when the signs are clear and we are skeptical, we can still be manipulated. In fact, it may even be the case that particularly bright persons are more likely to be manipulated when the language is clear and they are thinking logically. To make the connections that the manipulator wants you to make, you must be thinking logically.

Not all cold readings are done by malicious manipulators. Some readings are done by astrologers, graphologists, tarot readers, and psychics who genuinely believe they have paranormal powers. They are as impressed by their correct predictions or "insights" as are their clients. We should remember, however, that just as scientists can be wrong in their predictions, so pseudoscientists and quacks can sometimes be right in theirs.

There seem to be three common factors in these kinds of readings. One factor involves fishing for details. The psychic says something at once vague and suggestive, e.g., "I'm getting a strong feeling about January here." If the subject responds, positively or negatively, the psychic's next move is to play off the response. E.g., if the subject says, "I was born in January" or "my mother died in January" then the psychic says something like "Yes, I can see that," anything to reinforce the idea that the psychic was more precise than he or she really was. If the subject responds negatively, e.g., "I can't think of anything particularly special about January," the psychic might reply, "Yes, I see that you've suppressed a memory about it. You don't want to be reminded of it. Something painful in January. Yes, I feel it. It's in the lower back [fishing]...oh, now it's in the heart [fishing]...umm, there seems to be a sharp pain in the head [fishing]...or the neck [fishing]." If the subject gives no response, the psychic can leave the area, having firmly implanted in everybody's mind that the psychic really did 'see' something but the subject's suppression of the event hinders both the psychic and the subject from realizing the specifics of it. If the subject gives a positive response to any of the fishing expeditions, the psychic follows up with more of "I see that very clearly, now. Yes, the feeling in the heart is getting stronger."

Fishing is a real art and I don't doubt that it is better done by someone who genuinely believes they have psychic powers than by a fraud. The insincerity and forced quality of the con artist will be recognized by many intelligent people, but even a very bright person can be taken in by a sincere but deluded psychic.

Another characteristic of these readings is that all of the initial claims are put in either vague statement form ("I'm getting a warm feeling in the crotch area") or in the form of a question ("I sense that you have strong feelings about someone in this room. Am I right?") Most of the specific claims are provided by the subject himself.

Finally, those occasions where the psychic has guessed wrongly about the subject will be forgotten by the subject and the audience. What will be remembered are the seeming hits, giving the overall impression of "wow, how else could she have known all this stuff unless she is psychic." This same phenomenon of suppression of contrary evidence and selective thinking is so predominant in every form of psychic demonstration that it seems to be related to the old psychological principle: a man sees what he wants to see and disregards the rest.

### Collective Hallucinations

Where belief in miracles exists, evidence will always be forthcoming to confirm its existence. In the case of moving statues and paintings, the belief produces the hallucination and the hallucination confirms the belief. --D.H. Rawcliffe

Collective hallucinations are sensory hallucinations induced by the power of suggestion. They generally occur in heightened emotional situations, especially among the religiously devoted. The expectancy and hope of bearing witness to a miracle, combined with long hours of staring at an object or place, makes certain religious persons susceptible to seeing such things as weeping statues, moving icons and holy portraits, or the Virgin Mary in the clouds.

Those witnessing a "miracle" agree in their hallucinatory accounts because they have the same preconceptions and expectations. Furthermore, dissimilar accounts converge towards harmony as time passes and the accounts get retold. Those who see nothing extraordinary and admit it are dismissed as not

having faith. Some, no doubt, see nothing but "rather than admit they failed...would imitate the lead given by those who did, and subsequently believe that they had in fact observed what they had originally only pretended to observe....(Rawcliffe, 114).

Not all collective hallucinations are religious, of course. In 1897, Edmund Parish reported of shipmates who had shared a ghostly vision of their cook who had died a few days earlier. The sailors not only saw the ghost, but distinctly saw him walking on the water with his familiar and recognizable limp. Their ghost turned out to be a "piece of wreck, rocked up and down by the waves" (Parish, 311; cited in Rawcliffe, 115).

## Collective Unconscious

### Carl Jung (1875-1961), Synchronicity & The Collective Unconscious

Carl Jung was a Swiss psychiatrist and colleague of Freud's who broke away from Freudian psychoanalysis over the issue of the unconscious mind as a reservoir of repressed sexual trauma which causes all neuroses. Jung founded his own school of analytical psychology.

Jung believed in astrology, spiritualism, telepathy, telekinesis, clairvoyance and ESP. In addition to believing in a number of occult and paranormal notions, Jung contributed two new ones in his attempt to establish a psychology rooted in occult and pseudoscientific beliefs: synchronicity and the collective unconscious.

Synchronicity is an explanatory principle; it explains "meaningful coincidences" such as a beetle flying into his room while a patient was describing a dream about a scarab. The scarab is an Egyptian symbol of rebirth, he noted. Therefore, the propitious moment of the flying beetle indicated that the transcendental meaning of both the scarab in the dream and the insect in the room was that the patient needed to be liberated from her excessive rationalism. His notion of synchronicity is that there is an acausal principle that links events having a similar meaning by their coincidence in time rather than sequentially. He claimed that there is a synchrony between the mind and the phenomenal world of perception.

What evidence is there for synchronicity? None. Jung's defense is so inane I hesitate to repeat it. He argues that "acausal phenomena must exist...since statistics are only possible anyway if there are also exceptions" (1973, Letters, 2:426). He asserts that "...improbable facts exist--otherwise there would be no statistical mean..." (ibid.: 2:374). Finally, he claims that "the premise of probability simultaneously postulates the existence of the improbable" (ibid. : 2:540).

Even if there were a synchronicity between the mind and the world such that certain coincidences resonate with transcendental truth, there would still be the problem of figuring out those truths. What guide could one possibly use to determine the correctness of an interpretation? There is none except intuition and insight, the same guides that led Jung's teacher, Sigmund Freud, in his interpretation of dreams. The concept of synchronicity is but an expression of apophenia.

According to psychiatrist and author, Anthony Storr, Jung went through a period of mental illness during which he thought he was a prophet with "special insight." Jung referred to his "creative illness" (between 1913-1917) as a voluntary confrontation with the unconscious. His great "insight" was that he thought all his patients over 35 suffered from "loss of religion" and he had just the thing to fill up their empty, aimless, senseless lives: his own metaphysical system of archetypes and the collective unconscious.

Synchronicity provides access to the archetypes, which are located in the collective unconscious and are characterized by being universal mental predispositions not grounded in experience. Like Plato's Forms (eidōs), the archetypes do not originate in the world of the senses, but exist independently of that world and are known directly by the mind. Unlike Plato, however, Jung believed that the archetypes arise spontaneously in the mind, especially in times of crisis. Just as there are meaningful coincidences, such as the beetle and the scarab dream, which open the door to transcendent truths, so too a crisis opens the door of the collective unconscious and lets out an archetype to reveal some deep truth hidden from ordinary consciousness.

Mythology, Jung claimed, bases its stories on the archetypes. Mythology is the reservoir of deep, hidden wondrous truths. Dreams and psychological crises, fevers and derangement, chance encounters resonating with "meaningful coincidences," all are gateways to the collective unconscious, which is ready to restore the individual psyche to health with its insights. Jung maintained that these metaphysical notions are scientifically grounded, but they are not empirically testable in any meaningful way. In short, they are not scientific at all, but pseudoscientific.

## Communal Reinforcement

Communal reinforcement is the process by which a claim becomes a strong belief through repeated assertion by members of a community. The process is independent of whether or not the claim has been properly researched or is supported by empirical data significant enough to warrant belief by reasonable people. Often, the mass media contribute to the process by uncritically supporting the claims. More often, however, the mass media provide tacit support for untested and unsupported claims by saying nothing skeptical about even the most outlandish of claims.

Examples abound: alien abductions, astral projections, racist ideas, past-life regression, the notion that children have memories that are completely accurate, the idea that children rarely says things that aren't true, that Edgar Cayce had psychic healing powers, that an Indian Yogi was buried but his body did not decay, that people levitate, that it is possible to have sex with the spirits of the dead, that you can rid yourself of cancer by visualization or humor, that some animals have ESP, that surgery can be performed and tumors removed from internal organs using psychic powers, that the FBI has a wiretap on every phone in America, that the military has implanted microchips in our butts and can order us around at will, that Russian troops are amassing on the Mexican border waiting to invade the U.S. and take it over for the United Nations, that Jews control all the power and money of the world, that once assault weapons are banned it will only be a matter of time before all our weapons are confiscated and a totalitarian regime will take away our right to pray, to play and to slay, etc. etc. etc.

Communal reinforcement explains how entire nations can pass on ineffable gibberish from generation to generation. It also explains how testimonials reinforced by other testimonials within the community of therapists, sociologists, psychologists, theologians, politicians, talk show aficionados, etc., can supplant and be more powerful than scientific studies or accurate gathering of data by disinterested parties.

## Confabulation

A confabulation is a fantasy that has unconsciously replaced fact in memory. A confabulation may be based partly on fact or be a complete construction of the imagination.

The term is often used to describe the "memories" of people claiming to have been abducted by aliens, as well as "false memories" induced by therapists or interviewers, memories that often involve bizarre notions of satanic ritualistic sexual abuse of children.

## Confirmation Bias

"It is the peculiar and perpetual error of the human understanding to be more moved and excited by affirmatives than by negatives." --Francis Bacon

Confirmation bias refers to a type of selective thinking whereby one tends to notice and to look for what confirms one's beliefs, and to ignore, not look for, or undervalue the relevance of what contradicts one's beliefs. For example, if one believes that during a full moon there is an increase in accidents, one will take notice when accidents occur during a full moon, but be inattentive to the moon when accidents occur during other times of the month. A tendency to do this over time unjustifiably strengthens one's belief in the relationship between the full moon and accidents.

This tendency give more attention and weight to data that supports our preconceptions and beliefs than we do to contrary data is especially pernicious when our preconceptions and beliefs are little more than prejudices. If our beliefs are firmly established upon solid evidence and valid confirmatory experiments, the tendency to give more attention and weight to data that fits with our beliefs should not lead us astray as a rule. Of course, if we become blinded to evidence truly refuting a favored hypothesis, we have crossed the line from reasonableness to closed-mindedness.

Numerous studies have demonstrated that people generally give an excessive amount of value to confirmatory information, i.e., data which is positive or which supports a position (Gilovich, ch. 3). Thomas Gilovich speculates that the "most likely reason for the excessive influence of confirmatory information is that it is easier to deal with cognitively." It is much easier to see how a piece of data supports a position than it is to see how it might count against the position. Consider a typical ESP experiment or a seemingly clairvoyant dream: successes are often unambiguous or data is easily massaged to count as a success, while negative instances require intellectual effort to even see them as negative or to consider them as significant. The tendency to give more attention and weight to the positive and the confirmatory has been shown to influence memory. When digging into our memories for data relevant to a position, we are more likely to recall data that confirms the position (Gilovich).

Researchers are sometimes guilty of confirmation bias by setting up experiments or framing their data in ways that will tend to confirm their hypotheses. They compound the problem by proceeding in ways that avoid dealing with data that would contradict their hypotheses. For example, parapsychologists are notorious for using optional starting and stopping in their ESP research. Many social scientists also are guilty of confirmation bias, especially those who seek to establish correlations between ambiguous variables, such as birth order and 'radical ideas', during arbitrarily defined historical periods. If you define the beginning and end points of data collection regarding the idea of evolution in the way Frank Sulloway did in *Born to Rebel*, you arrive at significant correlations between functional birth order and tendency to accept or reject the theory of evolution. However, if you start with Anaximander and stop with St. Augustine, you will get quite different results, since the idea was universally rejected during that period. Or if you use as an example of a "radical idea" something like that of Philip Henry Gosse in *Creation (Omphalos): an attempt to untie the geological knot* (1857), you won't get support for your hypothesis. Gosse was more radical than Darwin in his attempt to reconcile geological data with creationism, but Gosse is nearly forgotten because his radical idea that God created everything, including fossils, at one time, was universally rejected. Gosse tried to reconcile the scientific data, which indicated a very old earth, with what had become the orthodox view that God created everything in 4004 B.C., as calculated by Archbishop Ussher. Both firstborns and laterborns seem to have been unimpressed with this radical idea.

Experimenters might avoid or reduce confirmation bias by collaborating in experimental design with colleagues who hold contrary hypotheses. Individuals have to constantly remind themselves of this tendency and actively seek out data contrary to their beliefs. Since this is unnatural, it appears that the ordinary person is doomed to bias.

### Coning (Ear Candling)

Ear candling or coning is a method of cleaning the ears and the mind, and alleviating a host of physical, emotional and spiritual ailments. A hollow candle is stuck into the ear and lit, allegedly sucking out ear wax and negative energy. The process is ineffective for ear wax removal. I don't know how anyone knows whether it sucks out energy, positive or negative.

What wax appears in the cone is from the melted candle, not from the ears. The suction created by the coning flame is insufficient to remove wax, which, by the way, is good for you. It traps dust and dirt and helps fight infections.

Though some people fear that coning will leave them mindless, the only real dangers are from burning, infection, obstruction of the ear canal and perforation of the eardrum.

The origin of this unnatural practice has been given as ancient Tibet, China, India, Egypt, and pre-Columbian America. Even Atlantis is cited as a possible origin. In other words, we don't have a clue how this thing got started.

### Conjuring

Conjuring is the art of legerdemain, of magical tricks, of performance of feats seemingly requiring the assistance of supernatural powers or forces.

To conjure is to summon a demon or spirit by invocation or incantation.

### Conspiracy Theorists

#### Illuminati, The New World Order & Paranoid Conspiracy Theorists (PCTs)

What is at stake is more than one small country [Kuwait], it is a big idea - a new world order, where diverse nations are drawn together in common cause to achieve the universal aspirations of mankind: peace and security, freedom, and the rule of law. Such is a world worthy of our struggle, and worthy of our children's future. --President George Bush in his state of the union address, January 16, 1991

The Illuminati was a secret society in Bavaria in the late 18th century. They had a political agenda which included republicanism and abolition of monarchies, which they tried to institute by means of "subterfuge, secrecy, and conspiracy," including the infiltration of other organizations.\* They fancied themselves to be "enlightened" but they had little success and were destroyed within fifteen years of their origin (Pipes, 1997).

Paranoid conspiracy theorists (PCTs) believe the Illuminati cabal still exists, either in its original form or as a paradigm for later cabals. Many PCTs believe "that large Jewish banking families have been orchestrating various political revolutions and machinations throughout Europe and America since the late eighteenth century, with the ultimate aim of bringing about a satanic New World Order."\* What George Bush was talking about in his state of the union address in 1991 was no less than the establishment of a single world government with the anti-Christ (whom some say is Bill Clinton, but could be Pat Robertson) at its head.

In the paranoid mind, the Illuminati succeeded in their goals, and have now infiltrated every government and every aspect of society. They are responsible for every evil and every unjust act that ever occurs anywhere; the fact that absolutely no evidence of their existence can be found only serves to make them stronger and more frightening. They are the demon in the closet, and will probably never disappear from the paranoid fantasy world of right-wing conspiracy theorists.\*  
--New England Skeptical Society

Although there are two main "sects" of PCTs, the militant Christian fundamentalist branch and the UFO/alien branch, and although they each think the other is evil or nuts, their paranoia has the same focus: the end is near.

### The Illuminati and The Anti-Christ

The Illuminati are hastening the coming of the anti-Christ and the end of the world.

For those of us who still accept the Bible as God's revealed will to man, it's a matter of great concern to see the increasing propaganda for, and emergence of, a New World Order.... both Old and New Testaments warned us that the culmination of history would be marked by the reunion of the nations of the old Roman Empire in Europe; the restoration of the state of Israel (and the increasing hostility of all nations toward her); the implementation of a one-world governmental system; the imposition of a world-wide cashless monetary system; the development of a syncretistic [sic] world religion, based upon man, and presided over by a false prophet; the rise to power of a benign world dictator, who (once firmly in control) would eliminate individual freedoms, demonstrate iron-willed ferocity and cruelty, and make himself the object of worship; and world-wide apostasy [sic], coupled with active persecution and execution of believing Jews and Christians.\*

--Jay Whitley, PCT and purveyor of Emergency Dehydrated Food Kits

According to the PCTs, the Illuminati are the ones who rule the world, though they are pulling the strings from behind the scenes. They have been doing this for centuries. How is this known? Just look at what they've done and are doing? Federal income tax, the state of Israel, the assassination of the KKK (Kennedy, King, Kennedy), the United Nations, FEMA, AIDS, WACO, E.D., VD, the ATM card, the hula hoop, Microsoft, the euro--these and many other events did not just happen without connection. They are all part of a plot to take over the world, establish a single tyrannical government and hasten Armageddon.

### The Major Players

Here is a typical set of the PCT's notions, extolled in a review of an author who claims he has exposed the Illuminati:

Who really controls world events from behind-the-scene? Years of extensive research and investigation have gone into this massively documented work [Bloodlines of the Illuminati]. In almost 600 pages, Fritz Springmeier discloses mind-boggling facts and never before revealed truths about the top Illuminati dynasties. Discover the amazing role these bloodlines have played--and are now wielding--in human history, with family names such as Astor, DuPont, Kennedy, Onassis, Rockefeller, Rothschild, Russell, Van Duyn, and Krupp. You'll also learn of the secretive, Chinese Li family, which operates with impunity in the U.S.A. and around the world. Along the way you'll find out why President John F. Kennedy and actress Grace Kelly were killed; who created the United Nations; who controls the two major U.S. political parties; how the Rothschilds invented and control modern-day Israel; who secretly founded false religions such as the Jehovah Witnesses; and much, much more. A literal encyclopedia of rare, unbelievable information!\*

The "information" is certainly unbelievable, but it is not rare enough. Another PCT "sect" holds that it is the aliens who rule the Illuminati who rule the world, etc.

### David Icke

David Icke, another pundit of the Illuminati, gets messages from alien "Illuminati-reptilians" who explain to him such things as the Gregorian calendar.

The whole senario [sic] was planned centuries ago because the reptilians, operating from the lower fourth dimension, and indeed whatever force controls them, have a very different version of "time" than we have, hence they can see and plan down the three-dimensional "time"-line in a way that those in three-dimensional form cannot.\*

Icke fancies himself "The most controversial author and speaker in the world."\* For him, the origin of the Illuminati is extraterrestrial. He knows this because he is contacted regularly with messages from beyond by the alien lizards. He puts these messages into books (at least five, so far).

There was a time when a man who claimed to be in contact with alien reptiles would have been shunned by the world. In today's open society, such a man is as likely to become a cult hero, guest lecturer at universities, or an author featured on talk shows, as he is to be committed to an asylum.

Jim Keith

Another expositor on these hidden agendas and worldwide conspiracies is Jim Keith, who died on September 7, 1999, during surgery to repair a leg he injured at the Burning Man Festival. Keith, a former executive Scientologist and author of nine conspiracy books (including Saucers of the Illuminati) could see things the rest of us don't. Was this because he was better at seeing or because his imagination ran wild? He watches a Coke ad and sees fellatio and anal penetration.\* You can imagine what he sees or hears when he gives his attention to world history.

Ken Adachi

Ken Adachi has a fine conspiracy page. He leaves no event unaccounted for as part of the plot to take over the world and hasten the Apocalypse. The Illuminati, however, is only one aspect of the occult cabal. He has transmogrified the New World Order into a cabal itself. According to Mr. Adachi

An extremely powerful civilian dominated cabal, the New World Order, includes Majesty Twelve [MJ-12], The Illuminati, Order of the Quest, The Bilderberg Group, The Trilateral Commission, The Executive Committee of The Council on Foreign Relations, The PI-40 Committee, The Jason Group, The Club of Rome, The Group, The Royal Institute of International Affairs, The Open Friendly Secret Society, The Rosicrucians, The Brotherhood of the Dragon (or Snake), The Russell Trust, The Black Families (of Europe), Skull & Bones, the Scroll & Key, The Knights of Malta, the Illuminati arm of The Freemasons, and many, many other secretive groups.\*

What is most amusing about Mr. Adachi's page is that even though the end is near, he still asks us to please support his sponsor, an organization that can help with debt consolidation or a home loan. What is not so amusing is his identification of the Freemasons as a subversive cabal. This idea is popular among PCTs, especially with those on the religious right like Pat Robertson, who are also prone to be anti-Semitic.

Myron Fagan

Mr. Adachi may have a fine conspiracy WWW page but he seems to have borrowed everything from Mr. Fagan, who undertook to explain all of world history as a plot of the Illuminati to establish the New World Order. Waterloo, Diamond Jim Brady, the French Revolution, any war you care to name, homosexuals in the State Department, JFK, the United Nations, the ACLU, Jewish bankers, the Communist conspiracy to control Hollywood and make films that would hasten the arrival of the New World Order, etc. ad nauseam. Fagan's audiotape, "The Illuminati," is available online.

Fagan, born ca. 1888, was a playwright, director, producer, editor and public relations director for Charles Hughes, Republican candidate for president in 1916. In 1930, Fagan came to Hollywood and worked as a writer and director. In 1945, he says he saw some secret documents which led him to write Red Rainbow and Thieves Paradise. The former portrays Roosevelt, Stalin and others at Malta plotting to deliver the Balkans, Eastern Europe and Berlin to Stalin. The latter portrays the same group plotting to create the United Nations as a Communist front for one world government. Until his death, Fagan relentlessly uncovered plots for almost every historical event of any note. Fagan is the archetype for the PCT.

Milton William "Bill" Cooper

Cooper, a leader of the Arizona militia movement, wrote The Secret Government: a Covenant with Death - The Origin, Identity, and Purpose of MJ-12, a paper given in Las Vegas at a MUFON meeting in 1989 focusing essentially on his belief of a cover-up of an alien crash at Roswell. He also wrote Secret Societies/ New World Order. He claims that he got his information "directly from, or as a result of my own research into the TOP SECRET/MAJIC material WHICH I SAW AND READ between the years 1970 and 1973 as a

member of the Intelligence Briefing Team of the Commander in Chief of the Pacific Fleet." (PCTs seem to like to use CAPS for EMPHASIS.) Cooper's veracity about his career in the Navy and his access to secret documents has been questioned publicly on alt.alien.visitor, as have other aspects of his personality. Cooper runs williamcooper.com, a site which promotes his many rants, including an autobiographical page that might be of interest to certain mental health professionals.

Cooper's "investigations" uncover the usual conspiracies, although he also includes some of the new ones such as the conspiracy to use AIDS to thin out the population of blacks, Hispanics and homosexuals, a notion he put forth in a book called Behold a Pale Horse. What Cooper lacks in hard evidence he oversupplies in detail and imagination.\*

Robert Gaylon Ross, Sr.

Ross is owner of Ross International Enterprises (RIE) and is the author of nine books in progress. RIE is "a private company chartered to do anything that is legal, ethical and moral, anywhere in the world." Ross started RIE when he couldn't find a publisher for his manuscript, Who's Who of the Elite, an expose of the elite. Says Ross, after you visit his site

you will have been exposed to the REAL TRUTH about the conspiracy behind the Bilderbergs; Council on Foreign Relations; Trilateral Commission; Skull & Bones Society; Bohemian Grove and Bohemian Club; the CIA's involvement in trauma based mind control, drug smuggling and money laundering; where are the Wealthiest in the World; who really owns the Federal Reserve System; and the more accurate theories found in "Logical Physics".

Ross's unique twist is to relate "alternative physics" to the world of conspiracies and to offer for sale a rifle with scope from his conspiracy pages. If only he had had UFOs in his books, he would have no trouble getting them published with Illuminet Press, a publishing house devoted to nothing but conspiracy books involving aliens of some sort.

Why?

To enter the world of the PCTs is to enter Bedlam. Anyone interested in entering this world might want to start at UFOMind's page on Conspiracies - Claims of sinister collusions and grand deceptions. It would be pointless here to examine, much less attempt to refute, the delusions of people who think they have been turned into assassins by mind-control techniques so that they can carry out the will of inbred dynasties, that aliens are controlling the world, that none of the laws of science are actual, that the imagination and the thought of what is possible are better guides than the "physically manifested world," etc. A rational person might think many of the PCTs are joking. There are Internet sites that seem to be parody sites but it is difficult to tell, since there seems to be no belief, however inane or absurd, that the PCTs can't fit into their bizarre worldview. A rational person who never heard of Pat Robertson might well read his New World Order (Word Books, 1994) and think it must be a joke. Could anyone actually believe his rambling paranoia regarding Jewish bankers, Freemasons, Muslims, homosexuals, foreigners, etc.? Apparently so. Still, one wonders why PCTs exist and their numbers seem to be growing.

Of course, governments and some of the very rich have conspired to rule the world in one form or another. There are enough real conspiracies to satisfy even the greatest Pollyanna that one's government and the extremely rich and powerful don't play by the same rules, if they play by any rules at all, as decent folk. Those of us who have watched the U.S. government support one fascist dictator after another because he was "anti-communist" are uncomfortable to find that there are people who are so far to the right of the right-wing that they too want to expose the coverups. It is of no use to point out to the PCTs that our government led coups of democratically elected governments, assassinated leaders of nations and provided military and financial aid to thugs and murderers around the world, in a misguided belief that they were saving the world from communism, as well as opening up new markets for capitalist expansion. Many of the leaders and top agents in our government are and were evil and incompetent, but, as inept as they tend to be, even they would recognize the limits of their ambitions.

But, it is pointless to argue here because the PCTs are expert pseudohistorians: contradictory evidence is used to support rather than refute their notions. Does the U.S. Government go after the world's richest man, Bill Gates? Hah! It's a charade, aimed at getting us off the scent. Wasn't Hitler the one who thought he could rule the world and didn't the Allies stop him? Hitler was a dupe, used to advance the sinister plot to rule the world by the Illuminati.

Some Speculation

One can only speculate as to why PCTs exist. It is easy to explain their proliferation: modern mass communications has made it possible for anyone to become his or her own press and propaganda



machine. But why PCTs in the first place? The only other experience I've had with such thinking was when I had to get involved with some mentally ill people. I am not joking here. A relative had a "psychotic break" and severe paranoia. We (a group of relatives) were all targets of assassination by some unknown evil people. They could be partially identified by their license plate numbers. If the number started with a "5" then they were evil. No amount of logic or reasoning as to the preposterousness of the notion that anyone would want to kill a person of absolutely no significance was of any use. No amount of reasoning as to how license plate numbers are assigned was of any use. Phone calls could only be made from "secure" lines, which involved either going to the fire department or talking your way up through a series of supervisors until you got a "good one." Through my ill relative I met others who were also afflicted with delusions and incredibly faulty judgment. They did not lose their ability to reason--in fact, my relative seemed even more intelligent in some ways when manic--but their assumptions were taken from sources inaccessible to the ordinary mind. They put vast faith in their intuitions and thought their ideas were brilliant insights when they were little more than the fancies of diseased brains. When I compare reading the literature of the PCTs to entering Bedlam, I mean to be taken literally.

For example, many PCTs consider the Great Seal of the United States and the motto *Novus Ordo Seclorum* to be Masonic and to mean New World Order. These "facts" are considered evidence in the argument to prove the vast conspiracy of the Illuminati. It is useless to argue against these "facts" with PCTs. They consider us dupes who would note that the Latin is usually translated as New World of the Ages and that the symbol of the eye in the pyramid relates to a poem in the Egyptian Book of the Dead.\* Even when it is pointed out that even granting that the Great Seal of the United States and the symbols on our dollar bill are Masonic (which they are not) and that *novus ordo seclorum* means New World Order (which it does not), nothing significant follows, certainly not that there is a vast conspiracy to take over the world.

Kay Redford Jamison, in *An Unquiet Mind* and *Touched With Fire: Manic Depressive Illness and the Artistic Temperament*, claims that there is strong evidence that many poets and other writers who have a great facility with connecting words and images in fantastic and enlightening ways, have been manic or manic depressive (bipolar). It could well be that the conspiratorial mind's facility with connecting the most disconnected events is rooted in brain chemistry. Who knows?

#### Providence and Eschatology

I think it is likely that many PCTs in the West are initiated into their peculiar way of thinking by their religious training, in particular by their study of the Bible. They have been taught or they assume that everything happens for a purpose and that God ultimately has a reason for every event occurring just as it does. As it becomes more and more difficult to see this world as designed for anything, the theories get more and more preposterous to keep the teleological delusion alive. The war on evolution and homosexuality--encouraging the abandonment of science and stimulating murderous assaults--so obviously disproportionate by any rational standard, is difficult to explain without seeing the militant fundamentalists as beyond the last stages of desperation. The intense campaigns to expose possible alien abductions, UFOs, and mind-control is likewise preposterously disproportionate to any rational standard. It is becoming nearly impossible to account for the events on this planet with the assumption of a Divine Creator who has a plan and a rationale for everything. The systems of thought that must be created in order to maintain Divine Providence get more insane by the minute. (Explain Hitler, Slobodan Milosovich, or Ishii Shiro. Or, for that matter, explain WACO, Gulf War Syndrome, or any of a number of actual conspiracies engaged in by businessmen such as Bill Gates or political leaders such as Oliver North and his "neat" idea of a government within the government answerable to nobody, or Richard Nixon and the Watergate conspirators, or our formerly secret biological warfare programs.) There is, in fact, a New World Order emerging: the world of Alternative History, Alternative Physics, Alternative Medicine and, ultimately, Alternative Reality.

It is a very natural trait to try to make sense out of the world. The PCTs are trying desperately to make sense out of a world they can no longer relate to. The world is too complicated, too mean, too cold, too unsatisfying for them. In the real world, they are considered nothing and despair of ever being anything but on the outside looking in. They see science as telling them they are an accident and their lives are without meaning. In their alternative world, they rule and are hopeful. Everything is in its place or will be put in its place. There is order and meaning. Life is significant.

the end is near

The actual mechanism by which PCTs arrive at their weird notions is not that difficult to ascertain. The mentally ill people I came to know couched their paranoid fears in terms of the F.B.I. and the C.I.A. They had no communal reinforcement of their delusions, however. No talk show host or publisher invited them to share their delusions with the world. They are under treatment, have been hospitalized, arrested, etc. They know that those around them will not accept their delusions. This is not true of religious or UFO groups. They reinforce each other and strengthen each other's resolve. They encourage each other to accept possibility as equal to probability, material experience as inferior to dreams, hallucinations, and out-of-body experiences, etc. They have no watchdog equivalent to I. F. Stone, and the mass media is too

busy chasing tabloid rumors and celebrities to serve as a watchdog of anything. And since the PCTs function almost completely outside of the normal arenas where they would be challenged and forced to produce evidence in place of speculation, they flourish relatively unscathed and await their next appearance on the Art Bell or Mike Siegal or Pat Robertson show, seemingly oblivious to the absurdity of such behavior during the final days of planet earth.

## Control Group Study

### Control Group Study, Double-Blind and Random Tests

A control group study uses a control group to compare to an experimental group in a test of a causal hypothesis. The control and experimental groups must be identical in all relevant ways except for the introduction of a suspected causal agent into the experimental group. If the suspected causal agent is actually a causal factor of some event, then logic dictates that that event should manifest itself more significantly in the experimental than in the control group. For example, if 'C' causes 'E', when we introduce 'C' into the experimental group but not into the control group, we should find 'E' occurring in the experimental group at a significantly greater rate than in the control group. Significance is measured by relation to chance: if an event is not likely due to chance, then its occurrence is significant.

A double-blind test is a control group test where neither the evaluator nor the subject knows which items are controls. A random test is one which randomly assigns items to the control or experimental groups.

The purpose of controls, double-blind and random testing is to reduce error, self-deception and bias. An example should clarify the necessity of these safeguards.

The DKL LifeGuard Model 2, from DielectroKinetic Laboratories, can detect a living human being by receiving a signal from the heartbeat at distances of up to 20 meters through any material, according to its manufacturers. Sandia Labs tested the device using a double-blind, random method of testing. Sandia is a national security laboratory operated for the U.S. Department of Energy by the Sandia Corporation, a Lockheed Martin Co. The causal hypothesis they tested could be worded as follows: the human heartbeat causes a directional signal to activate in the Lifeguard, thereby allowing the user of the LifeGuard to find a hidden human being (the target) up to 20 meters away, regardless of what objects might be between the LifeGuard and the target.

The testing procedure was quite simple: five large plastic packing crates were set up in a line at 30-foot intervals and the test operator, using the DKL LifeGuard Model 2, tried to detect in which of the five crates a human being was hiding. Whether a crate would be empty or contain a person for each trial was determined by random assignment. This is to avoid using a pattern which might be detected by the subject. Their tests showed that the device performed no better than expected from random chance. The test operator was a DKL representative. The only time the test operator did well in detecting his targets was when he had prior knowledge of the target's location. The LifeGuard was successful ten out of ten times when the operator knew where the target was. It may seem ludicrous to test the device by telling the operator where the objects are, but it establishes a baseline and affirms that device is working. Only when the operator agrees that his device is working should the test proceed to the second stage, the double-blind test. For, the operator will not be as likely to come up with an ad hoc hypothesis to explain away his failure in a double-blind test if he has agreed beforehand that the device is working properly.

If the device could perform as claimed, the operator should have received no signals from the empty crates and signals from each of the crates with a person within. In the main test of the LifeGuard, when neither the test operator nor the investigator keeping track of the operator's results knew which of five possible locations contained the target, the operator performed poorly (six out of 25) and took about four times longer than when the operator knew the target's location. If human heartbeats cause the device to activate, one would expect a significantly better performance than 6 of 25, which is what would be expected by chance.

The different performances--10 correct out of 10 tries versus 6 correct out of 25 tries--vividly illustrates the need for keeping the subject blind to the controls: it is needed to eliminate self-deception and subjective validation. The evaluator is kept blind to the controls to prevent him or her from subtly tipping off the subject, either knowingly or unknowingly. If the evaluator knew which crates were empty and which had persons, he or she might give a visual signal to the subject by looking only at the crates with persons. To eliminate the possibility of cheating or evaluator bias, the evaluator is kept in the dark regarding the controls.

The lack of testing under controlled conditions explains why many psychics, graphologists, astrologers, dowzers, paranormal therapists, etc., believe in their abilities. To test a dowser it is not enough to have the dowser and his friends tell you that it works by pointing out all the wells that have been dug on the dowser's advice. One should perform a random, double-blind test, such as the one done by Ray Hyman

with an experienced dowser on the PBS program *Frontiers of Science* (Nov. 19, 1997). The dowser claimed he could find buried metal objects, as well as water. He agreed to a test that involved randomly selecting numbers which corresponded to buckets placed upside down in a field. The numbers determined which buckets a metal object would be placed under. The one doing the placing of the objects was not the same person who went around with the dowser as he tried to find the objects. The exact odds of finding a metal object by chance could be calculated. For example, if there are 100 buckets and 10 of them have a metal object, then getting 10% correct would be predicted by chance. That is, over a large number of attempts, getting about 10% correct would be expected of anyone, with or without a dowsing rod. On the other hand, if someone consistently got 80% or 90% correct, and we were sure he or she was not cheating, that would confirm the dowser's powers.

The dowser walked up and down the lines of buckets with his rod but said he couldn't get any strong readings. When he selected a bucket he qualified his selection with something to the effect that he didn't think he'd be right. He was right about never being right! He didn't find a single metal object despite several attempts. His performance is typical of dowsers tested under controlled conditions. His response was also typical: he was genuinely surprised. Like most of us, the dowser is not aware of the many factors that can hinder us from doing a proper evaluation of events: self-deception, wishful thinking, suggestion, unconscious bias, selective thinking, subjective validation, communal reinforcement, etc.

Many control group studies use a placebo in control groups to keep the subjects in the dark as to whether or not they are being given the causal agent that is being tested. For example, both the control and experimental groups will be given identical looking pills in a study testing the effectiveness of a new drug. Only one pill will contain the agent being tested; the other pill will be a placebo. In a double-blind study, the evaluator of the results would not know which subjects got the placebo until his or her evaluation of observed results was completed. This is to avoid evaluator bias from influencing observations and measurements.

#### Cosmobiology

Cosmobiology is a method of astrology developed by Reinhold Ebertin in the 1920's. Cosmobiology eschews the use of traditional house systems\* and uses a complicated charting method to develop a cosmogram of heavenly objects that places special importance on midpoints. A midpoint is a point half way between two planets (or other notables). For example, "the distance between 0 degrees Aries and 0 degrees Cancer is 90 degrees. Half of 90 is 45, so the midpoint would be located at 15 degrees Taurus."\* Cosmobiologists consider "indirect midpoints" to be important, too. "The point opposite 15 degrees Taurus is 15 Scorpio: this is an indirect midpoint. In fact, it is common to use all indirect midpoints at 45 or even 22.5 degree intervals. Indirect midpoints carry nearly the same energy as a direct midpoint."\* (It should be noted that cosmobiologists may still refer to what they eschew.)

Ebertin's influence increased astronomically after the publication of *The Combination of Stellar Influences* in 1940\*, in which he gives interpretations for all possible planetary combinations and midpoints.

Cosmobiologists, like other astrologers, are consulted for advice in personal and business matters, assisting in medical diagnoses, and in matters regarding fertility.

There are several reasons for the popularity of pseudosciences such as cosmobiology. The pragmatic fallacy is often committed in such matters because of the relative ease with which one can fit just about any piece of data to the theory. Analogies and metaphors are easy to see and are used to validate predictions. Also, many predictions will have a 50/50 chance of being right: you'll have a boy (or girl), your business will succeed (or fail). Many will be vague: you will come into some unexpected money; you will be traveling in the near future. Finally, there is no way to disprove such theories. Whatever happens, either it can be made to fit the theory or an ad hoc hypothesis can be constructed to explain away the apparent refuting evidence.

Other factors likely to be involved in such belief systems are the Forer effect, selective thinking, confirmation bias, self-deception and wishful thinking.

#### Cosmology

Cosmology is a branch of metaphysics concerned with the nature of the cosmos, i.e., the universe.

Cosmology is also a branch of astronomy that is concerned with scientific theories of the origin, structure, and space-time relationships of the universe.

## Course in Miracles

A Course in Miracles [ACIM] is the name of an allegedly channeled book dictated by Jesus to Helen Schucman (1909-1981), "a highly respected research psychologist." ACIM is Christianity Corrected. Jesus wants less suffering, sacrifice, separation, and sacrament, and he wants more forgiveness.

ACIM is also the basis of a major industry. To find out what Jesus really had in mind when he came to save the world, you can buy the channeled book or one of a dozen or more similar books of eternal wisdom from the Foundation for Inner Peace. They also sell audio and video tapes, and conduct workshops, seminars, and discussion groups. They have an Academy, said to be modeled after Plato's Academy, where you can get the Holy Spirit to help you understand the real message of Jesus and then return to your everyday life situation with a deeper appreciation for the difference between appearance and reality, illusion and truth.

Why should anyone believe that the words of Helen Schucman are the words of Jesus? She was a clinical psychologist by training (Ph.D. 1957 from New York University). She claims that from 1956-1972 an inner Voice dictated to her the three books which comprise ACIM. She was assisted by a colleague, William Thetford (1919-1988). She claims the Voice chose moments when she was free--at work, on the subway, at home--to dictate Christ's update. In 1972, another psychologist and his wife, Ken and Gloria Wapnick, assisted Schucman with her book. The Wapnicks are the ones who started the Foundation for Inner Peace, which keeps the business alive and running.

To the tremendously numinous question, Why is it called "A Course in Miracles"? the answer is that that is what the Voice told her to call it. According to those who should know, the Voice said unto Helen: "This is a course in miracles, please take notes."

## Craniometry (Craniology)

Craniometry is the measurement of cranial features in order to classify people according to race, criminal temperament, intelligence, etc.

In the 19th century, the British used craniometry to justify its racist policies toward the Irish and black Africans, whom the British considered to be inferior races. Irish skulls were said to have the shape of Cro-Magnon men and were akin to that of apes, proof of their inferiority along with black Africans.

In the 20th century, the Nazis used craniometry and anthropometry to distinguish Aryans from non-Aryans.

## Craniosacral Therapy

Craniosacral therapy (a.k.a. craniopathy and cranial osteopathy) is a holistic therapy that involves the manipulation of the skull bones (the cranium) and the sacrum to relieve pain and a variety of other ailments, including cancer. (The sacrum is a bone between the lumbar vertebrae and tail vertebrae, composed of five fused vertebrae that form the posterior pelvic wall.) The therapy was invented by osteopath William G. Sutherland in the 1930s. Another osteopath, John Upledger is the leading proponent of craniosacral therapy today. Like other holistic therapies, this one emphasizes subjective concepts such as energy, harmony, balance, rhythm and flow.

Craniosacral therapists claim to be able to detect a craniosacral "rhythm" in the cranium, sacrum, cerebrospinal fluid and the membranes which envelop the craniosacral system. The balance and flow of this rhythm is considered essential to good health. The rhythm is measured by the therapist's hands. Any needed or effected changes in rhythm are also detected only by the therapist's hands. No instrument is used to measure the rhythm or its changes, hence no systematic objective measurement of healthy versus unhealthy rhythms exists. The measurement, the therapy and the declared cure are all subjectively based. As one therapist puts it:

During the treatment, the client is usually supine on a table. The therapist assesses the patterns of energy in the body through touch at several "listening stations" and then decides where to start that day and how to focus the treatment. [Woodruff]

The same therapist maintains that the therapy is "a waste of time and money" for people who do not have faith in the therapy. Successful treatments, however, may well be due to the placebo effect and subjective validation.

Skeptics note that the skull does not consist of moveable parts (unlike the jaw) and the only rhythm detectable in the cranium and cerebrospinal fluid is related to the cardiovascular system. When tested,

several therapists were unable to consistently come up with the same measurements of the alleged cranosacral rhythm.

### Cranioscopy (Phrenology)

Phrenology is the study of the structure of the skull to determine a person's character and mental capacity. This pseudoscience is based upon the false assumption that mental faculties are located in brain "organs" on the surface of the brain and can be detected by visible inspection of the skull. The Viennese physician Franz-Joseph Gall (1758-1828) claimed there are some 26 "organs" on the surface of the brain which affect the contour of the skull, including a "murder organ" present in murderers. Gall was an advocate of the "use it or lose it" school of thought. Brain organs which were used got bigger and those which were not used shrunk, causing the skull to rise and fall with organ development. These bumps and indentations on the skull, according to Gall, reflect specific areas of the brain which determine a person's emotional and intellectual functions. Gall called the study of these cranial hills and valleys "cranioscopy." Others, such as Johann Kaspar Spurzheim (1776-1832) who spread the word in America and George Combe (1788-1858) who founded the Edinburgh Phrenological Society, followed with even zanier and more specious divisions and designations of the brain and skull, such as "metaphysical spirit" and "wit." In 1815, Thomas Foster called the work of Gall and Spurzheim "phrenology" (phrenos is Greek for mind) and the name stuck.

Phrenology advanced the notion that the human brain is the seat of character, emotions, perception, intellect, etc., and that different parts of the brain are responsible for different mental functions. In this advocates were correct. However, since at that time it was only possible to study the brains of the dead, phrenologists could only associate the different structures of organs in the brain with supposed mental functions which were in turn associated with the contour of the skull. Little was done to study the brains of persons known to have had neurological problems, which might have helped in the process of locating parts of the brain responsible for specific neurological functioning. Instead, mental faculty localization was arbitrarily selected. Gall's early work was with criminals and the insane, and his brain "organs" reflected this interest. Spurzheim got rid of such things as "theft organs" and "murder organs", and mapped out the brain with such areas as "benevolence" and "self-esteem."

Although phrenology has been thoroughly discredited and has been recognized as having no scientific merit, it still has its advocates. It remained popular, especially in the United States, throughout the 19th century and it gave rise to several other pseudoscientific characterologies, e.g., craniometry and anthropometry. Phrenology was praised by Ralph Waldo Emerson, Horace Mann and the Boston Medical Society when Spurzheim arrived in 1832 for The American Tour. The Fowler Brothers and Samuel Wells published the American Phrenological Journal and Life Illustrated which lasted from 1838 until 1911. In Edinburgh, Combe's Phrenological Journal was published from 1823 until 1847. Another indication of the popularity of phrenology in the 19th century is that Combe's The Constitution of Man sold more than 300,000 copies between 1828 and 1868.

Phrenology gave rise to the invention of the psychograph by Lavery and White, a machine which could do a phrenological reading complete with printout. It is said that this device netted its owners about \$200,000 at the 1934 Century of Progress Exposition in Chicago. Phrenological readings are not unlike astrological readings and many who have them done are satisfied that the results are uncannily accurate.

### Creationists and Creation Science

Militant fundamentalist Christianity has an answer for everything except bigotry and ignorance.

...the evolution of the cosmos is more than just "compatible" with theism. Faith in a God of self-giving love...anticipates an evolving universe.\* John F. Haught

Nothing in biology makes sense except in the light of evolution. Theodosius Dobzhansky (1973)

Creationism is a religious metaphysical theory about the origin of the universe. It is not a scientific theory. Technically, creationism is not necessarily connected to any particular religion. It simply requires a belief in a Creator. Millions of Christians and non-Christians believe there is a Creator of the universe and that scientific theories such as the theory of evolution do not conflict with belief in a Creator. However, fundamentalist Christians such as Ronald Reagan, Jerry Falwell, Pat Robertson, Oral Roberts, etc., have co-opted the term 'creationism' and it is now difficult to refer to creationism without being understood as referring to fundamentalist Christians who (a) take the stories in Genesis as accurate accounts of the origin of the universe and life on Earth, and (b) believe that Genesis is incompatible with the Big Bang theory and the theory of evolution. Thus, it is commonly assumed that creationists are Christians who believe that the account of the creation of the universe as presented in Genesis is literally true in its basic claims about Adam and Eve, the six days of creation, etc., and not an allegory.

Creation science is a term used by certain creationists to indicate that they believe that Genesis is a scientific account of the origin of the universe. Reading the Bible as if it were a scientific text contradicts the Big Bang theory and the theory of evolution. "Creation scientists" say those theories are false and that scientists who advocate such theories are ignorant of the truth about the origins of the universe and life on Earth.

One of the main leaders of creation science is Duane T. Gish of the Institute for Creation Research, who puts forth his views in conjunction with attacks on evolution. Gish is the author of *Evolution, the Challenge of the Fossil Record* (San Diego, Calif.: Creation-Life Publishers, 1985) and *Evolution, the Fossils Say No* (San Diego, Calif.: Creation-Life Publishers, 1978). Another leader of this movement is Walt Brown of the Center for Scientific Creationism. Neither Gish nor Brown seem to understand the difference between a fact and a theory. They loudly proclaim that evolution is just a theory and that it is false. Scientific theories are neither true nor false. They are explanations of facts. That species evolved from other species is considered by 99.99% of the scientific community to be a scientific fact. How species evolved is what a theory of evolution is supposed to explain.

Darwin's theory of how evolution happened is called natural selection. That theory is quite distinct from the fact of evolution. Other scientists have different theories of evolution, but only a negligible few deny the fact of evolution. Gish is not doing science when he argues against the fact of evolution. He has no interest in scientific facts or theories. His interest is in apologetics: defending the faith against what he sees as attacks on God's Truth. All his arguments are defensive; they are attempts to show that the evidence does not support the scientific fact of evolution.

Creationists, mistaking the uncertain in science for the unscientific, see the debate among evolutionists regarding how best to explain evolution as a sign of weakness. Scientists, on the other hand, see uncertainty as simply an inevitable element of scientific knowledge. They regard debates on fundamental theoretical issues as healthy and stimulating. Science, says evolutionary biologist Stephen Jay Gould, is "most fun when it plays with interesting ideas, examines their implications, and recognizes that old information may be explained in surprisingly new ways." Thus, through all the debate over evolutionary mechanisms biologists have not been led to doubt that evolution has occurred. "We are debating how it happened," says Gould (1983, p. 256).

#### "Creation Science" and Pseudoscience

Creation science, on the other hand, is not science but pseudoscience and it is connected to a particular group of fundamentalist Christians. Most Christians, fundamentalist or not, probably never heard of creation science. Like creationists of all sorts, "creation science" puts forth its claims as absolutely certain and unchangeable. It assumes that the world must conform to the Bible. It assumes that the Bible needs no revision and can contain no error. Where creation science differs from creationism in general is in its notion that once it has interpreted the Bible to mean something, no evidence can be allowed to change that interpretation. Instead, the evidence must be refuted.

Compare this attitude to that of the leading European creationists of the 17th century who had to admit eventually that the Earth is not the center of the universe and that the sun does not revolve around our planet. They did not have to admit that the Bible was wrong, but they did have to admit that human interpretations of the Bible were in error. Today's creationists seem incapable of admitting that their interpretation of the Bible could be wrong.

Creation scientists can't be seen as real scientists because they assume that their interpretation of the Bible cannot be in error. They put forth their views as irrefutable. Hence, when the evidence contradicts their reading of the Bible, they assume that the evidence is false. The only investigation they seem to do is in an effort to prove some scientific claim is false. Creation science sees no need to test its theories, since they have been revealed by God. A theory that is absolutely certain cannot be empirically tested, but empirical testability is the hallmark of a scientific theory. Claims of infallibility and the demand for absolute certainty characterize not science but pseudoscience.

What is most revealing about the militant creationists' lack of any true scientific interest is the way they willingly and uncritically accept even the most preposterous of claims, if those claims seem to contradict traditional scientific beliefs about evolution. In particular, any evidence that seems to support the notion that dinosaurs and humans lived together is welcomed by militant creationists.

#### "creation science" non-scientific

The theory of scientific creationism is a good example of a non-scientific theory because it cannot be falsified. "I can envision observations and experiments that would disprove any evolutionary theory I know," writes Gould, "but I cannot imagine what potential data could lead creationists to abandon their beliefs. Unbeatable systems are dogma, not science" (Gould, 1983). What makes scientific creationism a

pseudoscience is that it attempts to pass itself off as science even though it shares none of the essential characteristics of scientific theorizing. Creation science will remain forever unchanged as a theory. It will engender no debate among scientists about fundamental mechanisms of the universe. It generates no empirical predictions that can be used to test the theory. It is taken to be irrefutable. It assumes a priori that there can be no evidence that will ever falsify it.

When creation scientists do venture into a scientific area, such as the second law of thermodynamics, they botch the science and are notorious for deception and misrepresentation. However, this reputation for dishonesty may be undeserved, as their inept scientific presentations may be due to simple incompetence.

### Real Science

The history of science, however, clearly shows that scientific theories do not remain forever unchanged. The history of science is not the history of one absolute truth being built upon other absolute truths. Rather, it is the history of theorizing, testing, arguing, refining, rejecting, replacing, more theorizing, more testing, etc. It is the history of theories working well for a time, anomalies occurring (i.e., new facts being discovered that don't fit with established theories), and new theories being proposed and eventually partially or completely replacing the old ones.

Of course, it is possible for scientists to act unscientifically, to be dogmatic and dishonest. But the fact that one finds an occasional oddball or charlatan in the history of science (or a person of integrity and genius among pseudoscientists) does not imply that there really is no difference between science and pseudoscience. Because of the public and empirical nature of scientific debate, the charlatans will be found out, errors will be corrected and the honest pursuit of the truth is likely to prevail in the end. This will not be the case with pseudosciences such as creation science, where there is no method needed for detecting errors (since it can't err) much less of correcting them.

Some theories, like creationism, can't be refuted, even in principle, because everything is consistent with them, even apparent contradictions and contraries. Scientific theories allow definite predictions to be made from them; they can, in principle, be refuted. Theories such as the Big Bang theory and the steady state theory can be tested by experience and observation. Metaphysical theories such as creationism are "airtight" if they are self-consistent, i.e., contain no self-contradictory elements. No scientific theory is ever airtight.

### Creationism as a Scientific Theory

A theory of creation held by a religious group may be scientific, however. For example, if a theory says that the world was created in 4004 B.C., but the evidence indicates that Earth is several billions of years old, then the theory is a scientific one if it is thereby taken to be refuted by the evidence. But if, for example, the ad hoc hypothesis is made that God created the world in 4004 B.C. complete with fossils that make the Earth look much older than it really is (to test our faith, perhaps, or to fulfill some mysterious divine plan), then the religious theory is metaphysical. Nothing could refute it; it is airtight. Philip Henry Gosse made this claim in Darwin's time in a work entitled *Creation (Omphalos): An Attempt to Untie the Geological Knot*, published in 1857.

If the age or scientific dating techniques of fossil evidence is disputed, but considered relevant to the truth of the religious theory and is prejudged to be consistent with the theory, then the theory is a metaphysical one. A scientific theory cannot prejudge what its investigative outcomes must be. If the religious cosmologist denies that the earth is billions of years old on the grounds that their own "scientific" tests prove the Earth is very young, then the burden of proof is on the religious cosmologist to demonstrate that the standard scientific methods and techniques of dating fossils, etc., are erroneous. Otherwise, no reasonable person should consider such an unsupported claim that would require us to believe that the entire scientific community is in error. Gish has tried this. The fact that he is unable to convert even a small segment of the scientific community to his way of thinking is a strong indication that his arguments have little merit.

The unscientific nature of pseudoscientific religious cosmologists is evident not just in their overriding concern to make facts fit a preconceived theory. This is a human tendency that affects scientists, too. The unscientific nature of creation scientists is evident in the belief that the absolute truth has already been revealed and scientific inquiry is not needed to search for the truth. To the creation scientist, truth is not something that must be constantly open to question, refinement, and, possibly, rejection. To the creation scientist, truth seems to be something that is considered to be given only to special people who are entrusted to keep and guard it forever.

### Metaphysical Creationists

There are many believers in a religious cosmology such as that given in Genesis who do not claim that their beliefs are scientific. They do not believe that the Bible is to be taken as a science text. To them, the Bible contains teachings pertinent to their spiritual lives. It expresses spiritual ideas about the nature of God and the relationship of God to humans and the rest of the universe. Such people do not believe the Bible should be taken literally when the issue is a matter for scientific discovery. The Bible, they say, should be read for its spiritual messages, not its lessons in biology, physics or chemistry. This used to be the common view of religious scholars. Allegorical interpretations of the Bible go back at least as far as Philo Judaeus. Philosophical analyses of the absurdity of popular conceptions of the gods were made by philosophers such as Epicurus (342-270). Today's fundamentalist creation scientists, however, demand that the Bible be read as an uneducated non-philosopher might read it. They have no taste for allegorical interpretations that don't have immediate populist appeal and they avoid anything that resembles profound philosophical investigation.

### Creationism and Politics

Lacking the philosophical rigor and intellectual framework of the great religious thinkers of the past, today's advocates of creation science have campaigned to have their Biblical version of creation taught as science in U.S. public schools. One of their successes was in the state of Arkansas, which passed a law requiring the teaching of creationism in public schools. (Until 1968, it was illegal to teach evolution in Arkansas.) In 1981, however, the law was ruled unconstitutional by a federal judge who declared creationism to be religious in nature (*McLean v. Arkansas*). A similar Louisiana law was overturned by the United States Supreme Court in 1987 (*Edwards v. Aguillard*). In 1994, the Tangipahoa Parish school district then passed a law, under the guise of promoting "critical thinking," requiring teachers to read aloud a disclaimer before they taught evolution. This dishonest ruse was thrown out by the 5th Circuit Court of Appeals in 1999. Another tactic was tried by creationist biology teacher John Peloza in 1994. He sued his school district for forcing him to teach the "religion" of "evolutionism." He lost and the 9th Circuit Court of Appeals ruled that there is no such religion. Also, it should be noted that in 1990 the Seventh Circuit Court of Appeals ruled that school districts may forbid the teaching of creationism since it is a form of religious advocacy (*Webster v. New Lenox School District*). Many religious leaders support this ruling. They recognize that allowing school districts to teach creationism is to favor one group's religious views over the religious views of others.

Creation scientists may have failed in their attempts to have evolution banned from the classroom and to have creationism taught alongside evolution. However, politically active creationists have not given up; they have just changed tactics. Creationists have been encouraged to run for local school boards to try to gain control of the teaching of evolution that way. School boards can determine what texts the schools may and may not use. Creationists who complain to school boards about the teaching of evolution are more likely to be successful in their efforts at censoring science texts if the school board has several creationists.

In Alabama, biology textbooks carry a warning that says that evolution is "a controversial theory some scientists present as a scientific explanation for the origin of living things. . . .No one was present when life first appeared on earth. Therefore, any statement about life's origins should be considered as theory, not fact." In Alabama, I guess, if you wake up to snow on the ground, but no one saw it snowing, then you may only propose a theory as to the origin of the snow. The great state of Alabama apparently is banking on their students being too dumb to recognize language that tries to deceive and manipulate them.

In August of 1999 the Kansas State Board of Education rejected evolution and the Big Bang theory as scientific principles. The 10-member board voted six to four to eliminate these topics from the science curricula. The Kansas Board did not ban the teaching of evolution or of the Big Bang Theory. The Board simply deleted any mention of evolution and the Big Bang theory from the science curriculum and from the materials used to test graduating students. Creationists, such as Board Member Steve Abrams, a former head of the state Republican Party, hailed the decision as a victory in the war against evolutionists. Creationists want children to believe that God made them and every other species individually for a purpose. They do not want children to think that a divine power might be behind the Big Bang or evolution of species because that opens the possibility that God might not exist. These scientific theories, like all scientific theories today, make no reference to God. Creationism maintains that God created everything, a belief which leaves no room for an explanation of the existence and nature of things without reference to God. If a child learns science the child may one day conclude that God is an unnecessary hypothesis. Children must not learn science or they must learn that science is a repository of errors such as evolution and the Big Bang theory.

### The War Against Evolution

At the same time that militant creationists are trying to censor textbooks that treat evolution properly, they complain of censorship against creationist works.\* This tactic of fighting fire with fire has led creationist Jerry Bergman to argue that evolution (unlike Genesis, I suppose) teaches that women are inferior to men. The goal of militant creationists today is to debunk evolution wherever possible, not to



forward scientific knowledge. (See Revolution Against Evolution.) One of their favorite tactics is to blame all sin and crime on lack of proper Bible study and the teaching of "godless" theories such as evolution and the Big Bang theory. Marc Looy of the group Answers in Genesis says that the Kansas vote was important because

students in public schools are being taught that evolution is a fact, that they're just products of survival of the fittest. . . .It creates a sense of purposelessness and hopelessness, which I think leads to things like pain, murder, and suicide.

That there is no scientific evidence to support these claims is a matter of indifference to those who believe them. When science does not support their beliefs, they attack science as the handmaiden of Satan. I wonder what Mr. Looy has to say about Christian Identity (Buford Furrow Jr.) or Erich Rudolph or Operation Rescue (Randal Terry) and other Bible-loving groups that preach hatred and inspire violence and murder. What would he say about Matthew and Tyler Williams who, in the words of their mother, "took out two homos" because that's what God's law [Leviticus 20:13] demands? (Sacramento Bee, "Expert: Racists often use Bible to justify attacks," by Gary Delsohn and Sam Stanton, Sept. 23, 1999.)\* These killers have certainly found a purposeful existence, but there is clearly no connection between purposefulness and the end of pain, murder or suicide. Had more people been forced to read Biblical quotations on their schoolroom walls or in their textbooks, for all we know, there would be more, not less pain, murder and violence. The fact is that appeals such as Mr. Looy's are little more than desperate claims of people who are pulling out all the stops in their effort to get their interpretation of the Bible accepted as true. It's as if these militant creationists seem to think that they are engaged in a Holy War.

This desperation is evident from the fact that despite numerous corrections by evolutionists, militant creationists still try to get the public to identify evolution with Social Darwinism. This straw man tactic is common and is exemplified in the following letter to the Sacramento Bee. The letter was in response to the article on an expert who claims that racists often use the Bible to justify their hate.

It is Darwinian evolution, not holy Scripture, that justifies racism.... evolution teaches survival of the fittest, including (as Hitler recognized) survival of the fittest "branch" of the human family tree. Genuine evolution has no place for true equality. This same evolutionist thinking underlies the hatred that racist groups display toward homosexuals. They view homosexuals as defective and thus inferior. (Scott Lively 10/3/99)

The view that Darwin's theory of natural selection implies racism or inequality is a claim made by one either ignorant of scientific theories of evolution or by one who knows the truth and thinks a lie spread in the name of religion is a morally justified lie. The fact is that the vast majority of atheists and the vast majority of creationists do not go around hating and killing people. This whole controversy, introduced by the militant creationists, is a red herring and every moment spent debating this issue steals away precious time and energy that could be used in doing serious study of the causes of the violence and hatred that abounds today.

#### Militant Creationism Evolves

Militant creationists have even created new concepts, which, however useless to scientific evolutionary biology, are useful in the polemical war against evolution. They invented a distinction between macroevolution and micro-evolution to allow them to account for development and changes within species, without requiring them to accept the concept of natural selection. One of their leaders, Doug Sharp, says this of macroevolution:

Macroevolution is the direct attempt to explain the origin of life from molecules to man in purely naturalistic terms. In doing so, it is an affront to Christians because it deliberately tries to get rid of God as the creator of life. The idea that man is a result of millions of happy accidents that mutated their way from slime through the food chain to monkeys should be offensive to every thinking person.\*

What should be an affront to many Christians and non-Christian creationists is the insinuation that if one does not adhere to the militant fundamentalist Christian's interpretation of the Bible, one is offending God. Many creationists believe that God is behind the beautiful unfolding of evolution.\* There is no contradiction in believing that what appears to be a mechanical, purposeless process from the human perspective, can be teleological and divinely controlled. Dust or slime, what does it matter? Neither is a pretty picture, if one chooses to focus on that aspect of it. It is offensive to thinking persons to suggest that the narrow, bigoted views of a few individuals should be treated as being on par with the great religious minds who have found that science and religion are not natural enemies. It is offensive to thinking persons to suggest that only one's own religious ideas have validity and that because one's own beliefs cannot reconcile Genesis and modern science, anyone else's religion which is able to do so is a false religion.

Crop circles are geometric patterns, some very intricate and complex, appearing in fields, usually wheat fields and usually in England. Most, if not all, of them are probably due to pranksters, such as Doug Bower and David Chorley who, in 1991, admitted to hoaxing approximately 250 circles over many years. There is a segment of the population that believes the circles are messages from alien spacecraft. Some maintain that the aliens are trying to communicate with us using ancient Sumerian symbols or symbolic representations of alien DNA.

Even scientifically minded people have been brought into this fray. They have wisely avoided the thesis that aliens have been carving out messages in crop fields. But they have stretched their imaginations to come up with theories of vortexes, ball lightning, plasma and other less occult explanations involving natural forces such as wind, heat, or animals. However, when looking for a naturalistic explanation of weird things we should never omit from our checklist the possibility that the phenomenon we are studying is a hoax, such as Piltdown Man and the Cardiff Giant.

Had crop circles existed in the thirteenth century, they would have been attributed to Satan, who was said to have been responsible for many weird happenings as well as for many unweird things, such as the construction of Stonehenge and Hadrian's wall between England and Scotland. It was believed by many that the ancients could not possibly have accomplished such feats on their own. Today, Satan's power as an explanation for weird or wondrous things has been usurped by aliens.

Crowley, Aleister

(1875-1947)

Crowley was a self-proclaimed drug and sex "fiend", i.e., a person of great wickedness; a mostly self-published author of books on the occult; a poet and mountaineer; a leader of a cult called Ordo Templi Orientis (OTO) whose tenets he detailed in one of his many writings, *The Book of the Law*, which contains his version of the Law of Thelema. Crowley claimed he channeled the book for a "praeterhuman intelligence" called Aiwass.

Do what thou wilt shall be the whole of the Law is his motto for OTO. In practice, for Crowley this meant rejecting traditional morality in favor of the life of a drug addict and womanizer. ("I rave; and I rape and I rip and I rend" is a line from one of his poems. *Diary of a Drug Fiend* is the title of one of his books.) He claimed to identify himself with the Great Beast 666 (from the Book of Revelation) and enjoyed the appellation of "wickedest man in the world." He had two wives; both went insane. Five mistresses committed suicide. According to Martin Gardner, "scores of his concubines ended in the gutter as alcoholics, drug addicts, or in mental institutions" (Gardner, 198). However, Crowley should not be blamed for destroying the virtue of saintly young girls. His allure was such that the women who were attracted to him tended already to be alcoholics, drug addicts or emotionally disturbed. His allure seems to have consisted of two main qualities: he inherited a fortune and he worked hard at being strange.

Crowley's *Magick in Theory and Practice* is a very popular book among occultists. When Dover publishing was about to release a reprint of the book in 1990, an editor asked Martin Gardner to write a foreword for the reprinting. The 1976 Dover edition had been one of their best sellers. Gardner was an unlikely choice to write the foreword for Crowley's book since he had already written that Crowley was a no-good fraud in his classic *Fads and Fallacies in the Name of Science*. Anyway, he wrote the foreword and it painted a picture of a such a cruel, despicable, egotistical mountebank that Dover decided not to reprint the book. The foreword has been published in Gardner's *On the Wild Side*.

Crowley has had little influence on anything significant except perhaps the popularity of putting backwards messages into musical recordings. The occultist guitarist for Led Zeppelin, Jimmy Page, owns a large collection of Crowley memorabilia and bought Crowley's mansion, Boleskine House, near Foyers, Scotland. Crowley's face is also one of many on the album cover of the Beatles' Sergeant Pepper's Lonely Hearts Club Band. While occultists such as Page are said to have put backwards "satanic" messages into recordings such as "Stairway to Heaven" ("Here's to my sweet Satan"), the Beatles used backwards musical riffs in some of their recordings, apparently more for the musical effect than as an expression of their admiration of Satan.

Says Gardner: "His reputation had been that of a man who worshipped Satan, but it was more accurately said that he worshipped no one except himself."

Cryptomnesia

Cryptomnesia is, literally, hidden memory. The term is used to explain the origin of experiences that people believe to be original but which are actually based on memories of events they've forgotten. It seems likely that most so-called past life regressions induced through hypnosis are confabulations fed by cryptomnesia. For example, Virginia Tighe's hypnotic recollections of Bridey Murphy of Cork, Ireland (Bridie Murphey Corkell), if not deliberately fraudulent, are most likely recollections of events that happened in this life but which she had forgotten.

Cryptomnesia may also explain how the apparent plagiarism of such people as Helen Keller or George Harrison of the Beatles might actually be cases of hidden memory. Harrison didn't intend to plagiarize the Chiffon's "He's So Fine" in "My Sweet Lord." Nor did Keller intend to plagiarize Margaret Canby's "The Frost Fairies" when she wrote "The Frost King." Both may simply be cases of not having a conscious memory of their experiences of the works in question.

### Cryptozoology

Cryptozoology is, literally, the study of hidden animals. It is the study of such creatures as the Australian bunyips, Bigfoot, the chupacabra, and the Loch Ness monster. It is not a recognized branch of the science of zoology.

Cryptozoology relies heavily upon testimonials and circumstantial evidence in the form of legends and folklore, and the stories and alleged sightings of mysterious beasts by indigenous peoples, explorers, and travelers. Since cryptozoologists spend most of their energy trying to establish the existence of creatures, rather than examining actual animals, they are more akin to psi researchers than to zoologists. Expertise in zoology, however, is asserted to be a necessity for work in cryptozoology, according to Dr. Bernard Heuvelmans, who coined the term to describe his investigations of animals unknown to science.

### Crystal Power

A crystal is a solid formed by the solidification of chemicals, has a regularly repeating internal arrangement of atoms and molecules, and is bounded by external plane faces. Crystal particles form a variety of geometrical shapes due to their internal compressions. Crystals have aesthetic properties that have long made them attractive in jewelry. But they also have some properties that make them very important to the electronics and optical industries. Today, crystals are used in just about every type of modern technology.

For centuries, crystals and other gems have been desired for their alleged magical healing and mystical paranormal powers. This belief continues today among occultists and New Age healers, even though it is based on nothing more than testimonials, the placebo effect, selective thinking, wishful thinking, the Forer effect, sympathetic magic, and communal reinforcement. There is no scientific evidence that crystals are conduits of magical energies useful for healing and protection, or for telling the future.

We can dismiss the pre-scientific belief in the magical powers of crystals and gemstones as due to the lack of scientific knowledge. Modern occultists, however, distort and falsify scientific knowledge in order to promote belief in their crystal products. According to the purveyors of this crystalline pseudoscience, crystals channel good "energy" and ward off bad "energy." They carry "vibrations" that resonate with healing "frequencies," work with the chakras and help balance yin and yang. Crystals allegedly affect the emotions and can be used not only for physical healing, but for emotional problems as well. Crystals can not only help with emotional healing, but with self-expression, creativity, meditation, and the immune system. None of these claims is backed by any scientific evidence.

Today, crystal wands are used to heal auras in aura therapy. But one of the more egregious pseudoscientific claims regarding crystals is that, if arranged properly, they can provide protection against harmful electromagnetic forces such as those that are emitted from computer monitors, cellular phones, microwave ovens, hair dryers, power lines, and other people. The Bioelectric Shield was invented by a chiropractor from Montana, Charles Brown, who claims he heard voices in his head and had visions in his bed as to how to arrange crystals in the shape of a flying saucer in order to provide this protection. Marketed as "Jewelry With A Purpose," his bioelectric shields are sold for anywhere from \$139 to over a thousand dollars. Cherie Blair, the wife of England's prime minister, wears one of these magical pendants. They are said to be "medically proven" and "based on Nobel Prize winning physics." Even if the claims about the protective power of these pendants were true, it would be necessary to envelop your entire body in one to achieve the desired result. By hanging a little piece of jewelry around the neck, you might be able to protect a small part of the throat, however.

The New Age idea that crystals can harness and direct energy seems to be based upon a misunderstanding of one of the more curious characteristics of certain crystals, namely, that they produce an electrical charge when compressed. This is known as the piezoelectric effect and was discovered in

1880 by Pierre and Jacques Curie. Other technological developments had to occur before the piezoelectric effect could be put to use, however, and it was not until the 1950s that the piezoelectric effect could be put to general use in record player needles and a variety of measuring devices. Nowadays, these devices "are used in almost every conceivable application requiring accurate measurement and recording of dynamic changes in mechanical variables such as pressure, force and acceleration."

The piezoelectric effect, however, does not give crystals healing or protective power, despite the claims of those who use and sell crystals in New Age and neo-pagan occultist shops. However, wearing crystals seems to give some people a feeling of protection. This, and their aesthetic qualities, seem to be the only virtues of crystal jewelry.

Nor do crystals work any better than animal organs for divining the future, although grinding crystals for fortune telling is more humane and sanitary than disembowelment of poor creatures who don't know yesterday from tomorrow.

### Crystal Skulls

"I personally feel that the Crystal Skulls are not only here to share ancient knowledge and wisdom, but to assist in awakening our race to higher spiritual laws and understanding of itself...If the Crystal Skulls were not brought by extraterrestrials then certainly we must conclude their [sic] have been civilizations much more technologically or spiritually advanced than our own today."  
--Joshua "Illinois" Shapiro

"[The] crystal stimulates an unknown part of the brain, opening a psychic door to the absolute." -- Frank Dorland

Crystal skulls are stone carvings in the shape of human skulls. The sculptures vary in size from a few inches to life-size. Some are made of pure quartz crystal, but many are made of other types of stone found in abundance on Earth. Some stone skulls are genuine artifacts from Mesoamerican cultures such as the Aztecs and are known as skull masks or death heads. But the crystal skulls that interest New Agers in search of a New Paradigm for the next millennium are not genuine artifacts. The crystals that intrigue New Agers are said to have come to us through Atlantis from an extraterrestrial source and to be endowed with magical powers such as spontaneous production of holographic images and emission of weird sounds. Today, millions of skulls, made of various types of stones and metals, are manufactured in a variety of sizes for the New Age paratrinket market, as well as for the museum replica market.

The myth of crystal skulls as extraterrestrial and extra-powerful seems to have begun with F. A. "Mike" Mitchell-Hedges (1882-1959) and his adopted daughter Anna. Their creative fictions have been scientifically established by such luminaries as Frank Dorland and Richard Garvin. The work of these torchbearers has been continued by "Nick" Nocerino, founder of the Crystal Skull Society, and the likes of lesser lights such as Ellie Crystal, who likens the quest for crystal skulls to the quest for the Holy Grail, and Josh Shapiro, an Internet presence with a book for sale (co-authored by Nocerino and Sandra Bowen) and a tale to sell.

The most famous crystal skull is the Mitchell-Hedges "skull of doom," allegedly discovered by a 17-year old Anna Mitchell-Hedges in 1924 or 1927 while accompanying her adoptive father on an excavation of the ancient Mayan city of Lubaantun in Belize, where the elder Mitchell-Hedges believed he would find the ruins of Atlantis. This clear quartz skull is about 5.25 inches high and weighs about 11 pounds. It superficially resembles stone skulls made by the Aztecs. The Aztec skulls are stylized, however. The Mitchell-Hedges skull is realistic with a detachable jaw.

Much of the occult and sinister legend surrounding the so-called skull of doom originated with Mitchell-Hedges, a man with many admirable qualities--the love of truth and honesty not being among them, however.

The Skull of Doom is made of pure rock crystal and according to scientists it must have taken over 150 years, generation after generation working all the days of their lives, patiently rubbing down with sand an immense block of rock crystal until finally the perfect Skull emerged.

It is at least 3,600 years old and according to legend was used by the High Priest of the Maya when performing esoteric rites. It is said that when he willed death with the help of the skull, death invariably followed. It has been described as the embodiment of all evil (F.A. Mitchell-Hedges).

Mitchell-Hedges invented all of these claims. The evidence collected by Joe Nickell proves beyond a reasonable doubt that the old hoaxer bought the paratrinket at a Sotheby's sale in 1943 for £400. The man who owned the piece, Sidney Burney, and those who were on the Lubannatun expedition, denied that

Mitchell-Hedges found the skull. Mitchell-Hedges himself never mentioned the skull until just after he bought it in 1943.

Anna has continued the hoax. Even though there is no evidence that she was even at Lubaantun when the discovery was supposedly made, she has maintained that Burney only had the piece on loan from her father until he could pay off a debt he owed Burney. If so, why didn't her father just pay Burney back instead of bidding for the item in an auction? Anna has received some attention and made a few dollars over the years by putting her skull on display, claiming it came from outer space and was kept in Atlantis before it was brought to Belize.\* She is still in possession of the skull, but seems to have tired of the publicity and has retired it from public viewing. However, it is still widely believed to bring bad luck to anyone who would mock it or read anything by skullmockers.

In 1970, Anna let Frank Dorland, a crystal carver, examine her skull. Dorland declared that it is excellent for scrying and it emits sounds and light, depending on the position of the planets. He claimed that the skull originated in Atlantis and was carried around by the Knights Templar during the crusades.\* He claims they had the skull examined at a Hewlett-Packard lab. D. Trull uncritically reports that the lab found that the skull

had been carved against the natural axis of the crystal. Modern crystal sculptors always take into account the axis, or orientation of the crystal's molecular symmetry, because if they carve "against the grain," the piece is bound to shatter -- even with the use of lasers and other high-tech cutting methods.

To compound the strangeness, HP could find no microscopic scratches on the crystal which would indicate it had been carved with metal instruments. Dorland's best hypothesis for the skull's construction is that it was roughly hewn out with diamonds, and then the detail work was meticulously done with a gentle solution of silicon sand and water. The exhausting job -- assuming it could possibly be done in this way -- would have required man-hours adding up to 300 years to complete.\*

Dorland fed this "scientific data" to Richard Garvin, an author of books on Leadbelly and the aged, who wrote it up in *The Crystal Skull*; the story of the mystery, myth and magic of the Mitchell-Hedges crystal skull discovered in a lost Mayan city during a search for Atlantis (1973).

Soon, it was not just the so-called inexplicable origin of the skull that attracted New Agers, but claims of its healing power (despite the old hoaxer's claim that it was the embodiment of evil) and magical properties.

The questionable origin of the Mitchell-Hedges skull has not deterred belief in the skull's mysterious properties. In fact, there is a veritable plethora of magic skulls that have mysteriously appeared over the years (if thirteen can be considered a plethora--13 is special number for New Agers who think the skulls communicate with each other). Some of these skulls are still taken on tour by their owners. However, a study of several crystal skulls by the British Museum in 1996 indicates that the only magic involved in the creation of these skulls was in keeping their fraudulent origin a secret.

A study of several crystal skulls done at the British Museum concluded that the skulls were made in Germany within the past 150 years. The recent origin explains how they were made with tools unavailable to the ancient Mayans or Aztecs.

Using electron microscopes, the researchers found that two of the skulls possessed straight, perfectly-spaced surface markings, indicating the use of a modern polishing wheel. Genuine ancient objects would show haphazard tiny scratches from the hand-polishing process.\*

A similar result occurred in 1992 when the Smithsonian received a crystal skull from an anonymous source who claimed it was an Aztec skull that had been bought in Mexico City in 1960. Research by the Smithsonian concluded that several crystal skulls popular with the New Agers originated with Eugene Boban, a Frenchman of dubious character. Boban dealt in antiques in Mexico City between 1860 and 1880, and seems to have acquired his skulls from a source in Germany. Jane MacLaren Walsh of the Smithsonian concluded that several crystal skulls held in museums were manufactured between 1867 and 1886.\*

#### More Skulldiggery?

Other so-called ancient crystal skulls have had histories as dubious as the Mitchell-Hedges skull. For example, a skull called "Max" was supposedly given to the people of Guatemala by a Tibetan healer. Another pair of skulls, known as the British Skull and The Paris Skull, were allegedly found in Mexico in the late 19th century by mercenaries. They are very similar and one may have been the model for the other. The Paris skull is said to represent Mictlantecuhtli, the Aztec god of the dead. It is not known to have any occult powers, however.

The Mayan Skull and the Amethyst Skull were allegedly found in Guatemala early in this century. "Nick" Nocerino claims he met a shaman in 1949 while traveling in Mexico who led him to a Mayan priest who

said he was authorized to sell the skulls because the village needed money for food but somehow Nick didn't buy them but he studied them scientifically and so did others and they found some startling things such as "its true origin is cloaked in mystery"\* and it had the power to give him hours of meaningful visions.\* (Carlos Castaneda, move over!)

Mr. Nocerino is the founder of the The Society of Crystal Skulls, International. He does not give much weight to the claim that the crystal skulls were manufactured in Germany in the 19th century. Despite the lack of archaeological evidence, he is sure that the skulls are Mayan, etc., and that such peoples didn't have the skill, tools or knowledge to produce such objects. Hence, they must have come from Atlantis via outer space. Sounds like sound New Age logic to me: its truth vibrates in harmony with the spheres! Like many promoters of New Age occultism, he claims to be scientific, thus presumably giving weight to the claim that science cannot explain how these dumb Indians made these skulls. Of course, his society includes psychometry, remote viewing, and scrying as part of their research methodology. You might say that they want to leave no stone unturned, especially if underneath might be an absurdity or a greenback.

Despite the fact that replicas are easily made and are available from a variety of sources, Nocerini, Ellie Crystal and their ilk still claim that no one knows how these skulls were made and that they are impossible to duplicate.\*

What is more likely? That aliens must have sculpted these items or that (a) they weren't carved against the natural axis of the stone because they weren't carved at all, but were ground and are forgeries, not authentic Mesoamerican skulls; or, (b) crystal doesn't always shatter when worked "against the grain."

There isn't a shred of evidence that these crystal skulls are mysterious in any way. What is mysterious is their continued popularity and the continued mythology as to their origins and powers.

## Cults

The term 'cult' expresses disparagement and is usually used to refer to unconventional religious groups, though the term is sometimes used to refer to non-religious groups which appear to share significant features with religious cults. For example, there are some who refer to Amway and est as cults, but I think the terms is best reserved for groups such as Scientology, the Rev. Sun Myung Moon's Unification Church, Aum Shinrikyo, the Hare Krishnas, David Koresh's Branch Davidians, the Order of the Solar Temple (74 suicides in 1984), Elizabeth Clare Prophet's Church Universal and Triumphant, the Unarians, Heaven's Gate (39 suicides in 1997), the Raëlians, the Maharishi Mahesh Yogi's Transcendental Meditation group and the group that followed the Rev. Jim Jones to Guyana where more than 900 of them joined in a mass murder/suicide ritual in 1978.

Three ideas seem essential to the concept of a cult. One is thinking in terms of us/them with total alienation from them. The second is the intense, though often subtle, indoctrination techniques used to recruit and hold members. And the third is the charismatic cult leader. Cultism usually involves some sort of belief that outside the cult all is evil and threatening; inside the cult is the special path to salvation through the cult leader and his teachings. The indoctrination techniques include

- 1) Subjection to stress and fatigue
  - 2) Social disruption, isolation and pressure
  - 3) Self criticism and humiliation
  - 4) Fear, anxiety and paranoia
  - 5) Control of information
  - 6) Escalating commitment
  - 7) Use of auto-hypnosis to induce 'peak' experiences
- [Kevin Crawley]

Of course, there is a positive side to cults. One gets love, a sense of belonging, of being special, of being protected, of being free from the evils of the world, of being on the path to eternal salvation, of having power. If the cult did not satisfy needs that life outside the cult failed to satisfy, cults would not exist.

One common misconception about cults is that their members are either insane or brainwashed. The evidence for this is pretty slim. It consists mainly of the subjective feeling that no one in their right mind could possibly choose to believe the things which cult members believe. For example, the 39 members of the Heaven's Gate cult believed a space ship was coming to get them to take them to a "higher level." They believed that their leader, Marshall Applewhite (aka Do), was Christ coming to take the chosen few to a better life somewhere in outer space, perhaps to work on a starship like the Enterprise one sees in movies and on television. They believed they would be given new bodies in the new world, asexual bodies with no hair or teeth, but vestigial eyes and ears, not those gross bug eyes one sees in so many alien pictures. To many people, these beliefs sound like the delusions of lunatics and it seems inconceivable that anyone in his or her right mind would accept such beliefs unless they were crazy or brainwashed.

Examined closely, however, the beliefs of Heaven's Gate or Scientology are no stranger than the beliefs which billions of "normal" people hold to dearly in their sacred religions. As has been noted by others, delusions held by one is insanity, by a few a cult, and by many a religion. To ask why anyone would believe such non-sense as the Scientologists or Heaven's Gate cult believe regarding alien beings and space ships, fallen angels, thetans, etc., but not ask why anyone would believe in heaven and hell, angels, devils, crucified gods, resurrections, messiahs, transubstantiation, the trinity, etc., seems inherently self-deluded.

It is true that the cult leader or religious founder usually shows signs of brain disease, such as hearing voices or having delusions of grandeur. But the followers need not be mad. Some are undoubtedly deranged, but the vast majority are not likely to be crazy or the cult would not function. The cult leader must be extremely attractive to those who convert. He or she must satisfy a fundamental need, most likely, the need to have someone you can totally trust, depend on and believe in: someone who can give sense and direction to your life; provide you with purpose and meaning. But above all, life with the messiah and the other cult members must fill you with bliss. It should be obvious that people stay in cults because they feel better in the cult than they did outside the cult. Some studies have found that a significant number of cult members are depressed before joining and the cult lifts their spirits, makes them feel much better. Even if they aren't depressed, cult membership must be more satisfying than life in the real world with one's real family and real friends.

Why do people stay in cults? To do so gives them pleasure. They may be deluded and manipulated. Severe control tactics may be used to keep them in the flock, like cutting them off from the rest of the world, especially from their family and friends, communally reinforcing the cult's dogmas, and inculcating paranoia. Isolation, communal reinforcement and the inculcation of paranoia as a control tactics are used by some parents over their children, some political leaders over their citizens, and even some therapists over their patients. So, cults are not unique in attempting to control people using these tactics..

Cult members may gradually become paranoid and be led to believe that the government, their family and former friends can't be trusted. They may gradually become more isolated and militant. They may even begin to stockpile weapons for the coming Armageddon. They may turn themselves over completely to their savior and be willing to kill or die for him or her. But they stay because they like it. That is not to say that they are leading meaningful lives, but they are not lunatics, morons or zombies. They are deluded and misguided, to be sure, but they are not stupid or crazy. When they commit crimes in the name of their leader we should not treat them as insane but throw the book at them. When they commit suicide we should be thankful that they turned their hatred of the world against themselves rather than against the rest of us.

## Curse

A curse is a prayer or invocation expressing a wish that harm, misfortune, injury, great evil, etc., be brought upon another person, place, thing, clan, nation, etc. People are also said to be cursed if harm comes to them regularly or in seeming disproportion to the rest of us.

Curses seem to have been a regular part of ancient cultures and may have been a way to frighten enemies and explain the apparent injustices of the world. There is no evidence that anyone has successfully invoked occult powers to do harm to others, but there is evidence that those who believe they have been cursed can be made miserable by exploiting that belief. Fear and the human tendency to confirmation bias and selective thinking can sometimes lead the believer to fulfill the curse.

Belief in curses may make it easier to explain why bad things often happen to good people: they are cursed because of some bad thing an ancestor did. A little bit of reflection, however, should reveal that this is not a very satisfactory explanation. Whether it is God or Nature doing the cursing, neither seems very just in punishing the children for the sins of their mothers or fathers.

The curse is a favorite literary theme. Who hasn't been introduced to the curse of the house of Pelops? or seen writers such as Faulkner resurrect the family curse theme? The Old Testament is a litany of curses. In the New Testament, even a fig tree gets cursed.

The curse is also a favorite theme of the mass media whenever something bad happens to one of the Fitzpatrick/Kennedy (FK) clan. The so-called "Kennedy curse" is a media creation. The FK clan is no more cursed than any African family destroyed by slavery or any Jewish family destroyed by Nazism was cursed. The media would have us believe that the FK clan have suffered a disproportionate amount of harm. Their harm is certainly disproportionately public, but that is because the clan is rich and famous, not because they are cursed. Their harm has been disproportionately influential because some members of the clan have been extremely influential.

In their attempt to bolster the myth of the Kennedy curse, the media have included self-caused harms as "tragedies." Getting drunk and leaving a girl to drown is a tragedy for the girl's family, not the FK clan. Dying in a plane crash when you shouldn't be flying a plane, date rape, reckless behavior on a ski slope, having an affair with your babysitter, being arrested for possession of heroin, and dying of a drug overdose are not tragedies.\* The womanizing, the Bay of Pigs fiasco, working for Joe McCarthy, and involving the United States militarily in Vietnam were chosen behaviors. If there is a curse here it is the curse of too much money, power, and leisure time combined with a disposition for risk taking.

If one considers the size of the FK clan, their wealth, their extraordinary achievements and their propensity for taking risks, then their misfortunes do not seem disproportionate. The media would have us believe, however, that if a member of this clan dies in war, gets cancer or has a mental disorder, it's because they're cursed.\* If they are cursed, then so are the millions of others who suffer the same fate.

If anyone in the family was cursed, it was Rose Fitzgerald Kennedy who lived to be 104.

Däniken, Erich Von

Ancient Astronauts and Erich Von Däniken's Chariots of The Gods?

The term 'ancient astronauts' designates the speculative notion that aliens are responsible for the most ancient civilizations on earth. The most notorious proponent of this idea is Erich von Däniken, author of several popular books on the subject. His *Chariots of the Gods? Unsolved Mysteries of the Past*, for example, is a sweeping attack on the memories and abilities of ancient peoples. Von Däniken claims that the myths, arts, social organizations, etc., of ancient cultures were introduced by astronauts from another world. He questions not just the capacity for memory, but the capacity for culture and civilization itself, in ancient peoples. Prehistoric humans did not develop their own arts and technologies, but rather were taught art and science by visitors from outer space.

Where is the proof for von Däniken's claims? Some of it was fraudulent. For example, he produced photographs of pottery that he claimed had been found in an archaeological dig. The pottery depicts flying saucers and was said to have been dated from Biblical times. However, investigators from Nova (the fine public-television science program) found the potter who had made the allegedly ancient pots. They confronted von Däniken with evidence of his fraud. His reply was that his deception was justified because some people would only believe if they saw proof ("The Case of the Ancient Astronauts," first aired 3/8/78, done in conjunction with BBC's *Horizon* and Peter Spry-Leverton)!

However, most of von Däniken's evidence is in the form of specious and fallacious arguments. His data consists mainly of archaeological sites and ancient myths. He begins with the ancient astronaut assumption and then forces all data to fit the idea. For example, in Nazca, Peru, he explains giant animal drawings in the desert as an ancient alien airport. The fact that the lines of the drawing would be useless as a runway for any real aircraft because of their narrowness is conveniently ignored by von Däniken. The likelihood that these drawings related to the natives' science or mythology is not considered. He also frequently reverts to false dilemma reasoning of the following type: "Either this data is to be explained by assuming these primitive idiots did this themselves or we must accept the more plausible notion that they got help from extremely advanced peoples who must have come from other planets where such technologies as anti-gravity devices had been invented." His devotion to this theory has not dwindled, despite contrary evidence, as is evidenced by still another book on the subject, *Arrival of the Gods : Revealing the Alien Landing Sites at Nazca* (1998).

There have been many critics of von Däniken's notions, but Ronald Story stands out as the most thorough. Most critics of von Däniken's theory point out that prehistoric peoples were not the helpless, incompetent, forgetful savages he makes them out to be. (They must have at least been intelligent enough to understand the language and teachings of their celestial instructors--no small feat!) It is true that we still do not know how the ancients accomplished some of their more astounding physical and technological feats. We still wonder how the ancient Egyptians raised giant obelisks in the desert and how stone age men and women moved huge cut stones and placed them in position in dolmens and passage graves. We are amazed by the giant carved heads on Easter Island and wonder why they were done, who did them, and why they abandoned the place. We may someday have the answers to our questions, but they are most likely to come from scientific investigation not pseudoscientific speculation. For example, observing contemporary stone age peoples in Papua New Guinea, where huge stones are still found on top of tombs, has taught us how the ancients may have accomplished the same thing with little more than ropes of organic material, wooden levers and shovels, a little ingenuity and a good deal of human strength.

We have no reason to believe our ancient ancestors' memories were so much worse than our own that they could not remember these alien visitations well enough to preserve an accurate account of them. There is little evidence to support the notion that ancient myths and religious stories are the distorted and



imperfect recollection of ancient astronauts recorded by ancient priests. The evidence to the contrary--that prehistoric or 'primitive' peoples were (and are) quite intelligent and resourceful--is overwhelming.

Of course, it is possible that visitors from outer space did land on earth a few thousand years ago and communicate with our ancestors. But it seems more likely that prehistoric peoples themselves were responsible for their own art, technology and culture. Why concoct such an explanation as von Däniken's? To do so may increase the mystery and romance of one's theory, but it also makes it less reasonable, especially when one's theory seems inconsistent with what we already know about the world. The ancient astronaut hypothesis is unnecessary. Occam's razor should be applied and the hypothesis rejected.

## Déjà Vu

Déjà vu is an uncanny feeling or illusion of having already seen or experienced something that is being experienced for the first time. If we assume that the experience is actually of a remembered event, then déjà vu probably occurs because an original experience was not fully attended to and elaborately encoded. If so, then it would seem most likely that the present situation triggers the recollection of a fragment from one's past. The experience may seem uncanny if the memory is so fragmented that no strong connections can be made between the fragment and other memories.

Thus, the feeling that one has been there before is often due to the fact that one has been there before. One has simply forgotten most of the original experience because one was not paying close attention the first time. The original experience may even have occurred only seconds or minutes earlier.

On the other hand, the déjà vu experience may be due to having seen pictures or heard vivid stories many years earlier, as in the case of Virginia Tighe aka Bridey Murphy. Those experiences may be part of the dim recollections of childhood, mistakenly believed to have occurred in past lifetimes because one "just knows" they did not occur in this lifetime.

However, it is possible that the déjà vu feeling is triggered by a neurochemical action in the brain that is not connected to any actual experience in the past. One feels strange and identifies the feeling with a memory, even though the experience is completely new. That is, déjà vu (French for already seen) may not involve the faulty recognition of something one has seen before.

The term was first applied by Emile Boirac (1851-1917) who had strong interests in psychic phenomena. Boirac's term directs our attention to the past. However, a little reflection reveals that what is unique about déjà vu is not something from the past but something in the present, namely, the strange feeling one has in experiencing déjà vu. We often have experiences whose novelty is unclear and have been led to ask such questions as, Have I read this book before? Is this an episode of Inspector Morse I've seen before? This place looks familiar; have I been here before? Yet, these experiences are not accompanied by an uncanny feeling. We may feel a bit confused, but the feeling associated with the déjà vu experience is not one of confusion but of strangeness. There is nothing strange about not remembering whether you've read a book before, especially if you are fifty years old and have read thousands of books over your lifetime. In the déjà vu experience, however, we feel strange because we don't think we should feel familiar with the present perception. That sense of inappropriateness is not present when one is simply unclear whether one has read a book or seen a film before.

Thus, it is possible that the attempt to explain the déjà vu experience in terms of lost memory, past lives, clairvoyance, etc., may be completely misguided. We should be talking about the déjà vu feeling. That feeling may be caused by a brain state, by neurochemical factors during perception, that have nothing to do with memory. It is worth noting that the déjà vu feeling is common among psychiatric patients. The déjà vu feeling also frequently precedes temporal lobe epilepsy attacks. And, when Wilder Penfield did his famous experiment in 1955 in which he electrically stimulated the temporal lobes, he found about 8% of his subjects experienced "memories." He did not provide support for the claim that what was elicited were actually memories. They could well have been hallucinations and the first examples of artificially stimulated déjà vu.

## Deport

A deport is the dematerialization of an object during a séance. Believers attribute a deport to paranormal forces. Skeptics attribute it to conjuring. Good magicians and good mediums can make objects seem to disappear.

## Dermo-Optical Perception

Dermo-optical perception (DOP) is the alleged ability to "see" without using the eyes. DOP is a conjurer's trick, often involving elaborate blindfolding rituals, but always leaving a pathway (usually down the side of the nose), which allows for unobstructed vision.

### Design, Argument From

The argument from design is one of the "proofs" for the existence of God. In its basic form, this argument infers from the intelligent order and created beauty of the universe that there is an intelligent Designer and Creator of the universe. The argument has been criticized for begging the question: it assumes the universe is designed in order to prove that it is the work of a designer. The argument also suppresses evidence: for all its beauty and grandeur, the universe is also full of, well, to be delicate, let us say that the universe is also full of nasties. I suppose I should be more specific, but I think the reader knows the kind of thing I mean: babies born without brains, good people suffering monstrous tortures such as neurofibromatosis, evil people basking in the sun and enjoying power, reputation, etc. Volcanoes erupting, earthquakes rattling the planet, hurricanes and tornadoes blindly wiping out thousands of lives a day. Is it unfair to call these things the nasties, what is blithely referred to by theists as non-moral evil or physical evil? To say, as many defenders of Intelligent Design do, that these nasties only seem nasty to us but we are ignorant of God's plan and vision and cannot know how good these nasties really are, is self-refuting. If we can't know what's good and what's not, we can't know whether the design, if any, is good or bad.

### Paley's Argument

One of the argument's more famous variations involves an analogy with a watch. William Paley (1743-1805), the Archdeacon of Carlisle, writes in his *Natural Theology* (1802):

In crossing a heath, suppose I pitched my foot against a stone and were asked how the stone came to be there, I might possibly answer that for anything I knew to the contrary it had lain there forever; nor would it, perhaps, be very easy to show the absurdity of this answer. But suppose I had found a watch upon the ground, and it should be inquired how the watch happened to be in that place, I should hardly think of the answer which I had before given, that for anything I knew the watch might have always been there.

The reason, he says, that he couldn't conceive of the watch having been there forever is because it is evident that the parts of the watch were put together for a purpose. It is inevitable that "the watch must have had a maker," whereas the stone apparently has no purpose revealed by the complex arrangement of its parts.

### Darrows Response

One could, of course, attack Paley's argument at this point and say, as Clarence Darrow did, that some stones would be just as puzzling as a watch; for, they are complex and could easily have been designed by someone for some purpose we are unaware of, and, in any case "on close inspection and careful study the stone...is just as marvelous as the watch." Be that as it may, Paley's point was not that watches are inherently more interesting than stones. His point was that a watch could be seen to be analogous with the creation of the universe. The design of the watch implies an intelligent designer. This fact, says Paley, would not be diminished even if we discovered that the watch before us was the offspring (no pun intended) of another watch. "No one," he says, "can rationally believe that the insensible, inanimate watch, from which the watch before us issued, was the proper cause of the mechanism we so much admire in it-- could be truly said to have constructed the instrument, disposed its parts, assigned their office, determined their order, action, and mutual dependency, combined their several motions into one result, and that also a result connected with the utilities of other beings."

Paley then goes on to claim that "every manifestation of design which existed in the watch, exists in the works of nature, with the difference on the side of nature of being greater and more, and that in a degree which exceeds all computation." The implication is that the works of nature must have had a designer of supreme intelligence to have contrived to put together such a magnificent mechanism as the universe. According to Darrow, this 'implication' is actually an assumption.

To say that a certain scheme or process shows order or system, one must have some norm or pattern by which to determine whether the matter concerned shows any design or order. We have a norm, a pattern, and that is the universe itself, from which we fashion our ideas. We have observed this universe and its operation and we call it order. To say that the universe is patterned on order is to say that the universe is patterned on the universe. It can mean nothing else.\*

The problem with Paley's analogy is that the belief that the universe shows orderliness and purpose is an assumption. One quality of a good analogical argument is that the characteristics cited as shared characteristics must be truly shared characteristics. If there is doubt that one of the items being compared (the universe) possesses the most significant shared characteristic (of being orderly and purposive), then the analogical argument is not a sound one.

#### Hume's Argument

Another philosopher, David Hume (1711-1776), took up the design analogy a few years before Paley, in his *Dialogues Concerning Natural Religion*. One of the characters, Philo, suggests that "If the universe bears a greater likeness to animal bodies and to vegetables than to the works of human art, it is more probable that its cause resembles the cause of the former than that of the latter, and its origin ought rather to be ascribed to generation or vegetation than to reason or design." (Book VII) "The world," says Philo, "plainly resembles more an animal or a vegetable than it does a watch or knitting-loom. Its cause, therefore, it is more probable, resembles the cause of the former. The cause of the former is generation or vegetation. The cause, therefore, of the world we may infer to be something similar or analogous to generation or vegetation." Hume, apparently thought the analogy was a joke, but perhaps Paley is still laughing from that Great Carrot Patch in the Sky.

I might find this watch analogy more convincing of Divine Purpose if, while observing it in his imaginary scenario, Paley's watch suddenly and for no reason shot a lightning bolt through his forehead. That would be more in harmony with the universe I have come to know and love. If the watch could give AIDS to anyone who touched it, or contaminate his progeny for endless generations, then I might be convinced that this watch is like the universe and indicative of a Grand Designer.

#### The Apparent Designed Order

Finally, there is a common and popular argument that lists facts about nature that, if they were different, would mean that our planet or life on our planet would not exist. We wouldn't be here, it is noted,

if the sun were just slightly farther away or half as powerful  
if the axis of the earth were slightly different  
if the moon were larger or closer or farther away  
if gravity weren't such a weak force  
if DNA didn't replicate  
if molecules were larger or smaller  
if there were sixty planets in our solar system  
if carbon didn't exist  
if the speed of light were half what it is  
if genetic mutation did not happen  
if the rotation of the earth were one-tenth of what it is

Furthermore, look at all the signs of design:

salmon, eels, birds, butterflies and whales are able to migrate and find the same breeding and feeding grounds year after year  
human reason which can conceive God  
natural ecological systems

One cannot deny the facts. If things were different then things would be different. But they aren't different, so what is the point of this argument? The sun will be unable to support life on this planet some day. It is already unable to support life on several other planets. What does this fact prove about design? Nothing. The axis of the earth has been different and will be different again. Someday this planet will be uninhabitable. What does that prove about design, intelligent or otherwise? Nothing. We can't deny that if millions of factors did not occur, we wouldn't be here. So what? Many of these factors did not exist in the past and will not exist in the future on this planet. There was a time when there was no life on this planet and there will be a time when no life exists here in the future. There was a time when this planet did not exist and there will be a time in the future when it will not exist. What does that prove about design? Nothing. There are countless planets that exist which do not have the conditions necessary for life. What do they prove about design? Nothing.

One might argue that the odds are a billion billion to one that all these circumstances just happened to coincide that makes life on earth possible. But since we're here, the odds are 100% that it can happen. Cressy Morrison once argued

Suppose you put ten pennies, marked from one to ten, into your pocket and give them a good shuffle. Now try to take them out in sequence from one to ten, putting back the coin each time and shaking them all

again. Mathematically we know that your chance of first drawing number one is one in ten; of drawing one and two in succession, one in 100; of drawing one, two and three in succession, one in 1000, and so on; your chance of drawing them all, from number one to number ten in succession, would reach the unbelievable figure of one in ten billion.

By the same reasoning, so many exacting conditions are necessary for life on the earth that they could not possibly exist in proper relationship by chance. The earth rotates on its axis 1000 miles an hour at the equator; if it turned at 100 miles an hour, our days and nights would be ten times as long as now, and the hot sun would likely burn up our vegetation each long day while in the long night any surviving sprout might well freeze.

Morrison begs the question. The earth with life on it is here. The odds are 1/1 of its existing. In any case, if I had 20 billion years to pull ten numbered pennies out of my pocket, the odds of me drawing out the coins in sequence at least once are very good.

But why chip away at this argument from rarity when we can use the sledgehammer?

... rarity by itself shouldn't necessarily be evidence of anything. When one is dealt a bridge hand of thirteen cards, the probability of being dealt that particular hand is less than one in 600 billion. Still, it would be absurd for someone to be dealt a hand, examine it carefully, calculate that the probability of getting it is less than one in 600 billion, and then conclude that he must not have been dealt that very hand because it is so very improbable. --John Allen Paulos, *Innumeracy: Mathematical Illiteracy and its Consequences*

Are there naturalistic and mechanistic explanations for ecological systems and what is called "animal wisdom"? Of course. Does this prove they were not designed? Of course not. Nor does their existence prove design. Do we have to posit a God to explain how human reason came to exist with its ability to conceive of an infinite being? Of course not. Does this mean there is no God? Of course not. But it does mean that this argument from design is little more than an exercise in begging the question. It has to assume design in order to prove it.

\* "The Delusion of Design and Purpose," Clarence Darrow, from *The Story of My Life* (New York: Scribner and Sons, 1932), cited in *Philosophy and Contemporary Issues*, 6th ed., edited by John R. Burr and Milton Goldinger (New York: MacMillan Publishing Co., 1992), pp. 123-130.

## Determinism

Determinism is the metaphysical theory which holds that all events are determined by mechanistic causes. Determinism is opposed to metaphysical libertarianism which holds that at least some human behavior is explicable in terms of the freedom and responsibility of the agent.

## DHEA

DHEA, i.e., dehydroepiandrosterone, is a natural steroid hormone produced from cholesterol by the adrenal glands. DHEA is chemically similar to testosterone and estrogen and is easily converted into those hormones. DHEA production peaks in early adulthood and is the only hormone known to decline in production with age. Thus, many diseases which correlate with age also correlate with low levels of DHEA production. There has been no scientific evidence, however, that low levels of DHEA is a significant causal factor in the development of diseases associated with aging. Nor is there any evidence that increasing DHEA slows down, stops or reverses the aging process.

For years DHEA was promoted as a miracle weight loss drug, based upon some rodent studies which indicated that DHEA was effective in controlling obesity in rats and mice. Other rodent studies found similar promising results for DHEA in preventing cancer, arteriosclerosis and diabetes. Studies on humans have not yet validated these results.

Despite the lack of sufficient scientific evidence, DHEA supplements are being promoted as having therapeutic effects in many chronic conditions including "cardiovascular disease, diabetes, hypercholesterolemia, obesity, multiple sclerosis, Parkinson's disease, Alzheimer's disease, disorders of the immune system, depression, and osteoporosis." The healthy truth is that very little is known about DHEA. Long-term effects of self-medicating by using DHEA supplements may be beneficial, neutral or harmful, but it is unlikely that DHEA supplements will affect each individual in the same way. Increasing DHEA may well increase testosterone, which in men may lead to prostate enlargement and in women may lead to facial hair. Increasing estrogen may help prevent osteoporosis or heart disease but may increase the risk of breast cancer. In short, taking DHEA is a high-risk gamble based on insubstantial evidence.

Those doing research on DHEA, such as Dr. Samuel Yen of UC San Diego and Dr. John Nestler of Virginia Commonwealth University, advise caution and do not recommend taking DHEA. Dr. Arthur Feinberg, an associate editor of HealthNews, advises against taking DHEA. "The potential for irreversible side effects is real. So given that there's no convincing evidence for any benefit of DHEA, I feel strongly that people should not take it." The research of Dr. Elizabeth Barrett-Connor, professor and chair, department of family and preventive medicine at the University of California, San Diego, is cited by promoters of DHEA as evidence that DHEA is effective in fighting cardiovascular disease. However, Dr. Barret-Conner says "DHEA is the snake oil of the '90s. It makes me very nervous that people are using a drug we don't know anything about. I won't recommend it "

The main voices in favor of DHEA as a miracle drug are those who are selling it or who make a good living selling books or programs advocating "natural cures."

One advocate of DHEA, Dr. Ray Sahelian, warns that high doses (25-50mg daily) can be bad for your heart. It can trigger heart palpitations, irregular heartbeats and even heart attack. His advice is to take no more than 10mg a day and avoid it altogether for at least one or two weeks a month.

### Dianetics

"Hubbard reveals a deep-seated hatred of women....When Hubbard's Mama's are not getting kicked in the stomach by their husbands or having affairs with lovers, they are preoccupied with AA [attempted abortion]--usually by means of knitting needles" (Gardner, 267).

In 1950, Lafayette Ronald Hubbard published *Dianetics: The Modern Science of Mental Health*. [Published by The American Saint Hill Organization, Los Angeles. All page references are to this hard back edition.] The book is the "bible" for Scientology, which calls itself a science, a Church and a religion. Hubbard tells the reader that dianetics "...contains a therapeutic technique with which can be treated all inorganic mental ills and all organic psycho-somatic ills, with assurance of complete cure...." He claims that he has discovered the "single source of mental derangement" (Hubbard, 6). However, in a disclaimer on the frontispiece of the book, we are told that "Scientology and its sub-study, Dianetics, as practiced by the Church...does not wish to accept individuals who desire treatment of physical illness or insanity but refers these to qualified specialists of other organizations who deal in these matters." The disclaimer seems clearly to have been a protective mechanism against lawsuits for practicing medicine without a license; for, the author repeatedly insists that dianetics can cure just about anything which ails you. He also repeatedly insists that dianetics is a science. Yet, just about anyone familiar with scientific texts will be able to tell from the first few pages of *Dianetics* that the text is no scientific work and the author no scientist. *Dianetics* is a classic example of a pseudoscience.

On page 5 of *Dianetics*, Hubbard asserts that a science of mind must find "a single source of all insanities, psychoses, neuroses, compulsions, repressions and social derangements." Such a science, he claims, must provide "Invariant scientific evidence as to the basic nature and functional background of the human mind." And, this science, he says, must understand the "cause and cure of all psycho-somatic ills...." Yet, he also claims that it would be unreasonable to expect a science of mind to be able to find a single source of all insanities, since some are caused by "malformed, deleted or pathologically injured brains or nervous systems" and some are caused by doctors. Undaunted by this apparent contradiction, he goes on to say that this science of mind "would have to rank, in experimental precision, with physics and chemistry." He then tells us that dianetics is "...an organized science of thought built on definite axioms: statements of natural laws on the order of those of the physical sciences" (Hubbard, 6).

There are broad hints that this so-called science of the mind isn't a science at all in the claim that dianetics is built on "definite axioms" and in his a priori notion that a science of mind must find a single source of mental and psychosomatic ills. Sciences aren't built on axioms and they don't claim a priori knowledge of the number of causal mechanisms which must exist for any phenomena. A real science is built on tentative proposals to account for observed phenomena. Scientific knowledge of causes, including how many kinds there are, is a matter of discovery not stipulation. Also, scientists generally respect logic and would have difficulty saying with a straight face that this new science must show that there is a single source of all insanities except for those insanities that are caused by other sources.

There is other evidence that dianetics is not a science. For example, his theory of mind shares little in common with modern neurophysiology and what is known about the brain and how it works. According to Hubbard, the mind has three parts. "The analytical mind is that portion of the mind which perceives and retains experience data to compose and resolve problems and direct the organism along the four dynamics. It thinks in differences and similarities. The reactive mind is that portion of the mind which files and retains physical pain and painful emotion and seeks to direct the organism solely on a stimulus-response basis. It thinks only in identities. The somatic mind is that mind, which, directed by the analytical or reactive mind, places solutions into effect on the physical level" (Hubbard, 39).

According to Hubbard, the single source of insanity and psychosomatic ills is the engram. Engrams are to be found in one's "engram bank," i.e., in the reactive mind." The "reactive mind," he says, "can give a man arthritis, bursitis, asthma, allergies, sinusitis, coronary trouble, high blood pressure, and so on down the whole catalogue of psycho-somatic ills, adding a few more which were never specifically classified as psycho-somatic, such as the common cold" (Hubbard, 51). One searches in vain for evidence of these claims. We are simply told: "These are scientific facts. They compare invariably with observed experience" (Hubbard, 52).

An engram is defined as "a definite and permanent trace left by a stimulus on the protoplasm of a tissue. It is considered as a unit group of stimuli impinged solely on the cellular being" (Hubbard, 60 note). We are told that engrams are only recorded during periods of physical or emotional suffering. During those periods the "analytical mind" shuts off and the reactive mind is turned on. The analytical mind has all kinds of wonderful features, including being incapable of error. It has, we are told, standard memory banks, in contrast to the reactive bank. These standard memory banks are recording all possible perceptions and, he says, they are perfect, recording exactly what is seen or heard, etc.

What is the evidence that engrams exist and that they are "hard-wired" into cells during physically or emotionally painful experiences? Hubbard doesn't say that he's done any laboratory studies, but he says that

in dianetics, on the level of laboratory observation, we discover much to our astonishment that cells are evidently sentient in some currently inexplicable way. Unless we postulate a human soul entering the sperm and ovum at conception, there are things which no other postulate will embrace than that these cells are in some way sentient (Hubbard, 71).

This explanation is not on the "level of laboratory observation" but is a false dilemma and begs the question. Furthermore, the theory of souls entering zygotes has at least one advantage over Hubbard's own theory: it is not deceptive and is clearly metaphysical. Hubbard tries to clothe his metaphysical claims in scientific garb.

The cells as thought units evidently have an influence, as cells, upon the body as a thought unit and an organism. We do not have to untangle this structural problem to resolve our functional postulates. The cells evidently retain engrams of painful events. After all, they are the things which get injured....

The reactive mind may very well be the combined cellular intelligence. One need not assume that it is, but it is a handy structural theory in the lack of any real work done in this field of structure. The reactive engram bank may be material stored in the cells themselves. It does not matter whether this is credible or incredible just now....

The scientific fact, observed and tested, is that the organism, in the presence of physical pain, lets the analyzer get knocked out of circuit so that there is a limited quantity or no quantity at all of personal awareness as a unit organism (Hubbard, 71).

Hubbard asserts that these are scientific facts based on observations and tests, but the fact is there hasn't been any real work done in this field. The following illustration is typical of the kind of "evidence" provided by Hubbard for his theory of engrams.

A woman is knocked down by a blow. She is rendered "unconscious." She is kicked and told she is a faker, that she is no good, that she is always changing her mind. A chair is overturned in the process. A faucet is running in the kitchen. A car is passing in the street outside. The engram contains a running record of all these perceptions: sight, sound, tactile, taste, smell, organic sensation, kinetic sense, joint position, thirst record, etc. The engram would consist of the whole statement made to her when she was "unconscious": the voice tones and emotion in the voice, the sound and feel of the original and later blows, the tactile of the floor, the feel and sound of the chair overturning, the organic sensation of the blow, perhaps the taste of blood in her mouth or any other taste present there, the smell of the person attacking her and the smells in the room, the sound of the passing car's motor and tires, etc" (Hubbard, 60).

How this example relates to insanity or psycho-somatic ills is explained by Hubbard this way:

The engram this woman has received contains a neurotic positive suggestion....She has been told that she is a faker, that she is no good, and that she is always changing her mind. When the engram is restimulated in one of the great many ways possible [such as hearing a car passing by while the faucet is running and a chair falls over], she has a feeling' that she is no good, a faker, and she will change her mind (Hubbard, 66).

There is no possible way to empirically test such claims. A "science" that consists of nothing but such claims is not a science, but a pseudoscience.

Hubbard claims that enormous data has been collected and not a single exception to his theory has been found (Hubbard, 68). We are to take his word on this, apparently, for all the "data" he presents are in the form of anecdotes or made-up examples like the one presented above.

Another indication that dianetics is not a science, and that its founder hasn't a clue as to how science functions, is given in claims such as the following: "Several theories could be postulated as to why the human mind evolved as it did, but these are theories, and dianetics is not concerned with structure" (Hubbard, 69). This is his way of saying that it doesn't concern him that engrams can't be observed, that even though they are defined as permanent changes in cells, they can't be detected as physical structures. It also doesn't bother him that the cure of all illnesses requires that these "permanent" engrams be "erased" from the reactive bank. He claims that they aren't really erased but simply transferred to the standard bank. How this physically or structurally occurs is apparently irrelevant. He simply asserts that it happens this way, without argument and without proof. He simply repeats that this is a scientific fact, as if saying it makes it so.

Another "scientific fact," according to Hubbard, is that the most harmful engrams occur in the womb. The womb turns out to be a terrible place. It is "wet, uncomfortable and unprotected" (Hubbard, 130).

Mama sneezes, baby gets knocked "unconscious." Mama runs lightly and blithely into a table and baby gets its head stove in. Mama has constipation and baby, in the anxious effort, gets squashed. Papa becomes passionate and baby has the sensation of being put into a running washing machine. Mama gets hysterical, baby gets an engram. Papa hits Mama, baby gets an engram. Junior bounces on Mama's lap, baby gets an engram. And so it goes (Hubbard, 130).

We are told that people can have "more than two hundred" prenatal engrams and that engrams "received as a zygote are potentially the most aberrative, being wholly reactive. Those received as an embryo are intensely aberrative. Those received as the foetus are enough to send people to institutions all by themselves" (Hubbard, 130-131). What is the evidence for these claims? How could one test a zygote to see if it records engrams? "All these things are scientific facts, tested and rechecked and tested again," he says (Hubbard, 133). But you must take L. Ron Hubbard's word for it. Scientists generally do not expect others to take their word for such dramatic claims.

Furthermore, to get cured of an illness you need a dianetic therapist, called an auditor. Who is qualified to be an auditor? "Any person who is intelligent and possessed of average persistency and who is willing to read this book [Dianetics] thoroughly should be able to become a dianetic auditor" (Hubbard, 173). The auditor must use "dianetic reverie" to effect a cure. The goal of dianetic therapy is to bring about a "release" or a "clear." The former has had major stress and anxiety removed by dianetics; the latter has neither active nor potential psycho-somatic illness or aberration (Hubbard, 170). The "purpose of therapy and its sole target is the removal of the content of the reactive engram bank. In a release, the majority of emotional stress is deleted from this bank. In a clear, the entire content is removed" (Hubbard, 174). The 'reverie' used to achieve these wonders is described as an intensified use of some special faculty of the brain which everyone possesses but which "by some strange oversight, Man has never before discovered" (Hubbard, 167). Hubbard has discovered what none before him has seen and yet his description of this 'reverie' is of a man sitting down and telling another man his troubles (Hubbard, 168). In a glorious non sequitur, he announces that auditing "falls utterly outside all existing legislation," unlike psychoanalysis, psychology and hypnotism which "may in some way injure individuals or society" (Hubbard, 168-169). It is not clear, however, why telling others one's troubles is a monumental discovery. Nor it is clear why auditors couldn't injure individuals or society, especially since Hubbard advises them: "Don't evaluate data....don't question the validity of data. Keep your reservations to yourself" (Hubbard, 300). This does not sound like a scientist giving sound advice to his followers. This sounds like a guru giving advice to his disciples.

What Hubbard touts as a science of mind lacks one key element that is expected of a science: empirical testing of claims. The key elements of Hubbard's so-called science don't seem testable, yet he repeatedly claims that he is asserting only scientific facts and data from many experiments. It isn't even clear what such "data" would look like. Most of his data is in the form of anecdotes and speculations such as the one about a patient who believes she was raped by her father at age nine. "Large numbers of insane patients claim this," says Hubbard, who goes on to claim that the patient was actually 'raped' when she was "nine days beyond conception....The pressure and upset of coitus is very uncomfortable to the child and normally can be expected to give the child an engram which will have as its contents the sexual act and everything that was said" (Hubbard, 144). Such speculation is appropriate in fiction, but not in science.

Divination

(Fortune Telling)

Divination is the attempt to foretell the future or discover occult knowledge by interpreting omens or by using paranormal or supernatural powers. The list of items that have been used in divination is extraordinary. Below are listed just a few. Many end in 'mancy', from the ancient Greek manteia (divination), or 'scopy', from the Greek skopein (to look into, to behold).

aeluromancy (dropping wheatcakes in water and interpreting the result)  
aeromancy (divination by examining what the air does to certain things)  
alektoromancy or alectryomancy (divination by a cock: grains of wheat are placed on letters and the cock "spells" the message by selecting grains)  
alphitomancy (dropping barleycakes in water and interpreting the result)  
anthropomancy (divination by interpreting the organs of newly sacrificed humans)  
astragalomancy or astragyromancy (using knucklebones marked with letters of the alphabet)  
astrology  
axinomancy (divination by the hatchet: interpreting the quiver when whacked into a table)  
belomancy (divination by arrows)  
bronchiomancy (divination by studying the lungs of sacrificed white llamas)  
capnomancy (divination by the smoke of an altar or sacrificial incense)  
cartomancy  
catoptromancy or crystallogomancy (using mirrors or lenses)  
cephalomancy (divination by a donkey's head)  
chiromancy (palmistry)  
cleidomancy (divination by interpreting the movements of a key suspended by a thread from the nail of the third finger on a young virgin's hand while one of the Psalms was recited)  
coscinomancy (divination by a balanced sieve)  
cromniomancy (divination by onions)  
dactylomancy (divination by means of rings put on the fingernails or the number of whorls and loops on the fingers)  
daphnomancy (divination using the laurel branch: how did it crackle when burned?)  
dowsing  
extispicy (divination by examining entrails)  
fractomancy (interpreting the structures of fractal geometric patterns)  
geomancy  
gyromancy (divination by walking around a circle of letters until dizzy and one falls down on the letters or in the direction to take)  
haruspicy (inspecting the entrails of slaughtered animals)  
hydromancy (divination by examining what certain things do in water or when taken out of water, such as coffee grounds or tea leaves); hydatoscopy (if rainwater is used); pegomancy (if spring-water is used)  
hepatoscopy or hepatomancy (divination by examining the liver of sacrificed animals)  
kephalonmancy (burning carbon on the head of an ass while reciting the names of suspected criminals; if you're guilty, a crackling sound will be heard when your name is spoken)  
lampadomancy (interpreting the movements of the flame of a lamp)  
libanomancy (interpreting the smoke of incense)  
lithomancy (divination using precious stones)  
lecanomancy (dropping precious stones into water and listening for whistles)  
margaritomancy (divination by the pearl: if it jumps in the pot when a person is named, then he is the thief!)  
metoposcopy (interpreting frontal wrinkles)  
molybdomancy (divination by melted lead: interpreting its noises and hisses when dropped into water)  
myrmomancy (divination by watching ants eating)  
necromancy (communicating with spirits of the dead to predict the future)  
oinomancy (divination by wine)  
omphalomancy (interpretation of the belly button)  
oneiromancy (interpretation of dreams)  
onychomancy (interpreting the reflection of sun rays off fingernails)  
ornithomancy or orniscopy (interpreting the flights of birds)  
ovomancy or oomancy or ooscopy (breaking eggs into a container of water and interpreting the shape of the egg white)  
papyromancy (divination by folding paper)  
pyromancy or pyroscopy (divination by fire)  
rhabdomancy (using the divining rod or magic wand)  
rhapsodomancy (divination by a line in a sacred book that strikes the eye when the book is opened after the diviner prays, meditates or invokes the help of spirits)  
scapulomancy  
scrying  
sideromancy (interpreting straws thrown on a red-hot iron)  
skatharomancy (interpreting the tracks of a beetle crawling over the grave of a murder victim)  
splanchnomancy (reading cut sections of a goat liver)  
stichomancy  
tasseography (reading tea leaves)



tromancy (interpreting the holes or mold in cheese)  
urim v'tumim (reading sacred stones attached to  
the breastplate of the high priest in ancient Judaism)  
uromancy (divination by reading bubbles made by urinating in a pot)

### Divine Fallacy

The divine fallacy is a species of non sequitur reasoning which goes something like this: I can't figure this out, so God must have done it. Or, This is amazing; therefore, God did it. Or, I can't think of any other explanation; therefore, God did it. Or, this is just too weird; so, God is behind it.

This fallacy is also a variation of the alien fallacy: I can't figure this out, so aliens must have done it. Or, This is amazing; therefore, aliens did it. Or, I can't think of any other explanation; therefore, aliens did it. Or, this is just too weird; so, aliens are behind it.

Another variation of the fallacy goes something like this: I can't figure this out, so paranormal forces must have done it. Or, This is amazing; therefore, paranormal forces did it. Or, I can't think of any other explanation; therefore, paranormal forces did it. Or, this is just too weird; so, paranormal forces are behind it.

### Dixon, Jeane

#### Jeane Dixon & the Jean Dixon effect

Jeane Dixon (1917-1997) was an astrologer and alleged psychic who did not predict the assassination of President Kennedy. She was featured every year in various publications that engage in the entertaining pursuit of making predictions for the new year. Ms. Dixon was never correct in any prediction of any consequence. She predicted that the Soviets would beat the U.S. to the moon, for example. But most of her predictions were equivocal, vague or mere possibility claims. She achieved a reputation as a very good psychic, however, when the mass media perpetuated the myth that she had predicted President Kennedy's assassination. In 1956 she predicted in Parade magazine that the 1960 election would be won by a Democrat and that he would be assassinated or would die in office, "although not necessarily in his first term." However, in 1960, apparently forgetting or overriding her earlier prediction, she predicted unequivocally that "John F. Kennedy would fail to win the presidency."

Dixon was an FBI stooge, who agreed to make claims about Russia being behind the civil rights movement and left-wing agitation on college campuses. She was chummy enough with J. Edgar Hoover that he agreed to serve as an honorary director to Children to Children Inc., a foundation established by Dixon to help sick children.

In her obituary and in its final issue of 1997, The Sacramento Bee perpetuated the myth of Jeane Dixon's psychic powers by declaring her to have predicted the assassination of JFK.

The Jean Dixon effect refers to the tendency of the mass media to hype or exaggerate a few correct predictions by a psychic, guaranteeing that they will be remembered, while forgetting or ignoring the much more numerous incorrect predictions.

### Dogon and Sirius

According to Robert Temple (The Sirius Mystery), the Dogon, a tribe of about 100,000 in western Africa, had contact with extraterrestrials some 5,000 years ago. The aliens, known as the Nommos, were supposedly ugly and amphibious,\* who came here for some unknown reason from a planet orbiting Sirius some 8.6 light years from earth. (Light can travel about 6 trillion miles in a year.) The alleged visitors from outer space seem to have done little else than give the earthlings some useless astronomical information, however, some of it incorrect.

One of Temple's main pieces of evidence is the tribe's alleged knowledge of Sirius B, a companion to the star Sirius. The Dogon are supposed to have known that Sirius B orbits Sirius and that a complete orbit takes fifty years. One of the pieces of evidence Temple cites is a sand picture made by the Dogon to explain their beliefs. The diagram that Temple presents, however, is not the complete diagram that the Dogon showed to the French anthropologists, Marcel Griaule and Germaine Dieterlen, who were the original sources for Temple's story. Temple has either misinterpreted Dogon beliefs, or distorted Griaule and Dieterlen's claims, to fit his fantastic story.

Griaule and Dieterlen describe a world renovation ceremony, associated with the bright star Sirius (sigu tolo, "star of Sigui"), called sigui, held by the Dogon every sixty years. According to Griaule and Dieterlen the Dogon also name a companion star, po tolo "Digitaria star" (Sirius B) and describe its density and rotational characteristics. Griaule did not attempt to explain how the Dogon could know this about a star that cannot be seen without telescopes, and he made no claims about the antiquity of this information or of a connection with ancient Egypt.\*

Temple, however, introduced the amphibious aliens as the transmitters of this information. Later Afrocentrists would claim that black Africans have special powers due to quantities of melanin that allow them to see things the white man cannot see (Welsing, F. C. 1987. "Lecture 1st Melanin Conference, San Francisco, September 16-17, 1987"). According to the Afrocentrists, the Dogon could see Sirius B because of their special eyesight. There is, of course, no evidence for this, nor for other equally preposterous notions such as the claim that the Dogon got their knowledge from the Egyptians (who were black) who had telescopes.

Temple lists a number of astronomical beliefs held by the Dogon that seem curious. They have a traditional belief in a heliocentric system and in elliptical orbits of astronomical phenomena. They seem to have knowledge of the satellites of Jupiter and rings of Saturn, among other things. Where did they get this knowledge, he asks, if not from extraterrestrial visitors? They don't have telescopes or other scientific equipment, so how could they get this knowledge?

Carl Sagan agreed with Temple that the Dogon could not have acquired their knowledge without contact with an advanced technological civilization. Sagan suggests, however, that that civilization was terrestrial rather than extraterrestrial. Perhaps the source was Temple himself and his loose speculations on what he learned from Griaule, who based his account on an interview with one person, Ambara, and an interpreter.

Western Africa has had many visitors from technological societies located on planet earth. The Dogon have a traditional interest in the sky and astronomical phenomena. As Sagan notes, if a European had visited the Dogon in the 1920's and 1930's, conversation would likely have turned to astronomical matters, including Sirius, the brightest star in the sky and the center of Dogon mythology. Furthermore, there had been a good amount of discussion of Sirius in the scientific press in the '20s so that by the time French anthropologist Marcel Griaule arrived, the Dogon may have had a grounding in 20th century technological matters brought to them by visitors from other parts of earth and transmitted in conversation.

Or, Griaule's account may reflect his own interests more than that of the Dogon. He made no secret of the fact that his intention was to redeem African thought. When the Belgian Walter van Beek studied the Dogon, he found no evidence they knew Sirius was a double star or that Sirius B is extremely dense and has a fifty year orbit.

Knowledge of the stars is not important either in daily life or in ritual [to the Dogon]. The position of the sun and the phases of the moon are more pertinent for Dogon reckoning. No Dogon outside of the circle of Griaule's informants had ever heard of sigu tolo or po tolo... Most important, no one, even within the circle of Griaule informants, had ever heard or understood that Sirius was a double star.\*

According to Thomas Bullard, van Beek speculates that Griaule "wished to affirm the complexity of African religions and questioned his informants in such a forceful leading manner that they created new myths by confabulation." Griaule either informed the Dogon of Sirius B or "he misinterpreted their references to other visible stars near Sirius as recognition of the invisible companion" (Bullard).

In short, the likelihood of alien visitation to the Dogon by amphibious monsters full of useless information about the sky, is about on par with the likelihood that melanin empowers the Dogon to use their eyes as if they were 100-inch telescopes.

## Double-Blind Tests

### Control Group Study, Double-Blind and Random Tests

A control group study uses a control group to compare to an experimental group in a test of a causal hypothesis. The control and experimental groups must be identical in all relevant ways except for the introduction of a suspected causal agent into the experimental group. If the suspected causal agent is actually a causal factor of some event, then logic dictates that that event should manifest itself more significantly in the experimental than in the control group. For example, if 'C' causes 'E', when we introduce 'C' into the experimental group but not into the control group, we should find 'E' occurring in the experimental group at a significantly greater rate than in the control group. Significance is measured by relation to chance: if an event is not likely due to chance, then its occurrence is significant.

A double-blind test is a control group test where neither the evaluator nor the subject knows which items are controls. A random test is one which randomly assigns items to the control or experimental groups.

The purpose of controls, double-blind and random testing is to reduce error, self-deception and bias. An example should clarify the necessity of these safeguards.

The DKL LifeGuard Model 2, from DielectroKinetic Laboratories, can detect a living human being by receiving a signal from the heartbeat at distances of up to 20 meters through any material, according to its manufacturers. Sandia Labs tested the device using a double-blind, random method of testing. Sandia is a national security laboratory operated for the U.S. Department of Energy by the Sandia Corporation, a Lockheed Martin Co. The causal hypothesis they tested could be worded as follows: the human heartbeat causes a directional signal to activate in the Lifeguard, thereby allowing the user of the LifeGuard to find a hidden human being (the target) up to 20 meters away, regardless of what objects might be between the LifeGuard and the target.

The testing procedure was quite simple: five large plastic packing crates were set up in a line at 30-foot intervals and the test operator, using the DKL LifeGuard Model 2, tried to detect in which of the five crates a human being was hiding. Whether a crate would be empty or contain a person for each trial was determined by random assignment. This is to avoid using a pattern which might be detected by the subject. Their tests showed that the device performed no better than expected from random chance. The test operator was a DKL representative. The only time the test operator did well in detecting his targets was when he had prior knowledge of the target's location. The LifeGuard was successful ten out of ten times when the operator knew where the target was. It may seem ludicrous to test the device by telling the operator where the objects are, but it establishes a baseline and affirms that device is working. Only when the operator agrees that his device is working should the test proceed to the second stage, the double-blind test. For, the operator will not be as likely to come up with an ad hoc hypothesis to explain away his failure in a double-blind test if he has agreed beforehand that the device is working properly.

If the device could perform as claimed, the operator should have received no signals from the empty crates and signals from each of the crates with a person within. In the main test of the LifeGuard, when neither the test operator nor the investigator keeping track of the operator's results knew which of five possible locations contained the target, the operator performed poorly (six out of 25) and took about four times longer than when the operator knew the target's location. If human heartbeats cause the device to activate, one would expect a significantly better performance than 6 of 25, which is what would be expected by chance.

The different performances--10 correct out of 10 tries versus 6 correct out of 25 tries--vividly illustrates the need for keeping the subject blind to the controls: it is needed to eliminate self-deception and subjective validation. The evaluator is kept blind to the controls to prevent him or her from subtly tipping off the subject, either knowingly or unknowingly. If the evaluator knew which crates were empty and which had persons, he or she might give a visual signal to the subject by looking only at the crates with persons. To eliminate the possibility of cheating or evaluator bias, the evaluator is kept in the dark regarding the controls.

The lack of testing under controlled conditions explains why many psychics, graphologists, astrologers, dowzers, paranormal therapists, etc., believe in their abilities. To test a dowser it is not enough to have the dowser and his friends tell you that it works by pointing out all the wells that have been dug on the dowser's advice. One should perform a random, double-blind test, such as the one done by Ray Hyman with an experienced dowser on the PBS program *Frontiers of Science* (Nov. 19, 1997). The dowser claimed he could find buried metal objects, as well as water. He agreed to a test that involved randomly selecting numbers which corresponded to buckets placed upside down in a field. The numbers determined which buckets a metal object would be placed under. The one doing the placing of the objects was not the same person who went around with the dowser as he tried to find the objects. The exact odds of finding a metal object by chance could be calculated. For example, if there are 100 buckets and 10 of them have a metal object, then getting 10% correct would be predicted by chance. That is, over a large number of attempts, getting about 10% correct would be expected of anyone, with or without a dowsing rod. On the other hand, if someone consistently got 80% or 90% correct, and we were sure he or she was not cheating, that would confirm the dowser's powers.

The dowser walked up and down the lines of buckets with his rod but said he couldn't get any strong readings. When he selected a bucket he qualified his selection with something to the effect that he didn't think he'd be right. He was right about never being right! He didn't find a single metal object despite several attempts. His performance is typical of dowzers tested under controlled conditions. His response was also typical: he was genuinely surprised. Like most of us, the dowser is not aware of the many factors that can hinder us from doing a proper evaluation of events: self-deception, wishful thinking, suggestion, unconscious bias, selective thinking, subjective validation, communal reinforcement, etc.

Many control group studies use a placebo in control groups to keep the subjects in the dark as to whether or not they are being given the causal agent that is being tested. For example, both the control and

experimental groups will be given identical looking pills in a study testing the effectiveness of a new drug. Only one pill will contain the agent being tested; the other pill will be a placebo. In a double-blind study, the evaluator of the results would not know which subjects got the placebo until his or her evaluation of observed results was completed. This is to avoid evaluator bias from influencing observations and measurements.

## Dowsing

(a.k.a. water witching)

Dowsing is the action of a person--called the dowser--using a rod, stick or other device--called a dowsing rod, dowsing stick, doodlebug (when used to locate oil) or divining rod--to locate such things as underground water, hidden metal, buried treasure, oil, lost persons or golf balls, etc. Since dowsing is not based upon any known scientific or empirical laws or forces of nature, it should be considered a type of divination. The dowser tries to locate objects by occult means.

Map dowsers use a dowsing device, usually a pendulum, over maps to locate oil, minerals, persons, water, etc. Clearly, such dowsers are not relying on geophysical forces to move their pendulums. Other dowsers take their divining rods to the field. The prototype of a dowser is the field dowser who walks around an area using a forked stick to locate underground water. When above water, the rod points downward. (Some dowsers use two rods. The rods cross when above water.) Various theories have been given as to what causes the rods to move: electromagnetic or other subtle geological forces, suggestion from others or from geophysical observations, ESP and other paranormal explanations, etc. Most skeptics accept the explanation of William Carpenter (1852). The rod moves due to involuntary motor behavior, which Carpenter dubbed "ideomotor action."

## Does Dowsing Work?

Of more interest than why the rods move, however, is the issue of whether dowsing works. Obviously, many people believe it does. Dowsing and other forms of divination have been around for thousands of years. There are large societies of dowsers in American and Europe. Thousands of dowsers practice their art every day in all parts of the world. There have even been scientists in recent years who have offered proof that dowsing works. There must be something to it, then, or so it seems. However, close scrutiny of the data, including the so-called scientific proofs of dowsing, reveal that there is no more evidence to support dowsing than there is to support astrology.

The most common reason for believing in dowsing is based upon experiences and anecdotes of dowsers and those who observe them. The evidence is simple: dowsers find what they are dowsing for and they do this many times. What more proof of dowsing is needed? The fact that this pattern of dowsing and finding occurs repeatedly lead many dowsers and their advocates to make the causal connection between dowsing and finding water, oil, minerals, golf balls, etc. This type of fallacious reasoning is known as post hoc reasoning and is a very common basis for belief in paranormal powers. It is essentially unscientific and invalid. Scientific thinking includes being constantly vigilant against self-deception and being careful not to rely upon insight or intuition in place of rigorous and precise empirical testing of theoretical and causal claims. Every controlled study of dowsers, including the "Scheunen" study [see below], has shown that dowsers do no better than chance in finding what they are looking for. Most dowsers do not consider it important to doubt their dowsing powers or to wonder if they are self-deceived. They never consider doing a controlled scientific test of their powers. They think that the fact that they have been successful over the years at dowsing is proof enough. When dowsers are scientifically tested and fail, they generally react with genuine surprise. Typical is what happened when James Randi tested some dowsers using a protocol they all agreed upon. If they could locate water in underground pipes at an 80% success rate they would get \$10,000 (now the prize is over \$1,000,000). All the dowsers failed the test, though each claimed to be highly successful in finding water using a variety of non-scientific instruments, including a pendulum. Says Randi, "the sad fact is that dowsers are no better at finding water than anyone else. Drill a well almost anywhere in an area where water is geologically possible, and you will find it."

Some of the strongest evidence for dowsing comes from Germany and the so-called "Scheunen" or "Barn" experiment. In 1987 and 1988, more than 500 dowsers participated in more than 10,000 double-blind tests set up by physicists in a barn near Munich. (Scheune is the German word for barn.) The researchers claim they empirically proved "a real dowsing phenomenon." Jim Enright of the Scripps Institute of Oceanography evaluated the data and concluded that the so-called "real dowsing phenomenon" can reasonably be attributed to chance. His argument is rather lengthy, but here is a taste of it:

The long and the short of it is that dowsing performance in the Scheunen experiments was not reproducible. It was not reproducible inter-individually: from a pool of some 500 self-proclaimed dowsers, the researchers selected for their critical experiments 43 candidates whom they considered most

promising on the basis of preliminary testing; but the investigators themselves ended up being impressed with only a few of the performances of only a small handful from that select group. And, even more troublesome for the hypothesis, dowsing performance was not reproducible intra-individually: those few dowsers, who on one occasion or another seemed to do relatively well, were in their other comparable test series usually no more successful than the rest of the "unskilled" dowsers.

The Barn study itself is curious. It seems clearly to have been repudiated by another German study done in 1992 by a group of German scientists and skeptics. The Gesellschaft zur wissenschaftlichen Untersuchung von Parawissenschaften (GWUP) [Society for the Scientific Investigation of the Parasciences] set up a three-day controlled test of some thirty dowsers, mostly from Germany. The test was done at Kassel, north of Frankfurt, and televised by a local television station. The test involved plastic pipe buried 50 centimeters in a level field through which a large flow of water could be controlled and directed. On the surface, the position of the pipe was marked with a colored stripe, so all the dowsers had to do was tell whether or not there was water running through the pipe. All the dowsers signed a statement that they agreed the test was a fair test of their abilities and that they expected a 100% success rate. The results were what one would expect by chance (Randi, 1995). Defenders of dowsing do not care for these results, and continue to claim that the Barn study provides scientific proof of dowsing.

#### Another German Study

Further evidence for dowsing has been presented by the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) [the German Society for Technical Co-operation] sponsored by the German government. They claim, for example, that in some of their water dowsing efforts they had success rates above 80% "results which, according to responsible experts, could not be reached by means of classical methods, except with disproportionate input." Of particular interest is a report by University of Munich physicist Hans-Dieter Betz, "Unconventional Water Detection: Field Test of the Dowsing Technique in Dry Zones," published in the Journal of Scientific Exploration in 1995. (This is the same Betz who, with J.L. König, authored a book in 1989 on German government tests proving the ability of dowsers to detect E-rays.) The report covers a ten-year period and over 2000 drillings in Sri Lanka, Zaire, Kenya, Namibia, Yemen and other countries. Especially impressive was an overall success rate of 96 percent achieved in 691 drillings in Sri Lanka. "Based on geological experience in that area, a success rate of 30-50 percent would be expected from conventional techniques alone," according to Betz. "What is both puzzling yet enormously useful is that in hundreds of cases the dowsers were able to predict the depth of the water source and the yield of the well to within 10 or 20 percent. We carefully considered the statistics of these correlations, and they far exceeded lucky guesses."

Betz ruled out chance and the use of landscape and geological features by dowsers as explanations for their success. He also ruled out "some unknown biological sensitivity to water." Betz thinks that there may be "subtle electromagnetic gradients" resulting from fissures and water flows which create changes in the electrical properties of rock and soil. Dowsers, he thinks, somehow sense these gradients in a hypersensitive state. "I'm a scientist," says Betz, "and those are my best plausible scientific hypotheses at this point....we have established that dowsing works, but have no idea how or why."

There are some puzzling elements to Betz's conclusions, however. Most of his claims concern a single dowser named Schröter. Who observed this dowser or what conditions he worked under remain unknown. Betz is a physicist and what knowledge he has of hydrogeology is unknown. Furthermore, Betz's speculation that dowsers are hypersensitive to subtle electromagnetic gradients does not seem to be based upon scientific data. In any case, the hypothesis was not tested and I am not sure how one would go about testing such a claim. At the very least, one would expect that geological instruments would be able to detect such "electromagnetic gradients."

When others have done controlled tests of dowsers, the dowsers do no better than chance and no better than non-dowsers (Vogt and Hyman; Hyman; Enright 1995, 1996; Randi 1995). Some of Betz's data are certainly not scientific, e.g., the subjective evaluations Schröter regarding his own dowsing activities. Much of the data is little more than a report that dowsing was used by Schröter and he was successful in locating water. Betz assumes that chance or scientific hydrogeological procedures would not have produced the same or better results. It may be true that in one area they had a 96% success rate using dowsing techniques and that "no prospecting area with comparable sub-soil conditions is known where such outstanding results have ever been attained." However, this means nothing for establishing that dowsing had anything to do with the success. Analogous sub-soil condition seems to be an insufficient similarity to justify concluding that dowsing, rather than chance or use of landscape or geological features, must account for the success rate.

Betz seems to have realized that without some sort of testing, reasonable people would not accept that it had been established that dowsing is a real phenomenon based upon the above types of data. He then presents what he calls "tests" to establish that dowsing is real. The first test involves Schröter again. A Norwegian drilling team dug two wells and each failed to hit water. The dowser came in and allegedly not

only hit water but predicted the depth and flow. Apparently, we have the dowser's own word on this. In any case, this is not a test of dowsing, however impressive it might seem.

In the second test, Betz asserts that dowsers can tell how deep water is because "the relevant biological sensations during dowsing are sufficiently different to allow for the required process of distinction and elimination." He has no evidence for this claim. In any case, in this "test" Schröter again is asked to pick a place to dig a well and again he is successful. This time his well is near a well already dug and known to be a good site. Betz claims that there were some geological formations that would have made the dowser's predictions difficult, but again this was not a scientific test of dowsing.

The third test was a kind of contest between the dowser and a team of hydrogeologists. The scientific team, about whom we are told nothing significant, studied an area and picked 14 places to drill. The dowser then went over the same area after the scientific team had made their choices, and he picked 7 sites to drill. (Why they did not both pick the same number of sites is not explained.) A site yielding 100 liters per minute was considered good. The hydrogeologists hit three good sources; the dowser hit six. Clearly, the dowser won the contest. This test does not prove anything about dowsing, however. Nevertheless, I think Herr Schröter should knock on James Randi's door and be allowed to prove his paranormal powers under controlled conditions. If he is as good as he and Betz say he is, he should walk away a very rich man.

Betz has written a very long report, which is little more than a testimonial to the paranormal dowsing powers of Herr Schröter and a reiteration of the claims made for the Barn study. He would have done better to have set up a controlled, double-blind experiment with the dowser, one which does not allow the dowser himself to determine the conditions of the experiment and one which did not have as many uncontrollable variables as those rampant in the ten-year project.

## Dreams

Dreams are mental activities occurring during sleep. Most dreams occur in conjunction with rapid eye movements; hence, they are said to occur during REM-sleep, a period typically taking up 20-25% of sleep time. Infants are believed to dream during about 50% of their sleep time. Dreams occurring during non-REM periods are said to occur during NREM-sleep.

Sleep researchers divide up sleep time into stages, mainly defined by the electrical activity of cortical neurons represented as brain waves by an electroencephalograph (EEG). The EEG records electrical activity in the brain by connecting surface electrodes to the scalp. The stages of sleep occur in sequence and then go backward to stage 1 and REM-sleep about 90 minutes later. This cycle recurs throughout the night with the REM period typically getting longer at each recurrence. Typically, a person will have four or five REM periods a night, ranging from 5 to 45 minutes each in duration. There is some evidence, however, that REM-sleep evolved before dreaming and that the two are independent of one another.<sup>1</sup>

The REM-dream state is a neurologically and physiologically active state. When a person is in deep sleep there is no dreaming and the waves (called delta waves) come at a high amplitude about 3 per second. In REM-sleep, the waves come at a rate of about 60-70 per second and the brain generates about five times as much electricity as when awake. Blood pressure, heart rate, breathing rate, etc. can change dramatically during REM-sleep. Since there is generally no external physical cause of these states, the stimuli must be internal, i.e., in the brain, or external and non-physical. The latter explanation--that dreams are a gateway to a paranormal or supernatural realm--seems to be largely without merit, although it is very ancient. Each of the following may have contributed to this misconception: dreams of dead persons, dreams of being in distant places or of traveling back or forth in time, dreams that seem prophetic, and dreams that are so strange, curious or bizarre that they call out for a paranormal interpretation. The fact that the part of the brain that controls REM is the pons, a primitive section of the brain stem that controls reflexes like breathing, would support the notion that the stimuli for the physiological changes that take place during REM originate internally.

Nowadays, hardly anyone believes that dreams are messages from the gods. But some parapsychologists, such as Charles Tart, believe that dreams offer entry into another universe, a paranormal universe of OBEs, cosmic messages, and blissful nirvana. His main evidence for this seems to be his personal faith and an anecdote about his baby sitter. He claims the unnamed baby sitter (he calls her "Miss Z") had the power to leave her body during sleep. He claims he tested his flying babysitter in his sleep lab at UC Davis after she told him that she "thought everyone went to sleep, woke up in the night, floated up near the ceiling for a while, then went back to sleep." Other psychologists might have been concerned for the mental well-being of "Miss Z" and the safety of his or her children. Tart was intrigued. He put a number on a shelf, hooked up "Miss Z" to an EEG machine and put her to bed. She claims that even though she didn't read the number on the shelf, she flew around the room the first few nights. She didn't get the number right until the fourth night. Skeptics think either Tart is making up the story or it took the girl four nights to figure out how to trick the scientist. One will search in vain, however, for either a scientific paper on this alleged incident or

for any further testing to try to duplicate the event. Others, however, have investigated the question of whether the mind is open to telepathic input during sleep and have failed to find evidence of psychic ability while dreaming. Scientific research by psychiatrist Montague Ullman and parapsychologist Charles Honorton in the early 1970s at Maimonides Hospital in Brooklyn, New York, obtained chance results after an initial testing that looked positive for psi (Baker).

Tart and other parapsychologists who think that the dream state is a gateway to another world<sup>2</sup> seem to think that the key scientific evidence for this is the distinct brain waves of the various stages of sleep. They seem to think that brain waves represent states of consciousness and that sleep is an altered state of consciousness. However, sleep is not a state of consciousness, but unconsciousness. Furthermore, brain waves represent not states of consciousness but electrical activity in the brain. Brain activity during dream-sleep is indeed curious. While dreaming, not only do we experience the equivalent of hallucinations, some of which would qualify as psychotic if we had them while awake, most of us feel like we are physically moving, acting and being acted upon, without the body actually moving. Brain stem mechanisms protect us during sleep from motor activities that could lead to self-injury or injury to others. That is, most of us are paralyzed during sleep. However, some people suffer a weakness or disruption of the brain stem that causes a sleep disorder where motor activities are not prevented. People who suffer from this disorder flail, sleepwalk, etc., and can be a danger to themselves or others. Such people do not leave their bodies, but they often leave their beds during sleep.

Another curious quality of brain activity during dreaming is that almost all dreams are forgotten. Dream amnesia is the norm. This is not due to anything paranormal or supernatural, but to weak encoding. Memory depends upon encoding the data of experience. Encoding depends upon connections in parts of the brain, which in turn depend upon connections in experience. An event with a strong emotional component is more likely to be remembered than one with no emotional component because emotional memories are recorded in one part of the brain while visual components are recorded in another. Neural connections link them. We are likely to remember dreams if we wake shortly after they occur. Even so, if we do not encode the dream by making some effort to remember it, we are likely to forget it. Some people assist memory by getting up and writing down the dream. Others find that an easier method is to stay in bed and create some associations. The easiest association is made by giving the dream a title and a purposive description. For example, a dream of being chased by a polar bear across the snow into a library might be labeled "Research the Polar Bear." Go back to sleep and you are likely to remember the dream by recalling the title.

Perhaps the most curious quality of dreams is that most of us most of the time are not aware that we are dreaming while we are dreaming. PET scans during dreaming have shown that there is reduced activity in the prefrontal cortex during REM-sleep and this might account for several features of the dream-state.

The prefrontal cortex lies near the front of the brain and is where the planning of behaviour and self-awareness reside. By dampening activity in this region, a person might not realise that impossible or bizarre events in a dream are unreal. This may also account for distortions in the dreamer's perception of time, the inability to reflect on their plight, and the forgetfulness that often follows waking.<sup>3</sup>

Some researchers cite the lack of prefrontal activity as a sign that the function of sleep is restorative. Sleep gives a rest to the frontal lobes, the most active part of the brain while awake.<sup>4</sup> And, it may well be that lucid dreaming--being aware of dreaming while dreaming--is possible for some people because their frontal lobes don't completely shut down during dreaming. Most parapsychologists, however, are not interested in the physiology of dreaming. They focus instead on the content of dreams, which they believe reveals a passage to the paranormal or the supernatural.

The prophetic or clairvoyant dream is perhaps the strongest reason for believing that dreaming is a gateway to another world. Some dreams seem uncanny. They seem to foretell events. If a significant number of dreams of just a single person corresponded to future events, this would be a great benefit to humankind and we should try to find out what mechanism is at work here. However, no such person has yet been found. Individual dreams that occasionally seem clairvoyant provide very weak evidence for clairvoyant dreams. I once had a very vivid dream of an airplane crashing nose first in San Diego (where I lived for 20 years). About ten years after the dream an airliner went down in San Diego. Am I clairvoyant? Would the case be stronger for clairvoyance if the airliner went down the day after I had my dream? I don't think so.

While it is admitted by most parapsychologists that some amount of coincidence is to be expected between what a person dreams and what actually happens, it is argued that there are too many cases of seemingly prophetic dreams to reasonably explain them all away as due to coincidence. It is true that not all prophetic dreams can be explained away as being due to coincidence. Most of them probably should be so understood, but many of them may be explained away as due to filling in memories of dreams after the facts and many others should be explained away as cases of lying. But the vast majority of prophetic dreams are probably coincidences. Such dreams are impressive to those who lack understanding of The Law of Truly Large Numbers, the Forer effect and how memory works. If the odds are a million to one that any given dream is truly prophetic, then, given the number of people on earth and the average number of

dreams people have during each sleep period (250 dream themes a night, according to Hines, p. 50), we should expect that every single day of our lives there will be more than 1.5 million dreams that seem clairvoyant. That is not including all the dreams had by cats, dogs and other animals, who may well be having apparently psychic experiences while they sleep, though to what purpose we can only guess. Furthermore, one would think that if dreaming were a gateway to the paranormal or supernatural that blind persons would not have their dream time restricted by their physical limitations any more than those with sight. Yet, people blind from birth do not have visual dreams.<sup>5</sup>

There are also those who think that the dream-state is a gateway to past lives. There are some who even think that the dreams we have today are due to the fears our hunter-gatherer ancestors had. Universal dream themes, such as being chased or falling are said to harken back to our hunter-gatherer days. We have these dreams because our ancestors were chased by saber-toothed tigers and slept in trees. The evidence for such beliefs is negligible, if not non-existent, although a strong case can be made that the form rather than the content of such dreams might well be due to an evolutionary development linked to exercising instinctive behavior necessary for survival.

If the dream-state is a gateway to anything, it is probably a gateway to current personal fears and desires, rather than to ancient ones of other people. We assume dreaming has a purpose, but that purpose is more likely to be rooted in this life than in some other one. Any decent theory of dreams must try to explain why the brain stimulates the memories and confabulations that it does. It is most likely that dreams are a result of electrical energy that stimulates memories located in various regions of the brain. Why the brain stimulates and confabulates just the memories it does remains a mystery, though there are several plausible explanations. Explanations in terms of the paranormal and supernatural are not as likely to have merit as those that limit themselves to biological and emotional mechanisms linked to brain activity.

One such hypothesis for sleep-related rhythms is that they are the brain's way of disconnecting the cortex from sensory input. When we are asleep, thalamic neurons prevent penetration of sensory information upward to the cortex.<sup>6</sup> This gives the cortex a bit of a rest and explains why people who suffer sleep deprivation suffer a loss of critical thinking abilities and are prone to poor judgment. Another hypothesis is that dreaming plays a role in memory processing, especially with emotional memories. During REM-sleep, the amygdalas, which play a role in the formation and consolidation of memories of emotional experiences, are quite active.<sup>7</sup> A related theory is that dreams are "watchdogs of the psyche" (Baker). Dreams are mechanisms that inform and guide our feelings and emotions. In short, this theory maintains that dreams are a way for us to express our desires and fears that, for whatever reason, need to be expressed but are not expressed when awake. If this is true, it would seem to follow that only one very intimate with the dreamer should attempt to interpret a particular dream. Dreams are very personal and speak to the specific emotional life of the dreamer. The "surest guide to the meaning of a dream is the feeling and judgment of the dreamer himself or herself, who, deep down inside, knows its real meaning" (Baker). This theory seems to be based upon the fact that most dreams are about things that have occurred within the past day or two and reflect the dreamer's present life and concerns, including unresolved feelings. This theory also implies that the interpretation of dreams can play a significant role in self-discovery; for, dreams reflect feelings and desires of which we are not conscious when awake. We may have anxieties or desires that only our dreams can reveal.

Most of us would have little difficulty in finding examples of "anxiety dreams" or "wish-fulfillment dreams" from our own experience. We may not have been aware of our desires or fears until they were awakened by the dream. Sometimes our symbolic dreams are so clear that we do not need outside assistance to help us interpret their meaning. Yet, many dreams are so strange, irrational or bizarre, that we are at a loss to find meaning in them. We seek others who claim expertise in dream interpretation to help us ferret out the hidden meanings of our dreams. Those who engage in the interpretation of dreams should be especially careful not to impose their own pet theories onto the dreams of others. For example, the dream mentioned above of being chased by a polar bear into a library might be interpreted in many different ways, but only I, my wife and one or two other persons familiar with the experience that that dream is rooted in are in a position to interpret it "correctly." I don't doubt that there are many possible interpretations and that some of them might seem quite plausible. But the "correct" one is one that has meaning for the dreamer. It was a frightening dream, just as the experience of dealing with a close relative with bipolar disorder (manic depression) was frightening. The experience led me to the library and to bookstores to get as much information about this brain disorder as I could. I have no doubt that a Freudian or Jungian could find some latent or symbolic meaning here that I do not note, but I have no interest in their interpretations because I have no way to check them against reality and do not share their assumptions regarding the psyche. I have no idea why my brain confabulated this dream, arousing fear and disturbing sleep. Reality is bad enough without having our brains arouse more fears during sleep.

There are some people, however, who have experienced much more horrible things than I have, who dream about them every single night of their lives (Sacks). Why the brain should terrify its owner by repeating horrifying memories during sleep seems beyond comprehension. Such obsessive dreaming is of no more value than obsessive-compulsive behavior. Such people don't just have nightmares; they are terrified to go to sleep. They need the help of a good therapist, but they are not in need of dream interpreter. If such dreamers are to be helped they must learn control their dreams. There are various



method used to control dreaming, most of them involving visual or auditory preparations prior to sleep. Some therapists claim success with victims of recurrent nightmares by treating what is loosely called "post traumatic stress disorder." Some patients claim that they have been helped to overcome the experience of repetitious nightmares by lucid dreaming. None have been helped by treating dreams as a gateway to some higher realm of consciousness.

## Druids

The druids were the "wise men" of the Celts. Although dozens of books have been written about them, almost nothing is known about the druids. Their beliefs were esoteric and passed on orally. Their practices, for the most part, were not public. With no written tradition and no major temples where art might provide a key to some of the druids' activities, we must rely upon the words and speculations of foreign observers.

The druids are mentioned by the ancient Roman authors Strabo, Diodorus, Posidonius and Julius Caesar, who portray them as overseeing bloody religious rituals. Hence, the druids are often thought of as having primarily a religious function and are often called 'priests.' Diodorus calls them 'philosophers.' Strabo calls them bards and soothsayers with a reputation for mediation. Whatever they were, the druids enjoyed a position of high status in Celtic society very unlike the position of modern "druids" who find solace communing with grass or the wind while parading around stone circles.

Modern "druids" treat Stonehenge and other megalithic monuments of the British Isles as places of worship. All of the stone circles, menhirs, dolmens, etc., of the British Isles were constructed by peoples who antedated the Celts by one to three thousand years. Stonehenge, for example, was built over a period of centuries, from 2800 BC to 1550 BC. The Celts did not arrive in the British Isles until long after the great megaliths had been erected.

It seems likely that the Celtic druids were a class apart from the warriors in Celtic society. "They served the tribes and clans as judges, prophets, soothsayers, wise men and as keepers of the collective memory" (Herm, 61). They were the intellectuals in a warrior society and have been compared to the Brahmins of the Indian caste system.

The word 'druid' is thought to derive from the Greek drus (oak) and the Indo-European wid (wisdom), "which produces the apparent absurdity of 'oak-knower' (Herm, 57). In any case, druids are typically associated with oak trees. Some say they held assemblies in sacred groves, that they prized the mistletoe growing on the oaks, or that they worshipped the trees themselves. However, the modern druids' nature worship is a fanciful connection to the ancient Celts. Finally, there is no direct historical connection between the Celtic druids and modern Wicca.

## Dualism

Dualism is the metaphysical doctrine that there are two substances, i.e., distinct and independent types of being, one material and the other spiritual. Material substance is variously defined as physical or material and is asserted to be the underlying reality of the empirical world, i.e., the world we see, hear, etc., and measure with our senses as well as with technical instruments that extend the range of the senses, such as electron microscopes, telescopes, radar, etc.

The spiritual world is variously described negatively as the non-physical, non-material reality underlying the non-empirical world, variously called the psychological, the mental or the spiritual world.

Dualists are fond of a belief in immortality. If there is another type of reality besides the body, this non-body can survive death. The non-body can conceivably exist eternally in a non-physical world, enjoying non-physical pleasures or pains distributed by a non-physical God. This notion seems to be non-sense, but it apparently gives many people great comfort and hope.

Some dualists are fond of drawing a significant inference from the fact that we use different kinds of language to talk about physical things and non-physical things. They note that when we talk about physical things we use language that locates or causally connects objects in space. When we talk about processes such as thinking, however, we don't use the language of things in space. We don't think of thinking as taking place in a particular place or of a thought as having physical dimensions. That is true; however, dualists infer from this fact about language that the non-physical is a substance, i.e., a type of reality capable of independent existence, not reducible to some other phenomenon. Most dualists would agree that colors, for example, are not substances because colors do not have independent existence: they are reducible to other phenomena, such as light, sensory apparatus, etc. Yet, many dualists would deny that thinking, perceiving, willing, desiring, etc., are reducible to material processes (e.g., brain states). They believe these psychological or mental activities are best explained as functions of a non-

physical substance. They can certainly be coherently explained by dualism, but it is not necessary to bring in the belief in non-physical reality to explain everything that is hard to talk about physically.

In any case, it seems very presumptuous to assume that the way language has evolved and developed is a keen sign as to the nature of reality.

## Ear Candling

(Coning)

Ear candling or coning is a method of cleaning the ears and the mind, and alleviating a host of physical, emotional and spiritual ailments. A hollow candle is stuck into the ear and lit, allegedly sucking out ear wax and negative energy. The process is ineffective for ear wax removal. I don't know how anyone knows whether it sucks out energy, positive or negative.

What wax appears in the cone is from the melted candle, not from the ears. The suction created by the coning flame is insufficient to remove wax, which, by the way, is good for you. It traps dust and dirt and helps fight infections.

Though some people fear that coning will leave them mindless, the only real dangers are from burning, infection, obstruction of the ear canal and perforation of the eardrum.

The origin of this unnatural practice has been given as ancient Tibet, China, India, Egypt, and pre-Columbian America. Even Atlantis is cited as a possible origin. In other words, we don't have a clue how this thing got started.

## Ectoplasm

Ectoplasm is the stuff oozing from ghosts/spirits which makes it possible for them to materialize and perform feats of telekinesis. For some strange reason, ectoplasm is often not visible to the naked eye but appears in photographs. This may be due to the fact that most cameras are more sensitive to the spirit world than most people. Or, it may be due to a number of physical factors having to do with reflection, refraction, film processing, and other natural phenomena usually ignored by the truly psychic.

In the heyday of séances--the 19th and early 20th centuries--ectoplasm was often produced by the medium. James Randi claims that in such cases what was produced was painted cheesecloth and other rather usual physical substances. In short, he thinks the psychics cheated. Of course, Randi cannot prove that every psychic cheated every time; therefore, some psychics may not have cheated. Yes. And some dogs may actually be transubstantiated mosquitoes. The possibilities are endless.

## Extraordinary Human Function (EHF)

An extraordinary human function would be something like the ability to read messages with one's ears, forehead, fingers or some other part of the anatomy besides the eyes. There have even been accounts of reading by sitting on the message. The latter was popular in China in the late 1970's, when the study of EHF became a major research topic at Beijing University and the Chinese Academy of Sciences. The scientists seemed particularly interested in finding a link between EHF and qi (ch'i), believed by many Chinese to be the fundamental life force. Their research, like similar research in the Soviet Union and U.S., covered everything from using paranormal powers to catch criminals to the training of astronauts to use such powers for spying or for guiding missiles. There are still reports from Russia alleging people can read while blindfolded and that techniques have been developed in dermo-optical perception (DOP) to teach blind people to read through their forehead or fingers using paranormal powers. Braille is a much better bet.

## Electromagnetic Fields (EMFs)

An electromagnetic field is a region through which a force produced by electric current is exerted.

Many people fear that EMFs cause cancer; however, a causal connection between EMFs and cancer has not been established. In fact, the National Research Council (NRC) spent more than three years reviewing more than 500 scientific studies that had been conducted over a 20 year period and found "no conclusive and

consistent evidence" that electromagnetic fields harm humans. The chairman of the NRC panel, neurobiologist Dr. Charles F. Stevens, said that "Research has not shown in any convincing way that electromagnetic fields common in homes can cause health problems, and extensive laboratory tests have not shown that EMFs can damage the cell in a way that is harmful to human health."

In 1997, The New England Journal of Medicine published the results of the largest, most detailed study of the relationship between EMFs and cancer ever done. Dr. Martha S. Linet, director of the study, said: "We found no evidence that magnetic field levels in the home increased the risk for childhood leukemia." The study took eight years and involved measuring the exposure to magnetic fields generated by nearby power lines. A group of 638 children under age 15 with acute lymphoblastic leukemia were compared to a group of 620 healthy children. "The researchers measured magnetic fields in all the houses where the children had lived for five years before the discovery of their cancer, as well as in the homes where their mothers lived while pregnant." The study was criticized because it is impossible to know exactly what the EMFs were at the times the mothers or their children were exposed. All measurements must be done after the exposure has taken place and assumptions must be made that the level of EMFs was not substantially different during exposure. It is unlikely, however, anyone except the intellectual descendants of Nazi doctor Joseph Mengele will ever do a control study on humans which systematically controls exposure to EMFs from the moment of conception through early childhood.

Yet, many people believe that living near power lines or using cellular phones causes cancer. Why? Some lawyers, the mass media and a scientifically illiterate public can take the credit here.

Robert Pool claims popular opinion has been aroused against EMFs by unscientific sources such as The New Yorker magazine (Pool, 1990). Similar arousal has been evoked by talk show hosts such as Larry King who introduced the nation to a widower who claims that his wife's fatal brain tumor was caused by the EMF emitted from her cellular phone. There is a lawsuit, of course. The evidence? The tumor was located near where she held the phone to her ear. The major networks reported the story about the lawsuit and the brain tumor and the cellular phone. Scientists were interviewed to give the story more 'depth' and credibility. However, no scientist has yet found a causal connection between EMF and cancer, much less between cellular phones and brain tumors. So, a scientist who has exposed existing tumors to EMF was interviewed. He reported that his research indicates that tumors grow faster when exposed to EMF. Sales of cellular phones dropped and stock in companies that manufacture them dropped. Because tumors exposed to EMF grow more rapidly than tumors not so exposed does not indicate that EMF causes tumors, cancerous or otherwise.

It is possible that cellular phones are causing brain tumors, but the likelihood is small. The phones emit very low EMF levels and exposure to them is intermittent. It is possible that a person with a brain tumor who uses a cellular phone is running a significant risk that the tumor will grow faster than it otherwise would. As yet, however, there is no evidence to support the view that there is a reasonable probability of either.

Lawyers representing claimants who blame their cancers on power lines cite a Swedish study that found leukemia rates were 400% higher among children living near power lines. Another study, done by the University of Southern California, found increased leukemia rates in children living near power lines. According to Robert Pool,

The study examined 232 leukemia patients under than age of 10, and a group of control subjects that were matched for age, sex, and race. The amount of EMF exposure for each child was determined in a number of ways. No correlation was found between the incidence of leukemia and the electric field exposure as measured by spot checking. An insignificant correlation was noted between incidence of leukemia and levels of exposure to magnetic fields, as measured by a continual measurement over a 24-hour period. A significant correlation was seen between the EMF exposure, as measured by wire coding, and an increased risk of leukemia. Those with the highest level of exposure had a 2.5-fold greater risk of developing leukemia. It is not understood how these differences in correlation depend on the way the EMFs are measured. It is possible that some types of EMF exposure may lead to an increased risk of leukemia. On the other hand, measurements taken by wire coding may be more sensitive. Further study is needed to see what factors are being measured by the wire coding and not by the other methods. Until that is understood, it is not clear if exposure to high levels of EMFs is related to an increased risk of leukemia (Pool, 1991).

Also, Pool reports, "there have been numerous scientific reports of elevated levels of leukemia in people who are exposed to high EMF levels on the job, such as power-line repairmen and workers in aluminum smelters." While the scientific jury is still out on the causal connection, if any, between living near power lines and cancer, the lawsuits are starting to come in. Over 201 challenges to utility projects were made in 1992 in which EMF was an issue. At least three suits have been filed in federal courts claiming exposure to utility lines caused cancer (Pool, 1991). Utility companies are running scared. They are pouring billions of dollars into efforts to cut EMF exposure from their power lines. Dr. Robert Adair, a physicist at Yale University, calls the reaction "electrophobia" and says that it would take EMF levels 150 times higher than those measured by the Swedish researchers to pose a hazard.

Lawyers will be able to take their cases to court long before the scientific evidence is anywhere near conclusive. And the standards of proof in a court of law are appallingly much lower than those in science. For example, a few years ago Judith Richardson Haines of Philadelphia was awarded more than \$1 million by a jury because they believed she lost her psychic powers after having a CAT scan performed on her at Temple University Hospital. (A judge later reduced the award to \$1, which is probably 98 cents more than her psychic powers were worth.) "All it's going to take is one or two good hits and the sharks will start circling," says Tom Ward, a Baltimore attorney who is suing Northeast Utilities Co. and its Connecticut Light & Power Co. unit over an alleged EMF cancer.[*ibid.*] There is currently a great push to bury all power lines. Better safe than sorry? The cost goes up twenty-fold to bury the lines. Then what? Lawyers claiming their clients' cancers were caused by EMFed water? It was bad enough trying to sell a house with power lines nearby when people cared about the ugliness of the view. But try to sell the same house when people are afraid of getting cancer from the ugly lines! In any case, we will have to bury our electrical wires even deeper than our power poles are high if we are to make a significant difference in shielding us from the magnetic fields of power lines.

It is not very likely that the average person has anything to worry about from power lines. Most of us do not get that close to them to be significantly affected by their EMFs. Our exposure to them, even if they are nearby, is not direct, up close and constant. We're probably in more danger of EMF pollution from the wiring in our homes and the electrical appliances we use, than from the wires overhead. No one can avoid electromagnetic radiation. It is everywhere. Furthermore, "while electrical fields are easily screened, magnetic fields make their way unimpeded through most substances" (Pool, 1990). In fact, it is curious that while fear of EMFs is on the rise so is the use of magnets to cure just about any ache or pain.

The scientific evidence supports the view that we're not in much danger in our homes if our wiring is properly insulated. Yet, because utility companies fear lawsuits we are all likely to pay higher utility fees to cover the billions extra it will cost to put wires underground. If the utilities lose lawsuits, it's the shareholders who lose money and they don't want that. On the other hand, utility rates are generally set by public commissions, and these commissions might argue that the rate hikes are unwarranted because there is no proven hazard from EMFs. Utility companies may be forced to be advocates for the "electrophobes" in order to justify raising rates to cover the cost of putting lines underground to avoid the cost of lawsuits. Make no mistake about it: when the lines go underground it will be to avoid lawsuits, not to save lives or prettify urban neighborhoods.

#### Electronic Voice Phenomenon (EVP)

Electronic voice phenomenon refers to the alleged communication by spirits through tape recorders and other electronic devices. The belief in EVP in the U.S. seems to have mushroomed with Sarah Estep, president of The American Association-Electronic Voice Phenomena, which claims to have members in some 40 states and publishes a newsletter. Estep claims that in the 1970s she started picking up voices on her husband's Teac reel-to-reel recorder. Estep is sure that the voices are those of spirits and prove that there is life after death. Estep also claims to hear voices of aliens on some of her tapes (she says she has taped some 20,000 ghosts and aliens). Aliens don't speak English, however, so she is not sure what they are saying.

Interest in EVP apparently began in the late 1920s with Thomas Edison, who was an active pursuer of contact with the dead. Edison "worked on equipment he had hoped would permit communication with those who had passed on using a chemical apparatus with potassium permanganate."\* According to Victor Zammit, spirit voices were first "captured on phonograph records in 1938 and on tape recorders in the early 1950's."

Zammit, who has investigated EVP in great detail, lists many people, including inventors, priests, and other 'normal, intelligent' people who swear they have heard their dead mother's voice speaking electronically. Such people have probably experienced apophenia.

#### Empiricism

Empiricism is an epistemological theory [theory of knowledge] which holds that the origin of all knowledge is sense experience. Often, empiricism is contrasted with rationalism, an epistemological theory which holds that the mind may apprehend some truths directly, without requiring the medium of the senses.

Empiricists tend to emphasize the tentative and probabilistic nature of knowledge, while rationalists tend to be dogmatic and assert they have found a method to discover absolutely certain knowledge.

## Enneagram

I teach it in conjunction with a psychiatrist who has a deep interest in the Enneagram. The psychotherapists want it as a very useful, hot tool to work with normal, high-functioning people. You see, there is no psychology for the normal and high functioning person....

I've had ONE's who have so repressed their anger that they don't think they're angry....

...the spiritual agenda is paramount, which is this conversion process. Whether we know it or not, we're all transforming, because we're hungry for the opposite of our vice. Even if we don't know about our vice, we suffer from lack of its opposite tendency.

----Helen Palmer, of the Oral Tradition

The fundamental premise of the enneagram is that each of us has one dominant (not exclusive) energy that drives us in everything we do. This dominant energy is our greatest gift so we use it too much and it becomes our chief fault - or sin. This energy, like a prevailing wind that bends a tree permanently, sculpts our interior geography and shapes our entire life. --Enneagram Central

An enneagram is, literally, a nine-sided drawing. Figuratively, however, the enneagram is a New Age mandala, a mystical gateway to personality typing. The enneagram represents nine personality types, defined by a fundamental weakness or sin. There are three enneagram points for each of the mental types, emotional types, and physical types. The nine points of the enneagram supposedly reflect the tendencies of these three basic types. The origins of the enneagram are shrouded in mystery, but one finds references to Sufism, the cabala, Zen, various mystics and mystical traditions, and ultimately to Georges Ivanovitch Gurdjieff, who supposedly brought the enneagram to the west.

The nine-type inventory is the enneagram's answer to the Myers-Briggs sixteen basic personality types. How the number nine was arrived at is not clear, but one of the leading lights in the enneagram "oral tradition" is Helen Palmer who says that the "Enneagram is a psychological and spiritual system with roots in ancient traditions." Maybe. But the modern root is Christianity's seven sins plus two: anger, pride, envy, avarice, gluttony, lust, and sloth, plus fear and deceit. Instead of calling the seven deadly sins "the seven deadly sins," Palmer calls them "capital tendencies." Each of us has a personality that is characterized by one of the nine capital tendencies. Knowing what type you and others are will put you on the road to "self-understanding and empathy, giving rise to improved relationships," says Palmer.

There must be nine types, not 16 as in Myers-Briggs, because an enneagram has nine points. I think that's also why there can only be nine planets, why there are nine innings in a regular baseball game and why people are said to be "dressed to the nines." It is also why the Beast is 999 upside down and why happy people are said to be on Cloud Nine. It is also why Earl Sheibb used to paint any car for \$99.99. It is why cats have nine lives and why the highest iron in golf is the 9-iron. Anyway you cut it, nine is a mystical number. Anyway, the nine types are

The Nine Personality Types and the Nine Capital Tendencies

The Perfectionist anger  
The Giver pride  
The Performer deceit  
The Romantic envy  
The Observer avarice  
The Trooper fear  
The Epicure gluttony  
The Boss lust  
The Mediator sloth

Personality typing is, of course, arbitrary. The classification system used by Gurdjieff, Palmer, and others is not without merit. One certainly could learn much of importance about oneself by focusing on one's central fault or faults, but those who advocate using the enneagram seem to be interested in much more than a bit of self-knowledge. Entire metaphysical systems, psychologies, religions, cosmologies and New Age springboards to higher consciousness and fuller being are to be found by looking into the enneagram. There is seemingly no end to what one can find in these nine lines.

At the heart of this New Age spiritualism are a number of concepts vaguely reminiscent of biorhythms (the three types: intellectual, emotional and physical), numerology, astrology, tarot card reading, and Myers-Briggs personality inventories. There is no scientific basis for the enneagram. Its history, what little is known of it, indicates that there probably never will be any scientific basis for it. Part of that history involves Oscar Ichazo, a mystery man from Chile who claims he began teaching the enneagram after spending a week in a "divine coma." Word spread that Ichazo had been trained by mysterious Orientals in

Chile in the mystical arts of sufism, the cabala and Zen. He'd been to the Orient and studied martial arts, yoga, Buddhism, Confucianism, the I Ching and alchemy. In short, he had done it all. Surely, Ichazo must know what it all means and have the answers to all the great questions. Seekers from Esalen sought him out. He moved north, founded the Arica Institute and now has centers in New York, Los Angeles and San Francisco.

"We will make a great movie together," says Oscar [Ichazo]. He will train me, he will train my actors. You want to know of what his training consists? Oscar's idea of training is two days in a motel room with me taking LSD. I want you to know I don't need Oscar to take LSD in a motel room, I do that plenty enough on my own....Oscar Is the continuation of Gurdjieff, but so what? What the problem with these damn gurus is they want to be immortal, to have the life of God. I am an anarchist mystic. Good for Buddha to be Buddha, not for me. --Alexandro Jodorowsky, film maker (El Topo; The Holy Mountain)

Claudio Naranjo attended Ichazo's lectures on ennead personality types in Santiago, Chile, in the 1970's and published a book called Enneatypes in Psychotherapy in 1995. A Jesuit priest named Bob Ochs got the enneagrams from Naranjo and taught courses on enneagrams at Loyola University in Chicago in 1971. Naranho also taught Helen Palmer.

However valuable some of the insights of these people might be, it remains that what they say is not being checked against reality in any scientific way. Whatever subjective validity these insights possess, there are literally thousands of others of equal value waiting for some communal reinforcement for other classification schemes. Since it is not likely that any empirical testing of the enneagram will be done, I suggest that one might do well to start a new scheme based on the nine virtues.

The Clown (Humor)  
The Lover (Love)  
The Friend (Friendship)  
The Defender (Loyalty)  
The Despised (Honesty)  
The Motivator (Self-realization)  
The Teacher (Knowledge)  
The Martyr (Courage)  
The Sweetheart (Kindness)  
Still other systems of thought might be based upon the following nine types.

The Savior  
The Moron  
The Stiff  
The Joker  
The Sucker  
The Con Man  
The Pinhead  
The Putz  
The Schmuck  
Of course, this list could be expanded with another nine:

The Teacher  
The Administrator  
The Airhead  
The BoardMember  
The LowLife  
The Bookworm  
The BigBadMon  
The Repairman  
The Lunatic  
Then there are also

The Shopper  
The Schlemiel  
The Pollyanna  
The Lothario  
The Dyke  
The Fairy  
The Daredevil  
The Dement  
The Dopehead  
And we should not forget

The Anal Retentive

The Orally Fixated  
The Preacher  
The Virgin  
The Hothead  
The Codependent  
The Vampire  
The Rat  
The Digitally Homeless

To be complete, there should be nine groups of nine types (or 9 variations on 9 themes), so that  $9 \times 9$  will give us 81 types, and  $8 + 1 = 9$ , so we are back at the essential trinity cubed, the source of being and light, the number of numbers. But before we wax too poetically, we must remember the essential truth as uttered by an expert in the enneagram, Dr. Jerome Freedman: "each pattern of the Enneagram represents a very strong drive that is ingrained in one's self-concept and that exercises great influence over one's behavior." How does the good doctor know this? His type must be The Know-It-All. He might consider testing this personality test by giving a list of names of famous people to fifty of the leading enneagramists and see how much agreement they come up with. They might have these experts evaluate fifty individuals and type them, and check for how much agreement there is in their typings. They might, in short, do for the enneagram what others have done for pseudosciences such as graphology: test it under controlled conditions to see how much of its validity is due to the Forer effect, self-deception, etc.

Actually, it has recently been discovered that the enneagram is the layout of an ancient nine-hole golf course. And I have to admit that I have met each of the nine types on the golf course. For example, type One is the Perfectionist. Anyone who golfs knows what a pain playing with the Perfectionist can be. First of all, the One is never satisfied. Not only does he take a mulligan on perfectly good drives, he complains about something on almost every shot. "Fuck! I pulled it." "Shit! I pushed it." "Goddammit! Wrong club." "Christ! Too much fade." "Jesus fucking Christ! Not enough draw." The One always talks as if his body just didn't follow his mind's orders. This is the guy who slams his club into the ground as the ball is in flight right at the pin. He is also the one who keeps giving you unsolicited advice, such as "you should've aimed more to the left" or "you need to adjust your grip." The Perfectionist also takes forever to hit his ball. He throws up grass on the fairway about six times to check the wind. He adjusts his grip about five times before hitting. He keeps looking down the fairway to make sure his alignment is right. And when putting he walks all over the green, holds his putter up like a plumb bob, and generally takes forever before actually putting the ball. The One is no fun.

The Two is the Giver. This is the guy who says "nice shot" as soon as you swing at the ball. Even when you shank, slice, duck hook, chile dip...."nice shot." When you putt six feet past the hole, he says "great stroke; you were robbed." He's just looking for you to say "nice shot" every time he hits the ball. He gives all this approval because he seeks it in return. When the Two says "nice shot" as you put one in the water, you just want to punch him. The Two is a dip.

The Three is the Performer. This is the guy who holds his finish for ten seconds so everybody can see what great form he has. He is forever giving the pumped fist in the air sign to let everyone know what a great shot he just made. He runs around the green when he chips one in. He pretends his putter is a sword and he fences an imaginary opponent after he sinks a putt. He drops to his knees and falls on the ground when he lips out a three-footer. Whereas the Giver is forever heaping praise, the Performer is forever demanding it. "Did you see that shot!" (His own, of course.) "Am I good, or what?" is the Three's favorite question. The Three is a model for the video byte.

The Four is the Romantic. This is the guy who's forever talking about the time he played the Old Course in St. Andrews. He's always telling stories about the time he was playing Ballybunion in gale force conditions coming in off the Atlantic and he had to hit to a 180 yard three par running parallel to the Ocean and the hole was across a canyon and the smart shot would have been to hit to the bottom of the canyon and chip up onto the green under such conditions but no he had to aim out at the beach and wack a 2-iron which was carried at least 150 yards eastwards into another canyon and this happened three times until he was hitting 7 off the tee and he finally got smart and put it into the canyon in front of him and chipped on and one-putted for a nine, the best nine he ever had. The Four is a bore.

The Five is the Observer. This guy can be a pleasure to play with since he doesn't say a word the whole round. He just kind of grunts every once in awhile but generally he maintains a totally detached attitude throughout the round. He seems to be intensely interested in your shots, as he seems to glare right through you from time to time, but he never says anything. It's kind of fun to watch a Giver and an Observer together. The Giver keeps telling the Observer what a great shot he just made and the Observer doesn't respond. He just quietly goes about his business of mishitting the golf ball. The Five is alive.

The Six is the Trooper. To this guy, the golf course is a battleground and every bunker, every tree, every blade of grass has been placed there specifically as an obstacle to him. Even the wind only decides to blow when it can oppose him. The Six is the guy who aims fifty feet right of the green because there is a bunker guarding the left approach. When he putts, he always seems to tap his ball over a spike mark which diverts his ball from the hole. If he mishits a ball, he looks up for the cause of his distraction. When he lips out, he

stands over the hole, staring it down as if to say that he knows someone put a dip in front of the hole deliberately to stop his ball short. The Six should be approached with caution.

The Seven is the Epicure. This is the guy who gets pleasure out of every golf shot, his when the shots are good and others when the shots are bad. The Epicure is a pleasure to play with. He really enjoys the game and his enjoyment can be contagious if you are not playing too poorly. He sees every shot as an opportunity to try something out. If he hits behind a tree, it's a chance to try some shot with the face turned in a bit while aiming right of the tree, hoping for a draw around the tree towards the green just like the shot he read about in a book last week. This guy's always talking about books he's read or videos he's bought. He can't wait to hit into a sand trap to try out the new Greg Norman tip he saw on a television show. He loves to hit over water and takes great pleasure in pretending he sees dirt where there is water. The Seven also likes to drink beer while he plays, and is forever stopping the refreshment cart for a beer or a dog. I like a game with the Seven. If he's having a good round, he'll usually offer to buy you a beer during one of his many stops for refreshments. The Seven is from heaven.

The Eight is the Boss. This is the guy who's always telling everybody whose turn it is. "You're away," the Eight will say when no one asks for his opinion and everyone knows who is away. The Eight insists on honors when he has honors, otherwise it is "ready golf." The Eight knows the rules of golf and insists that everyone play as if they were in the Masters. If he doesn't know the rules of golf, he'll make them up as needed. The Boss is actually handy when one or two of the other players doesn't know the rules of golf. If the Boss sees you hit one out of bounds, he reminds you right away to hit another ball from the same spot. If you're in a hazard and look puzzled, he'll let you know that you can play it from there or even pick and clean it if winter rules are in force. I don't mind playing with an Eight. The Eight can be great.

Finally, there is the Mediator. Nothing seems to bother the Nine; at least they don't show their emotions when things are going bad. But they do tend to apologize frequently. "Sorry I'm not playing well today." The Nine loves to yell "Fore" whenever he hits a ball within 100 yards of any living being. And he loves to console the other player who has just bungled another shot. The Mediator is especially fond of complimenting you on your third shot out of a bunker. "That's the way to do it," he'll shout as you ask yourself why you couldn't have done that on the previous two tries. The Mediator is forever trying to make you feel better. "You've been just missing them all day." "A foot to the right or left here or there and you'd have had a hell of a good round!" Nines are fine.

I have studied the enneagram very carefully and have concluded that I am a twelve. This is not really a mystery, since twelve is the sum of two numbers between one and nine. Actually, it is the sum of three distinct pairs of numbers: 3 and 9, 4 and 8, & 5 and 7. (I won't tell you which pair is mine; some things should remain a mystery.) Now that I know these things and am resonating with wisdom, I can begin working on seeking the opposites of my main vices. I can begin to grow and have better relationships. I can dance with the pulse of the Universe. I can await the next Millennium and the New Messiah who will be born on the ninth day of the ninth month of the ninth year after nine months in the womb. The Messiah will be born with nine toes. By this sign you will know her.

E-rays

(aka Erdstrahlen and earth rays)

E-rays are said to be evil rays emitted from below ground and detectable only by dowsers with paranormal powers. These evil rays are invisible and undetectable by ordinary people using ordinary scientific equipment. E-rays are blamed for everything from cancer in humans to wilting in plants. E-rays are especially bad for one's aura.

The belief in E-rays is especially popular in Germany where some people sleep with protective sheets of black plastic under their beds for protection. Specialists in E-ray detection practice a German variant of Feng Shui, advising individuals and government employees on safe furniture arrangement.

Erhard, Werner

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## ESP (Extrasensory Perception)

Extrasensory perception, commonly called ESP, is perception occurring independently of sight, hearing or other sensory processes. ESP is divided up into telepathy, clairvoyance, and precognition. The existence of ESP and other paranormal powers such as telekinesis, are disputed, though systematic experimental research on these subjects, known collectively as psi, has been ongoing for over a century in parapsychology.

Most of the evidence for ESP is anecdotal and is dismissed by skeptics as based on trickery by mentalists, selective thinking, retrospective falsification, wishful thinking, poor grasp of probabilities and of the law of truly large numbers, gullibility, ignorance of cold reading, subjective validation, or fraud. The following case is typical of those cited as proof of ESP. It is unusual only in that it involves belief in a psychic dog, rather than a psychic human. The dog in question is a terrier who has achieved fame as having ESP as exhibited by his ability to know when her owner, Pam Smart, is deciding to come home while she is away on a shopping trip or some such business. The dog's name is Jaytee and has been featured on several television programs in England, where the dog lives, and elsewhere, including the United States. It was claimed by some of those showing the psychic dog running to a window facing the street that the dog was doing so at precisely the moment his owner was deciding to come home from some miles away. Had not two scientists, Dr Richard Wiseman and Matthew Smith of the University of Hertfordshire, tested the dog under controlled conditions, this story might have passed on unchallenged into the annals of ESP lore. The scientists synchronized their watches and set video cameras on both the dog and its owner. Alas, several experimental tries later, they had to conclude that the dog wasn't doing what had been alleged. He went

to the window, alright, and did so quite frequently, but only once did he do so near the exact time his master was preparing to come home and that case was dismissed because the dog was clearly going to the window after hearing a car pull up outside his domicile. Another supportive case was dismissed, even though the dog went outside at the time her owner was deciding to return home, but it was decided that the dog went outside to vomit, not to greet her mistress.

Much of the belief in ESP is based upon apparently unusual events that seem inexplicable. However, we should not assume that every event in the universe can be explained. Nor should we assume that what is inexplicable requires a paranormal (or supernatural) explanation. Maybe an event can't be explained because there is nothing to explain. For example, I had a dream that I came into a room where my best friend was seated with his back towards me. He had died of a cerebral hemorrhage five weeks earlier. Does this dream need to be explained? Why? If I had had the dream five weeks before he died, would it have needed explanation then? Does my dream need to be explained? If it does, I think several explanations are plausible which do not require any reference to ESP.

Most ESP claims do not get tested, but parapsychologists have attempted to verify the existence of ESP under controlled conditions. Some of them, like Charles Tart, claim success, but have been charged with confirmation bias, among other things. Others, such as Susan J. Blackmore, claim that years of trying to find experimental proof of ESP have failed to turn up any proof of indisputable, repeatable psychic powers. Psychologists like Ray Hyman, who have thoroughly investigated parapsychological studies, have concluded that there is little there besides fraud, error, incompetence, and statistical legerdemain. Others claim that the Ganzfeld experiments, the CIA's remote viewing experiments and attempts to influence randomizers at Princeton Engineering Anomalies Research have produced evidence of ESP.

EST

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### Evil Eye

The evil eye is a kind of curse put on a child, livestock, crops, etc., by someone who has the "evil eye." There does not seem to be any particular reason why some people are born with and others without the evil eye. The curse is usually unintentional and caused by praising and looking enviously at the victim. In Sicily and southern Italy, however, it is believed that some people--jettatore-- are malevolent and deliberately cast the evil eye on their victims. Belief in the evil eye is not necessarily associated with witchcraft or sorcery, though Evil Eye was something Church inquisitors were instructed to look for. Pope Pius IX was reputed to be a jettatore, not because it was thought he was malevolent but rather because it seemed that disasters fell upon persons and places he had blessed.

The superstitious belief in the evil eye is ancient and widespread, though certainly not universal. It is thought to have originated in Sumeria. Its origins are obscure but the belief may have its roots in fear of strangers or other social concerns and simple post hoc reasoning, e.g., praise is given or a stranger passes and later a child is sick or the crops fail. Various rituals have developed to counteract the effects of the evil eye, such as defusing the praise, putting spit or dirt on a child who is praised, averting the gaze of strangers, reciting some verses from the Bible or the Koran, etc. The belief is especially prevalent today in the Mediterranean and Aegean, where apotropaic amulets and talismans are commonly sold as protection against the evil eye. Some folklorists believe that the evil eye belief is rooted in primate biology (dominance and submission are shown by gazing and averting the gaze) and relates to our dislike of staring.

The evil eye is known as ayin horeh in Hebrew; ayin harsha in Arabic, droch shuil in Scotland, mauvais oeil in France, böse Blick in Germany, mal occhio in Italy and was known as oculus malus among the classical Romans.

### Evolutionary Psychology

...the mind is a set of information-processing machines that were designed by natural selection to solve adaptive problems faced by our hunter-gatherer ancestors.  
--Leda Cosmides & John Tooby

The mind is an adaptation designed by natural selection....And the ultimate goal of natural selection is to propagate genes....Our minds are designed to generate behavior that would have been adaptive, on average, in our ancestral environment....  
--Steven Pinker, How the Mind Works

Living things have parts which are clearly functional; they are there for something. In fact they are there for the survival and reproduction of the object they're part of. So one aspect of life is that it's not only complicated, but it's complicated in an adaptive way. Hands and kidneys and livers and noses and eyes and ears and so on -- everything's adapted for something.  
--John Maynard Smith

Evolutionary adaptation is a special and onerous concept that should not be used unnecessarily, and an effect should not be called a function unless it is clearly produced by design and not by chance. When recognized, adaptation should be attributed to no higher a level of organization than is demanded by the evidence.  
--George Williams, Adaptation and Natural Selection

Evolutionary psychology could, in my view, become a fruitful science by replacing its current penchant for narrow, and often barren, speculation with respect for the pluralistic range of available alternatives that

are just as evolutionary in status, more probable in actual occurrence, and not limited to the blinkered view that evolutionary explanations must identify adaptations produced by natural selection.  
--Stephen Jay Gould

Evolutionary psychology is sociobiology grounded in empirical research, minus the speculation about the first humans. At least that is what John Tooby and Leda Cosmides claim. They are the UC Santa Barbara husband-and-wife team who coined the term in 1992. Tooby is the president of the Human Behavior and Evolution Society (HBES), evolutionary psychology's professional organization.

Sociobiology got its name from E.O. Wilson's *Sociobiology: The New Synthesis* (1975). Wilson is a naturalist and evolutionary biologist, turned philosopher. His greatest work is in the study of the behavior and evolution of insects. His speculations about human behavior gave rise to the controversial discipline of sociobiology, which, mutated in the environment of academia, found itself perfectly adapted for growth and expansion in the psychology department.

The fundamental assumption of evolutionary psychology is that all human behavior can be explained in terms of striving to fulfill some evolutionary goal. Never mind that evolution does not have any goals, but is a blind process best characterized by purposeless mechanisms that appear purposeful after the fact. To have a goal, evolution would have to be the intention of a conscious being. Only if we assume some being, either a Creator God or a conscious universe, could evolution have goals.

The main goal of evolution, according to evolutionary psychologists is reproduction. Seemingly, just about any human behavior can be seen as an adaptation whose purpose is to increase the chances for reproduction. Another viewpoint seems more plausible. As Nietzsche put it: animals with a strong sex urge reproduce more than those who don't, but they don't have a strong sex urge in order to reproduce. A cataract may appear to be designed to create a beautiful waterfall, and should one wish to stretch the imagination one could see cataracts as adaptations, but they're not. If it's cold and you put on a coat, you have made an adaptation. If your species has fur, that is not because of an adaptation. Your furless predecessors did not survive. They don't have descendants. The colder it got the more advantageous it was to have fur and the more the furry ones prevailed.

Two examples of this allegedly less-speculative, more empirical version of evolutionary psychology are (1) *A Natural History of Rape: Biological Bases of Sexual Coercion* (2000) by Randy Thornhill and Craig T. Palmer and (2) *The Culture of Critique: An Evolutionary Analysis of Jewish Involvement in Twentieth-Century Intellectual and Political Movements* (1998) by Kevin MacDonald.

#### Rape as an Evolutionary Adaptation

Thornhill and Palmer argue that men are genetically predisposed to rape as a primordial strategy of creating more offspring. Thus, to reduce the chances of being raped a woman should make herself unattractive. Don't expect men to be able to do much about these urges since they are "natural" and part of human biology and psychology. The behavior of packs of young males assaulting women in New York City's Central Park after a Puerto Rican Day Parade in the summer of 2000 might seem to support Thornhill and Palmer's claim.\* (Some 25 men were accused of assaulting more than 50 women\* as police stood by and did nothing.\*) However, not all men behave as unrestrained amoral animals. Not even all heterosexual men with strong sexual urges act upon those urges without restraint. Many, if not most men, have a conscience and moral sense that would prohibit them from assaulting women, even scantily clad and provocatively dressed women, even if dozens of other males were not restraining themselves. One wonders what these scholars think the evolutionary purpose of conscience or morality might be. Actually, we know what they think: morality must be designed to perpetuate our DNA. Clearly, the moral men who don't rape women have a much better chance of spreading their seed unto many future generations. Or, perhaps morality is a deception by men who do not plan to follow it. The immoral might spread more seed if they convinced others to be celibate until marriage and monogamous in marriage, while they (the immoralists) would act the satyr at every opportunity.

If Thornhill and Palmer are right, it would seem to be a miracle that the human species has survived at all. There could hardly be a dumber tactic for creating and maintaining offspring than rape and run. The odds of impregnating a terrorized woman by raping her seem much smaller than those of settling down and having sex with the same woman over a period of time. If you want to spread your seed, you stay around and protect your investment. You keep other men's seed out. You choose mates who you think will protect and nurture your offspring, ensuring that your offspring will reach the next generation. If the offspring don't live to reproduce, your sowing was in vain. If Thornhill and Palmer have the data to show that rapists have very low intelligence, then their theory might show promise. For, if spreading their DNA is their underlying purpose, rapists would have to be some of the dumbest members of our species.

the Jewish evolutionary strategy

MacDonald, a California State Long Beach psychology professor, also professes to be less speculative and more empirical than sociobiologists. Yet, he assumes that the Jews have a monolithic evolutionary strategy to go along with their monolithic culture, part of which involves encouraging anti-Semitism to keep the group together. According to Tony Ortega of New Times Los Angeles

MacDonald suggests that in order to combat anti-Semitism, Jews have, as part of their evolutionary strategy, dominated various European and American 20th-century intellectual movements, sometimes holding up token non-Jews to mask their control, and that these movements were used to further Jewish ends....

An evolutionary psychologist, MacDonald asserts that Jews do better on IQ tests because, for millennia, they have practiced what amounts to a eugenics program disguised as their religious code. That's made them not only smarter, but better competitors in the Darwinian struggle for survival -- which in turn has produced hatred and jealousy toward them among non-Jews. Anti-Semitism, in other words, is not an irrational hatred of Jewish people but a scientifically understandable by-product of Jewish success.

Ortega speculates that MacDonald's main evidence for this theory is personal experience with college roommates who were Jewish. MacDonald seems to have sealed his fate as a scholar by testifying for Holocaust denier David Irving.

### Evolutionary Psychology Explains Everything

Evolutionary psychology finds it easy to explain human behavior in terms of "survival of the fittest." Assume a behavior has the purpose of spreading one's own genetic material and you have the foundation for this discipline. This assumption, however, is based upon another assumption, namely, that there is a purpose to evolution, which there isn't. Natural selection isn't purposive and it does not aim to spread genetic material. Individuals have an instinctive drive to survive. If a significant number of a species did not have a strong urge to survive, that species would not have much chance of surviving. Species survive, in part, because individuals have instincts and behave in ways that increase their chances of survival. They do not choose those instincts or behaviors in order to preserve the species or to make sure future generations carry their seed.

The theories of the evolutionary psychologists are explanations that, with hindsight, seem plausible. But they seem to lack one key ingredient of scientific theories: predictive power. They seem to be about as useful as the Bible Code for predicting the future, though both might seem capable of retrodicting the past. Neither seem particularly useful for understanding the present.

Evolutionary psychology seems not to be grounded in biology, though it is true that of all the sciences biology uses teleological models the most. Organs are described in terms of their purposes. But the organs have no purposes. They do what they do and if they did not, the organism would either not survive or be something quite different. The heart pumps blood, but it was not designed to pump blood. Its purpose is not to pump blood; it has no purpose. It has a function and we take that function for purpose.

In many ways, the speculations of evolutionary psychology are reminiscent of psychoanalysis. They explain everything and hence cannot be tested empirically. Nothing could ever refute them. They offer plausible sounding explanations based upon plausible sounding speculations. They remind us of how easy it is to find data to support just about any hypothesis, as long as we ignore contrary evidence or posit untestable hypotheses. They appear to be makers of myths for academics.

### Exorcism

If Ignorance is Bliss, Demon Chasers must be in Nirvana.

An exorcism is a religious rite for driving Satan or evil spirits out of a possessed person, place or thing. In ancient times, many cultures had such rites. Today, the Roman Catholic Church still believes in diabolic possession and its priests still practice what is called "real exorcism," using holy water, incantations and various prayers, incense, relics or Christian symbols such as the cross, to drive out evil spirits. Most Protestant sects also believe in satanic possession and exorcism.

Exorcisms can be done on inanimate objects or places as well as on people. These need not be "real exorcisms" but can be "simple exorcisms" (usually thought of as baptizing the infant or "blessing" the house or place). Satan is everywhere, it seems, but the specialist in real exorcism is only needed when The Evil One starts acting up.

Most, if not all, cases of alleged demonic possession of humans probably involve either people with brain disorders ranging from epilepsy to schizophrenia and Tourette's syndrome, or people whose brains are

more or less healthy but who are unfortunate enough to be sucked into playing a social role with very unpleasant consequences. In any case, the behaviors of the possessed resemble very closely the behaviors of those with electrochemical, neurochemical or other physical disorders.

A secularized version of exorcism is practiced by some therapists who specialize in unveiling and ridding their patients of "entities" which, the therapists believe, are the cause of the patient's troubles. Entity release therapists engage in this work even though there is about as much evidence for the "entities" as there is for the devils exorcised by Catholic priests. Many people however, are very resistant to the idea that demonic possession is a myth, especially since they have seen or read fictional works such as *The Exorcist* or *the Amityville Horror*. They can't imagine how anyone could make such stuff up; yet, it would seem to take much more imagination to give credence to such tales.

## Extraterrestrials

### UFOs (unidentified flying objects)

"Nothing has come from the study of UFOs in the past 21 years that has added to scientific knowledge...further extensive study of UFOs probably cannot be justified in the expectation that science will be advanced thereby." --Edward U. Condon

A UFO is an unidentified flying object which has been identified as a possible or actual alien spacecraft. Such objects include meteors, disintegrating satellites, flocks of birds, aircraft, lights, weather balloons, and just about anything within the visible band of electromagnetism. So far, however, nothing has been positively identified as an alien spacecraft in a way required by common sense and science. That is, there has been no recurring identical UFO experience and there is no physical evidence in support of either a UFO flyby or landing.

There are as many photographs of UFOs as there are of the Loch Ness Monster, and they are of equal quality: blurs and forgeries. Other physical evidence, such as alleged debris from alien crashes, or burn marks on the ground from alien landings, or implants in noses or brains of alien abductees, have turned out to be quite terrestrial, including forgeries. The main reasons for believing in UFOs are the testimony of many people, the inability to distinguish science fiction from science, the ability to trust incompetent men telling fantastic stories, the ability to distrust all contrary sources as being part of an evil conspiracy to withhold the truth, and a desire for contact with the world above. In short, belief in UFOs is akin to belief in God.

"UFOlogy is the mythology of the space age. Rather than angels...we now have...extraterrestrials. It is the product of the creative imagination. It serves a poetic and existential function. It seeks to give man deeper roots and bearings in the universe. It is an expression of our hunger for mystery...our hope for transcendental meaning. The gods of Mt. Olympus have been transformed into space voyagers, transporting us by our dreams to other realms." --Paul Kurtz

Dr. J. Allen Hynek, astronomer, foremost proponent of UFOs, and the one who came up with the expression "close encounters of the third kind", defines a UFO as:

[T]he reported perception of an object or light seen in the sky or upon land the appearance, trajectory, and general dynamic and luminescent behavior of which do not suggest a logical, conventional explanation and which is not only mystifying to the original percipients but remains unidentified after close scrutiny of all available evidence by persons who are technically capable of making a common sense identification, if one is possible.

These mystifying words seem to say that when you see something which intelligent people cannot rationally explain, then you saw a UFO. Witnesses to such sightings often claim that what they saw could not be explained by the known laws of physics. They claim to have witnessed a violation of a law of nature, i.e., a miracle.

What Hynek considers to be "all available evidence" may be much less than what a skeptic would require. For example, the evidence appealed to by UFOlogists consists of (1) the testimony of people who claim to have seen aliens and/or alien spacecraft; (2) facts about the type of people who give the testimony; (3) the lack of contrary testimony or physical evidence that would either explain the sighting by conventional means (weather balloon, prank, meteor shower, reflection of light, etc.) or discredit the reliability of the eyewitness; and, (4) alleged weaknesses in the arguments of skeptics against the UFOlogists. The last item is irrelevant to the issue, yet it plays a disproportionately large role in UFOlogy.



Attacking an opponent's arguments or motives, instead of presenting positive evidence in defense of one's own view is common among defenders of the claim that UFOs are alien spacecraft. Of course, there is nothing wrong with attacking an opponent's argument and exposing weaknesses and faults thereby. But refutation is no substitute for support. It is simply faulty logic to assume that because an opponent's reasons are flawed, one's own reasons are valid. One's own reasons may be just as flawed as an opponent's, or even more flawed.

Another common tactic of UFOlogists is to claim that the skeptic cannot prove that what was seen was not an alien craft. One is supposed to infer from this fact that the perception probably was of an alien craft. This kind of reasoning is known as the argumentum ad ignorantiam. A claim does not become true or reasonable if a contrary claim cannot be proved to be true. With arguments for UFOs there are two distinct moves here. One is to claim that no logical explanation is possible because some scientist, pilot, Air Force Colonel, or Ph.D. cannot think of one. The other is to point to the lack of contrary evidence: no counter-testimony of other eyewitnesses, no proof that there were not aliens or alien spacecraft. Here, too, there is a logical error. The fact that some genius cannot come up with an explanation for something is irrelevant to whether or not the correct explanation should be couched in terms of visitors from outer space. The choice is not either (A) we know this conventional explanation is correct, or we must conclude that (B) aliens have visited us.

It seems more reasonable to believe that the only reason we cannot explain these sightings by conventional means is because we do not have all the evidence; it not because these sightings are probably due to alien visitations. If we had all the evidence, we would probably be able to explain the sightings by some conventional means. The fact that we cannot prove that Mr. and Mrs. Barney Hill were not abducted by aliens, does not support the hypothesis that they were abducted by aliens.

Many UFOlogists think that if eyewitnesses such as Whitley Strieber, Betty and Barney Hill, or other alleged alien abductees are not insane or evil, then they cannot be deluded and are to be trusted with giving accurate accounts of alien abduction. Yet, it seems obvious that most sane, good, normal people are deluded about many things and not to be trusted about certain things. While it is generally reasonable to believe the testimony of sane, good, normal people with no ulterior motive, it does not follow that unless you can prove a person is crazy, evil or a fraud that you should trust their testimony about any claim whatsoever. When the type of claim being made involves the incredible, additional evidence besides eyewitness testimony is required. Would it be reasonable to convict a paraplegic of a crime on the basis of the testimony of ten pillars of the community who said they saw the defendant flying naked with angel's wings and snatch the purse from a little old lady? It is much more reasonable to believe that good people are doing evil things, or that they are deluded, than to believe a paraplegic could sprout wings and fly.

UFOlogists would rather follow their faulty logic than accept the conclusions of Project Blue Book, the U.S. Air Force report which states that "after twenty-two years of investigation...none of the unidentified objects reported and evaluated posed a threat to our national security." UFOlogists are unimpressed with the Condon Report, as well. Edward U. Condon was the head of a scientific research team which was contracted to the University of Colorado to examine the UFO issue. His report concluded that "nothing has come from the study of UFOs in the past 21 years that has added to scientific knowledge...further extensive study of UFOs probably cannot be justified in the expectation that science will be advanced thereby."

It is assumed by UFOlogists that the government, especially the CIA, is lying and covering up alien landings and communication. However, there is no evidence for this other than a general distrust of the government and the fact that many government officials have lied, distorted the truth and been mistaken when reporting to the general public. The CIA, however, has shown little interest in UFOs since about 1950, except to encourage UFOlogists to believe that reconnaissance flights might be alien craft. UFOlogists prefer another kind of lie to the government lie. They support the work of NBC, for example, which produced two dozen programs called "Project UFO", said to be based on Project Blue Book. However, unlike the Air Force, NBC suggested that there were documented cases of alien spacecraft sightings. The programs, produced by Jack Webb of Dragnet fame, distorted and falsified information to make the presentation look more believable. No UFOlogist took NBC to task for lying. To the skeptic, NBC was pandering to the taste of the viewing audience. Government agents lie for all sorts of reasons, but covering up alien landings does not seem to be one of them.

Most unidentified flying objects are eventually identified as hoaxes or astronomical events, aircraft, satellites, weather balloons, or other natural phenomena. In studies done by the Air Force, less than 2% of UFO sightings remain unidentifiable. It is more probable that with more information those 2% would be identified as meteors, aircraft, etc., than that they are alien spacecraft.

The reason no logical explanation seems credible to UFOlogists is probably because those making and hearing the reports either do not want to hear a logical explanation or they make little or no effort to find one. In any case, the fact that some pilots or scientists claim they cannot think of any logical explanations for some perceptual observations is hardly proof that they have observed alien spacecraft.

Finally, it should be noted that UFOs are usually observed by untrained skywatchers and almost never by professional or amateur astronomers, people who spend inordinate amounts of time observing the heavens above. One would think that astronomers would have spotted some of these alien craft. Perhaps the crafty aliens know that good scientists are skeptical and inquisitive. Such beings might pose a threat to the security of a story well-told.

## Eye Movement Desensitization and Reprocessing

(EMDR)

EMDR is a therapeutic technique in which the patient moves his or her eyes back and forth, hither and thither, while concentrating on "the problem." The therapist waves a stick or light in front of the patient and the patient is supposed to follow the moving stick or light with his or her eyes. The therapy was discovered by psychologist Francine Shapiro while on a walk in the park. It is claimed that EMDR can "help" with nearly any kind of mental or physical illness, including schizophrenia and cancer, but its main application has been in the treatment of post traumatic stress disorder (PTSD). No one has been able to adequately explain how EMDR is supposed to work. Some think it works something like acupuncture (which allegedly unblocks chi): rapid eye movements allegedly unblock "the information-processing system." Some think it works by a sort of ping-pong effect between the right and left sides of the brain, which somehow restructures memory. Or perhaps it works, as one therapist suggested, by the rapid eye movements sending signals to the brain which somehow tame and control the naughty part of the brain which had been causing the psychological problems. I heard the latter explanation on a television news report (December 2, 1994). The television station provided a nice visual of a cut-away head with sparks flying in the brain. The anchorman warned us not to try this at home, that only licensed mental health professionals were qualified to give this kind of therapy. One such professional is Dr. Ann T. Viviano who thinks EMDR works this way: "The client, by following a moving light with their eyes, activates the healing process of the brain, much as what occurs in sleep. As a result, the painful memories are re-processed and the original beliefs which sprang up from them are eliminated. New, healthy beliefs replace these." The healing occurs by activating the healing process.

Evidence for the effectiveness of EMDR is not much stronger than the theoretical explanations for how EMDR allegedly "works." The evidence has the virtue of being consistent, unlike the theoretical explanations, but it is mainly anecdotal and very vague. It has not been established beyond a reasonable doubt by any controlled studies that any positive effects achieved by an EMDR therapist are not likely due to chance, the placebo effect, patient expectancy, posthypnotic suggestion, other aspects of the treatments besides the eye movement aspect, etc. This is not to say that there have not been controlled studies of EMDR. Dr. Shapiro cites quite a few, including her own. The reader is invited to look at her summaries of the research and determine for him or herself just how adequate the evidence is in support of EMDR as the main causal agent in recovery from PTSD. The latest study by Wilson, Becker and Tinker is to be published in *The Journal of Consulting and Clinical Psychology*. It reports a "significant improvement" in PTSD subjects treated with EMDR. The study also provides significant evidence that spontaneous healing cannot account for this improvement. Nevertheless, the study is unlikely to convince critics that EMDR is the main causal agent in measured improvement of PTSD subjects. I suspect that until a study is done which isolates the eye movement part from other aspects of the treatment, critics will not be satisfied. It may well be that those using EMDR are effecting the cures they claim and thereby benefiting many victims of horrible experiences such as rape, war, terrorism, murder or suicide of a loved one, etc. It may well be that those using EMDR are directing their patients to restructure their memories, so that the horrible emotive aspect of an experience is no longer associated with the memory of the experience. But, for now, the question still remains, whether the rapid eye movement part of the treatment is essential. In fact, one of the control studies cited by Shapiro seems counter-indicative:

Pitman et al. (1996). In a controlled component analysis study of 17 chronic outpatient veterans, using a crossover design, subjects were randomly divided into two EMDR groups, one using eye movement and a control group that used a combination of forced eye fixation, hand taps, and hand waving. Six sessions were administered for a single memory in each condition. Both groups showed significant decreases in self-reported distress, intrusion, and avoidance symptoms.

Maybe hand taps will work just as well as eye movements. According to one EMDR practitioner,

...taps to hands, right and left, sounds alternating ear-to-ear, and even alternating movements by the patient can work instead. The key seems to be the alternating stimulation of the two sides of the brain.

According to Dr. Hume, Shapiro now calls the treatment Reprocessing Therapy and that eye movements aren't necessary for the treatment! Maybe none of these movements are needed to restructure memory. In short, EMDR is a scientifically controversial technique at present. This has not prevented thousands of practitioners from being certificated to practice EMDR by Shapiro and disciples.

EMDR is controversial and not accepted practice by the American Psychological Association. Advocates disagree, of course, and claim that EMDR is "a widely validated treatment for Post Traumatic Stress Disorder" and other ailments such as "traumatic memories of war, natural disaster, industrial accidents, highway carnage, crime, terrorism, sexual abuse, rape and domestic violence." [David Drehmer, Ph.D., Licensed Clinical Psychologist & Director, Performance Enhancement Laboratory, Associate Professor of Management, DePaul University, personal correspondence.] So far, the validation referred to by Dr. Drehmer is mainly in the form of unconvincing research studies and testimonials by practitioners relating anecdotes and their interpretations of those anecdotes. What is needed is not proof that PTSD subjects are being helped by the treatment, but that it is the eye movement part of the treatment that is essential. Once that is established, a theory as to how it works would be most gratifying. At present, we are being given theories to explain something which we can't yet be sure is even occurring: that eye movements are restructuring memory. If it turns out that that claim is true, I suggest it will have significance far beyond the treatment of PTSD subjects.

Finally, when evidence came in that therapists were getting similar results to standard EMDR with blind patients whose therapists used tones and hand-snapping instead of finger-wagging, Shapiro softened her stance a bit. She admits that eye movement is not essential to eye movement desensitization processing, and claims attacks on her are ad hominem and without merit.

Update: Ranae Johnson has founded the Rapid Eye Institute on a blueberry farm in Oregon where she teaches Rapid Eye Technology. This amazing new therapy is used "to facilitate releasing and clearing of old programming, opening the way to awareness of our joy and happiness." It helps us "find light and spirituality within us that has always been there." Apparently, people are paying some \$2,000 for the training and all the blueberries you can eat.

#### Face on Mars

The face on Mars is the image of some photographs of the Cydonia region of Mars taken in 1976 by the Viking Orbiter. The image is most likely of a natural formation but some people see a face or a building and are convinced that it was constructed by intelligent beings.

According to Gary Posner, the one most responsible for the view that the face on Mars is an alien construction is Richard C. Hoagland, author of *The Monuments of Mars: A City on the Edge of Forever* (1987).

NASA claims that the photos are just a play of light and shadow. Some took this explanation as a sure sign of a cover-up. Some engineers and computer specialists digitally enhanced the NASA images. This soon gave birth to the claim that the face was a sculpture of a human being located next to a city whose temples and fortifications could also be seen. Some began to wonder: were these built by the same beings who built the ancient airports in Peru and who were now communicating to us through elaborate symbols carved in wheat crop circles? Others took the wonder to the level of belief, based on the flimsiest of evidence and the grandest of imagination. Carl Sagan's more down-to-earth explanation for the face on Mars is that it is the result of erosion and winds and other natural forces (Sagan, 52-55). Such a view seems most reasonable under the circumstances.

On the other hand, maybe the face on Mars was done by the artist who did the Shroud of Turin. Some who have looked closely have seen a family resemblance.

#### Facilitated Communication (FC)

FC is amazing because it has surpassed all other junk science fads, affecting families, schools, universities, the law, and even the arts. --Brian J. Gorman

Facilitated Communication (FC) is a technique which allegedly allows communication by those who were previously unable to communicate by speech or signs due to autism, mental retardation, brain damage, or such diseases as cerebral palsy. The technique involves a facilitator who places her hand over that of the patient's hand, arm or wrist, which is placed on a board or keyboard with letters, words or pictures. The patient is allegedly able to communicate through his or her hand to the hand of the facilitator which then is guided to a letter, word or picture, spelling out words or expressing complete thoughts. Through their facilitators, previously mute patients recite poems, carry on high level intellectual conversations, or simply communicate. Parents are grateful to discover that their child is not hopelessly retarded but is either normal or above normal in intelligence. FC allows their children to demonstrate their intelligence; it provides them with a vehicle heretofore denied them. But is it really their child who is communicating? Most skeptics believe that the only one doing the communication is the facilitator. The American Psychological Association has issued a position paper on FC, stating that "Studies have repeatedly

demonstrated that facilitated communication is not a scientifically valid technique for individuals with autism or mental retardation" and describing FC as "a controversial and unproved communicative procedure with no scientifically demonstrated support for its efficacy."

Facilitated Communication therapy began in Australia with Rosemary Crossley. The center for FC in the United States is Syracuse University, which houses the Facilitated Communication Institute (FCI) in their School of Education. The FC Institute was established in 1992. It conducts research, provides training to teach people to become facilitators, hosts seminars and conferences, publishes a quarterly newsletter and produces and sells materials promoting FC, including a six-part video series for \$50 per video (\$250 for the series).

While several studies have indicated that facilitated communication does tap into the mind of a person who heretofore had been incommunicado, most studies have shown that facilitated communication only taps into the beliefs and expectations of the facilitator. Many control studies have failed to produce strong evidence that facilitated communication works. Defenders of FC routinely criticize as insignificant or malicious those studies that fail to validate FC. Yet, it is unlikely that there is a massive conspiracy on the part of all those who have done research on this topic and have failed to arrive at findings agreeable to the FCI.

There have been numerous critics of FC, including Gina Green, Ph.D., Director of Research at the New England Center for Autism, Southboro, Massachusetts, and Associate Scientist at the E.K. Shriver Center, Waltham, Massachusetts, and Howard C. Shane, Ph.D., Director of the Communication Enhancement Center, Department of Otolaryngology and Communication Disorders at Children's Hospital, Boston, and Associate Professor of Otolaryngology in the Harvard Medical School. A very damaging, detailed criticism was presented on PBS's "Frontline", October 19, 1993. The program was repeated December 17, 1996, and added that since the first showing, Syracuse University has claimed to have done three studies which verify the reality and effectiveness of FC, while thirty other studies done elsewhere have concluded just the opposite.

The Frontline program showed facilitators allegedly describing what their clients were viewing, when it was clear their clients' heads were tilted so far back they couldn't have been viewing anything but the ceiling. When facilitators could not see an object which their client could see (a solid screen blocked each from seeing what the other was seeing) they routinely typed out the wrong answer. Furthermore, FC clients routinely use a flat board or keyboard, over which the facilitator holds their pointing finger. Even the most expert typist could not routinely hit correct letters without some reference as a starting point. (Try looking away from your keyboard and typing a sentence using just one finger held in the air above the keyboard.) Facilitators routinely look at the keyboard; clients do not. The messages' basic coherence indicates that they most probably are produced by someone who is looking at the keyboard.

Nevertheless, there are many testimonials supporting FC, namely, letters from clients who are grateful to FC for allowing them to show to the world that they are not retarded or stupid. Some of them may be from people who have been genuinely helped by FC. It seems that the FCI treats the retarded, autistic and those with cerebral palsy. I have had several students with cerebral palsy. As students, they have been no better and no worse than most of my other students. They have used assistants who helped translate their communication for me. Usually, the student had a card (with letters or words or pictures) on his or her lap. The student would point to letters or words and sometimes speak; the assistant would translate for me. Anyone familiar with Helen Keller, Stephen Hawking or Christy Brown knows that blindness, deafness, cerebral palsy, multiple sclerosis, amyotrophic lateral sclerosis (ALS), or physical or neurological disorders, do not necessarily affect the intellect. There is no necessary connection between a physical handicap and a mental handicap. We also know that such people often require an assistant to facilitate their communication. But what facilitators do to help the likes of a Hawking or a Brown is a far cry from what those in the facilitated communication business are doing.

It may well be that some of those helped by FC suffer from cerebral palsy and are mentally normal or gifted. Their facilitators help them communicate their thoughts. But the vast majority of FC clients apparently are mentally retarded or autistic. Their facilitators appear to be reporting their own thoughts, not their patient's thoughts. Interestingly, the facilitators are genuinely shocked when they discover that they are not really communicating their patient's thoughts. Their reaction is similar to that of dowser and others with "special powers" who, when tested under controlled conditions, find they don't have any special powers at all.

If FC worked one would think that it would be easy to test by letting several different facilitators be tested with the same client under a variety of controlled conditions. If different "personalities" emerged, depending on the facilitator, that would indicate that the facilitator is controlling the communication. But, believers in FC claim that it only works when a special bond has been established between facilitator and patient. It is interesting that the parents and other loved ones who have been bonding with the patient for years are unable to be facilitators with their own children. FC needs a kind stranger to work. And when the kind strangers and their patients are put to the test, they generally fail. We are told that is because the

conditions made them nervous. These ad hoc excuses sound familiar; they sound like the complaints of parapsychologists.

Despite much criticism and many experiments demonstrating that the messages, poems, brilliant discourses, etc., being transmitted by the facilitators originate in the facilitators themselves, the FC Institute is going strong. With support groups all over the world and a respectable place at a respectable university, there is little chance that FC will soon fade away. Those within the FC movement are convinced FC "works." Skeptics think the evidence is in and FC is a delusion for the most part. It is also a dangerous delusion. Critics have noted a similarity between FC therapy and repressed memory therapy: patients are accusing their parents and others of having sexually abused them. Facilitators are taught that something like 13% of their clients have been sexually abused. This information may unconsciously influence their work. The facilitator cannot imagine that he/she is the source of the horrible charges being expressed. Neither can school administrators or law enforcement authorities who believe FC is a magical way to tap into the thoughts of the autistic or the severely retarded. With repressed memory therapy the evidence emerges when a "repressed memory" is brought to light or when a child is interrogated by therapists trained to treat sexually abused children. There is overwhelming evidence that many repressed memories of sexual abuse, as well as many "memories" of interrogated children originate in the minds and words of therapists who suggest and otherwise plant them in their patients' minds. Similar findings have been made with FC: facilitators report sexual abuse and their messages have been used to falsely charge parents and others with sexual abuse of mentally and physically handicapped persons.

The criticisms of FC as another therapy leading to a witch-hunt, turning decent parents into accused molesters of their handicapped children are not without justification. How is one to defend oneself against an allegation made by someone who can never be interrogated directly? Missy Morton, an expert from the FC Institute suggests the following:

One facilitator can in any given case be mistaken, or can be influencing the person, and as a precaution it is helpful to have the message repeated to a second facilitator. If this is not immediately feasible a decision has to be taken as to whether the situation will allow any decision to wait until a second facilitator can be introduced. If with a second facilitator the message is confirmed in detail then it may be taken as confirmed that an allegation has been made. (Disclosures of Abuse through Facilitated Communication: Getting and Giving Support," Missy Morton, Facilitated Communication Institute Syracuse University Division of Special Education and Rehabilitation, May 1992.)

If there were evidence that facilitators were usually reporting the thoughts of their clients, there would still be concern for ensuring that the rights of the accused were not abused. But as the evidence is overwhelming that in most cases of FC, the facilitator is reporting his or her own thoughts, the effort to ensure against false accusations should be enormous. Yet, those in the forefront of the movement indicate how trivial they take the problem to be when they focus on problems of ambiguity. Here is Ms. Morton's warning issued to facilitators:

Facilitated communication is never as fast or as fluent as normal speech. Messages tend to be short, even telegraphic, and may omit grammatical bridges. It is not always clear what message the person is trying to get across with the words he or she has spelt out.

The message may be incomplete;

One person spelt out MY FATHER IS F...ING ME - clear enough, you would think, if the facilitator hadn't carried on to get MY FATHER IS F...ING ME AROUND.

The letters or words chosen may not be those that the student really intended.

This way of dealing with ambiguous communication seems hopelessly inadequate. What is needed is some way to prevent facilitators from unjustly accusing parents of heinous acts against their children. It is likely that if most of the facilitators kept reporting sexual abuses, this movement would have gotten nowhere. The grieving, hopeful parents would never put up with such abuse.

## Fairies

Fairies are mythical beings of folklore and romance. They are often depicted as diminutive winged humans with magical powers. The tooth fairy exchanges presents, usually coins, for teeth left out or under one's pillow at night. Fairy godmothers are protective beings, like guardian angels.

Fairies should not be confused with gnomes, which are also mythical diminutive humans but are deformed and live underground. Pixies, on the other hand, might be considered a type of fairy known for their cheerful nature and playful mischievousness. An elf might be thought of as a big pixie, often depicted as a

mischievous dwarf, such as the Irish leprechaun known for his pranks but also believed to know where treasure is hidden. Elves are sometimes depicted as helpers of magicians, e.g., Santa's helpers.

Belief in such mythical beings seems common in rural peoples around the world. Occasionally, a city slicker who should know better is duped into believing in fairies. An infamous example of such a dupe is Sir Arthur Conan Doyle who was conned by a couple of schoolgirls and their amateur photographs of paper fairies (known as the "Cottingley Fairies") taken in their Yorkshire garden. The faked photos are reminiscent of the most famous Loch Ness Monster picture, faked in a similar fashion by Ian Wetherell, as are many UFO photos, e.g., those of Billy Meier. Doyle even published a book on the fairies: *The Coming of the Fairies*. He and a theosophist named Edward Gardner published the photos taken by sixteen year old Elsie Wright of her ten year old cousin, Frances Griffiths, with Elsie's cutouts of fairies. Doyle and Gardner proclaimed that the photos were not fakes, but the real thing. The real howler, though, was the debate which ensued over whether these were photos of real fairies or psychic photographs which recorded the thoughts of the girls projected onto the film! Doyle, like many who have come before and after him, longed for any proof of a world beyond the material world. His desire to find support for spiritualism led him to a number of delusions. Even so, he wrote great detective stories and in Sherlock Holmes created a mythical being much more interesting than any fairy, even if he didn't know the difference between induction and deduction.

Paramount Pictures has made a movie about Griffiths and Wright called *Fairytale: A True Story*. Harvey Keitel plays Houdini and Peter O'Toole plays Sir Arthur Conan Doyle.

## Faith

Faith is a non-rational belief in some proposition. A non-rational belief is one which is contrary to the sum of evidence for that belief. A belief is contrary to the sum of evidence for a belief if there is overwhelming evidence against the belief, e.g., that the earth is flat, hollow or is the center of the universe. A belief is also contrary to the sum of evidence if the evidence seems equal both for and against the belief, yet one commits to one of two or more equally supported propositions.

A common misconception regarding faith--or perhaps it is an intentional attempt at disinformation and obscurantism--is made by Christian apologists who make claims such as the following:

A statement like "There is no God, and there can't be a god; everything evolved from purely natural processes" cannot be supported by the scientific method and is a statement of faith, not science (Richard Spencer, Ph.D., associate professor of electrical and computer engineering at UC Davis and faculty adviser to the Christian Student Union. Quoted in *The Davis Enterprise*, Jan. 22, 1999).

The error or deception here is to imply that anything that is not a scientific statement, i.e., one supported by evidence marshaled forth the way scientists do in support of their scientific claims, is a matter of faith. To use 'faith' in such a broad way is to strip it of any theological significance the term might otherwise have.

Such a conception of faith treats belief in all non-empirical statements as acts of faith. Thus, belief in the external world, belief in the law of causality, or even fundamental principles of logic such as the principle of contradiction or the law of the excluded middle, would be acts of faith on this view. There seems to be something profoundly deceptive and misleading about lumping together as acts of faith such things as belief in the Virgin birth and belief in the existence of an external world or in the principle of contradiction. Such a view trivializes religious faith by putting superstitions, fairy tales, and delusions of all varieties, and all non-empirical claims in the same category as religious faith.

## An Erroneous View of Faith

If we examine Dr. Spencer's claims, this should become obvious. He claims that the statement 'there is no God and there can't be a god; everything evolved from purely natural processes' is a statement of faith. First, we must note that there are three distinct statements here. One, 'there is no God'. Two, 'there can't be a god'. And three, 'everything evolved from purely natural processes'. Dr. Spencer implies that each of these claims is on par with such statements as 'there is a God', 'Jesus Christ is the Lord and Savior', 'Jesus' mother was a virgin', 'a piece of bread may have the substance of Jesus Christ's physical body and blood', 'God is one being comprised of three persons', etc.

The statement 'there cannot be a god' is clearly not an empirical statement, but a conceptual one. Anyone who would make such a claim would make it by arguing that a particular concept of god contains contradictions, and so is meaningless. For example, to believe that 'some squares are circular' seems to be a logical contradiction. Circles and squares are defined so as to imply that circles can't be square and squares can't be circles. James Rachels, for one, has argued that god is impossible, but at best his

argument shows that the concepts of an all-powerful God and one who demands worship from His creations are contradictory. The concept of worship, Rachels argues, is inconsistent with the traditional Judeo-Christian God concept.

Rachels makes an argument. Some find it convincing; others don't. But it seems that his belief is not an act of faith in the same sense that it is an act of faith to believe in the Incarnation, the Trinity, transubstantiation, or the Virgin Birth. The first three articles of faith seem to be on par with believing in round squares; for, they require belief in logical contradictions. Virgin births we now know are possible, but the technology for the implantation of fertilized eggs did not exist two thousand years ago. But the belief in the Virgin birth involves belief that God miraculously impregnated Mary with Himself. Such a belief seems also to defy logic. All arguments regarding these articles of faith are quite distinct from Rachel's argument. To defend these articles of faith, the best one can hope for is to show that they cannot be shown to be impossible. However, the consequence of arguing that logical contradictions may nevertheless be true, seems undesirable. Such a defense requires the abandonment of the very logical principles required to make any argument and is therefore self-annihilating. The fact that arguments such as Rachel's and those defending articles of religious faith are not empirical or resolvable by scientific methods hardly makes them equally matters of faith.

The statement 'there is no God' is quite different from the claim that there can't be a god. The latter makes a claim regarding possibility; the former is an actuality claim. I doubt that there are many theologians or Christian apologists who would claim that all their faith amounts to is a belief in the possibility of this or that. One can believe there is no God because there can't be a god, but one might also disbelieve in God while admitting the possibility of the Judeo-Christian God. Disbelief in God is analogous to disbelief in Bigfoot, the Loch Ness Monster, Santa Claus and the Easter Bunny. Yet, those who believe in Bigfoot and Nessie, for example, aren't known for claiming they believe out of faith. To say you have faith in Bigfoot or faith in Nessie sounds ludicrous. Believers in Bigfoot think there is good evidence for their belief. Disbelievers argue that the evidence is not strong at all and does not deserve assent to the proposition that Bigfoot exists. Disbelievers in Bigfoot do not disbelieve as an act of faith, but because the evidence is not persuasive. Belief in God, on the other hand, could be either an act of faith or a belief based on conclusions from evidence and argument. If the theistic belief is an act of faith then the one holding the belief either thinks the evidence against belief outweighs or equals the evidence for belief, or the belief is held without regard for evidence at all. Otherwise, the belief is not an act of faith, but of belief that the evidence is stronger for belief than against.

#### Naturalism

Finally, the claim 'everything evolved from natural processes' is not necessarily an act of faith. If the only alternatives are that everything evolved from either supernatural or natural forces, and one is unconvinced by the arguments and evidence presented by those who believe in supernatural forces, then logically, the only reasonable belief is that everything evolved from natural forces. Only if the evidence supporting a supernatural being were superior or equal to the evidence and arguments against such a belief, would belief that everything evolved from natural forces be a matter of faith.

Those of us who are atheists, and believe that everything evolved from natural forces, nearly universally maintain that theists and supernaturalists have a very weak case for their belief, weaker even than the case for Bigfoot, Nessie or Santa Claus. Thus, our disbelief is not an act of faith, and therefore, not non-rational as are those of theists and Christian apologists. However, if Christian apologists insist on claiming that their version of Christianity and the rejections of their views are equally acts of faith, I will insist that the apologists have a non-rational faith, while their opponents have a rational faith. Though I think it would be less dishonest and less misleading to admit that atheists and naturalists do not base their beliefs on faith in any sense close to that of religious faith.

#### False Memory

A false memory is a memory which is a distortion of an actual experience, or a confabulation of an imagined one. Many false memories involve confusing and mixing fragments of memory events, some of which may have happened at different times but which we remember as occurring together. Many false memories involve an error in source memory. Some involve treating dreams as if they were playbacks of real experiences. Still other false memories are believed to be the result of the prodding, leading, and suggestions of therapists and counselors. Finally, Dr. Elizabeth Loftus has shown not only that it is possible to implant false memories, but that it is relatively easy to do so (Loftus, 1994).

A memory of your mother throwing a glass of milk on your father when in fact it was your father who threw the milk is a false memory based upon an actual experience. You may remember the event vividly and be able to "see" the action clearly, but only corroboration by those present can determine whether your memory of the event is accurate. Distortions such as switching the roles of people in one's memory are

quite common. Some distortions are quite dramatic, such as the following examples of false memories due to confusion about the source of the memory.

A woman accused memory expert Dr. Donald Thompson of having raped her. Thompson was doing a live interview for a television program just before the rape occurred. The woman had seen the program and "apparently confused her memory of him from the television screen with her memory of the rapist" (Schacter, 1996, 114).

Jean Piaget, the great child psychologist, claimed that his earliest memory was of nearly being kidnapped at the age of 2. He remembered details such as sitting in his baby carriage, watching the nurse defend herself against the kidnapper, scratches on the nurse's face, and a police officer with a short cloak and a white baton chasing the kidnapper away. The story was reinforced by the nurse and the family and others who had heard the story. Piaget was convinced that he remembered the event. However, it never happened. Thirteen years after the alleged kidnapping attempt, Piaget's former nurse wrote to his parents to confess that she had made up the entire story. Piaget later wrote: "I therefore must have heard, as a child, the account of this story...and projected it into the past in the form of a visual memory, which was a memory of a memory, but false" (Tavris).

Remembering being kidnapped when you were an infant (under the age of three) is a false memory, almost by definition. The left inferior prefrontal lobe is undeveloped in infants, but is required for long-term memory. The elaborate encoding required for classifying and remembering such an event cannot occur in the infant's brain.

The brains of infants and very young children are capable of storing fragmented memories, however. Fragmented memories can be disturbing in adults. Schacter notes the case of a rape victim who could not remember the rape, which took place on a brick pathway. The words brick and path kept popping into her mind, but she did not connect them to the rape. She became very upset when taken back to the scene of the rape, though she didn't remember what had happened there (Schacter, 1996, 232). Whether a fragmented memory of infant abuse can cause significant psychological damage in the adult has not been scientifically established, though it seems to be widely believed by many psychotherapists.

What is also widely believed by many psychotherapists is that many psychological disorders and problems are due to the repression of memories of childhood sexual abuse. On the other hand, many psychologists maintain that their colleagues doing repressed memory therapy (RMT) are encouraging, prodding, and suggesting false memories of abuse to their patients. Many of the recovered memories are of being sexually abused by parents, grandparents, and ministers. Many of those accused claim the memories are false and have sued therapists for their alleged role in creating false memories.

It is as unlikely that all recovered memories of childhood sexual abuse are false as that they are all true. What is known about memory makes it especially difficult to sort out true from distorted or false recollections. However, some consideration should be given to the fact that certain brain processes are necessary for any memories to occur. Thus, memories of infant abuse or of abuse that took place while one was unconscious are unlikely to be accurate. Memories that have been directed by dreams or hypnosis are notoriously unreliable. The data of dreams is notoriously ambiguous. Hypnosis and other techniques which ply upon a person's suggestibility must be used with great caution.

Furthermore, memories are often mixed; some parts are accurate and some are not. Separating the two can be a chore under ordinary circumstances. A woman might have consciously repressed childhood sexual abuse by a neighbor or relative. Some experience in adulthood may serve as a retrieval cue and she remembers the abuse. This disturbs her and disturbs her dreams. She has nightmares, but now it is her father or grandfather or priest who is abusing her. She enters RMT and within a few months she recalls vividly how her father, mother, grandfather, grandmother, priest, etc., not only sexually abused her but engaged in horrific satanic rituals involving human sacrifices and cannibalism. Where does the truth lie? The patient's memories are real and horrible, even if false. The patient's suffering is real whether the memories are true or false. And families are destroyed whether the memories are true or false.

Should such memories be taken at face value and accepted as true without any attempt to prove otherwise? Obviously it would be unconscionable to ignore accusations of sexual abuse. Likewise, it is unconscionable to be willing to see lives and families destroyed without at least trying to find out if any part of the memories of sexual abuse are false. It also seems inhumane to encourage patients to recall memories of sexual abuse (or of being abducted by aliens) unless one has a very good reason for doing so. Assuming all or most emotional problems are due to repressed memories of childhood sexual abuse is not a good enough reason to risk harming a patient by encouraging delusional beliefs and damaging familial relationships. Assuming that if you can't disprove that a patient was abducted by aliens, then he probably was, is not a good enough reason. A responsible therapist has a duty to help a patient sort out delusion from reality, dreams and confabulations from truth, and real abuse from imagined abuse. If good therapy means the encouragement of delusion as standard procedure, then good therapy may not always be worth it.



Finally, those who find that it is their duty to determine whether a person has been sexually abused or whether a memory of such abuse is a false memory, should be well versed in the current scientific literature regarding memory. They should know that all of us are pliable and suggestible to some degree, but that children are especially vulnerable to suggestive and leading questioning. They should also remember that children are highly imaginative and that just because a child says he or she remembers something does not mean that he or she does. However, when children say they do not remember something, to keep questioning them until they do remember it, is not good interrogation.

Investigators, counselors, and therapists should also remind themselves that many charges and memories are heavily influenced by media coverage. People charged with or convicted of crimes have noticed that their chances of gaining sympathy increase if others believe they were abused as children. People with grudges have also noticed that nothing can destroy another person so quickly as being charged with sexual abuse, while at the same time providing the accuser with sympathy and comfort. Emotionally disturbed people are also influenced by what they read, see, or hear in the mass media, including stories of repressed abuse as the cause of emotional problems. An emotionally disturbed adult may accuse another adult of abusing a child, not because there is good evidence of abuse, but because the disturbed person imagines or fears abuse. In short, investigators should not rush to judgment.

Falun Gong

(a.k.a. Falun Dafa)

"Falun Dafa cultivates a Falun in the lower abdomen area instead of Dan....Falun Dafa cultivates Zhu Yishi instead of Fu Yishi, He Who practices attains Gong. Namely, your Zhu Yishi or Zhu Yuansheng attains the cultivation energy." --Li Hongzhi

The doctrines of the Great Law of Falun Dafa can give guidance to anyone in their cultivation including those who have religious beliefs. This is the Principle of the universe, the true Law that has never been revealed. In the past humans were not allowed to know the Principle of the universe (Buddha Law); it transcends all the sciences and moral principles of ordinary human society from ancient times to the present. What has been taught in religions and what people have experienced are only superficialities and phenomena, while its extensive and profound inner meaning can only present itself to and be felt and understood by the cultivators who are at different levels of their true cultivation, and they can really see what the Law is. --Li Hongzhi\*

Falun Gong (pronounced fah-luhn gung) is Li Hongzhi's version of qi gong, which is an ancient Chinese practice of "energy cultivation". Falun means "wheel of law"; falun dafa is falun Buddha law. According to Hongzhi, Falun Gong "is a cultivation system aiming at cultivating both human life and nature. The practitioner is required to attain enlightenment (open his cultivation energy) and achieve physical immortality in this mortal world when his energy potency and Xinxing [mind-nature] have reached a certain level."\*

Mr. Hongzhi claims to have taken energy cultivation to a new level. He also claims to have some 100 million followers worldwide, though he also claims that he keeps no records and that Falun Gong is not a cult, religion or sect ("Followers defend Falun Gong as innocuous," by Brian Milner, The Globe and Mail (Canada), July 22, 1999.) His popularity is great enough in China to have led to the arrest of more than 30,000 practitioners and a formal ban on Falun Gong, apparently for little more than being popular and thereby posing a threat to the stability of the repressive Communist regime ("China arrests 30,000 members of spiritual group," The Globe and Mail (Canada), July 22, 1999, by Miro Cernetig.)

Hongzhi left China in the early 1990s and lives in New York City. He promotes his beliefs in books he has written. His teachings are available on the Internet, which has significantly affected his status and popularity internationally. While much of Falun Gong is a rehash of traditional Chinese notions regarding meditation and exercises, Hongzhi has emphasized an anti-scientific approach to disease and medicine. He says disease is "is a black energy mass" that he can dissipate with his powers. Those who use medicine for their illnesses lack faith in Falun Gong. True believers don't need medicine. They understand that disease exists in some other space beyond physical space and that only those with "supernormal capabilities" can truly heal. True healing involves "cultivation energies...in the form of light with very tiny particles in great density."\* He claims that he does not tell people not to use medicine, but that he has cured thousands of terminally ill people. He also claims that he advises terminally ill and mentally ill people not to practice Falun Gong. He does not say why.

Hongzhi claims that Falun Gong is one of 84,000 cultivation ways of the Buddha's school. He claims that it has only been used once before, in prehistory, but that he is making it available again "at this final period of the Last Havoc."

Falun is the miniature of the universe with all the abilities of the universe. It can automatically move in rotation. It will forever rotate in your lower abdomen area. Once it is installed in your body, it will no longer stop and will forever rotate like this year in and year out. During the time when it rotates clockwise, it can automatically absorb energy from the universe, and it can also transform energy from itself to supply the required energy for every part of your body transformation. At the same time, it can emit energy when it rotates counter-clock and releases the waste material which will disperse around your body. When it emits energy, the energy can be released to quite a distance and it brings in new energy again. The emitted energy can benefit the people around you....When Falun rotates clockwise, it can collect the energy back because it rotates forever....

Because Falun rotates forever, it cannot be stopped. If a phone call comes or someone knocks on the door, you may go ahead and take care of it immediately without having to finish the practice. When you stop to do your work, Falun will rotate at once clockwise and take back the emitted energy around your body.\*

How Mr. Hongzhi knows about these rotations is a mystery, but he has many followers throughout the world who feel enlightened by these "teachings."

In short, Falun Gong is based upon the belief that the universe consists of magical energies that can be tapped into by certain practices and which can eliminate the need for medicine, bringing one to a state of enlightenment and physical immortality. Its popularity seems directly related to its claim to bring health and relieve stress while providing enlightenment. It is anti-science, anti-medical establishment, and anti-materialism; thus, Falun Gong is attractive to many people who are fed up with the world as it is and their position in it.

It is difficult to understand why the Communist party in China fears Falun Gong. Their practices would relieve the demand for medical assistance, thereby saving the government millions of yuan. They encourage truthfulness, forbearance and compassion. Of course, members may not be very useful to society, since they are not materialistic and would prefer to spend their days meditating and exercising in the park, cultivating energies, rather than working in factories. Then again, communists don't like competition.

NOTE: During the last week of July, 1999, more than 1,200 government officials who practice Falun Gong were "detained" by Chinese authorities. China's Ministry of Public Security issued an arrest warrant for Li Hongzhi, blaming him for the deaths of 743 followers. According to Michael Laris of the Washington Post, China "provided no evidence linking Li to any of the alleged deaths."

## Feng Shui

Feng Shui (pronounced "phung schway" and meaning literally "wind water") is part of an ancient Chinese philosophy of nature. Feng Shui is often identified as a form of geomancy, divination by geographic features, but it is mainly concerned with understanding the relationships between nature and ourselves so that we might live in harmony within our environment.

Feng Shui is related to the very sensible notion that living with rather than against nature benefits both humans and our environment. It is also related to the equally sensible notion that our lives are deeply affected by our physical and emotional environs. If we surround ourselves with symbols of death, contempt and indifference toward life and nature, with noise and various forms of ugliness, we will corrupt ourselves in the process. If we surround ourselves with beauty, gentleness, kindness, sympathy, music and various expressions of the sweetness of life, we ennoble ourselves as well as our environment.

Alleged masters of Feng Shui, those who understand the five elements and the two energies such as chi and sha (hard energy, the opposite of chi), are supposed to be able to detect metaphysical energies and give directions for their optimal flow. Feng Shui has become a kind of architectural acupuncture: wizards and magi insert themselves into buildings or landscapes and use their metaphysical sensors to detect the flow of good and bad "energy." These masters for hire declare where bathrooms should go, which way doorways should face, where mirrors should hang, which room needs green plants and which one needs red flowers, which direction the head of the bed should face, etc. They decide these things on the basis of their feel for the flow of chi, electromagnetic fields or whatever other form of energy the client will worry about. (If you and your lover are having trouble in the bedroom, call a Feng Shui master. You probably need to move a few things around to get the bedroom chi flowing properly. Only a person with special metaphysical sensors, however, can tell what really needs to be done.)

In short, Feng Shui has become an aspect of interior decorating in the Western world and alleged masters of Feng Shui now hire themselves out for hefty sums to tell people such as Donald Trump which way his doors and other things should hang. Feng Shui has also become another New Age "energy" scam with arrays of metaphysical products from paper cutouts of half moons and planets, to octagonal mirrors to

wooden flutes, offered for sale to help you improve your health, maximize your potential and guarantee fulfillment of some fortune cookie philosophy.

According to Sutrisno Murtiyoso of Indonesia, in countries where belief in Feng Shui is still very strong, Feng Shui has become a hodgepodge of superstitions and unverified notions which are passed off in the university curriculum as scientific principles of architecture or city planning. Mr. Murtiyoso wrote me about a university lecturer who had written an article in Indonesia's biggest newspaper "advocating Feng Shui as a guiding principle to Indonesia's future architecture." This upset Mr. Murtiyoso: "if it is done by a so-called 'paranormal', I wouldn't be that mad. But a 'colleague', an architect . . . I just can't imagine how my people can face the next millennium still under this ancient spell. How can we progress....through this techno-jungle." If I were Mr. Murtiyoso, I wouldn't worry until the architects start advocating ignoring the laws of physics in favor of metaphysical principles. We still bring in our priests to sprinkle holy water and utter incantations at the dedications of skyscrapers. So far, none have collapsed that I know of. And if being superstitious were a hindrance to progress, we'd all still be wandering the savannas with our hirsute ancestors.

### Fetishes

Fetishes are objects such as stones, teeth, or carvings, supposedly possessing magical powers that can protect one from harm, cure disease, etc. Some fetishes are thought to be magical in themselves; others get their magic from some divinity. Some fetishes are believed to be so powerful that only special individuals are allowed to handle them. For all others, the fetish is taboo.

### Firewalking

Firewalking refers to the activity of walking on hot coals, rocks or cinders without burning the soles of one's feet. In some cultures [e.g., India], firewalking is part of a religious ritual and is associated with mystical powers. In America, firewalking is part of New Age religion, i.e., self-empowering motivational activity.

Tony Robbins popularized firewalking as an activity for demonstrating it is possible for people to do things which seem impossible to them; the firewalk is a technique for turning fear into power. Robbins doesn't consider the power of the mind to overcome fear of getting burnt as paranormal, however. Overcoming this fear is presented as a step in restructuring one's mind, almost as if this trial by fire was some sort of initiation into an esoteric and very special group of risk-takers. To the timid and those who feel powerless amongst all the dynamic firebrands around them, such a feat as walking on hot coals must seem a significant event.

Robbins may have popularized firewalking but Tolly Burkan, founder of The Firewalking Institute for Research and Education, claims he was the first to introduce the practice to North America. According to Burkan, firewalking is "a method of overcoming limiting beliefs, phobias and fears."

Walking across hot coals without getting burned does seem impossible to many people, but in fact it is no more impossible than putting your hand in a hot oven without getting burned. As long as you keep your hand in the air and don't touch the oven, its metal racks or any ceramic or metal pots, you won't get burned even if the oven is extremely hot. Or, if you do touch the oven, metal racks or pots, and are wearing insulating gloves or using "hot pads," you won't get burned. Why? Because "the air has a low heat capacity and a poor thermal conductivity..." while "our bodies have a relatively high heat capacity..."(Leikind and McCarthy, 188). And an insulator will insulate! Thus, even if the coals are very hot (1,000 to 1,200 degrees), a person with "normal" soles won't get burned as long as he or she doesn't take too long to walk across the coals and as long as the coals used do not have a very high heat capacity. Volcanic rock and certain wood embers will work just fine.

Also, "both hardwood and charcoal are good thermal insulators.... Wood is just as good an insulator even when on fire, and charcoal is almost four times better as an insulator than is dry hardwood. Further, the ash that is left after the charcoal has burnt is just as poor a conductor as was the hardwood or charcoal" (Willey).

Some people do get burned walking across hot coals, not because they lack faith or willpower, but because their soles are thin, they don't move quickly enough, they spend too much time on the coals, the coals are too hot or because the coals are of a kind with a relatively high heat capacity. But even very hot coals with a high heat capacity can be walked over without getting burned if one's feet are insulated, e.g., with a liquid such as sweat or water. (Think of how you can wet your finger and touch a hot iron without getting burned.) Again, one must move with sufficient speed or one will get burned.

Should a person be elated at overcoming the fear of firewalking and successfully walking through the fire pit without getting too severely burned? No. The fear is due to ignorance and the elation will surely turn to bitterness when the firewalker finds out that what they have accomplished can be done by just about anyone. On the other hand, those who are depressed because they could not produce the "courage" to walk the coals might take some consolation in the fact that with a little knowledge courage isn't needed.

Robbins has moved beyond the firewalk, but others have turned the activity into an end itself. Several of them even advertise on the World Wide Web. They should not be hard to find, for those who are not afraid to spend a few bucks to overcome their fears.

### Flying Saucers

On June 24, 1947, Kenneth Arnold claimed that he'd seen nine "crescent shaped" aircraft flying erratically at incredible speeds near Mount Ranier. He said they reminded him of saucers skimming over water. An editor of the Eastern Oregonian reported that Arnold saw "round" objects. Other reports noted "disc-shaped" objects. Within a few weeks, there were hundreds of reports nationwide of sightings of flying "saucers".

The fact that so many UFO and alien sightings conform to rather standard depictions is taken by some as evidence that the observers are not mistaken. They must be seeing the same things. It is more likely that they see what they see because of their expectations, which are based on stereotypes created largely by the mass media. In this respect, and maybe some others as well, UFO and alien sightings might be compared to Santa Claus sightings.

### Forer Effect

(a.k.a. the P.T. Barnum effect and subjective validation)

"

We have something for everyone." --P.T. Barnum

The Forer or Barnum effect is also known as the subjective validation effect or the personal validation effect. (The expression, "the Barnum effect," seems to have originated with psychologist Paul Meehl, in deference to circus man P.T. Barnum's reputation as a master psychological manipulator.)

Psychologist B.R. Forer found that people tend to accept vague and general personality descriptions as uniquely applicable to themselves without realizing that the same description could be applied to just about anyone. Consider the following as if it were given to you as an evaluation of your personality.

You have a need for other people to like and admire you, and yet you tend to be critical of yourself. While you have some personality weaknesses you are generally able to compensate for them. You have considerable unused capacity that you have not turned to your advantage. Disciplined and self-controlled on the outside, you tend to be worrisome and insecure on the inside. At times you have serious doubts as to whether you have made the right decision or done the right thing. You prefer a certain amount of change and variety and become dissatisfied when hemmed in by restrictions and limitations. You also pride yourself as an independent thinker; and do not accept others' statements without satisfactory proof. But you have found it unwise to be too frank in revealing yourself to others. At times you are extroverted, affable, and sociable, while at other times you are introverted, wary, and reserved. Some of your aspirations tend to be rather unrealistic.

Forer gave a personality test to his students, ignored their answers, and gave each student the above evaluation. He asked them to evaluate the evaluation from 0 to 5, with "5" meaning the recipient felt the evaluation was an "excellent" assessment and "4" meaning the assessment was "good." The class average evaluation was 4.26. That was in 1948. The test has been repeated hundreds of times with psychology students and the average is still around 4.2.

In short, Forer convinced people he could successfully read their character. His accuracy amazed his subjects, though his personality analysis was taken from a newsstand astrology column and was presented to people without regard to their sun sign. The Forer effect seems to explain, in part at least, why so many people think that pseudosciences "work". Astrology, astrotherapy, biorhythms, cartomancy, chiromancy, the enneagram, fortune telling, graphology, etc., seem to work because they seem to provide accurate personality analyses. Scientific studies of these pseudosciences demonstrate that they are not valid personality assessment tools, yet each has many satisfied customers who are convinced they are accurate. However, the many personal or subjective validations of such pseudosciences are of no relevance to their accuracy.

The most common explanations given to account for the Forer effect are in terms of hope, wishful thinking, vanity and the tendency to try to make sense out of experience, though Forer's own explanation was in terms of human gullibility. People tend to accept claims about themselves in proportion to their desire that the claims be true rather than in proportion to the empirical accuracy of the claims as measured by some non-subjective standard. We tend to accept questionable, even false statements about ourselves, if we deem them positive or flattering enough. We will often give very liberal interpretations to vague or inconsistent claims about ourselves in order to make sense out of the claims. Subjects who seek counseling from psychics, mediums, fortune tellers, mind readers, graphologists, etc., will often ignore false or questionable claims and, in many cases, by their own words or actions, will provide most of the information they erroneously attribute to a pseudoscientific counselor. Many such subjects often feel their counselors have provided them with profound and personal information. Such subjective validation, however, is of little scientific value.

Psychologist Barry Beyerstein believes that "hope and uncertainty evoke powerful psychological processes that keep all occult and pseudoscientific character readers in business." We are constantly trying "to make sense out of the barrage of disconnected information we face daily" and "we become so good at filling in to make a reasonable scenario out of disjointed input that we sometimes make sense out of nonsense." We will often fill in the blanks and provide a coherent picture of what we hear and see, even though a careful examination of the evidence would reveal that the data is vague, confusing, obscure, inconsistent and even unintelligible. Psychic mediums, for example, will often ask so many disconnected and ambiguous questions in rapid succession that they give the impression of having access to personal knowledge about their subjects. In fact, the psychic need not have any insights into the subject's personal life; for, the subject will willingly and unknowingly provide all the associations and validations needed. Psychics are aided in this process by using cold reading techniques.

David Marks and Richard Kamman argue that: once a belief or expectation is found, especially one that resolves uncomfortable uncertainty, it biases the observer to notice new information that confirms the belief, and to discount evidence to the contrary. This self-perpetuating mechanism consolidates the original error and builds up an overconfidence in which the arguments of opponents are seen as too fragmentary to undo the adopted belief.

Having a pseudoscientific counselor go over a character assessment with a client is wrought with snares that can easily lead the most well intentioned of persons into error and delusion.

Barry Beyerstein suggests the following test to determine whether the apparent validity of the pseudosciences mentioned above might not be due to the Forer effect, confirmation bias, or other psychological factors. (Note: the proposed test also uses subjective or personal validation and is not intended to test the accuracy of any personality assessment tool, but rather is intended to counteract the tendency to self-deception about such matters.)

A proper test would first have readings done for a large number of clients and then remove the names from the profiles (coding them so they could later be matched to their rightful owners). After all clients had read all of the anonymous personality sketches, each would be asked to pick the one that described him or her best. If the reader has actually included enough uniquely pertinent material, members of the group, on average, should be able to exceed chance in choosing their own from the pile.

Beyerstein notes that "no occult or pseudoscientific character reading method has successfully passed such a test."

The Forer effect, however, only partially explains why so many people accept as accurate occult and pseudoscientific character assessment procedures. Cold reading, communal reinforcement, and selective thinking also underlie these delusions. Also, it should be admitted that while many of the assessment claims in a pseudoscientific reading are vague and general, some are specific. Some of those that are specific actually apply to large numbers of people and some, by chance, will be accurate descriptions of a select few. A certain number of specific assessment claims should be expected but they are of little scientific import in validating the overall assessment.

There have been numerous studies done on the Forer effect. Dickson and Kelly have examined many of these studies and concluded that overall there is significant support for the general claim that Forer profiles are generally perceived to be accurate by subjects in the studies. Furthermore, there is an increased acceptance of the profile if it is labeled "for you". Favorable assessments are "more readily accepted as accurate descriptions of subjects' personalities than unfavorable" ones. But unfavorable claims are "more readily accepted when delivered by people with high perceived status than low perceived status." It has also been found that subjects can generally distinguish between statements that are accurate (but would be so for large numbers of people) and those that are unique (accurate for them but not applicable to most people). There is also some evidence that personality variables such as neuroticism, need for approval, and authoritarianism are positively related to belief in Forer-like profiles. Unfortunately, most Forer studies have been done only on college students.

## Fort, Charles and the Forteans

Charles Fort (1874-1932) fancied himself a true Skeptic, one who opposes all forms of dogmatism, believes nothing, and does not take a position on anything. He claimed to be an "intermediatist," one who believes nothing is real and nothing is unreal, that "all phenomena are approximations one way or the other between realness and unrealness." Actually, he was little more than an anti-dogmatist who collected weird and bizarre stories. Fort spent a good part of his adult life in the New York City public library, examining newspapers, magazines and scientific journals. He was looking for accounts of anything weird or mysterious which didn't fit with current scientific theories. He collected accounts of frogs and other strange objects raining from the sky, UFOs, ghosts, spontaneous human combustion, the stigmata, psychic abilities, etc. He published four collections of weird tales and anomalies during his lifetime: *Book of the Damned* (1919), *New Lands* (1923), *Lo!* (1931), and *Wild Talents* (1932). In these works, he does not seem interested in questioning the reliability of his sources, which is odd, given that he had worked as a news reporter for a number of years before embarking on his quest to collect stories of the weird and bizarre. He does reject one story about a talking dog who disappeared into a puff of green smoke. He expresses his doubt that the dog really went up in green smoke, though he doesn't question its ability to speak.

Fort did not seem particularly interested in making any sense out of his collection of weird stories. He seemed particularly uninterested in scientific testing, yet some of his devotees consider him to be the founding father of modern paranormal studies. His main interest in scientific hypotheses was to criticize and ridicule the very process of theorizing. His real purpose seems to have been to embarrass scientists by collecting stories on "the borderland between fact and fantasy" which science could not explain or explain away. Since he did not generally concern himself with the reliability or accuracy of his data, this borderland also blurs the distinction between open-mindedness and gullibility.

Fort was skeptical about scientific explanations because scientists sometimes argue "according to their own beliefs rather than the rules of evidence" and they suppress or ignore inconvenient data. He seems to have understood that scientific theories are models, not pictures, of reality, but he considered them to be little more than superstitions and myths. He seems to have had a profound misunderstanding of the nature of scientific theories. For, he criticized them for not being able to accommodate anomalies and for requiring data to fit. He took particular delight when scientists made incorrect predictions and he attacked what he called the "priestcraft" of science. Fort seems to have been opposed to science as it really is: fallible, human and tentative, after probabilities rather than absolute certainties. He seems to have thought that since science is not infallible, any theory is as good as any other. This is the same kind of misunderstanding of science that we find with so-called "scientific creationists" and many other pseudoscientists.

Apparently, Fort was a prolific writer. He is said to have written ten novels, but only one was published: *The Outcast Manufacturers* (1906). At least twice in his life he is said to have burned thousands of pages of notes and writings while severely depressed. Two early works of fiction, entitled *X* and *Y*, dealt with Martians controlling life on earth and an evil civilization existing at the South Pole. He allegedly burned them. When he was only about 25 years old, Fort wrote his autobiography, *Many Parts*. Fragments of it have been preserved, but Fort himself came to recognize that there is little to recommend it. He came to describe *Many Parts* as "the work of an immature metaphysician, psychologist, sociologist, etc." One does get a sense from the book, however, that even as a child Fort loved collecting things and reading for little purpose other than his own amusement.

One of Fort's amusements as an adult seems to have been to speculate about such things as frogs falling from the sky. He postulated that there is a Super-Sargasso Sea above the Earth (which he called *Genesisitrine*) where living things originate and periodically are dumped on Earth by intelligent beings who communicate with secret societies down below, perhaps using teleportation.

Fort had very few friends, but one of them, Tiffany Thayer, created the Fortean Society to promote and encourage Fort-like attacks on science and scientists. When Fort died in 1937, he left over 30 boxes of notes, which the Fortean Society began publishing in the *Fortean Society Magazine* (later *Doubt* magazine). In 1959 Thayer died and the Fortean Society came to an end. Others, however, took up the torch. The *Fortean Times* is advertised as exploring "the wild frontiers between the known and the unknown" and features articles on topics such as the government's alleged suppression of evidence regarding crashed UFOs, synaesthesia, a mysterious undersea structure, and other things the editors think are strange or weird. The International Fortean Organization publishes *INFO Journal* several times a year. It features stories on such topics as anomalous astronomical phenomena, anomalies in the physical sciences, scientific hoaxes and cryptozoology. The Society for the Investigation of the Unexplained (SITU) collects data on unexplained events and publishes a magazine called *Pursuit*. The *Anomalist* magazine publishes articles on mysteries in science and nature. *Strange* magazine has articles, features and columns covering all aspects of the anomalous and unexplained. William R. Corliss founded the *Sourcebook Project* (a catalog of anomalies) and *Science Frontiers*, a newsletter which has been providing digests of reports that describe scientific anomalies since 1976. There are many other Fortean groups, as well, but it is worth noting that

Fort opposed the idea of a Fortean Society. He thought that such a group would attract spiritualists and those revolting against science because scientists oppose them or don't encourage them. Apparently, Fort did not want to surround himself with a bunch of crackpots.

## Fortune Telling

### (Divination)

Divination is the attempt to foretell the future or discover occult knowledge by interpreting omens or by using paranormal or supernatural powers. The list of items that have been used in divination is extraordinary. Below are listed just a few. Many end in 'mancy', from the ancient Greek manteia (divination), or 'scopy', from the Greek skopein (to look into, to behold).

aeluromancy (dropping wheatcakes in water and interpreting the result)  
aeromancy (divination by examining what the air does to certain things)  
alectoromancy or alectryomancy (divination by a cock: grains of wheat are placed on letters and the cock "spells" the message by selecting grains)  
alphitomancy (dropping barleycakes in water and interpreting the result)  
anthropomancy (divination by interpreting the organs of newly sacrificed humans)  
astragalomancy or astragyromancy (using knucklebones marked with letters of the alphabet)  
astrology  
axinomancy (divination by the hatchet: interpreting the quiver when whacked into a table)  
belomancy (divination by arrows)  
bronchiomancy (divination by studying the lungs of sacrificed white llamas)  
capnomancy (divination by the smoke of an altar or sacrificial incense)  
cartomancy  
catoptromancy or crystallogomancy (using mirrors or lenses)  
cephalomancy (divination by a donkey's head)  
chiromancy (palmistry)  
cleidomancy (divination by interpreting the movements of a key suspended by a thread from the nail of the third finger on a young virgin's hand while one of the Psalms was recited)  
coscinomancy (divination by a balanced sieve)  
cromniomancy (divination by onions)  
dactylomancy (divination by means of rings put on the fingernails or the number of whorls and loops on the fingers)  
daphnomancy (divination using the laurel branch: how did it crackle when burned?)  
dowsing  
extispicy (divination by examining entrails)  
fractomancy (interpreting the structures of fractal geometric patterns)  
geomancy  
gyromancy (divination by walking around a circle of letters until dizzy and one falls down on the letters or in the direction to take)  
haruspicy (inspecting the entrails of slaughtered animals)  
hydromancy (divination by examining what certain things do in water or when taken out of water, such as coffee grounds or tea leaves); hydatoscopy (if rainwater is used); pegomancy (if spring-water is used)  
hepatoscopy or hepatomancy (divination by examining the liver of sacrificed animals)  
kephalonomancy (burning carbon on the head of an ass while reciting the names of suspected criminals; if you're guilty, a crackling sound will be heard when your name is spoken)  
lampadomancy (interpreting the movements of the flame of a lamp)  
libanomancy (interpreting the smoke of incense)  
lithomancy (divination using precious stones)  
lecanomancy (dropping precious stones into water and listening for whistles)  
margaritomancy (divination by the pearl: if it jumps in the pot when a person is named, then he is the thief!)  
metoposcopy (interpreting frontal wrinkles)  
molybdomancy (divination by melted lead: interpreting its noises and hisses when dropped into water)  
myrmomancy (divination by watching ants eating)  
necromancy (communicating with spirits of the dead to predict the future)  
oinomancy (divination by wine)  
omphalomancy (interpretation of the belly button)  
oneiromancy (interpretation of dreams)  
onychomancy (interpreting the reflection of sun rays off fingernails)  
ornithomancy or orniscopy (interpreting the flights of birds)  
ovomancy or oomancy or ooscopy (breaking eggs into a container of water and interpreting the shape of the egg white)  
papyromancy (divination by folding paper)  
pyromancy or pyroscopy (divination by fire)

rhabdomancy (using the divining rod or magic wand)  
rhapsodmancy (divination by a line in a sacred book that strikes the eye when the book is opened after the diviner prays, meditates or invokes the help of spirits)  
scapulamancy  
scrying  
sideromancy (interpreting straws thrown on a red-hot iron)  
skatharomancy (interpreting the tracks of a beetle crawling over the grave of a murder victim)  
splanchnomancy (reading cut sections of a goat liver)  
stichomancy  
tasseography (reading tea leaves)  
tiromancy (interpreting the holes or mold in cheese)  
urim v'tumim (reading sacred stones attached to  
the breastplate of the high priest in ancient Judaism)  
uromancy (divination by reading bubbles made by urinating in a pot)

## Freemasons

The Freemasons comprise an international secular fraternal order. Freemasonry is not a secret society, cult, religion or sect, nor is it behind the Illuminati, although membership does require belief in a Supreme Being.

There are several Masonic affiliated organizations, including the Shriners, which extend the social and charitable work of the Freemasons.

There has been a campaign against the Freemasons almost from their inception. The hatred of the group is kept alive by Christian leaders such as Pat Robertson and talk show hosts like Art Bell.

## Free Will

Free will is a concept in traditional philosophy used to refer to the belief that human behavior is not absolutely determined by external causes, but is the result of choices made by an act of will by the agent. Such choices are themselves not determined by external causes, but are determined by the motives and intentions of the agent, which themselves are not absolutely determined by external causes.

Traditionally, those who deny the existence of free will look to fate, supernatural powers, or material causes as the determinants of human behavior. Free will advocates, or libertarians, as they are sometimes called, believe that while everything else in the universe may be the inevitable consequence of external forces, human behavior is unique and is determined by the agent, not by God or the stars or the laws of nature.

The traditional concept of free will enters the mainstream of Western Philosophy in metaphysical questions about human responsibility for moral behavior. Many modern debates about free will are often couched in terms of responsibility for moral and criminal behavior. In the Christian tradition, which has framed the issues surrounding free will, the belief hinges on a metaphysical belief in non-physical reality. The will is seen as a faculty of the soul or mind, which is understood as standing outside of the physical world and its governing laws. Hence, for many, a belief in materialism is taken to imply a denial of free will.

The modern view of determinism and free will does not see the two concepts as mutually exclusive. This view began to take shape with arguments such as those offered by Hobbes. God is the ultimate cause of every action, argued Hobbes, but as long as a person is not physically forced to do an act, the act is free. Hobbes couched the argument in terms of liberty vs. necessity, rather than free vs. externally determined will. The sequence of causes leading to a person being blown off a cliff by the wind would be said to have led to an event which was the necessary effect of a series of causes. A person jumping off the cliff would also have a series of causes which led up to it, but if the person was not chased off the cliff and jumped without any immediate material cause necessitating the jump, then the act is one of liberty.

Hobbes' view shows progress for reconciling materialism, determinism and free will, but it is unsatisfactory. While it makes the case that materialism and determinism do not imply that humans have no metaphysical liberty, it does not address the issue of internal determining causes. It is unlikely a modern materialist would make the argument that regardless of a person's neurochemical state, if the person is not pushed or chased off the cliff, but jumps, say, while under the delusion that she can fly, the act is one of liberty.

A modern view, which sees no contradiction between believing in free will and materialism, would be couched in neurological terms. The key issue stemming from the free will/determinism debate is the issue of responsibility for one's actions. Responsibility, however, has at least two essential components: control and understanding. Even early Christian philosophers, such as St. Augustine and St. Thomas Aquinas,



considered infants, young children and imbeciles, as lacking in control or understanding, not lacking in some metaphysical entity needed for free acts. It is an obvious absurdity to ascribe free will to infants, young children or the insane. Traditional libertarians held that only when a child had reached "the age of reason" did free will kick in. For those who never attained the capacity for adult rational thinking, free will never kicked in.

All our concepts of praise and blame, punishment and reward, depend upon our belief in human responsibility. A person who has an undeveloped or damaged brain or a neurochemical disorder is not responsible for her thoughts or actions if the condition causes an inability to understand or control them. Being able to control one's behavior is not a sufficient condition for holding a person responsible for her actions. A mentally ill or retarded person or a child may be incapable of understanding the nature of their actions, though capable of controlling their behavior. The incapacity to understand the nature of an act absolves one of responsibility for the act, if not for the behavior. For example, a person might intentionally jump off a cliff but not intend to kill himself. He may have been responsible for jumping off the cliff, but it would be a mistake to say he committed suicide if he thought he could fly and did not intend to kill himself.

Since brain development, damage, and disorders occur in degrees, it follows that understanding and control of thoughts and actions occur in degrees. At one extreme, a person may have little or no control over his or her thoughts and actions. Such a person would be a paradigm case of someone lacking free will. At the other extreme, a person may have an apparent superhuman ability to control his or her thoughts and actions. Someone with such self-discipline would be the paradigm of truly free person in the metaphysical sense of 'free'. To claim that to be truly free one must not be bound by laws of cause and effect is absurd and unnecessary. It is unnecessary for the reasons just given. It is absurd, for it requires free acts to be uncaused acts. On this notion, the only free person would be the one who had no clue as to what his or her next thought or action would be. Such a person would be as unfree as one could imagine. Thus, on this view only the unfree are free.

Today, the focus of the debate over human responsibility is on the capacity to control one's thoughts and actions, rather than on the metaphysical presence or absence of a non-physical entity with will. Determinism is compatible with 'free will', though the term should be abandoned to indicate that the issue is one of capacity for controlling one's thoughts and actions. That capacity is independent of the truth of materialism or dualism. Certain neurophysical and neurochemical conditions must hold before one can enjoy whatever freedom our species is capable of. A better understanding of these issues will not come from traditional philosophers debating free will vs. determinism. Neuroscientists will provide the knowledge, neurophilosophers the understanding.

Freud, Sigmund

Psychoanalysis & Sigmund Freud

"Over the past thirty-five years repeated reviews of the literature have failed to show any solid evidence that psychoanalytic therapy is superior to placebo therapy" (Hines, 133).

"I am actually not at all a man of science, not an observer, not an experimenter, not a thinker. I am by temperament nothing but a conquistador-an adventurer, if you want it translated-with all the curiosity, daring, and tenacity characteristic of a man of this sort" (Sigmund Freud, letter to Wilhelm Fliess, Feb. 1, 1900).

"By the 1950' and '60s, the master's warning had been drowned in a tumult of excited voices. Psychoanalyst and psychiatrists could cure even schizophrenia, the most feared mental disease of all, they claimed, and they could do it simply by talking with their patients" (Dolnick, 12).

Psychoanalysis is the granddaddy of all pseudoscientific psychotherapies, second only to Scientology as the champion purveyor of false and misleading claims about the mind, mental health and mental illness. For example, in psychoanalysis schizophrenia and depression are not neurochemical disorders, but narcissistic disorders. Autism and other brain disorders are not brain chemistry problems but mothering problems. These illnesses do not require pharmacological treatment. They require only "talk" therapy. Similar positions are taken for anorexia nervosa and Tourette's syndrome. (Hines, p. 136) What is the evidence for the psychoanalytic view of these mental illnesses and their proper treatment? There is none.

Freud thought he understood the nature of schizophrenia. It is not a brain disorder, but a disturbance in the unconscious caused by unresolved feelings of homosexuality. However, he maintained that psychoanalysis would not work with schizophrenics because such patients ignore their therapist's insights and are resistant to treatment (Dolnick, 40). Later psychoanalysts would claim, with equal certainty and equally lacking scientific evidence, that schizophrenia is caused by smothering mothering. In 1948, Frieda Fromm-Reichmann, for example, gave birth to the term "schizophrenogenic mother," the mother whose bad mothering causes her child to become schizophrenic (Dolnick, 94). Other analysts before her had

supported the notion with anecdotes and intuitions, and over the next twenty years many more would follow her misguided lead.

Would you treat a broken leg or diabetes with "talk" therapy or by interpreting the patient's dreams? Of course not. Imagine the reaction if a diabetic were told that her illness was due to "masturbatory conflict" or "displaced eroticism." One might as well tell the patient she is possessed by demons, as give her a psychoanalytic explanation of her physical disease or disorder. Exorcism of demons by the shaman or priest, exorcism of childhood experiences by the psychoanalyst: what's the difference? So why would anyone still maintain that neurochemical or other physical disorders are caused by repressed or sublimated traumatic or sexual (or both) childhood experiences? Probably for the same reasons that theologians don't give up their elaborate systems of thought in the face of overwhelming evidence that their systems of belief are little more than vast metaphysical cobwebs. They get a lot of institutional reinforcement for their socially created roles and ideas, most of which are not capable of being subjected to empirical testing. If their notions can't be tested, they can't be disproved. What can't be disproved, and also has the backing of a powerful institution or establishment, can go on for centuries as being respectable and valid, regardless of its fundamental emptiness, falsity or capacity for harm.

The most fundamental concept of psychoanalysis is the notion of the unconscious mind as a reservoir for repressed memories of traumatic events which continuously influence conscious thought and behavior. The scientific evidence for this notion of unconscious repression is lacking, as is any evidence that conscious thought or behavior is influenced by repressed memories. (For those who did not read that last sentence too carefully, let me note that I am denying neither the existence of unconscious thoughts nor implicit memories.)

Related to these questionable assumptions of psychoanalysis are two equally questionable methods of investigating the alleged memories hidden in the unconscious: free association and the interpretation of dreams. Neither method is capable of scientific formulation or empirical testing. Both are metaphysical blank checks to speculate at will without any check in reality.

Scientific research into how memory works does not support the psychoanalytic concept of the unconscious mind repressing sexual and traumatic memories of either childhood or adulthood. There is, however, ample evidence that there is a type of memory of which we are not consciously aware, yet which is remembered. Scientists refer to this type of memory as implicit memory. There is ample evidence that to have memories requires extensive development of the frontal lobes, which infants and young children lack. Also, memories must be encoded to be lasting. If encoding is absent, amnesia will follow, as in the case of many of our dreams. If encoding is weak, fragmented and implicit memories may be all that remain of the original experience. Thus, the likelihood of infant memories of abuse, or of anything else for that matter, is near zero. Implicit memories of abuse do occur, but not under the conditions which are assumed to be the basis for repression. Implicit memories of abuse occur when a person is rendered unconscious during the attack and cannot encode the experience very deeply. For example, a rape victim could not remember being raped. The attack took place on a brick pathway. The words 'brick' and 'path' kept popping into her mind, but she did not connect them to the rape. She became very upset when taken back to the scene of the rape, though she didn't remember what had happened there (Schacter, 232). It is unlikely that hypnosis, free association, or any other therapeutic method will help the victim remember what happened to her. She has no explicit memory because she was unable to deeply encode the trauma due to the viciousness of the attack which caused her to lose consciousness. The best a psychoanalyst or other repressed-memory therapist can do is to create a false memory in this victim, abusing her one more time.

Essentially connected to the psychoanalytic view of repression is the assumption that parental treatment of children, especially mothering, is the source of many, if not most, adult problems ranging from personality disorders to emotional problems to mental illnesses. There is little question that if children are treated cruelly throughout childhood, their lives as adults will be profoundly influenced by such treatment. It is a big conceptual leap from this fact to the notion that all sexual experiences in childhood will cause problems in later life, or that all problems in later life, including sexual problems, are due to childhood experiences. The evidence for these notions is lacking.

In many ways, psychoanalytic therapy is based on a search for what probably does not exist (repressed childhood memories), an assumption that is probably false (that childhood experiences caused the patient's problem) and a therapeutic theory that has nearly no probability of being correct (that bringing repressed memories to consciousness is essential to the cure). Of course, this is just the foundation of an elaborate set of scientifically sounding concepts which pretend to explain the deep mysteries of consciousness and behavior. But if the foundation is illusory, what possibly could be the future of this illusion?

There are some good things, however, which have resulted from the method of psychoanalysis developed by Sigmund Freud (1856-1939) a century ago in Vienna. Freud should be considered one of our greatest benefactors if only because he pioneered the desire to understand those whose behavior and thoughts cross the boundaries of convention set by civilization and cultures. That it is no longer fashionable to condemn and ridicule those with behavioral or thought disorders is due in no small part to the tolerance

promoted by psychoanalysis. Furthermore, whatever intolerance, ignorance, hypocrisy and prudishness remains regarding the understanding of our sexual natures and behaviors cannot be blamed on Freud. Psychoanalysts do Freud no honor by blindly adhering to the doctrines of their master in this or any other area. Finally, as psychiatrist Anthony Storr put it: "Freud's technique of listening to distressed people over long periods rather than giving them orders or advice has formed the foundation of most modern forms of psychotherapy, with benefits to both patients and practitioners" (Storr, 120).

Fritz. Dr.

Dr. Fritz is a ghost who invades the bodies of Brazilians and turns them into healers. His first victim, Zé Arigó (1918-1971), informed the world that he was channeling Dr. Adolf Fritz, a German doctor who had died in World War I. The search for this Adolf Fritz has been even less successful than the search for Bridey Murphy. In short, no proof of his ever existing has been brought forth. No matter. Faith healing is very big in Brazil and Arigó made quite a name for himself as a witch doctor or shaman. He was thought to be possessed by the devil but it turned out to be a dead German doctor who, for reasons known only to Arigó and the Lord, took over Arigó's body and started writing illegible prescriptions for sick people. Only Arigó's brother, a pharmacist, could read the prescriptions. People came from far and wide to be cured by Dr. Fritz. His reputation soared after it was alleged that he did a bit of psychic surgery and removed a cancerous tumor from the lung of a well-known Brazilian Senator. For twenty years Arigó's fame spread as he "cured" thousands of people, including the daughter of Brazil's president. Despite his fame, he was twice convicted of the illegal practice of medicine. Arigó died in an automobile crash in 1971.

Dr. Fritz was not done with his work, however, and soon slipped into the body of another Brazilian, and when he died in a violent crash, Dr. Fritz picked another body to invade. He has done this several times. Two of his most famous invasions have been in the bodies of Edson Queiroz from Recife and Rubens Farias Jr. (1954- ) of São Paulo, the current channeler of Dr. Fritz. Rumor has it that Christopher Reeve has been treated by Rubens Farias Jr. The latest version of Dr. Fritz is well-educated and heals the astral body. Rubens Farias Jr. seems to have abandoned his Catholic training for the teachings of Rudolf Steiner's anthroposophy or Madame Blavatsky's theosophy. Like them he favors a mysticism which maintains that the astral body, a duplicate of the physical body but comprised of a finer substance, is what needs to be treated when one is ill. The physical body can be cured by treating the astral body with "energy healing." But only special mystics can do this. Unfortunately, Dr. Fritz predicts a violent death for Farias Jr. so he won't be practicing his mystical magic for much longer.

Despite being accused of the illegal practice of medicine without a license, Farias Jr. has unending lines of people waiting to be cured. The strong belief in witch doctors in Brazil is traced to the African-Brazilian religion of Candomblé, but the latest Dr. Fritz has shown that Brazilians can be dazzled by New Age mystical notions as well.

#### Gambler's Fallacy

The gambler's fallacy is the mistaken notion that the odds for something with a fixed probability increase or decrease depending upon recent occurrences.

For example, in California we have a state run gambling operation called Superlotto. The idea is to pick 6 numbers and match them to six selected from 51 numbers. Sounds easy. The odds of doing so? Here is what happens in a typical week. On July 25, 1998 the numbers were: 5, 7, 21, 32, 44, 46. The Jackpot was \$16,000,000. There were no tickets with all six numbers. 170 tickets matched 5 numbers and won \$1,588 each; 9,715 matched 4 of 6 numbers for \$72 each and 176,657 matched 3 of 6 numbers for \$5 each.

If you programmed a computer to randomly generate six different numbers every second taken from the numbers 1 through 51, you would have to wait nearly seven months before every combination came up at least once.

The odds of matching 6 of 6 numbers are 1 in 18,009,460; 5 of 6 are 1 in 66,702; 4 of 6 are 1 in 1,213; 3 of 6 are 1 in 63.

The odds of winning anything are 1 in 60.

If you buy 100 tickets a week, you can expect to win the jackpot on average every 3,463 years. If you buy \$25,000 worth of tickets a week, you can expect on average to win about every 14 years. If you expect to live 50 more years, you should buy \$6,927 worth of tickets a week if you want to have a good chance of winning the jackpot in this lifetime. Of course, if you do, you may not even break even. You could well be about \$2,000,000 in the hole, depending on when you win.

However, if you would be satisfied with getting 5 out of 6, you will have a much easier go of it. You are likely to get 5 out of 6 every 12.8 years on average if you buy 100 tickets a week. However, you will have spent nearly \$67,000 to win about \$1,500.

If you want to "guarantee" yourself to be a "winner," buy about \$120 worth of tickets a week. On average, you are likely to take home, before taxes, about \$10 a week. Thus, to be a "guaranteed winner" you need only lose about \$110 a week. What could be easier? (This "guarantee" comes with a limited warranty of no value and is based upon payouts for the week of July 25, 1998.)

You might think that you can beat the odds by either selecting numbers that have not been chosen in recent drawings, or by selecting numbers that have come up more frequently than expected in recent drawings. In either case, you are committing the gambler's fallacy. The odds are always the same, no matter what numbers have been selected in the past. This fallacy is commonly committed by gamblers who, for instance, bet on red at roulette when black has come up three times in a row. The odds of black coming up next are the same regardless of what colors have come up in previous turns.

Lotteries seem to share something in common with illegal pyramid scams: in order for anyone to win big, many people must lose just about everything they bet.

(Note: None of the above math has any monetary value and has not been verified by our Statistician. Use at your own risk.)

### Ganzfeld Experiment

Most sciences try to explain observable phenomena; parapsychology tries to observe unexplainable phenomena. RTC

The ganzfeld ("total field") experiment uses a kind of sensory deprivation to test for psi. Ping-Pong balls are put over each subject's eyes and headphones are placed over the ears. While white noise is played through the headset, a bright red light is shown through the ping pong balls. It doesn't take long before the subject begins to hallucinate. At this point, others in another room are shown a visual stimulus such as a short video clip. They try to transmit telepathically what they are seeing to the subject in the ganzfeld.

The video clips or other visual stimuli are selected randomly from a large set of items. While the sender concentrates on the target, the receiver provides a continuous verbal report of his or her images. Images seen by the viewers are compared with the images seen by the subjects. Finally, "at the completion of the ganzfeld period, the receiver is presented with several stimuli (usually four) and, without knowing which stimulus was the target, is asked to rate the degree to which each matches the imagery and mentation experienced during the ganzfeld period. If the receiver assigns the highest rating to the target stimulus, it is scored as a "hit." Thus, if the experiment uses judging sets containing four stimuli (the target and three decoys or control stimuli), the hit rate expected by chance is .25" [Bem and Honorton].

The hypothesis of the creator of the ganzfeld experiments, parapsychologist Charles Honorton, is that if psi exists, there should be a greater than chance match between the images of the senders and receivers. Honorton has reported studies such as one with 240 subjects who were right 34% of the time. This is not likely due to chance. The question is, is it due to psi? It could be. It could also be due to something else, something which correlates strongly with the selection of the video clips or other selected visual stimuli, such as age or gender of the subjects, or content or theme of the visual images. Chance could be involved, though it is very unlikely. In any case, before Honorton gets his Nobel Prize, others need to replicate the study and make very persuasive arguments that the only plausible explanation is psi.

Rick E. Berger, Ph.D., the creator of the automated ganzfeld (and coauthor with Honorton on several ganzfeld papers) objects to the above conclusion, which he claims is "seriously outdated or you are unaware of the replications and published meta-analyses of this literature." Dr. Berger quotes the illustrious Dean Radin:

From 1974 to 1997, some 2,549 ganzfeld sessions were reported in at least forty publications by researchers around the world. After a 1985 meta-analysis established an estimate of the expected hit rate, a six-year replication was conducted that satisfied skeptics' calls for improved procedures. That "autoganzfeld" experiment showed the same successful results.

"The overall hit rate for the 2,549 sessions was 33.2% (where 25% was expected) yielding odds against chance of a million billion to one," says Berger. This sounds impressive until you examine the claim ever so slightly. The Ganzfeld is set up so that an interpretation must be made of a verbal report from the test subject to be matched against an image allegedly sent telepathically to the subject. Thus, even if an image bears little or no resemblance to the verbal description, if it is selected as the one most closely resembling

the image verbally described, then it counts as a hit. For example, here is a verbal description taken from Dr. Berger's website on the ganzfeld:

I see the Lincoln Memorial...  
And Abraham Lincoln sitting there... It's  
the 4th of July... All kinds of fireworks...  
Now I'm at Valley Forge... There are  
fireworks... And I think of bombs  
bursting in the air... And Francis Scott  
Key... And Charleston...

There are quite a few images that would "match" this description, since the description itself contains at least eight distinct images (the Lincoln memorial, Lincoln, 4th of July, fireworks, Valley Forge, bombs, Francis Scott Key, Charleston) to which one could easily add a couple more, such as the American flag, the star spangled banner, and, oh yes, George Washington, which was the image selected as most closely resembling the verbal description. We're not told what the other three choices were.

One wonders why, if this 8.2%, million billion to one, difference is evidence of telepathy, the verbal descriptions are not more precise. For example, why didn't the psychic "see" George Washington, since that was what the image was? Why did he see the Lincoln memorial and a bunch of other things? How can they be sure of what they are measuring? Why isn't the subject allowed to choose "none"? Shouldn't the experimenters have some cases where the sender doesn't really send anything? And shouldn't the receiver be able to say "I'm not getting any message at all"? If Berger and Honorton would do a ganzfeld where the sender sends no messages at all throughout the entire experiment, my guess is that the receiver would still "receive" and give a verbal description of his vision. What would his vision be of? Would these scientists say that the vision is one of the imagination or would they say that someone, somewhere, sent some message and the subject picked it up? How can they be sure, in fact, that their subjects are not picking up messages from others besides the sender? Perhaps the reason the subjects fail 66.8% of the time is because they are picking up messages from the wrong senders. Maybe there is 100% telepathy. Or maybe something else is going on besides telepathy.

In any case, Julie Milton and Richard Wiseman recently published their own meta-analysis of ganzfeld studies and concluded that "the ganzfeld technique does not at present offer a replicable method for producing ESP in the laboratory" (1999).

Geller, Uri

"If Uri Geller bends spoons with divine powers, then he's doing it the hard way."  
--James Randi

"Because a good magician can do something shouldn't make you right away jump to the conclusion that it's a real phenomenon."  
--Richard Feynman

Uri Geller is a Hungarian/Austrian who was born in Israel and lives in England. He is most famous for his claims to be able to bend spoons and keys with his mind. Geller claims he's had visions and may get his powers from extraterrestrials. He calls himself a psychic and has sued several people for millions of dollars for saying otherwise. He has lost the lawsuits and a bit of money in his aggressive attacks on his critics. His archcritic has been magician James ("The Amazing") Randi, who has written a book and numerous articles aimed at demonstrating that Geller is a fraud, that he has no psychic powers and that what Geller does amounts to no more than the parlor tricks of a magician.

Geller has been performing for many years. The first time I saw him was in the late 60's or early 70's when he appeared on the Johnny Carson show. He was supposed to demonstrate his ability to bend spoons and stop watches with his thoughts, but he failed to even try. He squirmed around and said something about how his power can't be turned on and off, and that he didn't feel right. Others speculate that Randi conspired with Carson to change the spoons Geller would use, as there was suspicion that Geller likes to work (i.e., soften) his spoons before his demonstrations.

I have always been fascinated and puzzled by the attraction to Uri Geller. I suppose this is because nearly every one of our household spoons is bent and what I would like to see is someone who can straighten them out, with his mind or with anything for that matter. Likewise, with stopped watches. I have had several of those along the way and what I would have been amazed by would have been someone who could use his powers, psychic or otherwise, to make them start running again for good. (Even I can get my stopped watches to run again for a short while. A little movement is all that is necessary many times.) Thus, I must say that there is something magical about a person who has built a career out of breaking things.

Geller may have suffered defeat in the law courts but he says he is doing quite well in the world as a consultant for psychic detection. He even claims he is being paid vast sums of money to use his special gift as a psychic geologist in search of things precious buried in the earth. He has even been tested by the great Puthoff and Targ, who deemed his remarkable gift as the "Geller effect." [For a detailed account of how easy it is to demonstrate incompetence and to commit fraud in this area, read James Randi's account of the Uri Geller experiments designed and executed by Russell Targ and Harold Puthoff of the Stanford Research Institute. See either chapter 7 of Flim-Flam! or The Magic of Uri Geller.] If you doubt his great powers or my account of them, you can read about them on the WWW by tuning in to Uri-Geller .com. The interactive part of his site is where you and I get to try to bend a spoon Geller has placed somewhere with a video camera on it, transmitting to his home page. Now this is what interactive computing should be about. People helping people. If you bend the spoon, you get a million dollars. I warn you, though, that if you are successful in bending Uri's spoon, you may have a difficult time proving your claim. You may even have to go to court to collect, but don't expect too much sympathy from judge or jury. Geller has been there and he knows what courts can do to people who claim they have psychic powers capable of bending tea spoons. He may publicly cast doubt upon your psychic powers, causing you great humiliation. You may sue him. But, remember; he's been there, done that, and he knows who will win. And he doesn't even have to use up any psychic energy to make that prediction.

Geller has also recently ventured into the lucrative New Age self-help/personal growth industry. For sale is his Mind-Power Kit for about \$30. The kit includes an audio tape, a crystal and a book with topics such as how to develop your ESP, dowsing, crystal power, color therapy, and, of course, telekinesis.

Many magicians do what Geller does, but they call themselves magicians or mentalists. Good magicians are good tricksters and good tricksters can fool the wisest of men. They can amaze people with their ability to seemingly move objects with an act of will, suspend objects in space, view objects which are remote, read your mind, predict the future, identify the content of hidden messages or drawings, etc. What is amazing is that they don't amaze people by winning the lottery or finding a cure for cancer. Why don't they bypass airports and paranormally transport themselves to their next gig? Why do they take their cars to a mechanic when it breaks down? Why do they waste their time moving a wire in a glass bottle instead of moving a waterfall over a forest fire? The answer is obvious. Such useful feats would require more than distraction and legerdemain. Why do the parlor tricks convince even very intelligent people that they have witnessed a paranormal event rather than a bit of magic? Because most really intelligent people are too foolish to realize that they are not so intelligent as to be beyond being fooled. One really intelligent person who would not be fooled was Richard Feynman, who met Uri Geller. Feynman said "I'm smart enough to know that I'm dumb." Feynman was intelligent enough to realize that a good magician can make it seem as if the laws of nature have been violated and even a great physicist couldn't figure out the trick.

### Geomancy

A form of divination by throwing dirt on the ground and interpreting the result. Other forms of geomancy use geographic features or lines. This type of divination seems to be a form of pareidolia.

### Ghosts (Poltergeists)

A ghost is the alleged spirit of a dead person. Ghosts are often depicted as haunting places, especially houses where murders have occurred. Why some murder victims would stick around for eternity to haunt a place, while others seem to evaporate is one of the great mysteries of existence better left to literary types to ponder. Most philosophers consider the concept of ghosts to be on par with that of fairies.

A poltergeist (literally, a noisy spirit) is a noisy ghost. Poltergeists make their presence known by rapping sounds and are considered by some to be the first "rap" artists. These are the ghosts who like to cause disturbances by doing such naughty things as throwing furniture or pots and pans around.

Most nations have a love of ghost stories, but the English seem to be especially fond of their ghosts.

### Glossolalia

Glossolalia are semantically and syntactically unintelligible and meaningless vocal utterances.

According to Dr. William T. Samarin, professor of anthropology and linguistics at the University of Toronto,

glossolalia consists of strings of meaningless syllables made up of sounds taken from those familiar to the speaker and put together more or less haphazardly .... Glossolalia is language-like because the speaker unconsciously wants it to be language-like. Yet in spite of superficial similarities, glossolalia fundamentally is not language [Nickell, 108].

When spoken by schizophrenics, glossolalia are recognized as gibberish. In charismatic Christian communities glossolalia is sacred and referred to as "speaking in tongues" or having "the gift of tongues." In Acts of the Apostles, tongues of fire are described as alighting on the Apostles, filling them with the Holy Spirit. Allegedly, this allowed the Apostles to speak in their own language but be understood by foreigners from several nations. Glossolalics, on the other hand, speak in a foreign language and are understood by nobody.

Glossolalics behave in various ways, depending upon the social expectations of their community. Some go into convulsions or lose consciousness; others are less dramatic. Some seem to go into a trance; some claim to have amnesia of their speaking in tongues. All believe they are possessed by the Holy Spirit and the gibberish they utter is meaningful. However, only one with faith and the gift of interpretation is capable of figuring out the meaning of the meaningless utterances. Of course, this belief gives the interpreter unchecked leeway in "translating" the meaningless utterances. Nicholas Spanos notes: "Typically, the interpretation supports the central tenets of the religious community" [Spanos, 147].

Uttering gibberish that is interpreted as profound mystical insight by holy men is an ancient practice. In Greece, even the priest of Apollo, god of light, engaged in prophetic babbling. The ancient Israelites did it. So did the Jansenists, the Quakers, the Methodists, and the Shakers.

## God

In the western religions of Judaism, Christianity and Islam, God is the one and only Supreme Being, the Creator of everything.

Nothing exists except that God wills it. God is omnipotent, omniscient, omnipresent, all-good and eternal. God did not have a beginning and will have no end. The world and its components were created by God for a purpose. God created human beings to know, to love, to honor, to serve and to obey Him. God is to be thought of in masculine terms, even though God is a pure spirit and has no material or bodily parts. Humans will be judged after death as to how well they have fulfilled God's plan for them. Those who have failed, the sinners, will be punished for eternity. Those who have succeeded will be rewarded for eternity. The exact nature of the reward or punishment is hotly disputed, but all seem to agree that those who are rewarded will be in God's presence and those who are punished will not.

God is portrayed as a father figure, according to the old patriarchal family structure. God protects his family, but he is also the ruler of the family and his commands must be obeyed.

For Christians, Jesus of Nazareth is considered to be a human manifestation of God. For most Christians, this means that Jesus is both human and divine. This doctrine is known as the Incarnation and is considered a mystery of faith how a being can be both human and divine, for such a being transcends human understanding. Reason and logic cannot demonstrate the truth of such a belief; its basis must be faith.

God issues commands and these are the basis of morality. To be a good person is to obey the commands of God. Apparently, if God did not command that humans not commit murder, murder would be morally justifiable. However, since God is all good, we need not worry that God might command something which is evil. His Nature forbids it.

For many, to believe in God is to believe that if there were no God they would be free to commit any evil, no matter how heinous. The only thing that keeps them in check, they say, is that they have been ordered by God not to murder or steal, etc. They say that their lives would have no meaning if they did not have orders from on high to tell them what they are supposed to do with their lives. But what kind of meaning does a life have if it is based solely on blind obedience to commands? We have seen the evil effects of blind obedience too many times in history to consider such a view plausible.

## Graphology

Graphology is the study of handwriting, especially when employed as a means of analyzing character. Real handwriting experts are known as forensic document examiners, not as graphologists. Forensic (or questioned) document examiners consider loops, dotted "i's" and crossed "t's," letter spacing, slants, heights, ending strokes, etc. They examine handwriting to detect authenticity or forgery.

Graphologists examine loops, dotted "i's" and crossed "t's," letter spacing, slants, heights, ending strokes, etc., but they believe that such handwriting minutiae are physical manifestations of unconscious mental functions. Graphologists believe such details can reveal as much about a person as astrology, palmreading, psychometry, or the Myers-Briggs personality type indicator. However, there is no evidence that the unconscious mind is a reservoir of truth about a person, much less that graphology provides a gateway to that reservoir.

Graphology is claimed to be useful for everything from understanding health issues, morality and past experiences to hidden talents and mental problems.\* However, "in properly controlled, blind studies, where the handwriting samples contain no content that could provide non-graphological information upon which to base a prediction (e.g., a piece copied from a magazine), graphologists do no better than chance at predicting... personality traits...." ["The Use of Graphology as a Tool for Employee Hiring and Evaluation," from the British Columbia Civil Liberties Association] And even non-experts are able to correctly identify the gender of a writer about 70% of the time (Furnham, 204).

There are a variety of techniques used by graphologists. Even so, the techniques of these "experts" seem to be reducible to impressions from such things as the pressure exerted on the page, spacing of words and letters, crossed t's, dotted i's, size, slant, speed and consistency of writing. Though graphologists deny it, the content of the writing is one of the more important factors in graphological character assessment. The content of a message, of course, is independent of the handwriting and should be irrelevant to the assessment.

Barry Beyerstein (1996) considers many of the notions of graphologists to be little more than sympathetic magic, e.g., the notion that leaving wide spaces between letters indicates a proneness to isolation and loneliness because the wide spaces indicate someone who does not mix easily and is uncomfortable with closeness. One graphologist claims that a person betrays his sadistic nature if he crosses his t's with lines that look like whips.

Since there is no useful theory as to how graphology might work, it is not surprising that there is no empirical evidence that any graphological characteristics significantly correlate with any interesting personality trait.

Adrian Furnham writes: Readers familiar with the techniques of cold reading will be able to understand why graphology appears to work and why so many (otherwise intelligent) people believe in it. [p. 204]

Add to cold reading, the Forer or Barnum effect, confirmation bias, and communal reinforcement, and you have a fairly complete explanation for graphology's popularity.

Graphology is another pipe dream of those who want a quick and dirty decision making process to tell them who to marry, who did the crime, who they should hire, what career they should seek, where the good hunting is, where the water, oil, or buried treasure is, etc. Graphology is another in a long list of quack substitutes for hard work. It is appealing to those who are impatient with such troublesome matters as research, evidence analysis, reasoning, logic and hypothesis testing. If you want results and you want them now and you want them stated in strong, certain terms, graphology is for you. If, however, you can live with reasonable probabilities and uncertainty, you might try another method to pick a spouse or hire an employee.

If on the other hand, you don't mind discriminating against people on the basis of pseudoscientific nonsense, then at least have the consistency to use a ouija board to help you pick the right graphologist.

Gurdjieff, G.I.

(1872?-1949)

George S. Georgiades was a Greco-Armenian charismatic con man who was born in Russia but made a name for himself in Paris as the mystic George Ivanovitch Gurdjieff. In Russia he established what he called "The Institute for the Harmonious Development of Man" (1919), which he re-established in France in 1922. It was at his Institute that Gurdjieff promoted a litany of preposterous occult and mystical notions about the universe, which he claimed he was taught by wise men while traveling and studying in Central Asia. He put down his "insights" in books with titles like Meetings with Remarkable men, All and Everything, and Beelzebub's Tales to his Grandson: an objectively impartial criticism of the life of man. Gurdjieff's mostly uninteresting or unintelligible musings were presented in more accessible language by his disciple Petyr Demianovich Ouspensky.

To some devotees of Gurdjieff, Ouspensky was an incomplete mystic. Other disciples find Gurdjieff and Ouspensky to be co-gurus.



Their current disciples presumably ignore Gurdjieff's more ridiculous claims, such as the following comment on the moon:

All evil deeds, all crimes, all self-sacrificing actions, all heroic exploits, as well as all the actions of ordinary life, are controlled by the moon.

What makes a guru such as Gurdjieff attractive as a spiritual conquistador is rather his more cynical beliefs, such as the notion that most human beings who are awake act as if they are asleep. Gurdjieff also observed that most people are dead on the inside. I think he meant by these claims that most people are trusting, gullible, easily led, very suggestible, not very reflective or suspicious of their fellow creatures, and need a guru to give their lives vitality and meaning. That is to say, I believe Gurdjieff correctly noted that most people are neither skeptics nor self-motivated, and that many are easily duped by gurus because they want someone to show them the way to live a meaningful life. He offered to show his followers the way to true wakefulness, a state of awareness and vitality which transcends ordinary consciousness. He was able to attract a coterie of writers, artists, wealthy widows and other questing souls to work his farm for him in exchange for sharing his wisdom. He offered numerous claims and explanations for everything under the moon, rooted in little more than his own imagination and never tempered with concern for what science might have to say about his musings.

Gurdjieff obviously had a powerful personality, but his disdain for the mundane and for natural science must have added to his attractiveness. He allegedly exuded extreme self-confidence and exhibited no self-doubt, traits which must have been comforting to many people. His teachings, however, often seem like the delusions of a Gnostic madman, such as Dr. Daniel Paul Schreber, whose *Memoirs of a Neuropath* were analyzed by Freud. (Available in *Three Case Histories*)

My favorite Gurdjieff story is told by Fritz Peters. To explain "the secret of life" to a wealthy English woman who had offered him £1,000 for such wisdom, Gurdjieff brought a prostitute to their table and told her he was from another planet. The food he was eating, he told her, was sent to him from his home planet at no small expense. He gave the prostitute some of the food and asked her what it tasted like. She told him it tasted like cherries. "That's the secret of life," Gurdjieff told the English lady. She called him a charlatan and left. Later that day, however, she gave him the money and became a devoted follower.

To those on a quest for spiritual evolution or transformation, guides like Gurdjieff and Ouspesky promise entry into an esoteric world of ancient mystical wisdom. Such a world must seem attractive to those who are out to sea and rudderless. There are Gurdjieff Ouspensky Centers in over 30 countries around the world; they are operated by the Fellowship of Friends.

## Haunted Houses

When Satan or poltergeists (ghosts) take up residence in a house the house is said to be "possessed" or "haunted." While it is quite common for a Catholic priest to bless a house or perform what is called a "routine exorcism", "real exorcisms" are not usually done on houses, despite what was depicted in *The Amityville Horror*, a fictional movie based on a true fraud.

It is not clear why Satan or ghosts would confine themselves to quarters, since with all their alleged powers, they could be anywhere or everywhere at any time. If they really wanted to terrorize the neighborhood, they could take turns haunting different houses. In the case of Amityville, the real devils were George and Kathy Lutz who concocted a preposterous story made into a book and a movie, apparently to help them out of a mortgage they couldn't afford and a marriage on the rocks. [Schick & Vaughn, p. 269-270]

Besides the fraudulent cases, there are those cases where otherwise normal people hear strange noises or have visions of dead people or of objects moving with no visible means of locomotion. Hearing strange noises in the night and letting the imagination run wild are quite natural human traits and not very indicative of diabolical or paranormal activity. Likewise for having visions and hallucinations. These are quite natural, even if unusual and infrequent, in people with normal as well as with very active imaginations. [Sagan]

There are "ghostbuster" types who go to allegedly haunted houses for television programs such as *Sightings*. They walk around with some electronic device that picks up electromagnetic fields, and if the needle jumps around they claim they have evidence of poltergeist activity. Why electromagnetism should be identified with ghosts or devils, I have no idea. Just about everything gives off some level of electromagnetic radiation. Some animals even have the ability to sense electric fields.

There are also a number of cases of reported haunted houses which turn out upon thorough investigation to have been instigated by disturbed teenagers trying to get attention by scaring the devil out of their parents and siblings. [Randi, 1985, 1995]

Haunted houses are great fun at Halloween, though certain devout Christians find them, along with witches and goblins, to be diabolical. No one really thinks these Halloween houses are haunted. People go to them because we like to be scared out of our wits. Why? I have no idea. Maybe we think of being scared to death as a way to get close to death without really endangering ourselves. But whatever the reason is, I suspect it is behind the popularity of ghost stories and tales of haunted houses.

#### Herbal Fuel

Ramar Pillai, from Tamil Nadu in India, claims he has found the philosopher's stone of the petroleum age. He says he has an herb that can turn water into a virtually pollution-free diesel fuel or kerosene for about 23 cents a gallon. Pillai has managed to convince a few zealous followers that he is the new Isaac Newton, but skeptics believe he has been exposed as a fake. In one demonstration of his magic herb, it was alleged that his stirring stick was hollowed out and filled with gasoline. When his mixture was heated up, a wax plug at the end melted and allowed gasoline into the mixture.

Pillai is a high school dropout from a village near Rajapalayam, but he has intrigued scientists at the Indian Institute of Technology (IIT) by his claims and demonstrations. He says he doesn't want a lot of money, that he only wants a processing plant built near his home village and some protection for his family. He claims he was kidnapped and tortured for several days for refusing to tell his tormentors how he turns water and herbs into fuel. Pillai says his abductors suspended him from a ceiling fan and burned him with cigarettes.

To produce his fuel, Pillai cooks leaves and bark from his special plant for about ten minutes in hot water. The mixture is cooled and stirred after adding a little salt, citric acid and traces of a few unknown chemicals. Once allowed to settle, the liquid fuel, which is lighter than water, floats to the top and is separated by filtering. The entire process takes less than 30 minutes.

According to the Department of Science and Technology (DST) at IIT, laboratory tests have conclusively shown that the herbal fuel is a pure hydrocarbon similar to kerosene and diesel fuel. Engineers at IIT in Madras conducted static tests in two-stroke engines and concluded that the herbal fuel offered better fuel economy than petrol. The fuel "will have good potential in a four-stroke petrol as well as diesel engines," according to the engineers in Madras.

If he is not using trickery, how is Pillai doing it? One theory, offered by Ratna Choudhury of IIT, is that atmospheric carbon dioxide is sucked in during the reaction. The carbon dioxide combines with hydrogen liberated from water and forms the hydrocarbon fuel. She admitted, however, that she was just guessing. The Times of India has a different theory. They published a report which claimed that the entire exercise of promoting Mr. Pillai was to legitimize the sale of stolen petrol and diesel from tankers of Indian oil companies in Rajapalayam. He has no magic powers and no magic herb.

#### d'Holbach (Paul Henri Thiry)

Paul Henri Thiry, Baron d'Holbach (1723-1789)

Holbach was German by birth (Paul Heinrich Dietrich) and education, but French by fortune (he inherited his uncle's money, estate and title). Holbach's estate was a meeting place for the leading French radical thinkers (the philosophes) of the late 18th century. He was an atheist, a determinist, and a materialist: the universe is a complex system of physical substances organized according to mechanistic laws of cause and effect, rather than designed by God (the view of most of his contemporaries, though not the common view among the philosophes).

Holbach was an opponent of absolute monarchy, state religions and feudal privilege. It is fair to describe him as one of the most radical intellectuals of his time. He authored many works whose radical ideas had to be published in Holland without his name on the title page. His most famous work is *The System of Nature* (1770). A briefer account of his atheistic materialism was published in 1772: *Good (or Common) Sense, or Natural Ideas vs. Supernatural Ideas*.

Holbach tried to prove by his life that one could be virtuous and an atheist, contrary to a common view of the time. Rousseau, who disliked Holbach, used him as the model of the 'virtuous unbeliever' in some of his fiction. Holbach held that atheism is a prerequisite for any valid ethical theory. Religion, he thought, is based on useless and meaningless dogmas and rituals; whereas ethics must be based on social utility and human cooperation.

What is perhaps most puzzling about Holbach is that he brought together in his life two seemingly inconsistent views; for he was both a hard determinist and a social reformer. He believed that human beings are not special in the sense of having souls or free will. We're part of Nature and our choices and desires are as much determined by laws of cause and effect as are the movements of the planets. Even so, he devoted himself to trying to make the world a better place by ridding it of unjust and degrading institutions such as the Church and Absolute Monarchy.

### Holistic Medicine

Holistic medicine refers to alternative health practices which claim to treat "the whole person." To holistic practitioners, a person is not just a body with physical parts and systems, but is a spiritual being as well. The mind and the emotions are believed to be connected to this spirit, as well as to the body. Holistic practitioners are truly alternative in the sense that they often avoid surgery or drugs as treatments, though they are quite fond of meditation, prayer, herbs, vitamins, minerals and exotic diets as treatments for a variety of ailments.

### Hollow Earth Theory

The hollow Earth theory holds that Earth is not a solid sphere but is hollow and has openings at the poles. Furthermore, an advanced civilization, the Agartha, exists within Earth. Their people include advanced spiritual and technological masters who sometimes foray into the atmosphere in their UFOs.

In the late 17th century, British astronomer Edmund Halley proposed that Earth consists of four concentric spheres and "also suggested that the interior of the Earth was populated with life and lit by a luminous atmosphere. He thought the aurora borealis, or northern lights, was caused by the escape of this gas through a thin crust at the poles."\*

In the early 19th century, an eccentric veteran of the war of 1812 John Symmes (d. 1829) promoted the idea of interior concentric spheres so widely that the alleged opening to the inner world was named "Symmes Hole."\* In Hamilton, Ohio, his son erected a monument with a stone model of the hollow earth to commemorate his dad's incessant lobbying for an expedition to the North Pole to find the entrance to the world below. Martin Gardner writes that "It took Byrd's flight over the North Pole to deal a death blow to 'Symmes' hole" (Gardner, 41, 1957). However, later advocates hail Admiral Byrd as having actually gone into the hollow earth at both poles!\* This strange belief seems to be based on nothing more than the fact that Byrd referred to Antarctica as "The Land of Everlasting Mystery" and once wrote: "I'd like to see that land beyond the (North) Pole. That area beyond the Pole is the Center of the Great Unknown." Such evidence apparently suffices for the alternative scientist.

Jules Verne wrote *Journey to the Center of the Earth* in 1864 and Edgar Rice Burroughs (1875-1950), the creator of Martian adventures and Tarzan of the Apes, also wrote novels set in the hollow earth. Legends often ignite the imagination of fiction writers and fiction often ignites the imagination of the pseudoscientist.

In 1869, Cyrus Reed Teed, an herbalist and self-proclaimed alchemist, had a vision of a woman who told him that we are living on the inside of the hollow Earth. For nearly forty years, Teed promoted his idea in pamphlets and speeches. He even founded a cult called the Koreshans (Koresh is the Hebrew equivalent of Cyrus).

In 1906, William Reed published *The Phantom of the Poles* in which he claimed that nobody had found the north or south poles because they don't exist. Instead, the poles are entrances to the hollow earth.\* In 1913, Marshall B. Gardner privately published *Journey to the Earth's Interior* in which he rejected the notion of concentric spheres but swore that inside the hollow earth was a sun 600 miles in diameter. Gardner, too, claimed that there were huge holes a thousand mile wide at the poles. Byrd flew over the North Pole in 1926 and over the South Pole in 1929, but he didn't see these entrances to the nether world. It is pointless to point out this fact or to refer hollow earthers to satellite photographs that do not show holes at the poles. They are sure that there is a government conspiracy to cover up the truth.\*

In the 1940s, Ray Palmer, co-founder of FATE, *Flying Saucers from Other Worlds*, *Search*, *The Hidden World*, and many other pulp publications, teamed up with Richard Shaver to create the Shaver Mystery, a legend of a world of hollow earth people and an advanced civilization. Shaver even claimed to have dwelled with the inner Earth people. According to Richard Toronto, the FBI blamed Palmer and Shaver for concocting "flying saucer hysteria" in 1947, making them the true founding fathers of modern UFOlogy.\*

The belief in a hollow Earth had some adherents in Nazi Germany. There is even a legend which says that Hitler and his chief advisers escaped the last days of the Third Reich by going through the opening at the South Pole.

In 1964, Raymond W. Bernard, an esotericist and leader of the Rosicrucians published *The Hollow Earth - The Greatest Geographical Discovery in History Made by Admiral Richard E. Byrd in the Mysterious Land Beyond the Poles - The True Origin of the Flying Saucers*. The book is out-of-print but available on the Internet. Bernard also authored *Flying Saucers from the Earth's Interior*. His real name was Walter Seigmeister. His doctoral dissertation was entitled "Theory and Practice of Dr. Rudolf Steiner's Pedagogy" (New York University, 1932). In his *Letters from Nowhere*, Bernard claims to have been in contact with great mystics in secret ashrams and with Grand Lamas in Tibet. He was, in short, another Gurdjieff. Dr. Bernard "died of pneumonia on September 10, 1965, while searching the tunnel openings to the interior of the Earth, in South America."\* Bernard seems to have accepted every legend ever associated with the hollow Earth idea, including the notions that the Eskimos originated within the Earth and an advanced civilization dwells within even now, revving up their UFOs for occasional forays into thin air. Bernard even accepts without question Shaver's claim that he learned the secret of relativity before Einstein from the Hollow Earth people.

Finally, Diane Robbins has seen the light and claims that ADAMA receives telepathic messages from Telos, a city beneath Mt. Shasta in northern California, which are channeled by Laila and provide all kinds of wonderful messages about perpetual peace and prosperity. You can read about it online or you can order "The Call Goes Out from the Subterranean City of Telos" for \$20 plus shipping. That seems like a small price to pay for such esoteric wisdom. There truly is a seeker born every minute.

## Holocaust Denial

### Nazism (National Socialism)

Nazism is the term used to the nationalistic, anti-Communist and anti-Semitic doctrines and policies of Goering, Goebbels, Himmler and Adolf Hitler's National Socialist German Workers' party. The Nazis ruled Germany from 1933 until 1945 when Germany surrendered and admitted defeat in their war of aggression which had initiated World War II. The Nazi party has been outlawed in Germany ever since.

The Nazis preached the superiority of the Aryan master race led by an infallible Führer (leader) who would establish a pan-Germanic Third Reich lasting a thousand years while annihilating the Jews and Communists, the main scapegoats for all Germany's problems. Millions of Jews, Poles, Russians, gypsies, Catholics, gays and handicapped people were interned in concentration camps where they died or were executed or experimented on. Millions more were used for forced labor.

Today, the term 'nazi' is used to designate anyone engaging in or ordering barbarous acts. The term is used to describe those who advocate force, including murder, of a variety of scapegoats whom they blame for their own, the nation's or the world's problems. Included in this list of scapegoats are homosexuals, blacks, liberals, foreigners, Muslims, Christians, Jews, Arabs, among others.

The term 'nazi' is also purposely chosen for self-description by groups of people who find solace and inspiration in the thoughts and actions of Adolf Hitler. The danger of such people is not because they don't understand the evils of nazism, but because they do. They are part of a growing number of people who think there are conspiracies everywhere which can explain why their lives are so dreary and hopeless. They are part of a growing mass of deluded people who think they are superior because of a few genetic codes. They feel they should have a special place in the order of things, but are being denied because of a conspiracy to keep them down and elevate the weak and undeserving. Some of these neo-nazis also pay homage to Satan and are great believers in the occult. However, I think it would be a mistake to think that occultism is the root of neo-Nazism. The causal connection is not a strong one.

It is true, however, that Nazism has sometimes been characterized by certain skeptics as being significantly affected by occultists in high places. There were occultists in high places in Nazi Germany. There were also Christians in high (and low) places in Nazi Germany. However, to find a causal link between belief in the occult and nazism is a stretch. Think of all the occultists, Christians and other supernaturalists, who have occupied the White House lately. Was Ronald Reagan another Adolf Hitler, and Nancy another Eva Braun? Is the CIA's waste of time and money on psychic spies proof that democracy in America is at an end? I think the historical evidence is overwhelming that belief in the occult, the supernatural, the paranormal and pseudoscientific knows no political boundaries. Nor does racial hatred.

The malicious treatment of the Jews at the hands of the Nazis is referred to as the Holocaust. It has become a symbol of evil in our times. Like many symbols, the Holocaust has become sacrosanct. To many people, both Jews and non-Jews, the Holocaust symbolizes the horror of genocide against the Jews. Some modern anti-Semites have found that attacking the Holocaust causes as much suffering to some Jews as

attacking Jews themselves. The term for attacking any aspect of the symbology or mythology of the Holocaust is "Holocaust Denial". It seems to be the main motivation for the Institute for Historical Review and its Journal of Historical Review which since 1980 has been publishing articles attacking the accuracy of this or that claim about the Holocaust. Yes, one "historical" journal devoted almost exclusively to the issue of making the Holocaust seem like an exaggeration of biased historians. This institute was founded in 1978; it claims to be a "research, educational and publishing center devoted to truth and accuracy in history." If truth and historical accuracy were the only goals of this group, I doubt that it would cause such an uproar. However, it seems that its promoters are more concerned with hatred than with truth. Thus, even those inaccuracies which they correctly identify are met with scorn and derision. For they never once deal with the central question of the Holocaust. They deal with numbers: were there six million or four million or ? Jews who died or were killed? They deal with technical issues: could this shower have been used as a gas chamber? Were these deaths due to natural causes or not? They deal with minor facts: did Hitler issue a Final Solution order or not? If so, where is it? What they do not deal with is the question of racial laws, of arresting and imprisoning millions of people in several countries for the crime of "race," of herding people together like animals and transporting them to "camps" where millions died of disease, malnutrition, or were murdered. What the Holocaust deniers do not deal with is racial hatred. I do not wonder why.

Michael Shermer devotes two chapters of *Why People Believe Weird Things* to the arguments of the Holocaust Deniers. He takes up many of their arguments and refutes them one by one. For example, one of the favorite appeals of the Holocaust deniers is to demand some prove that Hitler gave the order for the extermination of the Jews (or the mentally retarded, mentally ill, and physically handicapped). Holocaust deniers point to Himmler's telephone notes of November 30, 1941, as proof that there was to be no liquidation of the Jews. The actual note says: "Jewish transport from Berlin. No liquidation." Whatever the note meant, it did not mean that Hitler did not want the Jews liquidated. The transport in question, by the way, was liquidated that evening. In any case, if Hitler ordered no liquidation of the Berlin transport, then liquidation was going on and he knew about it. Hitler's intentions were made public in his earliest speeches. Even as his regime was being destroyed, Hitler proclaimed: "Against the Jews I fought open-eyed and in view of the whole world....I made it plain that they, this parasitic vermin in Europe, will be finally exterminated." Hitler at one time compared the Jews to tuberculosis bacilli which had infected Europe. It was not cruel to shoot them if they would not work or if they could not work. He said: "This is not cruel if one remembers that even innocent creatures of nature, such as hares and deer when infected, have to be killed so that they cannot damage others. Why should the beasts who wanted to bring Bolshevism be spared more than these innocents?"

In my view, however, the racist community doesn't believe its false notions about the Holocaust for any of the reasons for weird beliefs listed by Shermer. They believe them because such beliefs are empowering. They make the believer feel superior and they allow evil to be rationalized as good. Ultimately, many weird beliefs are the beliefs of groups, not isolated individuals. Understanding the dynamics of social belief is no small undertaking and certainly goes beyond wishful thinking and laziness. The Holocaust deniers feed off of each other's anti-Semitism. But what gave birth to their hatred of the Jews? Resentment and projection of their own inadequacies onto another race? Perhaps. That was Sartre's argument, following Nietzsche's lead, in *Anti-Semite and Jew*. The Holocaust Denial seems based upon wanting to believe because the belief fits in with the believer's prejudices.

## Homeopathy

"Unless the laws of chemistry have gone awry, most homeopathic remedies are too diluted to have any physiological effect...."

---Consumer Reports (January 1987)

"If the FDA required homeopathic remedies to be proved effective in order to remain on the market, homeopathy would face extinction in the United States."

---Stephen Barrett, M.D.

"How do homeopaths explain this supposed potency of infinitesimal doses, even when the dilution removes all molecules of a drug? They invoke mysterious vibrations, resonance, force fields, or radiation totally unknown to science."

--- Martin Gardner

Homeopathy is a system of medical treatment based on the use of minute quantities of remedies that in massive doses produce effects similar to those of the disease being treated. The term is derived from two Greek words: *homeo* (similar) and *pathos* (suffering). The 19th century German physician, Samuel Hahnemann (1755-1843), is considered the father of homeopathy, allegedly being inspired to the notion that like cures like from the treatment of malaria with cinchona bark. The bark contains quinine, which helps in the treatment of malaria but also causes fevers. Advocates of homeopathy think that concoctions

with as little as one molecule per million can stimulate the "body's healing mechanism." Critics maintain that such minute doses are unlikely to have any significant effect on the body.

Homeopathy is very popular in Europe, especially among the Royal Family of Britain. It is also very popular in India, where there are more than 100 schools of homeopathy.

Homeopaths tend to believe in such things as "vital forces" being in harmony (health) or out of harmony (disease). And they tend to advocate holistic medicine, treating "vital forces," "spirits," "minds", etc., as well as the body. Homeopaths like to say that they treat "persons" not "bodies" or "diseases."

One criticism of homeopathy is that it takes the "cookie cutter" approach to treatment: one-size-fits-all. No matter what ails you, treatment with a diluted like agent is the cure. Experience teaches otherwise. For example, the treatment for scurvy is not more scurvy but vitamin C; the treatment for diabetes is not sugar, but insulin. There seem to be countless examples one could come up with which would contraindicate homeopathy as a reasonable approach to the treatment of disease. Thus, simply because it is sometimes reasonable to treat like with like (e.g., polio vaccines), it does not follow that it is always reasonable to treat like with like. It is misleading, however, to compare the use of vaccines in medicine to homeopathic remedies; for, medical vaccines would be ineffective if they were as diluted as homeopathic remedies.

One of the stranger tenets of homeopathy, proposed by Dr. Hahnemann himself, is that the potency of a remedy increases as the drug becomes more and more dilute. Some drugs are diluted so many times that they don't contain any molecules of the substance that was initially diluted, yet homeopaths claim that these are their most potent medications! It is not surprising to find that there is no explanation as to how this happens or is even possible, though some homeopaths have speculated that the water used to dilute a remedy has a "memory" of the initial substance.

Homeopathy's supporters point to clinical trials which indicate a homeopathic efficacy that cannot be explained by the placebo effect. Critics contend that such studies are poorly designed, methodologically biased, statistically flawed, etc. The known laws of physics and chemistry would have to be completely revamped if a tonic from which every molecule of the "active" ingredient were removed could be shown to nevertheless be effective.

Homeopathic advocates give ardent testimonials to the curative powers of their remedies. How can so many case histories be dismissed? Easily: the "cures" are probably the result of (a) misdiagnosis (the patient wasn't cured since the disease it "cured" wasn't present); (b) spontaneous remission (the body healed itself) or (c) the placebo effect. The many testimonials given as proof that homeopathy "works" are of little value as empirical evidence for the effectiveness of homeopathic remedies. Even so, such "cures" are not meaningless. Left alone, the body often heals itself. And, unlike traditional medicine with its powerful drugs and antibiotics, the likelihood of an adverse reaction to a homeopathic remedy is remote. The main harm from homeopathy is not likely to come from its remedies, which are probably safe but ineffective. One potential danger is in the encouragement to self-diagnosis and treatment. Another is not getting proper treatment by a traditional medical doctor in those cases where the patient could be helped by such treatment, such as for a bladder or yeast infection, or for cancer.

In short, the main benefits of homeopathy seem to be that its remedies are not likely to cause harm in themselves, and they are generally inexpensive. The main drawbacks seem to be that its remedies are most likely inert and they require acceptance of metaphysical baggage incapable of scientific analysis. Homeopathy "works", just as astrology, biorhythms, chiropractic or traditional medicine, for that matter, "work": i.e., it has its satisfied customers. Homeopathy does not work, however, in the sense of explaining pathologies or their cures in a way which not only conforms with known facts but which promises to lead us to a greater understanding of the nature of health and disease.

Homeopathy is said to be \$200 million a year industry in the United States. Donald Driscoll, an attorney in Northern California, and Dr. Wallace Sampson, a cancer doctor, want to reduce that amount to zero. They are suing the manufacturers and distributors of homeopathic remedies, claiming the homeopathic products are being pushed in violation of a California consumer law against unfair business practices and false advertising ["Homeopathic remedies besieged by lawsuits," by Tom Philp, Sacramento Bee, Dec. 16, 1996]. If Driscoll and Sampson win, they will do in one year what science and logical argumentation could not accomplish in 200 years: wipe out a pseudoscience. Frankly, I don't approve. If people want to buy and drink lemonade which some aquatic entrepreneur has called a tonic that can cure warts, boils and cancer, let them. As long as their products aren't dangerous in themselves, and the government isn't using tax dollars to subsidize the fiasco, then let the buyer beware and let the lawyers be quiet.

Houston, Jean and The Mystery School

"As we encounter the archetypal world within us, a partnership is formed whereby we grow as do the gods and goddesses within us." --Jean Houston

"She sees through those who are charlatans [sic] and hucksters, ripping people off with New Age drivel or playing on fear instead of engaging in loving play."

--The Hon. William R. Bryant, Jr., Republican Leader Emeritus, Michigan House of Representatives

"We only have these times we're living in." --Kate Wolf

Dr. Jean Houston's Mystery School is another in a long line of New Age self-help or personality transforming programs. According to Dr. Houston, "the purpose of the Mystery School is to engender the passion for the "possible" in our human and global development while discovering ways of transcending and transforming the local self so that extraordinary life can arise!" Her premise is that we are all unhappy because we have suffered and have not achieved our full potential. Here is an excerpt from Houston's Mystery School Lecture One:

Regardless of how difficult and estranged your life may have been, you've done that one. You've done estrangement. You've learned from it. You've done difficulty. You've even done derangement probably. You've done angst and anxiety and existential dread. You've done toxic mayhem. Yes? You've done breakdown. Now it's time to try the next level.

You've had all this suffering. Great! It has given you a wealth and depth of experience and compassion, if you frame it that way. If you don't frame it that way, then all you've got is galloping angst.

Your energies, your powers, your stamina, your moral force seem limited only because you and your habituations and the habituations and expectations of your culture set limits. Therefore, what Mystery School tries to do here, is to go beyond the limits and create a consensual reality in which the horizon of the limits is greatly expandable and More becomes possible. (Note: this lecture used to be available free online; you may now order it for \$140 from JeanHouston.org)

The lecture only gives a glimpse of what is in store for the disciple on the road to self-transformation. On her hook is some common New Age bait: the pain, suffering and dissatisfaction with life that needs to be relieved. Houston tells her listeners: "You've been wounded up the gazoo. I always say - 'You're so full of holes from being so wounded, you're holy.' You're utterly available now." She speaks again and again to the pain and suffering of her audience, of their dissatisfaction with their lives. She tells them that this is necessary for the transformation, that out of the evil she will bring good. Hers is the true way to the New Resurrection.

As New Age self-realization plans go, the Mystery School must seem a bargain. On the WWW for only about \$200 you can get the lessons, which include nine "sessions" of edited transcripts of the Mystery School. Each written lesson promises to be the length of a small book. In effect, you are paying about \$22 a pop for chapters of a work in progress.

Here is Jean's own blurb on her Mystery School

It is my 20th Century version of an ancient and honorable tradition, the study of the world's spiritual mysteries. Once upon a time there were such schools in Egypt, Greece, Turkey, Afghanistan, Ireland, England, France, Hawaii, India, China, Japan and many other places on the globe. We harvest what is available (or can be imagined) of the knowledge and traditions, rites and rituals of these ancient studies, imbuing them with new realities and applications in order to live more freely and more fully.

Mystery School is intellectually vigorous, psychologically challenging and spiritually demanding . . . It is celebrational and transformational. It is also frequently hilarious and zany satiric.

Mystery School is both experiential and experimental. I weave together the things I love most: sacred psychology, music, history, theatre, cultural wisdom, science (fact, fiction and fantasy), neurophysiology, philosophy, anthropology, theology, poetry, laughter, cosmology, metaphysics and innovative ideas to provide a multi-faceted, multi-level Time out of time.

Exercises include psychophysical work, psychospiritual exploration, creative arts, energy resonance, movement and dance, altered states of consciousness, ritual and ceremony, high drama, high play and mutual empowerment.

She claims that her school is part of a tradition that has probably existed ever "since humans have been humans." This claim seems to imply that the mystery schools have made very little progress. There is ample evidence she is correct about that. The reason for this is obvious: mystery schools don't exist to discover the mysteries of life, but to encourage belief that life is a mystery. The only thing they transform is the mind, not by providing a better understanding of reality but by encouraging people to create their own reality. Mystics are warriors against the world and their weapons are the weapons of the imagination. They are enemies of reality. Rather than engage the world they despise, rather than try to change the

world, they withdraw from the world and turn the world into an idea and they play with that idea until the game is to their liking.

According to Houston, "The traditional question of all Mystery Schools is - How do you place the local self, your local historical self, in the service of the Self? How do you place it in the psyche where the Immanent God resides? How do you respond to the Lure of Becoming and keep up sufficient energy, passion, momentum, delight, engagement, fascination, that you agree to be constantly lured? Unfortunately the stuff of everyday life often inhibits the Lure." In short, how do you become one with God and how do you avoid the snares distracting you from this divine union? There's nothing new here in terms of goals. The goal is the goal of all ecstatic mysticism: how to escape the world into transcendent glory.

Still, one wonders why, if all the schools she mentioned have failed to get beyond the beginning of comprehension, what makes her think her school will be any better? She may be right in saying that her Mystery School is intellectually vigorous. Maybe it's even more intellectually vigorous than the ancient schools of Egypt, Greece, etc. But what superior methods, what New Age weapons, has Jean Houston got that will at last allow deliverance to those lured by the desire to transcend all that they can be? How will she succeed where so many others have failed to unlock the secrets of the universe and provide a sure path for those who are so full of potential, who are striving so hard to burst forth and transform into something wonderful, something great, something celebrational, transformational, empowered? The only way to find out for sure is to pay your money and go to school. In the meantime, we can inquire into the history and mythos of Dr. Houston herself.

Jean Houston would probably be just another successful New Age motivator had not Bob Woodward in The Choice let the world know that she met with Hillary and Bill Clinton, and that Hillary had imaginary "conversations" with Eleanor Roosevelt and Mohandas Gandhi. Woodward also notes that in the past Houston had been known to use LSD and hypnosis to help her clients converse with the great personages of the past. However, neither drugs nor hypnosis were used with the Clintons, according to Woodward.

There is nothing particularly weird about imaginary conversations with the dead (or with the living, for that matter). In fact, such a practice could be beneficial, if not enlightening. Steve Allen did a wonderful book and television series where he brought together for conversation groups of four historical persons from different eras. Many of the best writers and thinkers who have ever lived have had many imaginary conversations with dead people. It is a wonderful way to explore ideas, to vivify notions, to think.

It seems unfair to compare Hillary Clinton with Nancy Reagan, as some in the media have done, comparing Houston to the psychics and astrologers the Reagans consulted. Houston is no astrologer. Nor does she claim to be psychic, yet that is how Newsweek, the Sacramento Bee and the CBS evening news referred to her. An AP story ambiguously referred to her as a "psychic researcher."

Jean Houston is a Ph.D. in philosophy of religion from Columbia University, according to Newsweek (July 1, 1996). According to the Washington Post, she has a Ph.D. in psychology. In an interview with Stone Phillips of NBC's Dateline she claimed to have several doctorates but was most proud of the one in psychology from Union Graduate School. Off camera she admitted that this is really the only doctorate she has. She said she made a mistake and blamed it on something like overwork or stress, but it seems obvious that she lied. She might forget how many doctors she has, but not how many doctorates. How much of her biography is lie? or "mythos," as she might call it? Was she really chums with Einstein and Teilhard de Chardin? Was she really Margaret Mead's adopted daughter? Did she really meet and get the inspiration for her primary teaching method from Edgar Bergan and Charlie McCarthy when she was eight years old? It should not surprise anyone if it turns out that Jean Houston's autobiography is a piece of fiction, a heroic myth spun by her imagination out of the fabric of her desires. She is one of the New Age philosophers for whom "deep" truth is something you create. In fact, she sounds like the perfect political advisor! She expressed her concern to Phillips that she would lose business because of the bad press. I doubt it. If anything, her business will probably expand exponentially and demands for her mystic presence will most likely come to exceed even her Athenic potentiality. The only thing that might hurt her is her lying. Americans will tolerate lying for God and Country, or about sex, but are a bit harder on those who lie for greed or self-aggrandizement. If, indeed, it turns out that Jean Houston is a congenital liar, there will be the inevitable cynics who will claim that Bill or Hillary is Jean's guru, not the other way around. They would be wrong, of course.

In any case, Houston is certainly a prolific author. She is also past-president of the Association for Humanistic Psychology, director of the Human Capacities Training Program, and ran The Foundation for Mind Research out of Pomona, New York, where she and her husband, Robert Masters, tested the ESP of subjects under the influence of LSD or psilocybin. Houston is also on the editorial board of the Journal of Mind and Behavior. She offers distance learning courses through the Entelechy Institute. The titles of some of her books reveal something of the author:

Beloved  
Godseed  
Lifeforce



Mindgames  
The Hero and the Goddess  
The Possible Human  
Odyssey of the Soul  
The Search for the Beloved: Journeys in Sacred Psychology  
Listening to the Body (co-authored with Robert Masters)  
The Varieties of Psychedelic Experience (co-authored with Robert Masters)  
Psychedelic Art (co-authored with Robert Masters)

In her books and lectures she frequently aligns herself with the Great Traditions. "In all the great traditions - Christian, Buddhist, Hindu, Sufi, Jewish - it's all about waking up. Mystery School is essentially about the wake up call from Central and putting you not in attunement with it, but in alignment with it. You can always tune, but alignment is forever." This distinction between a tune up and an alignment may seem profound in context, but out of context it is obviously false. Alignments are no more forever than tune ups are. You can go out of alignment as easily as going out of tune. She calls fundamentalists "Fundis" and she likes metaphors that have proven successful in similar eclectic transformational endeavors by L. Ron Hubbard, Richard Bandler, Werner Erhard, Frederick Lenz and Tony Robbins. For example, she says that her Mystery School "provides practices which have the effect of both rewiring your brain, body and nervous system, and eliciting the evolutionary latencies in your physical instrument. These latencies have been there like a fetal coding for perhaps tens of thousands of years, but could not be activated until various aspects of complexity emerged, joined to crisis. We find that emergence generally only occurs in emergencies. It's only when you really have to survive that you really turn on enough mindfulness and wakefulness to activate these different latencies."

What Jean Houston has done is create her own mythos. She has probably gotten enough communal reinforcement to encourage her to believe in the reality of her mythos. Like so many others in New Age movements, she seems to find the distinction between myth and reality a hindrance to the truth. For their view of truth is entirely subjective: truth is whatever you want it to be.

You . . . are probably at this point every race that ever was, as well as every species, as we know from the development of the brain that contains most of the species coded in us. . . .

Once you start living out of that Depth Life, you're living a Mythic Life and life gets very juicy!

"Body/Being/Blissing. Bodying/Blissing/Beingness. You are in it. You are in the utter Suchness of it, and you have lost the great divide." You need the divide only when you're driving. You don't need it when you're cooking.

...you have within you not only all the evolutionary past, but another reality altogether, a depth reality. . . . It is the great creative archetypal realm: hyperspatial, hypertemporal, but co-existent with consciousness in some way. The Depth Realm, the realm of gods, goddesses, angels, numinous borderline persons, creative principles, archetypal patterns.

You are the mystery, and the job of the Mystery School is to school you in your own depths.

The problem is that when we lost myth, we lost the rest of the story. We got stuck in television . . . .

I knew all these things and more....once upon a time.

Hubbard, L. Ron & Scientology

Which of the following does not belong? The Talmud, the Upanishads, the New Testament, the Vedas, Dianetics?

Here is an even easier question: which of the following does not belong? Judaism, Islam, Taoism, Buddhism, Scientology?

Despite what its founder and its advocates say, Scientology is not a religion. It has no creed, no rituals, and no hope of becoming a major social institution for the transmission of values. It has no cosmological myths and offers nothing new or interesting in ethical teachings. What it does have is philosophical dogma which it claims is scientifically validated by its practice of auditing. And while these dogmas do assert belief in a soul which is independent of the body and which usually resides in a person's head, the origin of the soul is obscure while its destiny is vaguely described in Buddhist terms of escape from the cycle of rebirth. Scientology is an eclectic collage of philosophical and religious notions imaginatively brought together in a loose system by a man with a gift for fantasy.

I know, in 1993 the Internal Revenue Service of the United States of America declared that Scientology is a religion. The IRS had initially denied Scientology the tax-exempt status of a religion. But after years of war which featured numerous lawsuits and tit-for-tat harassment techniques by scientologists, the IRS surrendered. What they should have done, in my humble democratic secular opinion, is eliminated the tax-exempt status for all religions. Or they should have continued to deny Scientology status as a religion, as the German government continues to do.

Which of the following does not belong: Einstein, Darwin, Newton, Feynman, Hubbard? Too easy? Yet scientologists claim that Scientology is a science. It isn't. The Rediscovery of the Human Soul, a collection of essays by L. Ron Hubbard, founder of Scientology, along with background essays provided by the institute which bears his name, is a hostile collection of anti-science literature.

If Scientology is neither a religion nor a science, what is it? It is an eclectic collection of metaphysical notions which are "applied" in counseling sessions called auditing. If a label must be given to Scientology, I would call it a philosophical cult and its teachings applied metaphysics. It shares in common with other ancient philosophical schools, such as Stoicism, the offering of an alternative to traditional religion. In common with many ancient mystery cults such as Mithraism and early Christianity, it offers a refuge from a turbulent, heartless world while promising immortality. Scientology claims to be able to improve a person's happiness, intelligence, well-being, etc. Maybe so. I can't speak to the issue of its benefits or harms to people who have been audited. But I can speak to the ideas upon which Scientology is based, especially to the claim that these ideas are "scientific." Not only are the fundamental notions of Scientology not scientific but metaphysical, there is a basic hostility to science at the heart of Hubbard's teachings.

I received an unsolicited copy of The Rediscovery of the Human Soul. It was sent to my office in the Philosophy Department at Sacramento City College. I also received an invitation to think about it from Kaye Copley, the L. Ron Hubbard Public Relations Director. Copley writes that the book was sent to me to "provide an understanding of some of the fundamental principles of Scientology and an insight into what lies behind its phenomenal growth." And, "We look forward to receiving your thoughts on [Scientology]." Well, here goes.

#### Slick But Unimpressive

I'll begin with the positive. This book is beautifully done: slick, glossy pages, colorful photos, artistic black and white shots and graphics. It's pretty enough to go on the coffee table.

Now to the content and the negative.

The book is a collection of articles either by or about Hubbard. In "An Introduction to L. Ron Hubbard" we're told that no "single philosophic work" is as large as the materials of Scientology. This is unimpressive. Bigger is not necessarily better, or even good, for that matter.

Scientology is also called a "major religion" with solutions to criminality, drug addiction, illiteracy and social unrest--concerns which set Scientology apart from most other religions. Scientology is also called "an applied religious philosophy" based upon "axioms derived from precise observations," not "theory or assumptions." These claims, however are based on epistemological ignorance or arrogance. Hubbard uses the term 'axiom' himself in describing the "truths" of dianetics. He uses the word to mean "absolutely certain truths." Axioms are self-evident propositions such as "the whole is greater than any of its parts", or postulates (essential presuppositions), or universally accepted principles such as "everything has a cause." Axioms are either statements which are true by definition, or they are assumptions or based on assumptions. Observation, by its very nature, cannot yield axioms. Any data derived from sense observation must be organized and interpreted by our fallible human organs and consciousness, and cannot yield absolutely certain empirical truths. If there is anything epistemologists and philosophers of science are in agreement on it is this: sense perception can, at best, lead to probabilities, not absolute certainties. Hubbard did not understand this and neither do his followers. Those who practice science recognize that axioms cannot be reasonably derived from sense observations or experiments.

Scientology might best be described as Irrefutable Pragmatism. The only criteria for truth, we're told, is "workability." Did procedures "better our capacity to survive, actually make us happier, more causative and more able?" The beauty of such imprecise concepts is in their slipperiness: there is no need to invent ad hoc hypotheses to explain disconfirming evidence because the concepts are so vague that one can fit any data to them. I fear that the "axioms" of Scientology which are not false or trivial are likely to be so vague as to be useless.

In the introductory essay, we are presented with another example of philosophical ignorance when metaphysical materialism is identified with the philosophy of "get what you can before you die." I suggest that Scientologists read some Epicurus or d'Holbach for starters. Not only is collecting material possessions irrelevant to metaphysical materialism, it is in fact a predominant motif among many "spiritual" leaders

and their flocks, including Scientology which may one day rival the wealth of the Catholic Church. The Epilogue to the book claims that Scientology is growing at the rate of 10,000 a week. (At that rate, if there is no population increase on earth, everyone will be a Scientologist in about 10,000 years.)

### Somebody Needs Auditing

With a foundation so flawed, so evidently comprised of philosophical falsehood and ignorance, it is hard to take the rest of Hubbard's claims seriously. He says that we are all "troubled." We need "auditing" to find the cause and cure of our "troubles." Most people tremble at the thought of being audited, but L Ron H turned auditing into a rich concept. He even added a spiritual touch to auditing: his own version of reincarnation. We have past lives which need auditing to get at the root of our "troubles." Past lives is mentioned as if it were an axiom. It is not an assumption or article of faith. In fact, faith is never mentioned in this "religion." At least other religions, even the minor ones, usually admit they are based on faith. By the way, auditing is not free, like confession, and may require many sessions to get through all those past lives. If nothing else, the convert will learn the true meaning of eternal giving.

In Hubbard's "A Note on Excalibur," we are introduced to what he calls his fundamental insight into the secret of life. Unfortunately for those who actually know something about philosophy, this turns out to be little more than a rehash of naive vitalism, a philosophy whose adherents have dwindled to near none since the time of Aristotle. Briefly, L Ron H's vitalism holds that there is a basic Life Force which directs living things in a purposive fashion towards survival and survival only. He claims that he demonstrated that this Life Force exists in each living cell by a grand experiment he did in 1937. The same experiment, he says, proved Darwin was wrong about inheriting learned responses. By implication, I suppose, L Ron H might be thought to have vindicated Lamarck, who had argued that evolution occurred by a process of passing on learned behavior to progeny. In either case, Hubbard's claim must come as a great surprise to the whole evolutionary biology community, including any Lamarckians still around since Lamarck was as mechanistic and non-vitalistic as Darwin in his explanations.

What was this great experiment which has been systematically ignored by every biology text book since its alleged occurrence? He claims he proved that bacteria can mislearn from experience and pass on their mislearning to their progeny.

1. He subjected bacteria to jets of steam and there was no effect.
2. He subjected the bacteria to jets of "toxic cigarette smoke." The bacteria "retreated" from the threat.
3. He continued to "taunt" the bacteria with smoke.
4. He substituted steam for smoke. The bacteria "retreated" because they mistook steam for smoke.
5. Second and third generation bacteria retreated from steam, proof that they mistook steam for smoke like their dumb parents.

L Ron H claims that the new generations had inherited their parents and grandparent's inability to tell the difference between steam and smoke. He also claims that all generations of bacteria "retreated" from smoke in an effort to survive. I find this experiment extremely interesting for several reasons.

1. How does he know the bacteria were retreating? Was there a door marked "exit" on the edge of the petri dish? How can he be sure that they weren't actually seeking the source of the smoke because they enjoyed getting high? This anthropomorphizing of bacteria is charming, I suppose, but not too scientific.
2. No reputable biologist has ever heard of this crucial experiment.
3. He expects us to believe he "taunted" bacteria with jets of steam and got no response until he first "taunted" them with smoke. Maybe the bacteria were "taunting" L Ron H by faking a retreat.
4. He thinks that if bacteria mistakenly retreat from something which is no threat to their survival, this proves there is "an intelligence behind the scheme of life--an 'X-Factor'....that shapes and gives meaning to life in ways that Darwin simply could not explain." Perhaps, but it must be a pretty dumb intelligence if it can't tell the difference between what's harmful and what's harmless. If survival is the only thing this Life Force is aiming at, as L Ron H claims, then it is amazing anything has survived since it doesn't even have the ability to distinguish between what is and what is not a threat to survival.

In Hubbard's attempt to refute what he considers to be the Darwinian notion that life is "directed by chance, by a dumb roll of genetic dice as it were" he cites an experiment on dumb bacteria who get dumber with each generation! "Directed by chance" is an oxymoron, of course, but we get the idea: Darwin's view is that there is no purpose to existence or to evolution; Hubbard's view is that even cells have purposes and act intentionally, if unintelligently. I suppose I should not be amazed that such an "experiment" and such reasoning would be the foundation of a body of notions which many people would accept, not on faith, but because they think it is scientific.

### Contempt for science

If there is one constant throughout the musings of L Ron H presented in this little volume it is that he had a profound contempt for science. In essay after essay, he presents metaphysical ideas about Mind or Soul or

Life and calls them scientific. He repeatedly claims that he has scientific proof that the soul exists, that the soul goes through many incarnations, that even minerals have souls, etc. I wonder if the trustees of Scientology sent a copy of these notions to any scientists. The science is nearly non-existent, and what science there is, is bad science. But the philosophy is there for all to see, and what is visible is a metaphysical belief in the soul as a directing force in all of nature and whose direction is toward "survival." This idea is no more scientific than the notion L Ron H opposes to it, viz., that nature is nothing but material (i.e., non-spiritual) entities and forces, following mechanistic laws, and is essentially without direction or purpose. There is nothing new about this debate. The opposition of mechanistic materialism to teleological spiritualism has a long and interesting history. Unfortunately, L Ron H adds little of note to this debate.

With the foundation laid in an inept experiment, we are now ready to delve more deeply into L Ron H's wisdom and insights. In "The Birth of Dianetics," an introduction to Hubbard's "Original Thesis," we discover that our scientist is really a metaphysician who thinks teleologically in terms of final causes, an idea abandoned by most scientists and philosophers after Spinoza. He caricatures mechanistic materialism as the view that feelings and emotions are nothing but "a consequence of physiology." His view is that "mind regulates body" because "function monitors structure," a view which might be of interest to certain naive vitalists. He also seems to think that because he can apply his metaphysical notions to the empirical world that his notions are therefore scientific and result in axioms. But his main supportive reason for opting for naive vitalism as opposed to a mechanistic materialism seems to be that he thinks materialism is bad. For example, he thinks the popularity of metaphysical materialism led to the excessive use of drugs to treat both physical and mental illness. He ignores any benefits which come from drug therapy to such people as diabetics, those who've had their thyroids removed, and even the mentally ill. In a very real sense, what Hubbard offered was the ultimate in alternative medicine. The mind regulates the body.

I can see how these ideas might be attractive to someone who is ill but who does not want to deal with medical doctors or who does not want to admit that there may be nothing he or she can do about the illness. No one wants to be a patient, a passive recipient of disease: we'd like to be in control. But L Ron H has ignored the benefits of drugs and he has misrepresented mechanistic philosophy when he claims that drugging people to get them to act "normal" is a consequence of materialistic conceptions of human reality. If anything, the idea of a "normal" state for human behavior is rooted in teleological systems which posit that there is a goal or purpose which each being must strive to achieve in order to fulfill its nature.

To his credit, though, L Ron H does cite an empirical reason for rejecting materialism and the attempt to reduce consciousness to brain processes. However, his empirical reason is suspect. In the title essay (written in the 1930's) of this collection, he tells the story of a how a biology student told him that "the brain contained an exorbitant number of molecules of protein and that each molecule had been discovered to have holes in it." Our scientist then muses: "It seemed to me that if molecules had holes in them to a certain number, then memory, perchance, might be stored in these holes in molecules." He then says he did some mathematical calculations "done with considerably higher math than psychologists or biologists use" and discovered that "the brain did not have enough storage for more than three months memory." Apparently, it did not occur to Hubbard that there might be a hole in his theory. While we can't blame him for not knowing much about the brain, we can criticize his followers for not keeping up to date in sciences such as neurology. If Scientology were truly a science, it would be a major scientific research institution. Not only is Scientology not a science, it is anti-science. Science studies the material world and attempts to understand Nature on its own terms. A neurologist might believe in souls, but as a scientist the neurologist notes that the brain's 10,000,000,000,000 or so neurons ought to be enough to hold even a memory the size of L Ron H's. (Actually, it's at least 500 times more neurons than is needed if one neuron were required for each memory and could not be used again, and if he had a new memory every second of his life for 80 years.) This fact seems to be of little interest to scientologists, who think that because we do not have a good understanding of how memory works at the neuronal level, that believing in a spiritual mind with its apparently infinite capacity for memory is a better option. There is no scientific value to this metaphysical assumption. On another level, how many scientologists do you suppose will be reading papers on their current research on memory at the next symposium of the National Academy of the Sciences? It won't take too many neurons to figure that one out.

In addition to trying to pass off his metaphysical notions as if they were scientific, L Ron H tried to pass off himself as a great scientist who, while working independently, had made great discoveries. He even wrote to the American Medical Association and the American Psychological Association, informing them of his progress. The letter, written in 1947, is reprinted in this collection. It is not hard to understand why his letter was ignored. He sounds like a crank at best or a rambling lunatic at worst. In the letter he claims he's treated 20 people, though he does not say where or what qualifies him to treat anyone. He says he's cured migraine headaches, ulcers, asthma, sinusitis and arthritis by uncovering their chief cause in prenatal or birth traumas. He mentions attempted abortion as a main factor in four of his cases. After writing this strange letter, he then complains that there is a conspiracy against his genius which has continued to this day. Yet, it seems rather reasonable to ignore someone who claims he is doing research on his own and has cured migraines and ulcers by finding the cause in the patient's mother's attempted abortion while the patient was in the womb decades ago!

Shocked!

In an interview with Stillson Judah in 1958, Hubbard expresses a genuine shock that sciences (i.e., psychology) could not answer all his questions. Neither could philosophy. "We didn't even know what a spirit was," he says. "Whether it was Nietzsche or Schopenhauer, Kant, or any of the rest of them. These men were all groping. So I said, here's a wide-open field." Nietzsche and Schopenhauer groping to know what a spirit is? I don't think so. Unlike Nietzsche and Schopenhauer, Hubbard was looking for "the principle of existence," i.e., the purpose of life. He says he found the answer: to survive! Nietzsche and Schopenhauer had determined that there is no purpose to life. To them, beings don't exist to survive, they exist because they survived. Beings which did not have a strong urge to preserve themselves would not survive unless by chance they found themselves in an environment friendly to them. Beings which did not have reproductive urges would become extinct. We don't have sexual urges to preserve the species; the species is preserved because we have sexual urges. In any case, why Hubbard found the desire for self-preservation so profound is elusive.

Hubbard jumped from his "discovery" that everything is striving to survive to the notion that something is "entangling man." What was it? "He was tangling himself up with combinations of mental image pictures." He claims he measured these pictures in 1953, using a meter (the E-meter) he built to measure the response of the soul "while exteriorized from a being." In 1951, he says, he found out who was looking at the pictures: "the human soul was the fellow."

In the introduction to "Scientology Fundamentals," we are told that the claim "you are a spirit" is "a unique statement, and factually found nowhere else in the whole of philosophic, religious or scientific thought." This seems like an odd statement coming from one who also claims to have studied in depth Buddhism and Taoism. I guess he never read George Berkeley, either. This is the essay which is supposed to be his "definitive introduction to philosophy." Its main virtue is that it is short and can be read in lieu of Dianetics to get an idea of what Scientology is all about. I'd love to go into all the details about Thetans (spirits) and the difference between astral projection and true separation of the soul from the body, how the reactive mind takes pictures when a person is unconscious, etc., but I've dealt with that elsewhere. [SD, "Dianetics"] I will share with you a quote or two, however, and comment briefly on Hubbard's lack of connection to the history of philosophy.

In the insect kingdom it is not established whether or not each insect is ordered by a spirit or whether one spirit orders enormous numbers of insects....the general authorship of the physical universe is only speculated upon, since Scientology does not invade the eighth dynamic.

I guess we can all be thankful for that. In any case, another dynamic which Hubbard does not invade is the fray over interactionism, a central problem in dualistic philosophies: how do mind and body interact? Since they are defined as independent and completely unlike substances, this question needs to be answered. Descartes "solved" the problem by declaring that the mind resides in the pineal gland and it is there that connection is made to the body. Hubbard's problem is even more difficult than Descartes since Hubbard's is a pluralistic philosophy with three substances to deal with: spirit, mind and body. However, he is oblivious to the fact that after defining these types of being, each completely distinct in nature from the other, that it is a major puzzle as to how the three interact. He seems so sure that they do interact that it does not seem to occur to him that there is a major philosophical problem here. His obliviousness to central philosophical issues is matched only by his obliviousness to scientific issues. One thing he was not oblivious to, however, was what buttons to push to arouse sympathy and interest in his philosophy.

One of the main attractions of Scientology must be its promise of immortality. In the "The Demystification of Death" we learn of the internal strife caused by the doctrine of past lives, which L Ron H asserts is "not the same as the theory which has been called 'reincarnation' in Hinduism," ("A Note on Past Lives"). There was opposition to the idea from some of Scientology's Board members because it was in opposition to Christian orthodoxy and the materialistic creed of the psychologists. In any case we are supposed to believe that the doctrine was accepted because it is true and the truth must prevail. He claims in "A Note on Past Lives" that "Dianetics gave impetus to Bridey Murphy." He also asserts a belief that some scientologists have been dogs and other animals in previous lives.

In "The Phenomena of Death," Hubbard claims that "It has only been in Scientology that the mechanics of death have been thoroughly understood." What happens is this: the Thetan (spirit) finds itself without a body (which has died) and then it goes looking for a new body. Thetans "will hang around people. They will see a woman who is pregnant and follow her down the street." Then, the thetan will slip into the newborn "usually...two or three minutes after the delivery of a child from the mother. A thetan usually picks it up about the time the baby takes its first gasp." This is the truth about death which only Scientology has understood. On what basis we are supposed to believe this "truth," I can only guess. He says in "A Note on Past Lives" that "Evidently the newborn child has just died as an adult. Therefore he or she, for some years, is prone to fantasy and terror and needs a great deal of love and security to recover perspective of life with which he or she can live." Evidently.

In "Dianetics, Scientology & Beyond" we are told by Hubbard that those who reach "total spiritual independence and serenity" are called Operating Thetans or OTs. The OT has "personal and knowing immortality and freedom from the cycle of birth and death." But this is not the Buddhist doctrine of nirvana.

In "Philosophy Wins after 2000 Years" Hubbard explains why all previous philosophy has been a failure until Scientology. Materialism is again caricatured as the doctrine that "one is merely meat and all life arose by spontaneous and accidental combustion from a sea of ammonia." Contrast this with the good news that "Scientologists are seldom ill" and their intelligence is increased. This is done without "persuasion or hypnosis or 'faith'." Or superstition. Hubbard modestly concludes that Scientology "delivers the answers to the eternal questions and delivers immortality as well." I think it would be more accurate to say that it promises these things but it is unlikely it can deliver the goods.

The collection would not be complete without at least one accusation that the CIA and the FBI have conspired for years not only to discredit Scientology and Hubbard, but to "appropriate the materials of Scientology." I assume he is not talking about tax records, but his philosophical and fanciful writings. The Scientologists believe that Hubbard's lectures on "the state of the OT" now reside within National Security Agency vaults. This fear is only believable because our intelligence agencies have demonstrated in the past their gullibility regarding paranormal, occult and spiritual claims.

The penultimate essay is modestly titled "My Only Defense for Having Lived." It is of little interest but in it Hubbard claims that he was not motivated by fame, fortune or power. His only motivation was to understand man. This essay will have to do in lieu of an autobiography because such a tale "would sound far, far too incredible." Nobody would believe his tales, he says. Still, he can't help but tell a few. For example, there is the story about how as a boy he was expelled by the governor of an island on a charge of "always being happy and smiling."

Finally, in the last essay of this collection of Scientologist writings, we are given "My Philosophy" by L. Ron Hubbard. It is notably uninteresting except for a curious anecdote he shares. He tells us that his service record states that "This officer has no neurotic or psychotic tendencies of any kind whatsoever." Presumably this information is shared so we can appreciate how he cured himself of his war wounds, including blindness. But it might be interpreted as a protest to an anticipated criticism.

#### Hundredth Monkey Phenomenon

The hundredth monkey phenomenon refers to a sudden spontaneous and mysterious leap of consciousness achieved when an allegedly "critical mass" point is reached. For example, people start thinking about ending world hunger. One person gets another to start thinking about it who gets another who gets another not ad nauseam or ad infinitum but until suddenly a breakthrough is achieved when the "critical mass" point is reached. Then, spontaneously and mysteriously, everybody starts thinking about ending world hunger.

The expression "hundredth monkey" comes from an experiment on monkeys done in the 1950's. It was alleged by Lyall Watson in his book *Lifetide* that one monkey taught another to wash potatoes who taught another who taught another and soon all the monkeys on the island were washing potatoes where no monkey had ever washed potatoes before. When the hundredth monkey learned to wash potatoes, suddenly and spontaneously and mysteriously monkeys on other islands, with no physical contact with the potato-washing cult, started washing potatoes! Was this monkey telepathy at work or just monkey business on Watson's part?

It makes for a cute story, but it isn't true. At least, the part about spontaneous transmission of a cultural trait across space without contact is not true. There really were some monkeys who washed their potatoes. One monkey started it and soon others joined in. But even after six years not all the monkeys saw the benefit of washing the grit off of their potatoes by dipping them into the sea. Lyall made up the part about the mysterious transmission. The claim that monkeys on other islands had their consciousness raised to the high level of the potato-washing cult was a lie.

The notion of raising consciousness through reaching critical mass is being promoted by a number of New Age spiritualists, including Ken Keyes, Jr. Mr Keyes has published a book on the WWW which calls for an end to the nuclear menace and the mass destruction which surely awaits us all if we do not make a global breakthrough soon. The title of his treatise is *The Hundredth Monkey*. In his book he writes such things as "there is a point at which if only one more person tunes-in to a new awareness, a field is strengthened so that this awareness is picked up by almost everyone!" Well, it seems to be working for spreading the word about the hundredth monkey phenomenon! In fact, there seems to be no end to those seeking spiritual transformation of themselves and the universe. Witness the M100 or Hundredth Monkeying! project. "Our prayer is to bring benefit to all of world society without prejudice or bias." Who could complain about such a goal? If you want more information on hundredth monkeying, you should read *Morphogenetics* and

Monkeys. It has all the latest stuff on building up your inner-energy field , doors of perception, healing and the millennium. It must be very exciting to part of a global fellowship of soul nourishers. As the Monkey Man says: "...healing the human heart is central to all other necessary changes in the twenty-first century." Amen.

## Hypnosis

Hypnosis is a process involving a hypnotist and a subject who agrees to be hypnotized. Being hypnotized is usually characterized by (a) intense concentration, (b) extreme relaxation, and (c) high suggestibility. Hypnosis is commonly used in behavior modification therapy to assist clients in overcoming phobias or bad habits. It also has other uses that are more controversial.

The versatility of hypnosis is unparalleled. Hypnosis occurs under dramatically different social settings: the showroom, the clinic, the classroom and the police station.

Showroom hypnotists usually work bars and clubs. Their subjects are usually people whose idea of a good time is to join dozens or hundreds of others in a place where alcohol is the main social bonding agent.

The subjects of clinical hypnotists are usually people with problems who have heard that hypnotherapy works for relieving pain or overcoming an addiction or a fear, etc. Others use hypnosis to recover repressed memories of sexual abuse or of past lives.

Parapsychological hypnotherapists encourage hypnosis as a means to discover occult truths hidden from ordinary consciousness.

Finally, some hypnotic subjects are people who have been victims or witnesses of a crime but can't remember enough details to help police investigators. The police encourage them to undergo hypnosis "to help them remember."

What other medical procedure in our time has such versatility?

The common view of hypnosis is that it is a trance-like altered state of consciousness. Many who accept this view also believe that hypnosis is a way of accessing an unconscious mind full of repressed memories, multiple personalities, mystical insights, or memories of past lives. This view of hypnosis as an altered state and gateway to occult knowledge about the self and the universe is considered a myth by many psychologists. There are two distinct, though related, aspects to this mythical view of hypnosis: the myth of the altered state and the myth of the occult reservoir.

Those supporting the altered state theory often cite studies that show that during hypnosis (1) the brain's electrical states change and (2) brain waves differ from those during waking consciousness. The critics of the mythical view point out that these facts are irrelevant to establishing hypnosis as an altered state of consciousness. One might as well call daydreaming or sneezing an altered state, since the experience of each will show electrical changes in the brain and one's brain waves will differ from when one is, say, flying an airplane or having an animated conversation with an alien abductee.

Those supporting the occult reservoir theory support their belief with anecdotes of numerous people who, while hypnotized, recall events from their present or past life of which they have no conscious memory.

Most of what is known about hypnosis, as opposed to what is believed, has come from studies on the subjects of hypnosis. We know that there is a significant correlation between being imaginative and being responsive to hypnosis. We know that those who are fantasy-prone are also likely to make excellent hypnotic subjects. We know that vivid imagery enhances suggestibility. We know that those who think hypnosis is rubbish can't be hypnotized. We know that hypnotic subjects are not turned into zombies and are not controlled by their hypnotists. We know that hypnosis does not enhance the accuracy of memory in any special way. We know that a person under hypnosis is very suggestible and that memory is easily "filled-in" by the imagination and by suggestions made under hypnosis. We know that confabulation is quite common while under hypnosis and that many States do not allow testimony which has been induced by hypnosis because it is intrinsically unreliable. We know the greatest predictor of hypnotic responsiveness is what a person believes about hypnosis.

If hypnosis is not an altered state or gateway to a mystical and occult unconscious mind, then what is it? Why do so many people, including those who write psychology textbooks, or dictionary and encyclopedia entries, continue to perpetuate the mythical view of hypnosis as if it were established scientific fact? For one thing, the mass media perpetuates this myth in countless movies, books, television shows, etc., and there is an entrenched tradition of hypnotherapists who have faith in the myth, make a good living from it, and see many effects from their sessions which, from their point of view, can only be called "successes." They even have a number of scientific studies to support their views. Psychologists such as Robert Baker think such studies are about as valid as the studies which supported the belief in phlogiston or the aether. Baker claims that what we call hypnosis is actually a form of learned social behavior.

The hypnotist and subject learn what is expected of their roles and reinforce each other by their performances. The hypnotist provides the suggestions and the subject responds to the suggestions. The rest of the behavior--the hypnotist's repetition of sounds or gestures, his soft, relaxing voice, etc., and the trance-like pose or sleep-like repose of the subject, etc.--are just window dressing, part of the drama that makes hypnosis seem mysterious. When one strips away these dramatic dressings what is left is something quite ordinary, even if extraordinarily useful: a self-induced, "psyched-up" state of suggestibility.

Psychologist Nicholas Spanos agrees with Baker: "hypnotic procedures influence behavior indirectly by altering subjects' motivations, expectations and interpretations." This has nothing to do with putting the subject into a trance and exercising control over the subconscious mind. Hypnosis is a learned behavior, according to Spanos, issuing out of a sociocognitive context. We can accomplish the same things in a variety of ways: going to college or reading a book, taking training courses or teaching oneself a new skill, listening to pep talks or giving ourselves a pep talk, enrolling in motivation courses or simply making a willful determination to accomplish specific goals. In short, what is called hypnosis is an act of social conformity rather than a unique state of consciousness. The subject acts in accordance with expectations of the hypnotist and hypnotic situation and behaves as he or she thinks one is supposed to behave while hypnotized. The hypnotist acts in accordance with expectations of the subject (and/or audience) and the hypnotic situation, and behaves as he or she thinks one is supposed to behave while playing the role of hypnotist.

Spanos compares the popularity of hypnosis with the nineteenth century phenomenon we now call mesmerism. Furthermore, he draws an analogy between the belief in hypnosis and the belief in demonic possession and exorcism. Each can be explained in terms of sociocognitive context. The conceptions of the roles for the participants in all of these beliefs and behaviors are learned and reinforced in their social settings. They are context-dependent and depend upon the willingness of participants to play their established roles. Given enough support by enough people in a social setting, just about any concept or behavior can become adamantly defended as dogma by the scientific, theological or social community.

Another psychologist, E.M. Thornton, extends the analogy between hypnotism, mesmerism and exorcism. He maintains that hypnotic subjects are asked basically to take on "what really amounts to a parody of epileptic symptoms." If some hypnotic or mesmerized subjects seem possessed, that is because possession involves a similar sociocognitive context, a similar role-playing arrangement and rapport. The central beliefs differ and the dominant idea of an altered state, of animal magnetism or of invading demons, gives the experiences their distinguishing characteristics. Deep down, however, hypnotism, mesmerism, hysteria and demonic possession share the common ground of being social constructs engineered mainly by egocentric therapists, showmen and priests on the one side, and suggestible, imaginative or fantasy-prone players with deep emotional needs or abilities on the other.

Many of those who defend the mythical view of hypnosis use it to uncover repressed memories of trauma, thought to be the cause of most psychological problems. To rid patients of their problems, the cellar door to the unconscious must be opened and the memories of trauma (usually assumed by the therapist to be childhood sexual abuse) must be brought out into the open. Hypnosis is a favored tool of such therapists; for, they believe hypnosis allows them to communicate directly with the unconscious. However, many of the "memories" brought out into the sunlight turn out to be false memories brought about by suggestion and confabulation. Also, the assumptions of this type of therapy do not fit with empirical evidence about how memory works (Schacter).

People who have experienced traumatic events usually do not forget them. Severely traumatic experiences are typically forgotten only if (a) the person is rendered unconscious at the time of the trauma; (b) the person is brain damaged before or by the trauma; or (c) the person is too young to make the necessary neural connections needed for long-term memory. Memories are not stored in some mysterious dark cellar, but in a complex network of neural connections involving several parts of the brain. Memories are lost because neural connections are lost, not because some homunculus stores them in the basement of the mind and let's them haunt the people upstairs in the room where clear consciousness dwells.

Daniel Schacter notes that the scientific evidence for repression is weak. Even weaker is the evidence that specific disorders are caused by repression. He notes the case of a rape victim who could not remember the rape, which took place on a brick pathway. The words 'brick' and 'path' kept popping into her mind, but she did not connect them to the rape. And she became very upset when taken back to the scene of the rape, though she didn't remember what had happened there (Schacter, 1996, 232). One could posit that the victim really does have a full-fledged memory of the rape, but she has repressed it. Hypnosis could help bring forth this repressed memory. However, hypnosis or other methods starting with this assumption are risky as well as unfounded. The concept of implicit memory, i.e., memory without awareness, which is due to the fact that some neural connections have been made during a trauma, but not enough for a full-fledged recollection, could explain this rape victim's incomplete memory without assuming either that she was recording memories while she was unconscious or that she even has an unconscious mind for storing such unpleasant memories. The concept of implicit memory explains everything that is known about memory without making assumptions about what is not known. In short, Occam's razor should be used to excise this part of the mythical concept of the unconscious mind.



Furthermore, even if traumatic memories are repressed sometimes, they are probably done so consciously and deliberately. Many of us choose not to dwell on unpleasant experiences and make a determined effort to wipe them from our memories as far as possible. We hardly desire some hypnotist or therapist to dredge up memories of experiences we've chosen to forget. In short, limited amnesia is best explained neurologically, not metaphysically. We forget things either because we never encoded them strongly enough in the first place or because neural connections have been destroyed or because we choose to forget them.

The godfather of occult reservoir theory of the unconscious, Freud, wisely gave up using hypnosis in therapy. Unfortunately, however, hypnosis continues to be used in a wide variety of therapeutic sessions, not all of which are beneficial. Using hypnosis to help people quit smoking or stick to a diet may be useful, and even if it fails it is probably not harmful. Using hypnosis to help people remember license plate numbers of cars used in crimes may be useful, and even if it fails it is probably not harmful. Using hypnosis to help victims or witnesses of crimes remember what happened may be useful, but it can also be dangerous because of the ease with which the subject can be manipulated by suggestions from the hypnotist. Overzealous police hypnotists may put conviction of those they think are guilty above honest conviction by honest evidence presented to a jury. Hypnosis is also dangerous in the police setting, because of the tendency of too many police officers to believe in truth serums, lie detectors and other magical and easy ways to get to the truth.

Using hypnosis to help people recover memories of sexual abuse by their closest relatives or by aliens in spaceships is dangerous, and in some cases, clearly immoral and degrading. For, in some cases, hypnosis is used to encourage patients to remember and then believe events which probably never happened. If these memories were not of such horrible and painful events, they would be of little concern. But by nurturing delusions of evil suffered, therapists often do irreparable harm to those who put their trust in them. And they do this in the name of healing and caring, as did the priests of old when they hunted witches and exorcised demons.

It should be noted and understood that therapists can enhance suggestibility and induce false memories in their patients without the use of hypnosis. The beliefs of the therapist about the causes of problems are more significant influences on their patients than whether or not the therapist uses hypnosis. Cookie-cutter therapists who think one-size-fits-all (e.g., all bulimics, multiple personality disorders, or borderline personality disorders are caused by childhood sexual abuse) are likely to induce false memories and beliefs in their patients whether or not hypnosis is used. The process of suggestion does not require the drama of hypnosis to be successful. This drama just gives the process more legitimacy in the eyes of some people.

Another area where hypnosis is popular is in past-life regressive therapy. According to its advocates, hypnosis opens a window to the unconscious mind where memories of past lives are stored. How memories of past lives get into the unconscious mind of a person is not known, but advocates loosely adhere to a doctrine of reincarnation, even though such a doctrine does not require a belief in the occult reservoir nor in the memory of past lives. The main evidence for past-lives is that many people remember them while hypnotized. Even when these reports have been widely publicized and shown to be based on false memories, such as the Bridey Murphy case, the belief in past-life regression has not diminished.

Robert Baker demonstrated, however, that belief in reincarnation is the greatest predictor of whether or not a subject (from a college student group) would have a past-life memory while under past life regression hypnotherapy. Furthermore, Baker demonstrated that the subject's expectations significantly affect the past-life regressive session. He divided a group of 60 students into three groups. He told the first group that they were about to experience an exciting new therapy that could help them uncover their past lives. Eighty-five per cent in this group were successful in "remembering" a past life. He told the second group that they were to learn about a therapy which may or may not work to engender past-life memories. In this group, the success rate was 60%. He told the third group that the therapy was crazy and that normal people generally do not experience a past life. Only 10% of this group had a past-life "memory."

Some New Age therapists do past-life regressive therapy under the guise of personal growth; others under the guise of healing. As a tool for New Age explorers, there may be little harm in encouraging people to remember what are probably false memories about their living in earlier centuries or for encouraging them to go forward in time and glimpse into the future. But as a method of healing, it must be apparent even to the most superficial of therapists that there are great dangers in encouraging patients to create delusions. Some false memories may be harmless, but others can be devastating. They can increase a person's suffering, as well as destroy loving relationships with family members. The care with which hypnosis should be used seems obvious.

Hystero-Epilepsy

Hystero-Epilepsy & Dr. Jean-Martin Charcot (1825-1893)

Charcot was one of the founders of modern neurology. Students came from all over the world to study under him in Paris, including Freud in 1885. Charcot used hypnosis as a diagnostic tool in his study of hysteria and influenced Freud's views on the origin of neurosis. Charcot made a number of important medical discoveries and even has a disease named after him (neurogenic arthropathy is also known as Charcot's joint).

At one point in his illustrious career, Charcot believed that he had discovered a new disease, which he called "hystero-epilepsy." The symptoms included "convulsions, contortions, fainting, and transient impairment of consciousness."\* He showed his students several examples of this new disease during his rounds at Salpêtrière Hospital.

A skeptical student, Joseph Babinski, decided that Charcot had invented rather than discovered hystero-epilepsy. The patients had come to the hospital with vague complaints of distress and demoralization. Charcot had persuaded them that they were victims of hystero-epilepsy and should join the others under his care. Charcot's interest in their problems, the encouragement of attendants, and the example of others on the same ward prompted patients to accept Charcot's view of them and eventually to display the expected symptoms. These symptoms resembled epilepsy, Babinski believed, because of a municipal decision to house epileptic and hysterical patients together (both having "episodic" conditions). The hysterical patients, already vulnerable to suggestion and persuasion, were continually subjected to life on the ward and to Charcot's neuropsychiatric examinations. They began to imitate the epileptic attacks they repeatedly witnessed (McHugh).

Babinski convinced Charcot that hystero-epilepsy was not a disorder and that doctors can induce symptoms in their patients. They separated the "hystero-epileptic" patients from each other and from staff members who had treated them. The patients were moved to the general ward of the hospital. The doctors then treated the patients by ignoring their hysterical behavior and encouraging the patients to work on their recovery. "The symptoms then gradually withered from lack of nourishing attention (McHugh)."

The lesson of Charcot seems lost on many therapists today, in particular the trauma-search (repressed memory) therapists who assume even before meeting their patients that they have probably been sexually abused, repressed the traumatic abuse and will suffer until the memories of abuse are brought to the surface in therapy. These therapists have no difficulty in finding patients who respond to their diagnoses and treatment, even though there is growing evidence that many of the memories of abuse that they elicit are false memories.

#### Ica Stones

"In the vicinity of the village of Ocucaje and Ica, in Peru, a collection of rounded stones . . . has been amassed by Dr. Javier Cabrera....The people are shown hunting or struggling with a variety of monsters that resemble BRONTOSAURS, TRICERATOPS, STEGOSAURS, AND PTERODACTYLS . . . human beings are portrayed as having domesticated animals that appear to be DINOSAURS and are using them for transportation and warfare. People are shown using telescopes, looking at the stars, and performing surgery" (Charles Berlitz, *Atlantis, the Eighth Continent*, 1984, pp.193-194).\*

The Ica stones are a collection of stones allegedly discovered in a cave near Ica, Peru, around 1966. The stones are andesite and their oxidized surfaces have been engraved with images that depict things which call into question just about everything science has taught us about the origin of our planet, ourselves and other species. For example, some of the stones depict men (who look like ancient Incas or Aztecs) attacking huge stylized monsters with axes. The monsters are said to be dinosaurs. (One film production company goes so far as to claim that the monsters on the stones are "realistic depictions of Stegosaurus, Tyrannosaurus Rex and Pterodactyls.")

The cave where the stones were allegedly discovered has never been identified, much less examined by scientists. Skeptics consider the stones to be a pathetic hoax, created for a gullible tourist trade. Nevertheless, three groups in particular have endeavored to support the authenticity of the stones: (a) those who believe that extraterrestrials are an intimate part of Earth's "real" history, such as the Von Dänikenites, Whitley Strieberites, the Sitchinities and the L. Ron Hubbardites; (b) fundamentalist Creationists who drool at the thought of any possible error made by anthropologists, archaeologists, evolutionary biologists, etc.; and (c) the Velikovskites who claim that ancient myths are accurate historical records to be understood literally.

The Ica stone craze began in 1996 with a Peruvian physician who allegedly abandoned a career in medicine in Lima to open up the Museo de Piedras Grabadas (Engraved Stones Museum) in Ica where he could display his collection of some 11,000 stones. (Since then he has added a few thousand more stones to the collection.) Dr. Javier Cabrera Darquea claims that a farmer found the stones in a cave. The farmer was arrested for selling the stones to tourists. He told the police that he didn't really find them in a cave,

but that he made them himself. Other modern Ica "artists", however, continue to carve stones and sell forgeries of the farmer's alleged forgeries.

Dr. Cabrera's museum is listed as a tourist site by the Peruvian National Chamber of Tourism, though the authenticity of the stones is left open. The museum is said to have an

exhibition of engraved stones depicting -supposedly - thousand of years of human activities. Based upon the found pieces, collection owner doctor Javier Cabrera, holds a theory according to which Ica was the seat of the first Peruvian culture.\*

Dr. Cabrera's authority in the matter of the stones seems to have originated from his declaration that a particular stone (shown above) depicts an extinct fish. The depiction is stylized, as are most of the drawings of ancient Peruvian cultures. It must be admitted that knowledge of extinct fish is rare among physicians, even those who have studied biology. Those who are impressed with this knowledge of extinct fish don't seem to be interested in exactly what fish this is supposed to be, when it became extinct, or what the telltale marks are that allow for this identification.

It is argued by the Extraterrestrialites and the Creationists that this depiction of an extinct fish proves either that the Indians who made these stones were given information by aliens about extinct fish (for they could not possibly have found any fossils and copied the fossils) or that the timeline that places extinctions of animals like this fish millions of years in the past are clearly wrong. The Indians lived within the past millennium or two, and so the extinctions must be recent.

It is argued by the MythsHistoryites that since the stones depict men attacking monsters, monsters must really have existed and men must really have attacked them. Thus, either humans existed during the Jurassic period or dinosaurs existed until very recently. It is argued by all of the above that this means that evolutionists are wrong. Furthermore, the fact that they won't admit that they are wrong proves that there is a conspiracy among scientists to keep the truth from the public in order to dupe us into believing things that are inconsistent with both the notion that God created all species a few thousand years ago and that we are all descendants of aliens. (Note: these are the same scientists who have kept the truth from us about the reality of the monsters depicted in stories, on vases, and on temples in ancient Greece, India, etc. They have also kept from us the truth about the ancient Egyptians building pyramids as radio towers. There are many other things these wicked scientists have hidden from us, such as that in 75,000,000 B.C. Xenu ordered a nuclear attack on our planet.)

Cabrera has his own theory about the creators of the stones. First, his theory is based upon the premise that the stones are not a hoax. This is understandable, since, if the stones are a hoax, Cabrera is one of the key hoaxers. You might wonder why scientists don't simply date the stones. Stones without organic material trapped in them can only be dated by the strata in which they are found. The strata can be dated by dating the organic material in the strata. Since Cabrera's stones come from some mystery cave which has never been identified, much less excavated, there is no way to date them. Cabrera's theory is that they depict the first Peruvian culture as an extremely advanced technological civilization. How advanced? The stones allegedly depict open heart surgery, brain transplants, telescopes, flying machines, etc. When did they exist? They came from the Pleiades about one million years ago.\* For \$30 you can order a copy of Cabrera's book *The Message of the Engraved Stones of Ica* directly from the author.

That no one has ever found any other remnant of this great culture should be troublesome, however. Such a great society might have left at least some garbage or some ruins, maybe even a bone or two, a grave here or there, or a temple, a hospital, an observatory, an airport. But this great civilization, unlike every other great civilization of the past (except Atlantis, of course!) has vanished without a trace, except for Cabrera's stones. Of course, there are the Nazca lines. Unfortunately, the creators of the Nazca figures didn't depict any Indians attacking dinosaurs or doing brain transplants, something which might have tied the Ica stones to the Nazca lines in this exciting new field of "alternative science".

There is, of course, an explanation for the cleanliness of this great people. They were able to exist long enough to hunt dinosaurs and build spacecraft (when they were not doing brain transplants) and yet leave nothing behind but a cave full of artistic scratches on stones because they were not from this planet. They left (and presumably took everything with them), leaving behind only the stones as a kind of puzzle for later generations of stupid humans to solve. Maybe they went on to Nazca or to Lubaantun to create more puzzles. Maybe these aliens are giving us an I.Q. test. Or the stones may be another test of faith given to mankind by the God of the Bible. Or maybe they're just a hoax.

The proof that the stones are not a hoax, says Dr. Cabrera, is in their number. There are too many stones for a single farmer, or even a collective of hoaxers, to have scratched out. He claims that the locals have unearthed about 50,000 stones and that they showed him a "tunnel" where there are another 100,000. However, so far no scientific expedition, or even a film crew led by Charleton Heston of the mysterious "Mysterious Origins of Man" spectacle, has set out to explore this tunnel.

Furthermore, says Cabrera, who apparently fancies himself an expert on volcanic stone as well as on extinct fish, andesite is too hard to carve well by mere mortals using stone tools. True, but the stones aren't carved. They are grained, i.e., a surface layer of oxidation has been scratched away. Dr. Cabrera assumes that the creators of the stones only had stone tools available to them. The Inca, Maya and Aztec cultures all had advanced metallurgy by the time the Spanish arrived. Cabrera and the Ica locals certainly have more than stone tools available to them.

Are the stones authentic? If by authentic one means that they were engraved by pre-Columbians, then the answer has to be an unqualified "not all of them." Some engraved stones are said to have been brought back to Spain in the 16th century. It is possible that some of the stones are truly examples of pre-Columbian art. However, it is known that some such stones are forgeries. Tourists, not just in Peru, but everywhere on earth where there are antiquities, have been suckers for forgeries. Local con artisans are aware of the market for "forbidden" antiquities. (I myself am the proud owner of a shard sold to me in Arizona by a young Native American as an authentic "illegal" piece of Anasazi pottery. A colleague has some nice forgeries from Egypt made to look old by dipping them in motor oil and torching them.) Pre-Columbians certainly were fascinated with monsters, as were ancient European cultures, but do the stones depict dinosaurs? That is open to interpretation. If they do depict dinosaurs and humans together what is more likely? that they are accurate historical documents or that they are part of a clever hoax? In light of the lack of corroborating evidence, a reasonable person must conclude that either the stones are a hoax or they have been given fanciful interpretations, or both.

Cabrera's story does not have the ring of verisimilitude about it, though it does have a certain charm. And the story certainly has found several ready audiences who have found a niche in their own belief systems for the stones. Never mind that the belief systems not only contradict one another, but are also contrary to the preponderance of the scientific evidence. Creationists, mythohistorians, and extraterrestrialists are in a jihad against belief in evolution where apparently it is one's duty to make the preposterous seem plausible.

## I Ching

The I Ching or Book of Changes is an ancient Chinese text used as an oracle to find out the answers to troubling questions such as "what does the future hold for me?" The book consists of 64 "hexagrams," each consisting of six broken or unbroken lines. (Sixty-four is the number of possible combinations of six broken or unbroken lines.) The lines represent the two primal cosmic principles in the universe, yin and yang. Yin (Mandarin for moon) is the passive, female principle. Yang (Mandarin for sun) is the active, masculine principle. According to legend, the Chinese emperor Fu Hsi claimed that the best state for everything in the universe is a state of harmony represented by a balance of yin and yang. Why the I Ching has six lines, however, is a mystery, since the ancient Chinese believed there were five elements (wood, fire, earth, metal, and water), five planets, five seasons, five senses, as well as five basic colors, sounds and tastes. Unsurprisingly, legend has it that, according to Fu Hsi, true harmony requires yang to be dominant. It's just the nature of things.

The hidden cosmic meanings of the hexagrams were divined many years ago by Chinese philosopher-priests in tune with the tao (Chinese for path or way). They consist of such bits of fortune cookie wisdom as: "Treading upon the tail of the tiger. It does not bite the man." Or, "the superior man discriminates between high and low."

The I Ching is consulted in several ways. One way is by flipping coins. Each coin is assigned a number. The coins are tossed and the numbers added up to determine the hexagram. Another method involves a complex divination based on dividing up bundles of yarrow stalks. One can also consult the oracle either on the internet or on a CD.

It is not too difficult to understand why ancient peoples would look to random coin tosses, plant stalks, bird's entrails, the stars, lines on burnt bones, etc., to help them decide what to do next with their lives. They had no science, little knowledge of the nature of things, and not much more to guide them in this life than the teachings of superstitious mythmakers and storytellers. It is not too difficult to imagine why the mythmakers would come up with such methods of divination: you can make money from it and, if you are clever and vague enough, nobody can prove you wrong.

Also, such beliefs lend themselves to confirmatory experiences and are bound to have many satisfied customers. Anything that vaguely resembles an accurate prediction will be significant. What would count as counter-evidence is not clear and is certainly not actively sought out or attended to. Some prophecies, too, become self-fulfilling.

Furthermore, the oracle satisfies a need which many people seem to have: the need to be told what to do with their lives. The same is true today, though it may be disappointing to some graduates of Princeton University to see their alma mater's name associated with the CD-ROM version of the I Ching. Business is

business. And today there is hardly any business as booming as the business of metaphysical and mystical codswallop.

### Ideomotor Effect

The ideomotor effect refers to involuntary and unconscious motor behavior. The term "ideomotor action" was coined by William Carpenter in 1882 in his explanation for the movements of dowsing rods and pendulums by dowers, and table turning by spirit mediums. The movement of pointers on Ouija boards is also due to the ideomotor effect.

Carpenter argued that muscular movement can be initiated by the mind independently of volition or emotions. We may not be aware of it, but suggestions can be made to the mind by others or by observations. Those suggestions can influence the mind and affect motor behavior. What is purely physiological, however, appears to some to be paranormal.

### Illuminati

Illuminati, The New World Order & Paranoid Conspiracy Theorists (PCTs)

What is at stake is more than one small country [Kuwait], it is a big idea - a new world order, where diverse nations are drawn together in common cause to achieve the universal aspirations of mankind: peace and security, freedom, and the rule of law. Such is a world worthy of our struggle, and worthy of our children's future. --President George Bush in his state of the union address, January 16, 1991

The Illuminati was a secret society in Bavaria in the late 18th century. They had a political agenda which included republicanism and abolition of monarchies, which they tried to institute by means of "subterfuge, secrecy, and conspiracy," including the infiltration of other organizations.\* They fancied themselves to be "enlightened" but they had little success and were destroyed within fifteen years of their origin (Pipes, 1997).

Paranoid conspiracy theorists (PCTs) believe the Illuminati cabal still exists, either in its original form or as a paradigm for later cabals. Many PCTs believe "that large Jewish banking families have been orchestrating various political revolutions and machinations throughout Europe and America since the late eighteenth century, with the ultimate aim of bringing about a satanic New World Order."\* What George Bush was talking about in his state of the union address in 1991 was no less than the establishment of a single world government with the anti-Christ (whom some say is Bill Clinton, but could be Pat Robertson) at its head.

In the paranoid mind, the Illuminati succeeded in their goals, and have now infiltrated every government and every aspect of society. They are responsible for every evil and every unjust act that ever occurs anywhere; the fact that absolutely no evidence of their existence can be found only serves to make them stronger and more frightening. They are the demon in the closet, and will probably never disappear from the paranoid fantasy world of right-wing conspiracy theorists.\*

--New England Skeptical Society

Although there are two main "sects" of PCTs, the militant Christian fundamentalist branch and the UFO/alien branch, and although they each think the other is evil or nuts, their paranoia has the same focus: the end is near.

### The Illuminati and The Anti-Christ

The Illuminati are hastening the coming of the anti-Christ and the end of the world.

For those of us who still accept the Bible as God's revealed will to man, it's a matter of great concern to see the increasing propaganda for, and emergence of, a New World Order... both Old and New Testaments warned us that the culmination of history would be marked by the reunion of the nations of the old Roman Empire in Europe; the restoration of the state of Israel (and the increasing hostility of all nations toward her); the implementation of a one-world governmental system; the imposition of a world-wide cashless monetary system; the development of a syncretistic [sic] world religion, based upon man, and presided over by a false prophet; the rise to power of a benign world dictator, who (once firmly in control) would eliminate individual freedoms, demonstrate iron-willed ferocity and cruelty, and make himself the object of worship; and world-wide apostasy [sic], coupled with active persecution and execution of believing Jews and Christians.\*

--Jay Whitley, PCT and purveyor of Emergency Dehydrated Food Kits

According to the PCTs, the Illuminati are the ones who rule the world, though they are pulling the strings from behind the scenes. They have been doing this for centuries. How is this known? Just look at what they've done and are doing? Federal income tax, the state of Israel, the assassination of the KKK (Kennedy, King, Kennedy), the United Nations, FEMA, AIDS, WACO, E.D., VD, the ATM card, the hula hoop, Microsoft, the euro--these and many other events did not just happen without connection. They are all part of a plot to take over the world, establish a single tyrannical government and hasten Armageddon.

#### The Major Players

Here is a typical set of the PCT's notions, extolled in a review of an author who claims he has exposed the Illuminati:

Who really controls world events from behind-the-scene? Years of extensive research and investigation have gone into this massively documented work [Bloodlines of the Illuminati]. In almost 600 pages, Fritz Springmeier discloses mind-boggling facts and never before revealed truths about the top Illuminati dynasties. Discover the amazing role these bloodlines have played--and are now wielding--in human history, with family names such as Astor, DuPont, Kennedy, Onassis, Rockefeller, Rothschild, Russell, Van Duyn, and Krupp. You'll also learn of the secretive, Chinese Li family, which operates with impunity in the U.S.A. and around the world. Along the way you'll find out why President John F. Kennedy and actress Grace Kelly were killed; who created the United Nations; who controls the two major U.S. political parties; how the Rothschilds invented and control modern-day Israel; who secretly founded false religions such as the Jehovah Witnesses; and much, much more. A literal encyclopedia of rare, unbelievable information!\*

The "information" is certainly unbelievable, but it is not rare enough. Another PCT "sect" holds that it is the aliens who rule the Illuminati who rule the world, etc.

#### David Icke

David Icke, another pundit of the Illuminati, gets messages from alien "Illuminati-reptilians" who explain to him such things as the Gregorian calendar.

The whole senario [sic] was planned centuries ago because the reptilians, operating from the lower fourth dimension, and indeed whatever force controls them, have a very different version of "time" than we have, hence they can see and plan down the three-dimensional "time"-line in a way that those in three-dimensional form cannot.\*

Icke fancies himself "The most controversial author and speaker in the world."\* For him, the origin of the Illuminati is extraterrestrial. He knows this because he is contacted regularly with messages from beyond by the alien lizards. He puts these messages into books (at least five, so far).

There was a time when a man who claimed to be in contact with alien reptiles would have been shunned by the world. In today's open society, such a man is as likely to become a cult hero, guest lecturer at universities, or an author featured on talk shows, as he is to be committed to an asylum.

#### Jim Keith

Another expositor on these hidden agendas and worldwide conspiracies is Jim Keith, who died on September 7, 1999, during surgery to repair a leg he injured at the Burning Man Festival. Keith, a former executive Scientologist and author of nine conspiracy books (including Saucers of the Illuminati) could see things the rest of us don't. Was this because he was better at seeing or because his imagination ran wild? He watches a Coke ad and sees fellatio and anal penetration.\* You can imagine what he sees or hears when he gives his attention to world history.

#### Ken Adachi

Ken Adachi has a fine conspiracy page. He leaves no event unaccounted for as part of the plot to take over the world and hasten the Apocalypse. The Illuminati, however, is only one aspect of the occult cabal. He has transmogrified the New World Order into a cabal itself. According to Mr. Adachi

An extremely powerful civilian dominated cabal, the New World Order, includes Majesty Twelve [MJ-12], The Illuminati, Order of the Quest, The Bilderberg Group, The Trilateral Commission, The Executive Committee of The Council on Foreign Relations, The PI-40 Committee, The Jason Group, The Club of Rome, The Group, The Royal Institute of International Affairs, The Open Friendly Secret Society, The Rosicrucians, The Brotherhood of the Dragon (or Snake), The Russell Trust, The Black Families (of Europe), Skull & Bones, the

Scroll & Key, The Knights of Malta, the Illuminati arm of The Freemasons, and many, many other secretive groups.\*

What is most amusing about Mr. Adachi's page is that even though the end is near, he still asks us to please support his sponsor, an organization that can help with debt consolidation or a home loan. What is not so amusing is his identification of the Freemasons as a subversive cabal. This idea is popular among PCTs, especially with those on the religious right like Pat Robertson, who are also prone to be anti-Semitic.

Myron Fagan

Mr. Adachi may have a fine conspiracy WWW page but he seems to have borrowed everything from Mr. Fagan, who undertook to explain all of world history as a plot of the Illuminati to establish the New World Order. Waterloo, Diamond Jim Brady, the French Revolution, any war you care to name, homosexuals in the State Department, JFK, the United Nations, the ACLU, Jewish bankers, the Communist conspiracy to control Hollywood and make films that would hasten the arrival of the New World Order, etc. ad nauseam. Fagan's audiotape, "The Illuminati," is available online.

Fagan, born ca. 1888, was a playwright, director, producer, editor and public relations director for Charles Hughes, Republican candidate for president in 1916. In 1930, Fagan came to Hollywood and worked as a writer and director. In 1945, he says he saw some secret documents which led him to write Red Rainbow and Thieves Paradise. The former portrays Roosevelt, Stalin and others at Malta plotting to deliver the Balkans, Eastern Europe and Berlin to Stalin. The latter portrays the same group plotting to create the United Nations as a Communist front for one world government. Until his death, Fagan relentlessly uncovered plots for almost every historical event of any note. Fagan is the archetype for the PCT.

Milton William "Bill" Cooper

Cooper, a leader of the Arizona militia movement, wrote The Secret Government: a Covenant with Death - The Origin, Identity, and Purpose of MJ-12, a paper given in Las Vegas at a MUFON meeting in 1989 focusing essentially on his belief of a cover-up of an alien crash at Roswell. He also wrote Secret Societies/ New World Order. He claims that he got his information "directly from, or as a result of my own research into the TOP SECRET/MAJIC material WHICH I SAW AND READ between the years 1970 and 1973 as a member of the Intelligence Briefing Team of the Commander in Chief of the Pacific Fleet." (PCTs seem to like to use CAPS for EMPHASIS.) Cooper's veracity about his career in the Navy and his access to secret documents has been questioned publicly on alt.alien.visitor, as have other aspects of his personality. Cooper runs williamcooper.com, a site which promotes his many rants, including an autobiographical page that might be of interest to certain mental health professionals.

Cooper's "investigations" uncover the usual conspiracies, although he also includes some of the new ones such as the conspiracy to use AIDS to thin out the population of blacks, Hispanics and homosexuals, a notion he put forth in a book called Behold a Pale Horse. What Cooper lacks in hard evidence he oversupplies in detail and imagination.\*

Robert Gaylon Ross, Sr.

Ross is owner of Ross International Enterprises (RIE) and is the author of nine books in progress. RIE is "a private company chartered to do anything that is legal, ethical and moral, anywhere in the world." Ross started RIE when he couldn't find a publisher for his manuscript, Who's Who of the Elite, an expose of the elite. Says Ross, after you visit his site

you will have been exposed to the REAL TRUTH about the conspiracy behind the Bilderbergs; Council on Foreign Relations; Trilateral Commission; Skull & Bones Society; Bohemian Grove and Bohemian Club; the CIA's involvement in trauma based mind control, drug smuggling and money laundering; where are the Wealthiest in the World; who really owns the Federal Reserve System; and the more accurate theories found in "Logical Physics".

Ross's unique twist is to relate "alternative physics" to the world of conspiracies and to offer for sale a rifle with scope from his conspiracy pages. If only he had had UFOs in his books, he would have no trouble getting them published with Illuminet Press, a publishing house devoted to nothing but conspiracy books involving aliens of some sort.

Why?

To enter the world of the PCTs is to enter Bedlam. Anyone interested in entering this world might want to start at UFOMind's page on Conspiracies - Claims of sinister collusions and grand deceptions. It would be

pointless here to examine, much less attempt to refute, the delusions of people who think they have been turned into assassins by mind-control techniques so that they can carry out the will of inbred dynasties, that aliens are controlling the world, that none of the laws of science are actual, that the imagination and the thought of what is possible are better guides than the "physically manifested world," etc. A rational person might think many of the PCTs are joking. There are Internet sites that seem to be parody sites but it is difficult to tell, since there seems to be no belief, however inane or absurd, that the PCTs can't fit into their bizarre worldview. A rational person who never heard of Pat Robertson might well read his *New World Order* (Word Books, 1994) and think it must be a joke. Could anyone actually believe his rambling paranoia regarding Jewish bankers, Freemasons, Muslims, homosexuals, foreigners, etc.? Apparently so. Still, one wonders why PCTs exist and their numbers seem to be growing.

Of course, governments and some of the very rich have conspired to rule the world in one form or another. There are enough real conspiracies to satisfy even the greatest Pollyanna that one's government and the extremely rich and powerful don't play by the same rules, if they play by any rules at all, as decent folk. Those of us who have watched the U.S. government support one fascist dictator after another because he was "anti-communist" are uncomfortable to find that there are people who are so far to the right of the right-wing that they too want to expose the coverups. It is of no use to point out to the PCTs that our government led coups of democratically elected governments, assassinated leaders of nations and provided military and financial aid to thugs and murderers around the world, in a misguided belief that they were saving the world from communism, as well as opening up new markets for capitalist expansion. Many of the leaders and top agents in our government are and were evil and incompetent, but, as inept as they tend to be, even they would recognize the limits of their ambitions.

But, it is pointless to argue here because the PCTs are expert pseudohistorians: contradictory evidence is used to support rather than refute their notions. Does the U.S. Government go after the world's richest man, Bill Gates? Hah! It's a charade, aimed at getting us off the scent. Wasn't Hitler the one who thought he could rule the world and didn't the Allies stop him? Hitler was a dupe, used to advance the sinister plot to rule the world by the Illuminati.

#### Some Speculation

One can only speculate as to why PCTs exist. It is easy to explain their proliferation: modern mass communications has made it possible for anyone to become his or her own press and propaganda machine. But why PCTs in the first place? The only other experience I've had with such thinking was when I had to get involved with some mentally ill people. I am not joking here. A relative had a "psychotic break" and severe paranoia. We (a group of relatives) were all targets of assassination by some unknown evil people. They could be partially identified by their license plate numbers. If the number started with a "5" then they were evil. No amount of logic or reasoning as to the preposterousness of the notion that anyone would want to kill a person of absolutely no significance was of any use. No amount of reasoning as to how license plate numbers are assigned was of any use. Phone calls could only be made from "secure" lines, which involved either going to the fire department or talking your way up through a series of supervisors until you got a "good one." Through my ill relative I met others who were also afflicted with delusions and incredibly faulty judgment. They did not lose their ability to reason--in fact, my relative seemed even more intelligent in some ways when manic--but their assumptions were taken from sources inaccessible to the ordinary mind. They put vast faith in their intuitions and thought their ideas were brilliant insights when they were little more than the fancies of diseased brains. When I compare reading the literature of the PCTs to entering Bedlam, I mean to be taken literally.

For example, many PCTs consider the Great Seal of the United States and the motto *Novus Ordo Seclorum* to be Masonic and to mean New World Order. These "facts" are considered evidence in the argument to prove the vast conspiracy of the Illuminati. It is useless to argue against these "facts" with PCTs. They consider us dupes who would note that the Latin is usually translated as *New World of the Ages* and that the symbol of the eye in the pyramid relates to a poem in the Egyptian Book of the Dead.\* Even when it is pointed out that even granting that the Great Seal of the United States and the symbols on our dollar bill are Masonic (which they are not) and that *novus ordo seclorum* means *New World Order* (which it does not), nothing significant follows, certainly not that there is a vast conspiracy to take over the world.

Kay Redford Jamison, in *An Unquiet Mind* and *Touched With Fire: Manic Depressive Illness and the Artistic Temperament*, claims that there is strong evidence that many poets and other writers who have a great facility with connecting words and images in fantastic and enlightening ways, have been manic or manic depressive (bipolar). It could well be that the conspiratorial mind's facility with connecting the most disconnected events is rooted in brain chemistry. Who knows?

#### Providence and Eschatology

I think it is likely that many PCTs in the West are initiated into their peculiar way of thinking by their religious training, in particular by their study of the Bible. They have been taught or they assume that



everything happens for a purpose and that God ultimately has a reason for every event occurring just as it does. As it becomes more and more difficult to see this world as designed for anything, the theories get more and more preposterous to keep the teleological delusion alive. The war on evolution and homosexuality--encouraging the abandonment of science and stimulating murderous assaults--so obviously disproportionate by any rational standard, is difficult to explain without seeing the militant fundamentalists as beyond the last stages of desperation. The intense campaigns to expose possible alien abductions, UFOs, and mind-control is likewise preposterously disproportionate to any rational standard. It is becoming nearly impossible to account for the events on this planet with the assumption of a Divine Creator who has a plan and a rationale for everything. The systems of thought that must be created in order to maintain Divine Providence get more insane by the minute. (Explain Hitler, Slobodan Milosovich, or Ishii Shiro. Or, for that matter, explain WACO, Gulf War Syndrome, or any of a number of actual conspiracies engaged in by businessmen such as Bill Gates or political leaders such as Oliver North and his "neat" idea of a government within the government answerable to nobody, or Richard Nixon and the Watergate conspirators, or our formerly secret biological warfare programs.) There is, in fact, a New World Order emerging: the world of Alternative History, Alternative Physics, Alternative Medicine and, ultimately, Alternative Reality.

It is a very natural trait to try to make sense out of the world. The PCTs are trying desperately to make sense out of a world they can no longer relate to. The world is too complicated, too mean, too cold, too unsatisfying for them. In the real world, they are considered nothing and despair of ever being anything but on the outside looking in. They see science as telling them they are an accident and their lives are without meaning. In their alternative world, they rule and are hopeful. Everything is in its place or will be put in its place. There is order and meaning. Life is significant.

#### The End Is Near

The actual mechanism by which PCTs arrive at their weird notions is not that difficult to ascertain. The mentally ill people I came to know couched their paranoid fears in terms of the F.B.I. and the C.I.A. They had no communal reinforcement of their delusions, however. No talk show host or publisher invited them to share their delusions with the world. They are under treatment, have been hospitalized, arrested, etc. They know that those around them will not accept their delusions. This is not true of religious or UFO groups. They reinforce each other and strengthen each other's resolve. They encourage each other to accept possibility as equal to probability, material experience as inferior to dreams, hallucinations, and out-of-body experiences, etc. They have no watchdog equivalent to I. F. Stone, and the mass media is too busy chasing tabloid rumors and celebrities to serve as a watchdog of anything. And since the PCTs function almost completely outside of the normal arenas where they would be challenged and forced to produce evidence in place of speculation, they flourish relatively unscathed and await their next appearance on the Art Bell or Mike Siegal or Pat Robertson show, seemingly oblivious to the absurdity of such behavior during the final days of planet earth.

#### Incantation

An incantation is a spell or verbal charm used in magic rituals.

#### Incorruptible Bodies

Incorruptible bodies are whole human bodies or parts of human bodies which allegedly do not decay after death because of some supernatural power which makes them apparently immutable.

The Catholic Church claims there are many incorruptible bodies and that they are divine signs of the holiness of the persons whose bodies they used to be. Perhaps, but they are more likely signs of careful or lucky burial, combined with ignorance regarding the factors that affect rate of decay.

For example, the severed head of King Charles I of England was exhumed after 165 years and according to Sir Henry Halford

The complexion of the skin was dark and discolored. The forehead and temples had lost little or nothing of their muscular substance; the cartilage of the nose was gone; but the left eye, in the first moment of exposure, was open and full, though it vanished almost immediately; and the pointed beard, so characteristic of this period of the reign of King Charles, was perfect. [The head] was quite wet, and gave a greenish-red tinge to paper and to linen which touched it. The back part of the scalp . . . had a remarkably fresh appearance. The hair was thick . . . and in appearance nearly black. . . .\*

The preserved head was due to accident and had more to do with how it was buried at St. George's Chapel in Windsor than to any special holiness of Charles I.

In 1952, there was a well-publicized case of an Indian Hindu in California who entered mahasamadhi and whose body, it was claimed, seemed incorruptible. Paramahansa Yogananda was the founder of the Self-Realization Fellowship, which claims that

On March 7, 1952, Paramahansa Yogananda entered mahasamadhi....His passing was marked by an extraordinary phenomenon. A notarized statement signed by the Director of Forest Lawn Memorial-Park testified: "No physical disintegration was visible in his body even twenty days after death....This state of perfect preservation of a body is, so far as we know from mortuary annals, an unparalleled one....Yogananda's body was apparently in a phenomenal state of immutability."\*

While the statement of the director of Forest Lawn is perhaps accurate, the SRF's claim that lack of physical disintegration is "an extraordinary phenomenon" is misleading. (One wonders how much digging into the mortuary annals they did. Very little, I imagine.) The state of the yogi's body is not unparalleled, but common. A typical embalmed body will show no notable desiccation for one to five months after burial without the use of refrigeration or creams to mask odors. According to Jesus Preciado, who has been in the mortuary business for thirty years, "in general, the less pronounced the pathology [at the time of death], the less notable are the symptoms of necrosis." Some bodies are well-preserved for years after burial (personal correspondence, Mike Drake). Some, under extraordinary conditions, are well-preserved for hundreds, even thousands, of years.

Immutable human bodies are ultimately cases of apparent immutability. Given enough time and removed from the special conditions which delay the decay process (such as absence of oxygen, bacteria, worms, light, etc.), all human bodies and body parts disintegrate.

#### Indian Rope Trick

This alleged trick, reportedly witnessed by thousands of people, involves an Indian fakir (street magician) who throws a rope to the sky, but the rope does not fall back to the ground. Instead it mysteriously rises until the top of it disappears into thin air, the darkness, the mist, whatever. Now, that would be trick enough for most people, but this one allegedly goes on. A young boy climbs the unsupported rope, which miraculously supports him until he disappears into thin air, the mist, the darkness, whatever. That, too, would be trick enough for most of us, but this one continues. The fakir then pulls out a knife, sword, scimitar, whatever and climbs the rope until he, too, disappears into thin air, mist, darkness, whatever. Again, this would be a great trick even if it stopped here. But, no. It continues.

Body parts fall from the sky onto the ground, into a basket next to the base of the rope, whatever. Now, that's quite common in some neighborhoods and would not count as much of a trick. But the fakir allegedly then slides down the rope and empties the basket, throws a cloth over the scattered body parts, whatever, and the boy miraculously reappears with all his parts in the right places. That would be a great trick, especially since it must be done in the open without the use of engineers, technicians, electronics, satellite feeds, television cameras, whatever.

Actually, the only thing needed for this trick is human gullibility. According to Peter Lamont, a researcher at the University of Edinburgh and a former president of the Magic Circle in Edinburgh, the Indian rope trick was a hoax played by the Chicago Tribune in 1890. Lamont claims the newspaper was trying to increase circulation by publishing this ridiculous story as if there were eyewitnesses to the event. The Tribune admitted the hoax some four months later, expressing some astonishment that so many people believed it was a true story. After all, they reasoned, the byline was "Fred S. Ellmore." They hadn't reckoned that their audience, many of whom believed in miracles and phrenology and other weird things, wouldn't find this story that hard to accept.

Lamont has been researching the Indian rope trick for years. At one point he and Richard Wiseman wrote in *Nature* that the results of their investigation supported the notion that belief in the trick was due to the 'exaggeration effect': the greater the time between seeing something and telling a story about it, the more a person tends to exaggerate the impressiveness of the event.\*

Of course, there are other possibilities, most of which have been offered in an attempt to explain how the trick is done: mass hypnosis, levitation, a magic trick involving an invisible rope hanging above which the thrown rope hooks onto somehow, shaved monkey limbs for body parts, twins, whatever. Of the various explanations, the hoax seems most plausible.

#### Indigo Children, The

The Indigo Children is a book by Lee Carroll, a channeler for an entity he calls Kryon, and his wife Jan Tober.

Kyron has revealed such important messages as "love is the most powerful force in the entire universe." Carroll and Tober travel the world putting on Kryon seminars. Kryon has many interests, including the Universal Calibration Lattice and EMF Balancing (empowerment through knowledge of your electromagnetic nature, i.e., how to manage your energy field which consist of "fibers of light and energy").

The main thesis of The Indigo Children is that many children diagnosed as having attention deficit disorder (ADD) or ADHD (attention deficit hyperactivity disorder) are actually space aliens. These children don't need drugs like Ritalin, but special care and training. The book consists of dozens of articles by authors from many walks of life. It is, accordingly, inconsistent and uneven in quality of analysis and advice. One of the authors is Robert Gerard, Ph.D., whose piece is called "Emissaries from Heaven." He believes his daughter is an Indigo Child. He also thinks "Most Indigos see angels and other beings in the etheric." He runs Oughten House Foundation, Inc., and sells angel cards. Another contributor is Doreen Virtue, an advocate of angel therapy. Still another is Nancy Ann Tappe who wrote a channeled book called Understanding Your Life Through Color. Not all the contributors are on the fringe of New Age metaphysics, however. For example, Dr. Judith Spittler McKee is a former preschool and elementary teacher and retired Eastern Michigan University professor. She spends her time trying to interest children in reading.

The Indigo Child is recognizable by his or her aura and by certain other traits, according to The Indigo Children website (owned by Kryon Writings).

They come into the world with a feeling of royalty (and often act like it)  
They have a feeling of "deserving to be here," and are surprised when others don't share that.  
Self-worth is not a big issue. They often tell the parents "who they are."  
They have difficulty with absolute authority (authority without explanation or choice).  
They simply will not do certain things; for example, waiting in line is difficult for them.  
They get frustrated with systems that are ritually oriented and don't require creative thought.  
They often see better ways of doing things, both at home and in school, which makes them seem like "system busters" (nonconforming to any system).  
They seem antisocial unless they are with their own kind. If there are no others of like consciousness around them, they often turn inward, feeling like no other human understands them. School is often extremely difficult for them socially.  
They will not respond to "guilt" discipline ("Wait till your father gets home and finds out what you did").  
They are not shy in letting you know what they need.  
As with most other purveyors of non-sense, Carroll and Tober often have seemingly reasonable advice to give, such as the following advice to parents and students:

Parents: Know what your children are doing and thinking. Find out how they feel. Show them you care. Pester them until they tell you! Then listen.

Classmates: Befriend an outcast or loner at school. Start including them, not excluding them. Take a stand on this! It isn't easy, but it will make a big difference in another's life

One doesn't need an entity name Kryon to tell you that.

One reviewer of the book writes:

As a parent of child with ADD, I have read a great deal of material about children with these types of problems. Unfortunately, this book was very disappointing in its discussion of these issues. The definition of an indigo child was confusing and incoherent. The suggestions for discipline didn't begin to touch on the special needs for these children and things that really can be done to help them. Some of the essays negated research findings without providing any evidence. For example, research has shown for a long time that diet doesn't impact ADD. This was disproved by numerous studies over 30 years ago. This book reflects the feeling of some people on these issues. It has some really far out ideas, like these children come from another planet. I don't believe my daughter comes from another planet. She is a beautiful gift from God, and there are lots of resources out there to help her and others like her. But this book isn't one of them.

Another writes: As a teacher I picked up this book and thought it may have some new approaches to helping kids. It does alright. According to this book, children with ADD or ADHD have come from another planet to prepare us for the new age. There are many techniques that are known to work and help these children, but this book doesn't go that far. It scratches the surface of how to really help these children and deals more with this our kids are from another planet philosophy. Unless you are into believing this idea that our children are aliens, don't waste your money.

Apparently, however, there are many people who are open to this idea. After all, it is not any further out than the belief that angels and other entities that talk to special people know better than teachers and doctors what is right or wrong with our children and how best to treat them.

One can understand why many parents would not want their child to be labeled as ADD or ADHD. The label means your child is not perfect. Some may even take it to mean the child is "damaged." Specifically, it means your child's behavior is due to a neuro-biological condition. To some, this is the same as having a malfunctioning brain or a mental disorder. Understandably, emotions are going to run high here. Also understandably, there is going to be a lot of hype here, especially from the "alternative" treatment and "natural is good/drugs are bad" lobby. Their claims will be inflated rather than clarified by the mass media.

Furthermore, the mass media, attack lawyers, and talk show hosts are not known for their role in clarifying complicated scientific or medical matters (witness their handling of Prozac, silicone breast implants, cell phones, mental illness, spirituality and health and environmental issues). Why should we expect them to improve our understanding of ADD, ADHD and treatment with drugs like Ritalin (methylphenidate)? It is more likely they will take the simpler and safer path: they'll jump on the bandwagon and attack the drug industry, psychiatrists, etc., who are over-drugging our children. Nobody will oppose outrage at "abuse" of children. Fewer still will bother to investigate to see if you know what you are talking about.

The National Institute of Mental Health says that ADHD is the most commonly diagnosed childhood disorder. It affects some 3 to 5 percent of all school-age children. With so many children affected, it should be easy to find cases of misdiagnosis, inappropriate treatment, adverse drug reaction, etc. Anecdotes of abuse, however, should not substitute for scientific studies or clinical observations by the professionals who treat these children on a daily basis. But we all know that an anecdote told on Oprah or Larry King Live by Arianna Huffington or Hilary Clinton is much more powerful than a controlled scientific study. Yet, those scientific studies must be done. Ritalin has been around since 1950, yet there are no long-term studies I am aware of that show it is safe, effective, or better than any alternative. The support for its prescription comes mostly from those in the trenches, the practitioners who treat the millions of children and adults with AD/HD. Support also comes from Ritalin's manufacturer, New Jersey-based Novartis Pharmaceuticals Corp., which says the drug "has been used safely and effectively in the treatment of millions of ADHD patients for over 40 years," attested by the results of 170 studies (Donohue). However, Novartis is hardly a disinterested party.

Just as many women with real medical problems were encouraged by each other and by their lawyers to blame their conditions on breast implants, even though the scientific evidence was heavily against the connection, so too there will be many who have problems or get into trouble who will blame Ritalin. First, I took Ritalin and then this happened. Ergo, Ritalin caused it. Next stop, the talk show circuit. And no matter how many long-term studies are done that find nothing spectacularly wrong with Ritalin, there will always be the possibility that the next one will find something horrible. For example, "researchers at the University of California, Berkeley, say their study, tracking ADHD youths into adulthood, has found a connection between Ritalin use and later abuse of tobacco, cocaine and other stimulants (Donohue). Is the connection strong enough to warrant worry? Will further studies be unable to replicate this one? It won't matter to the general public and the enemies of "unnatural" pharmaceuticals. They will continue to promote such "natural" therapies as blue-green algae, even though there are both pros and cons to taking the stuff, and even though there are no long-term studies on what effects algae might have on a developing child's brain. They have anecdotes and that's enough for the media, the lawyers, the talk show hosts and their audiences. Anecdotes are sufficient to get the government involved as well. Republican Congressman Henry Hyde of Illinois is riding this one. Hyde has heard that kids are using Ritalin for recreation and has asked the General Accounting Office to investigate the illegal use of Ritalin in public schools (Donohue).

It seems that the hype and near-hysteria surrounding the use of Ritalin has contributed to an atmosphere that makes it possible for a book like *Indigo Children* to be taken seriously. The whole situation reminds me of a poster I once saw on a bulletin board at Sacramento City College. The poster was promoting the Berkeley Psychic Institute and declared in bold letters: YOU MAKE NOT BE PSYCHOTIC, YOU MAY BE PSYCHIC. Given the choice, who wouldn't rather believe they were psychic than that they have a neuro-biological disorder? Likewise, given the choice, who wouldn't rather believe their children were special and chosen for some high mission rather than that they have a neuro-biological disorder?

#### Inedia (Breatharianism)

...if food is so good for you, how come the body keeps trying to get rid of it?...Man was not designed to be a garbage can.--Wiley Brooks, 'The Breatharian', Director of the Breatharian Institute

Inedia is the alleged ability to transform one's eating habits to do away with food. Some inediates become breatharians, like the stigmatic Therese Neumann (1898-1962) of Bavaria, who said "one can live on the

Holy Breath alone." She claims to have done this from 1926-1962, during which time she says she only consumed her daily serving of transubstantiated bread.

Fasting has long been considered a way to purify one's body and mind. Fasting reminds us of our dependence and weakness. Inediate carry fasting to its limit. If restraint, self-control and reducing one's intake of food and water is good, then eliminating all physical nourishment must be better. Spiritual beings don't need food, water or sleep. Inediate are trying to be spiritual beings. Unfortunately, food, water and sleep are not optional for human beings. Even so, there are those who are ready to believe otherwise.

Recently, Australian Ellen Greve a.k.a. Jasmuheen has been attracting followers to breatharianism. According to Jasmuheen, a former financial advisor, we can get all the nutrition we need from prana, the universal life force. She also claims that light is the ultimate nutriment and is the author of *Living on Light: A Source of Nutrition for the New Millennium*. In her book, she has a 21-day program that will allow the body to live solely on light. She also gives advice on how to stop aging and attain immortality.

She claims she hasn't eaten since 1993; yet, she admits "she drinks herbal teas and confesses to the occasional 'taste orgasm' involving chocolate or ice cream."\*. She also admits that "if I feel a bit bored and I want some flavour, then I will have a mouthful of whatever it is I'm wanting the flavour of. So it might be a piece of chocolate or it might be a mouthful of a cheesecake or something like that."\*

Several interviewers have found her house full of food, but she claims the food is for her husband who was once sent to prison for misappropriating a pension fund. Apparently he hasn't seen the light and is unable to live on prana yet.

Greve runs the Cosmic Internet Academy (C.I.A.) and claims to have 5,000 followers worldwide. People pay over \$2,000 to attend her seminars. There are many, I guess, who are not bothered by the contradiction of saying one needs only prana (or is it light?) but admits to the odd sweet and cup of tea. This "diet" is changing her chromosomes, she says. Her "DNA is changing to take up more hydrogen and is developing from 2 to 12 strands."\* Such gibberish would get many people committed to a mental ward; instead, she makes world tours promoting her book and philosophy.

Greve also claims that the starving of the world would be just fine if they could only be "re-programmed". They starve to death, she says, because the mass media has tricked them into thinking they need food.\*

Unfortunately, several of her followers have starved to death.

Last fall, Greve agreed to be tested by the Australian television program 60 Minutes. After four days of fasting, Dr Berris Wink, president of the Queensland branch of the Australian Medical Association, urged Jasmuheen to stop the test. According to the doctor, Jasmuheen's pupils were dilated, her speech was slow, she was dehydrated and her pulse had doubled. The doctor feared kidney damage if she continued with the fast. The test was stopped. Rather than admit that she is a fraud or deluded, Jasmuheen claimed that she failed because on the first day of the test she had been confined in a hotel room near a busy road, which kept her from getting the nutrients she needs from the air. "I asked for fresh air. Seventy per cent of my nutrients come from fresh air. I couldn't even breath," she said. (The last three days of the test took place at a mountainside retreat where she could get plenty of fresh air and where she claimed she could now live happily.)\*

The inspiration for breatharianism seems to have been Wiley Brooks who heads The Breatharian Institute of America. For the past thirty years or so, Brooks has been claiming that we don't need food, water or sleep. He claims that adepts and yogis have been doing this for millennia. He offers weekend workshops at a Sierra Nevada mountain retreat for \$425, meals included.

#### Inset Fuel Stabilizer

Some people wonder why aliens with more time than intelligence would come to earth to mutilate cattle or abduct people for genetic engineering projects. Others ponder more serious questions, such as, what kind of engineering do these creatures have? Do they use leaded or unleaded? Paper or plastic? What kind of gas mileage do they get? Does their spacecraft meet California's rigid emission standards? How did they get here on just one tank of fuel, and how do they keep hovering around for all these years without making a pit stop at Exxon or BP? I think I have figured out the last question: they use the Inset Fuel Stabilizer!

They must use the Inset Fuel Stabilizer (IFS) [no trademark because they were denied one on July 31, 1997]. There is no other explanation for it. What else could possibly explain how they continue to hover around the earth undiscovered, year after year, without making a single pit stop for gas? How else can we explain how they traveled billions of miles without any sign of polluting the atmosphere? The gas mileage the aliens get and the clean air their craft emits cannot possibly be explained by any of the known laws of physics, or chemistry, or biology, or California. The aliens are using the Inset Fuel Stabilizer.

This amazing device, according to its inventor, Bob Pearson, is able to align fuel and air molecules "in an energy field" so that they completely burn inside the Stabilizer. How does it do this? Bob has no idea, but it works. Of course it does. Only a perverted skeptic could mistrust such a claim. John Nacco of Inset Industries claims that the molecules that make up hydrocarbon fuels are surrounded by a positive charge. He claims this positive charge tends to attract other fuel molecules and that removing the positive charge causes the molecules to repel each other. This, he says, allows oxygen molecules to attach themselves to individual fuel molecules instead of having to bond to clusters of fuel molecules. The increased level of oxygen in the mix produces a more even burn, he claims, resulting in close to 100 percent combustion of the fuel molecules. Of course, Mr. Nacco does not explain why positively charged "molecules" would attract other positively charged molecules. Nor does he explain why a negatively charged molecule would repel rather than attract a positively charged one. Nor does he explain why oxygen molecules, which have no charge, would be attracted to negatively charged fuel "molecules". Given such a flawed account of chemical bonding, why should we believe him when he claims near 100 percent combustion of fuel molecules? Why should we believe him when he says that the longer the fuel stabilizer is in use, the lower the emissions readings become? Why should we believe another Inset person named Marshall who said he installed a stabilizer in his wife's 1990 Honda and within 11 days, hydrocarbon counts dropped from 145 parts per million to 9 parts per million and carbon monoxide emissions were eliminated completely (Chicago Tribune, May 3, 1994)? We can believe Marshall, but what does his data mean? Very little, since we do not know if he did anything else on his wife's car or if he had it tested on the same equipment or if the car had the same fuel in it for both tests.

What is the Stabilizer, then? This much we can say: it is a 7-inch long piece of stainless steel. It has been describe as looking like a slim beer can with a bolt-like valve on each end. That's it. There is no more. It is just a stainless steel tube that is designed to be inserted in your vehicle's fuel line. How does a stainless steel pipe align molecules or change their charges? No one knows. How does it keep them aligned once they leave the pipe? No one knows. Why would their alignment or charge have anything to do with if they would burn or emit polluting particulates? No one knows. Trust Bob, John, and Marshall though, because they say it works!

Ray Hall read about the Inset Fuel Stabilizer in his local newspaper in Naperville, Illinois. The city of Naperville had shelled out \$1,500 each for Stabilizers for the city's maintenance and police vehicles. Mr. Hall has some background in chemistry and physics. The claims reported by local journalist Susan Trudeau did not have the ring of verisimilitude, so Mr. Hall contacted her. She passed the buck to a Mr. Morris of Inset Industries. Morris told Hall that even the inventor did not know how it works, but the results speak for themselves. The results, unfortunately, were all in the form of anecdotes and uncontrolled studies of negligible scientific merit.

Mr. Morris told Hall that the Stabilizer was not patented because the workings were a trade secret and they didn't want to reveal this information in a patent application. This seems patently absurd, not to patent such a revolutionary device. Morris did not appreciate having the claims of Inset challenged and "condemned me for my negative attitude," says Hall. Morris said that Inset was only trying to save the world from pollution and they had many satisfied customers, including police departments. Maybe these were the same police departments who were conned into buying the Quadro Tracker. Mr. Hall was disappointed that the reporter hadn't checked out Morris's claims, including the claim that an endorsement from the Environmental Protection Agency was forthcoming in the near future. Hall's own investigation revealed that the EPA does not endorse products.

I must admit that I was very skeptical of Mr. Hall's claims. I checked out the WWW home page of Inset [[www.insetfuelstabilizer.com/](http://www.insetfuelstabilizer.com/), which is now defunct] and, sure enough, it claimed that this tube can align molecules and thereby save you money on gasoline and make your engine run virtually pollution free. There were testimonials from cops, garbage truck drivers and others, as to the wonders of the Stabilizer. There was also a table which one could use to calculate how much money you can expect to save on gas by using the Stabilizer. There was another unskeptical newspaper article for perusal. What you did not find, though, was any evidence that the Stabilizer had been tested under anything that might vaguely resemble a controlled study. A recent visit to the Inset homepage revealed that the mileage chart is no longer there. Inset has since stopped touting the fuel economy/gasoline savings angle. Since such companies do not usually voluntarily remove such claims, it is likely they did so as a result of being taken to court. In any case, the main angle now is emission control. Despite all the hype about how it increases gas mileage and power and reduces emissions, the only thing guaranteed by Inset is that "the Fuel Stabilizer will reduce air pollution emissions to the level required by the Federal Clean Air Act and State emissions standards." For most cars, this guarantee means nothing, since they already are at that level or can be made so with a minor tune up. The Inset sells for about \$1,600. For those cars which are in such bad shape that they can't meet these standards, the cost of the Inset would be more than the car is worth.

The main evidence presented by Inset Industries for their product is in the form of testimonials and some indecipherable charts. It is easy to dismiss testimonials by company executives, but how can we dismiss the testimonial of an unnamed municipality in Texas which has tested some 340 diesel vehicles and reports that "the opacity on 340 diesel powered vehicles met State of Texas pollution standards while fuel

economy increased approximately 19%"? Well, for one thing, fuel economy is not guaranteed when you buy the product. Secondly, there are no established emission standards for diesel engines, according to an unnamed supervisor involved in the purchase and testing of the IFS. The municipality is unnamed, though why it should be is puzzling. The unnamed source is also quoted as saying: "We had 97 to 99 percent opacity of particulate matter from our diesels, which was causing black smoke. I was getting more than 30 calls per week from residents complaining about the smoke coming from our garbage trucks. With the stabilizer installed, particulate matter dropped to 25 percent. When we shifted to low sulfur diesel, particulate matter dropped to 10 to 12 percent. We're not getting any more complaints about black smoke from our trucks." We have the word of unnamed source, probably an interested party, since he may have been responsible for asking the municipality to buy 340 of these devices at a total cost of something like half a million dollars. He gives us no report or indication that there is any report, no idea of how these tests were conducted. We're to take his word that "particulate matter" dropped significantly. This is not reliable evidence; it's hearsay. We have no idea how he got his numbers. We don't know whether the reduction in smoke and the decrease of complaints was due to switching to the stabilizer or to the low sulfur fuel, or to some other factor. What looks like a significant amount of supportive evidence vaporizes under analysis. This is just the testimony of an unnamed source in an unnamed community making undocumented claims.

But what about the race car driver who swears by the IFS. In an article in Tracks magazine, NASCAR racer Dean Gullik reportedly felt that his race car had more power with the IFS. A test of horsepower with and without the IFS revealed there was no difference. Rather than admit that his perception of more power was wrong, Gullik came to agree with John Nacco of Inset who said that the increased power wasn't from increased horsepower but due to a change in "the torque curve." In any case, NASCAR officials let Gullik use the IFS because it had no measurable effect on the car's power. They consider it a "pollution control device". What is the evidence for that? A test was performed by Al Connors of Alan and Son Car Care Center (NJ State License # 06227) on Hwy. 202 in Branchburg, N.J. With the engine idling normally on 110 octane leaded racing fuel, readings taken from the left side exhaust showed the following emissions levels:

CO = .04%  
HC = 62 ppm (parts per million)  
CO<sub>2</sub> = .0%

Unfortunately, no comparable data were given for the car without the device, for typical emission readings on other race cars with similar engines and using the same gasoline. And, we have no idea of how accurate the testing equipment was. Inset claims that "Race cars with this type of engine and fuel typically produce hydrocarbon readings of around 1000 PPM and carbon monoxide readings in the 6.0% range. This race car, stripped of every pollution control device except the Fuel Stabilizer, is the first one with emissions significantly lower than the New Jersey Inspection standards for pollutants. New Jersey standards are: Hydrocarbons below 220 PPM and Carbon Monoxide below 1.2%." If this data is accurate, then why is the Inset guarantee so paltry? The only thing that Inset guarantees with its product is that your car will meet these New Jersey standards with the IFS. You would think they would be willing to guarantee something as dramatic as their testimonials.

Relying on peoples' perceptions of things is not very scientific. Relying on testimonials by interested parties is unreasonable, even if the testimonial is couched in terms of scientific data. Tests of single vehicles or small numbers of vehicles are notoriously unreliable. Faulty equipment or faulty use of the equipment becomes a significant problem. Finally, there is a good reason for doing controlled experiments. They reduce the probability that other factors are actually responsible for the data. In the case of testing a device for pollution control several things must be controlled for:

1. The testing equipment itself must be thoroughly tested. Vehicles without the device must be tested several times, using the same kind of gasoline with the tank similarly filled, to see how much variation occurs. Temperature control is essential for this test, since temperature may effect the performance of the equipment and the vehicle, especially if the test is done at a time of year and in a location where the morning temperature may differ significantly from the afternoon temperature.
2. Once the variance of the equipment is established, controls must be made over the fuel and maintenance of the vehicles.
  - a) The same fuel from the same batch must be used throughout, to insure that any difference in data is not due to differences in fuel
  - b) No changes in the auto equipment other than the device being tested can be allowed: no changes in spark plugs, no adjustments of the carburetor, no cleaning of the fuel injector system, no adjustment to the timing, etc. Everything must remain the same in the vehicles except for what is being tested.
  - c) Vehicles must be tested under the same conditions: thus if vehicles are to be tested months after the first test, making it unlikely that the later tests will be able to use fuel from the same batch as the first test, there must a comparative test made of both the equipment and vehicles without the device at the beginning test and the later test. A baseline of variance must be established. Testing vehicles months later introduces special control problems. Temperatures under which testing is done may differ radically in summer and winter in some places. Making sure that the drivers of the vehicles do not have any work

done on the car in the interval is a logistical problem of varying magnitude. In a municipal fleet, for example, no maintenance can be allowed on vehicles between tests: no oil changes, no tune ups, etc.

In reading the testimonials provided by Inset, there does not seem to be anything like a controlled experiment they can report. The only controlled experiment known to be done on their device proved negative and they reject the results. That is understandable, but why should we agree with Inset rather than the New Jersey Institute of Technology who did a controlled experiment on the Inset and found it to be of no value?

The New Jersey Institute of Technology in consultation with Stevens Institute tested the Stabilizer at the request of State Senator Robert Littell, who reported that he was getting great results with the device. Their tests showed that the device made no difference in gas mileage or emissions. The report was published in the December 1995 issue of the trade journal Fleet Executive magazine. The report was signed by NJIT Professor and Vice President of Research and Graduate Studies Dr. Robert Pfeffer; NJIT Professor Dr. John Droughton; Stevens Institute of Technology Professor and Director of the Center of Environmental Engineering Dr. George Korfiatis; and NJIT Professor of Engineering and Science Dr. Richard S. Magee. Senator Littell said he was "perplexed by the findings of the report" and refused to accept the findings. So did Inset and they filed a lawsuit against NJIT. A large scale test of the Inset and four other air pollution control products was conducted by researchers at the Armament Systems Process Division of the U.S. Army's laboratories at Picatinny Arsenal for the New Jersey Department of Transportation, but the report was not released because of major problems with the testing equipment. There has been an ongoing controversy in New Jersey regarding the reliability of the equipment they use to test emissions. In August 1996, the state of New Jersey charged Inset with violating the Consumer Fraud Act and state securities laws. But Inset continues to flourish on the Internet.

I asked a friend of mine who used to own an auto repair shop if he had ever heard of the Stabilizer. He said that he had but it was called the Vitalizer when he was in business. He thinks it might be the same thing being marketed under another name. He even suggested the unthinkable: there might be fraud involved here! I couldn't believe my ears. Fraud on the internet! What a concept! Anyway, I asked him: why, if this were fraud, would anyone be so blatant about it? Weren't they afraid of being caught and severely punished by the very law enforcement agencies who were giving testimonials for them? Not very likely, he said. By the time law enforcement catches up with these kinds of frauds, says my friend, they have moved on, changed their name, and are doing business as usual somewhere else with the same product but a new name. It happens all the time in the fuel and oil additive industry, he said. So, it wouldn't surprise him if it happened in the steel tube/fuel efficiency industry, too.

Well, I was shocked. I had been getting a lot of mail from people who were feeling sorry for me because I was such a negative person. I had vowed to be more positive just to make them feel better. So I looked for the silver lining in the Inset Stabilizer story and thought I had found it in the alien fuel efficiency angle. Now, I have to rethink my hypothesis. But wait. Maybe I can still find something positive here. I can say that if there are aliens hovering around earth looking for some good beef to mutilate or some tasty humans to experiment on, then they are probably using the Inset Fuel Stabilizer. And maybe Bob Pearson doesn't have to worry about a patent because he has one on his home planet.

I don't know if they have an environmental protection agency on Bob's planet, but here on earth the EPA did tests on the Inset Fuel Stabilizer and found that it neither reduces vehicle emissions nor increase fuel mileage. What a shock!

Postscript: For those of you who balk at the \$1,600 price tag on the Inset Fuel Stabilizer, don't fret. For a mere \$239.95, plus tax and shipping and handling, you can get the Mileage Wizard™. This device, we are told on the authority of those who are selling it, is a gadget which utilizes "cutting edge technology." According to its promoters, "the gasoline is introduced into the thermal magnetic vaporization chamber creating an almost vapor state prior to entering the fuel injectors, creating greater fuel efficiency." If you do not trust their data on fuel efficiency you can call the "Energy Efficiency and Renewable Energy Clearinghouse at 1-800-363-3732." This offer is exclusively made directly to the public rather than to car manufacturers because, we are told, those big bad greedy corporate types would put owning this device "out of the reach of the average person." It is much better to allow greedy average people rip off each other in an MLM scheme, where the opportunity to make over \$80,000 a month is made available to each and every one of us by the kind founders of the Mileage Wizard™. Or so they say.

Hiclone promises fuel savings of up to 20%, power increase of up to 15%, and hydro carbon emission reductions of up to 30% with prices from \$160-\$215 (Australian). They'll even sell you something called Fuelmax which "is a magnetic frequency resonator which clips onto the fuel line and 'fractures' the passing fuel, allowing it to mix with oxygen more readily and thus burn more efficiently." This should keep you laughing for up to ten minutes



## Intelligent Design

...the odds against DNA assembling by chance are 1040,000 to one [according to Fred Hoyle, *Evolution from Space*, 1981]. This is true, but highly misleading. DNA did not assemble purely by chance. It assembled by a combination of chance and the laws of physics. Without the laws of physics as we know them, life on earth as we know it would not have evolved in the short span of six billion years. The nuclear force was needed to bind protons and neutrons in the nuclei of atoms; electromagnetism was needed to keep atoms and molecules together; and gravity was needed to keep the resulting ingredients for life stuck to the surface of the earth.

--Victor J. Stenger

... rarity by itself shouldn't necessarily be evidence of anything. When one is dealt a bridge hand of thirteen cards, the probability of being dealt that particular hand is less than one in 600 billion. Still, it would be absurd for someone to be dealt a hand, examine it carefully, calculate that the probability of getting it is less than one in 600 billion, and then conclude that he must not have been dealt that very hand because it is so very improbable. --John Allen Paulos, *Innumeracy: Mathematical Illiteracy and its Consequences*

Design must be measured in a subtle way. For any given biological system you must determine if completely random events could have brought it about. If you can show that no number or combination of random events could produce that system, then you can infer that the system was designed. The problem is that the potential combination of random events approaches infinity, so the design inference only approaches certainty but never attains it. Fortunately for those who support the intelligent design hypothesis, no scientific claim can be proved beyond all doubt. The nature of a scientific hypothesis is that it attains a high degree of probability for being true, but never certainty.

--Donavan Hall

"Intelligent design is nothing more than creationism dressed in a cheap tuxedo."

--Dr. Leonard Krishtalka, director of the University of Kansas Natural History Museum and Biodiversity Research Center

If you're worried about godless evolution being taught to your children, you should be just as worried about godless geometry, godless germ theory, and godless P.E.

Intelligent Design (ID) is a pseudoscience: it claims to be a scientific theory when in fact it is a metaphysical theory. ID claims it "is a scientific theory that intelligent causes are responsible for the origin of the universe and of life and its diversity."\* Advocates of ID maintain that their theory provides empirical proof for the existence of God or superintelligent aliens. ID defenders claim to believe that "design is empirically detectable in nature, and particularly in living systems." This empirical proof amounts to nothing more than claims of statistical improbabilities that certain events or systems are random. ID defenders claim that intelligent design is an alternative to natural selection--which is a scientific theory--and should be taught in the science classroom. The ID defenders argue that Darwinian natural selection cannot account for x or y; therefore, intelligent design (which can account for anything) is not only correct but displaces natural selection. This is little more than an argumentum ad ignorantiam. Just because natural selection can't account for something does not prove that an intelligent designer exists.

ID isn't a scientific theory and it isn't an alternative to natural selection or any other scientific theory. No matter how improbable the randomness of a natural event or system, the fact is that the event or system has occurred. One cannot determine how it occurred from how many chances it would take to happen by chance. I could take a deck of 52 playing cards and throw them in the air. The odds of their falling to the ground in just the arrangement that actually happens would be astronomical. Looking at the scattered array, however, I believe it happened by a combination of random probabilities and laws of nature and am not in awe of the fact that nobody could have predicted such a lovely arrangement of cards. I realize that my hand and each card could have been guided by a divine force, but I don't consider that hypothesis. I use Occam's razor, otherwise I might as well consider another force, higher than the one guiding me and the cards, guiding the force that guides me. Why stop there? I may as well posit an infinite hierarchy of guiding divinities. But I don't need any to explain the event, so I don't posit any.

To argue that the universe, or some part of it, is more likely to have been designed than to have occurred by chance if it is statistically unlikely to have occurred by chance, is to beg the question. It trivializes the possibility that either the alleged statistical improbability is erroneous or that scientists will someday make discoveries that render incorrect the alleged improbabilities calculated by ID theorists.

In short, the universe would appear the same to us whether it was designed by God or not. Empirical theories are about how the world appears to us and have no business positing why the world appears this way, or that it is probably designed because of how unlikely it is that this or that happened by chance. That is the business of metaphysics. ID is not a scientific theory, but a metaphysical theory. The fact that it

has empirical content doesn't make it any more scientific than, say, Spinoza's metaphysics or so-called creation science.

ID begs the question

The ID argument is a classic example of begging the question. It goes something like this:

Natural selection cannot account for x, y or z.

What natural selection can't account for can be accounted for by positing an intelligent designer.

Therefore, ID is a scientific explanation that not only competes with natural selection as a theory but is superior because it can explain more.

But the argument assumes that (a) natural selection will never be able to account for anything it cannot account for now; and (b) no other naturalistic explanation can account for these phenomena. This begs the question. In fact, some of the things that ID defenders have claimed could not be explained by natural selection have been explained by natural selection.

Pseudoscience

ID is a pseudoscience because it claims to be scientific but is in fact metaphysical. It is based on many confusions, not the least of which is the notion that the empirical is necessarily scientific. This is false, if by 'empirical' one means originating in or based on observation or experience. Empirical theories can be scientific or non-scientific. Freud's theory of the Oedipus complex is empirical but it is not scientific. Jung's theory of the collective unconscious is empirical but it is not scientific. Biblical creationism is empirical but it is not scientific. Poetry is empirical but not scientific.

On the other hand, if by 'empirical' one means capable of being verified or disproved by observation or experiment then ID is not empirical. Neither the whole of Nature, nor individual living or non-living systems in Nature, can be proved or disproved by any set of observations to be intelligently or unintelligently designed.

Some of the defenders of ID, like Mr. Hall quoted at the top of this entry, think that since no scientific theory can be proved with certainty, ID is in good company. What should be admitted is that Science does have some metaphysical assumptions, not the least of which is that the universe follows laws. But Science leaves open the question of whether those laws were designed. That is a metaphysical question. Believing the universe or some part of it was designed or not does not help understand how it works. If I ever answer an empirical question with the answer "because God [or superintelligent aliens, otherwise undetectable] made it that way" then I have left the realm of science and entered the realm of metaphysics. Of course scientists have metaphysical beliefs but those beliefs are irrelevant to strictly scientific explanations. Science is open to both theists and atheists alike.

Of course Nature and any system in Nature can be explained in terms of design by God. They can also be explained in terms of design by some incompetent but powerful being. They can also be explained without reference to any designer. What ID defenders seem to do is (a) ignore or dismiss systems which do not appear to be the result of a particularly intelligent designer, like the birth canal in humans, the appendix, the presence of comets and meteors that slam into planets, schizophrenia, numerous birth defects, etc. Or, (b) they find some area of science where scientists do not have an explanation for something and say "aha, here it is, that which can only be explained by ID." However, the dismissals of bad system design always beg the question because they always assume that any design of any natural system was done by God who is by definition intelligent. Furthermore, it is simply an argument from ignorance to claim that since science can't explain this system or that system, then it must be the result of ID.

If we grant that that the universe is possibly or even probably the result of intelligent design, what is the next step? For example, assume a particular eco-system is the creation of an intelligent designer. Unless this intelligent designer is one of us, i.e., human, and unless we have some experience with the creations of this and similar designers, how could we proceed to study this system? If all we know is that it is the result of ID, but that the designer is of a different order of being than we are, how would we proceed to study this system? Wouldn't we be limited in always responding in the same way to any question we asked about the system? It is this way because of ID. Furthermore, wouldn't we have to assume that since God, the Intelligent Designer, designed everything, even us, that no matter what happens, it is always a sign of and due to intelligent design. The theory explains everything but illuminates nothing.

scientific defenders of ID

Much of the fuss about ID comes from the alleged fact that unlike most of the defenders of creation science, the defenders of ID are intelligent and trained in science. More fuss should be made out of the fact that like most defenders of creation science the defenders of ID are fond of the red herring and the non sequitur. They present natural selection as essentially implying the universe could not have been designed or created. One of the early-birds defending ID was UC Berkeley law professor Philip E. Johnson, who seems to have completely misunderstood Darwinism as implying (1) God doesn't exist; (2) natural selection could

only have happened randomly and by chance; and (3) whatever happens randomly and by chance cannot be designed by God. None of these beliefs are essential to natural selection. (The argument of Richard Dawkins that evolution provides evidence the universe is not designed is a philosophical, not a scientific argument.) Just in case the preceding was not understood by the anti-evolutionist, let me repeat it in a slightly different way. One can consistently believe in God the Creator of the universe and in natural selection. Let me put it another way: natural selection could have been designed by God. Let me put it another way: the theory of natural selection and the theory of divine creation are not competitors.

Two other scientists often cited by defenders of ID are Michael Behe, author of *Darwin's Black Box* (The Free Press, 1996), and William Dembski, author of *Intelligent Design: The Bridge between Science and Theology* (Cambridge University Press, 1998). Dembski and Behe are fellows of the Discovery Institute, a Seattle research institute funded largely by Christian foundations.

The main thrust of Behe's argument is that a Darwinian view of evolution is wrong. This is seen when one looks into the "black box," i.e., cells, and sees how complex they are. Therefore, there is strong evidence for intelligent design by God. However, most scientists, including scientists who are Christians, think Behe should cease patting himself on the back. The general consensus seems to be that Behe is a good scientist and writer, but a mediocre metaphysician.

A list of scientific papers which refute Behe can be found in *Publish or Perish - Some Published works on Biochemical Evolution*.

There are a number of critiques of Behe's claims available on the Internet. Here is a partial list:

A Central IL Scientist Responds to the Behe's "Black Box" by Karen Bartelt, organic chemist and an Associate Professor of Chemistry at Eureka College in Eureka, IL.  
Behe's Empty Box  
Darwin's Black Box Irreducible Complexity or Irreproducible Irreducibility? by Keith Robison  
A Biochemist's Response to "The Biochemical Challenge to Evolution" by David Ussery, associate professor at the Center for Biological Sequence analysis (CBS) in the Institute of Biotechnology, Danish Technical University, in Lyngby, Denmark  
Review of Darwin's Black Box by Kenneth R. Miller, Professor of Biology, Brown University  
Review of Darwin's Black Box by Peter Atkins, Oxford University  
Review of Darwin's Black Box by Andrew Pomiankowski, Royal Society research fellow at the department of biology, University College London  
Review of Darwin's Black Box by Gert Korthof  
Michael J. Behe - Responses to Critics.

There would be little point in my going over this material in detail here. In short, Behe claims that biochemistry reveals a cellular world of such precisely tailored molecules and such staggering complexity that it is inexplicable by gradual evolution, but it can be plausibly explained by assuming an intelligent designer, i.e., God. In short, Behe has old wine in a new skin: the argument from design wrapped in biochemistry. His argument is no more scientific than any other variant of the argument from design. As with all other such arguments, Behe's begs the question. He must assume design in order to prove a designer.

Unlike most other variants, however, Behe's is surrounded by competent scientific knowledge and understanding. Behe is an Associate Professor of Biochemistry at Lehigh University. Criticisms of his work have praised some of his science but dismissed his metaphysics. It should be noted up front that Behe is not one of those simpleminded "creation scientists" who reject science because they think it contradicts their version of creation. Behe's argument is not essentially about whether evolution occurred, but how it had to have occurred. However, he makes some assertions that would call into question his knowledge or integrity, e.g., "There has never been a meeting, or a book, or a paper on the details of the evolution of complex biochemical systems." He also claims that he wants to see "real laboratory research on the question of intelligent design."\* (Metaphysical lab work?)

His argument hinges upon the notion of "irreducibly complex systems," systems that could not function if they were missing just one of their many parts. "Irreducibly complex systems ... cannot evolve in a Darwinian fashion," he says, because natural selection works on small mutations in just one component at a time. He then leaps to the conclusion that intelligent design must be responsible for these irreducibly complex systems. Biology professor Kenneth Miller responds:

The multiple parts of complex, interlocking biological systems do not evolve as individual parts, despite Behe's claim that they must. They evolve together, as systems that are gradually expanded, enlarged, and adapted to new purposes. As Richard Dawkins successfully argued in *The Blind Watchmaker*, natural selection can act on these evolving systems at every step of their transformation.\*

Professor Bartelt writes

if we assume that Behe is correct, and that humans can discern design, then I submit that they can also discern poor design (we sue companies for this all the time!). In Darwin's Black Box, Behe refers to design as the "purposeful arrangement of parts." What about when the "parts" aren't purposeful, by any standard engineering criteria? When confronted with the "All-Thumbs Designer" - whoever designed the spine, the birth canal, the prostate gland, the back of the throat, etc, Behe and the ID people retreat into theology.\* [i.e., God can do whatever He wants, or, We're not competent to judge intelligence by God's standards, etc.]

Peter Atkins of Oxford University writes

The danger of this book...is partly that it is so well written....here we have a real, and very competent (but deeply misguided) scientist purveying some very good science and pointing up some very important omissions in our current understanding. Dr. Behe and his book must be as gold-dust among the dross of the general run of creationists and their so-called literature. The general reader will not know the limitations of his argument, or be aware of his misrepresentations of the facts, and will easily be seduced by his arguments.\*

Could evolution be guided by God? Of course. Does Behe provide a compelling argument for such guidance? Not really. But the issue isn't a scientific one, anyway.

Dembski

William Dembski (Intelligent Design: The Bridge between Science and Theology, 1998) is a professor at Baylor University. His defense of ID has also been refuted by scientists. Dembski claims that he can prove that life and the universe could not have happened by chance and by natural processes; therefore, they must be the result of intelligent design by God.

One refutation of Dembski is by physicist Vic Stenger in "The Emperor's New Designer Clothes." Dembski uses math and logic to derive what he calls the law of conservation of information. "He argues that the information contained in living structures cannot be generated by any combination of chance and natural processes....Dembski's law of conservation of information is nothing more than "conservation of entropy," a special case of the second law [of thermodynamics] that applies when no dissipative processes such as friction are present." However, the fact is that "entropy is created naturally a thousand times a day by every person on Earth. Each time any friction is generated, information is lost."

As with Behe, there are several refutations of Dembski's work posted on the Internet.

Are the Odds Against the Origin of Life Too Great to Accept? by Richard Carrier  
The Triumph of Evolution...And the Failure of Creationism by Niles Eldredge  
Review of: J. P. Moreland (ed.) The Creation Hypothesis

The ID proponents are fighting a battle that was lost in the 17th century: the battle for understanding Nature in terms of final causes and efficient causes. Prior to the 17th century, there was no essential conflict between a mechanistic view of Nature and a teleological view, between a naturalistic and a supernaturalistic view of Nature. With the notable exception of Leibniz and his intellectual descendants, just about everyone else with any brains gave up the idea of scientific explanations needing to include theological ones. Those who continued to appeal to God to explain Nature, like Malebranche, appear ridiculous today. Scientific progress became possible in part because scientists attempted to describe the workings of natural phenomena without reference to their creation, design or ultimate purpose. God may well have created the universe and the laws of nature, but once created Nature is a machine, mechanically changing and comprehensible as such. God became an unnecessary hypothesis. But, for those who find comfort in fairy tales and visions of immortality and purpose for each individual soul, tender mercy or enormous cruelty, the unnecessary will always be necessary. They will always find some way to delude themselves into believing they have proved what cannot be proved and are loved by what is incapable of loving.

Intuitive (Noun) & Intuitive Healers

An intuitive is a person who claims to have psychic abilities. An intuitive healer is someone who allegedly can heal and teach others to heal without the bother of empirical medicine. Instead, they use "insight" to diagnose illness. Intuitive healers are sometimes called medical intuitives or psychic healers. Intuitives are sometimes called sensitives.

Some, like Rachel Kohler, claim that their abilities allow them to make accurate diagnoses over the telephone. Some, like Linda Salvin, prefer the radio or the Internet, for their healings.

Some, like Judith Orloff, claim they can diagnose mental illness intuitively. She calls her ability "second sight" and has written some books about it.

Some intuitives call their work "science" and name their chicanery after themselves, such as the Barbara Brennan Healing Science. Barbara claims she can do wonders with your aura, including Spine Healing and Astral Healing. She abandoned the energy of physics for the energy of intuition and now makes a healthy living teaching and writing about how to do psychic surgery on your aura.

Some, like Carolyn Myss, have abandoned healing for less dangerous and more lucrative endeavors like giving lectures and workshops. (Her web site says she's booked for the next two years.)

One thing intuitive healers seem to have in common--besides a nose for desperate disciples--is an implicit awareness of the role confirmation bias, communal reinforcement and wishful thinking play in the construction of meaning and belief. Many "intuitives", no doubt, have an explicit understanding of the placebo effect. But they and the people who follow them do not understand how easy it is to deceive ourselves about these things. They do not test their alleged abilities under clear and controlled conditions and their followers don't require this of them. What is worse, so-called intuitives seem to think they are able to use their intuition to understand such things as quantum mechanics and biochemistry. Others simply ignore science in favor of metaphysics. Some intuitive healers could be tested, since they claim to be able to diagnose real disorders such as cancer. Others could never be tested since they diagnose non-empirical causes such as aura imbalance, chi blockage, or some sort of "energy" disharmony or misalignment.

### Invocation

An invocation is a special set of words used to call on some spirit or occult power for protection or assistance.

### IQ and Race

"The three great strategies for obscuring an issue are to introduce irrelevancies, to arouse prejudice, and to excite ridicule...." ---Bergen Evans, *The Natural History of Nonsense*

"If you make statements about racial differences based on data that doesn't exist, and right now there's nothing legitimate, then you are no more than a terrorist." --Jerome Kagan, professor of psychology, Harvard University

"IQ" stands for "intelligence quotient." A person's IQ is supposed to be a measure of that person's intelligence: the higher the IQ number, the greater the intelligence. This is inaccurate, however, since it assumes that there is only one kind of intelligence. Most people recognize that there are some people with fantastic memories, some with mathematical minds, some with musical genius, some with mechanical expertise, some with good vocabularies, some good at seeing analogies, some good at synthesizing, some at unifying, etc., etc. Some people excel at more than one of these behaviors. It would be more accurate to speak of human intelligences than of intelligence. An IQ test, therefore, should not be considered a measure of a person's intelligence. An IQ test is a measure of a person's IQ, which is not the same as a person's intelligences.

The Arthur Jensen and William Shockleys of the world have not found any significant correlations between race and intelligence. They have found correlations between race and IQ. Their work and works such as *The Bell Curve* by Herrnstein and Murray have been used to support the notion that some races are inferior to others.

The term 'race', however, is even more problematic than the term 'intelligence.' While we are all members of the human race, few deny that there are many races or that there are obvious physical and cultural differences among different ethnic groups. But it has become a widespread belief that race is genetically determined in much the same way as, say, eye color. Having a certain gene or set of genes means you have blue eyes. Likewise, it is thought, having a gene or set of genes makes one Caucasian. However, there is no such thing as a racial gene or set of race genes any more than there is such a thing as an intelligence gene or set of intelligence genes. This does not mean, of course, that a person's genetic makeup is not a significant factor in individual intelligence in particular areas or in physical features associated with different races, such as skin color. It should be obvious, however, by the tremendous variation in intelligences among individuals of any race, that the environment is a much more significant determinant of racial features than of intelligences. This seems to imply that whatever genetic differences exist among the races are most likely due to natural selection and sexual selection. It also seems to imply that the notion of a "pure" race is an absurdity. Even if the fundamentalists are right and there was an original Adam and Eve, no race can claim to be "pure." Each race evolved according to natural processes such as natural selection.

## Some Race Data

"There's about a 15 percent genetic variation between any two individuals," according to science writer Deborah Blum. "Less than half of that, about 6 percent, is accounted for by known racial groupings....A randomly selected white person, therefore, can easily be genetically closer to an African than another white" (Blum).

Joseph Graves, an African-American evolutionary biologist at Arizona State University-West in Tempe, notes that most people and researchers who try to establish correlations between various natural abilities and skin color are not geneticists.

These people don't know evolutionary genetics. They talk about interesting issues in race and biology. And since, I think, there are no real races, I wonder what these issues are. It makes me angry that I have to take time from my research (on the genetics of aging) to argue about something that shouldn't even need to be discussed (Blum).

C. Loring Brace, an anthropologist at the University of Michigan, claims that "race is a four-letter word with no basis in biological reality" (Blum).

Of course, physical features such as skin color, shape of eyelid, color of eyes, texture of hair, etc., are genetically determined. It is also true that an individual's capacity for any particular kind of intelligence is largely dependent upon genetic factors. What isn't true is the notion that whole races of people have sets of genes which make them as a group more intelligent than other races. The genes which affect musical talent, the power to visualize or to think abstractly, for example, are not established as the same ones which affect those characteristics which are associated with being Caucasian, Mongoloid or Negroid. If you want to find out why Asians are overrepresented in California's universities while blacks and Hispanics are underrepresented, you will probably search in vain for a genetic answer. Those who are interested in such things would do better to look at family structure, ethnic traditions, and social conditions.

## Spurious Correlations

To correlate race and intelligence in the name of science and have the world pay attention to you is no small feat. Could it be the numbers, the statistics which impress some people? Not likely. Even the most sophisticated numerical analysis which showed a correspondence between phlogiston and ether wouldn't get a hearing today. So, why does the race/intelligence bit get a hearing? How can any rational person take seriously notions such as the Aryans or racial purity? Some probably assert these things as a matter of establishing power. Being a member of a pure race is a quick and simple way to establish one's superiority. Membership is easy. You're born into it. Being the right race gives one a right to superiority and justifies inequality. It also justifies racism, since if inferior people are succeeding they must be cheating the truly superior people out of their just inheritance. It also justifies believing things about oneself that have no objective validity. A truly inferior being can justify thinking of himself as superior because of his race membership. He can rationalize any failures or inadequacies and attribute them to the unfair advantage given to those he considers inferior. He can even fool himself into thinking his non-white skin is white and that he somehow deserves to share in the accomplishments of anyone in his "white" race. (I have been expected to check "white" on a number of forms concerned about my "race", although when compared to a white sheet of paper, my skin color is clearly not white, but light brown. I have met very few "white" people who are white. At least they are not white in the skin areas generally exposed in public.)

However, even if there were such a thing as a pure race, that fact would not justify considering that race superior to any other. One might even make a case for the inferiority of such a race. Nature clearly favors variation. Chances of survival under varied and changing conditions increase as the species is more varied. Too much similarity could mean racial disaster, extinction; while variation could mean the survival of some members of the species if disaster should strike. Likewise, a species with several varieties of intelligences, as well as individuals with varying degrees of those intelligences, could well be a sign of superiority, at least in terms of the survival potential of the race.

Are the studies of no value that show African-Americans or Asians doing differently than so-called "white" Americans on standardized IQ tests? That is, is the work of people like Herrnstein and Murray worthless? No. It is valuable data, but it is also explosive data because of our racist political history. Such data will inevitably be exploited by white supremacists, twisted for their own political goals and used not to improve racial relations in America but to encourage further racial strife. Such data consists mainly of correlations. And while correlations should convince orthodox empirical scientists of nothing, to the racist researcher, correlations are the heart and soul of their work. The furor that The Bell Curve caused died down quickly because there occurred an ongoing saga which usurped its political and entertainment value: the O.J. Simpson trial. In fact, Herrnstein and Murray, in chapter after chapter, call for social reforms to improve the status of blacks in America. They may be disingenuous calls, but they are nevertheless inconsistent with

the notion that the social condition of blacks in America is due to genetic factors. If genes led to the black underclass of young thugs who murder each other on a daily basis in almost every city in America, then there would be no point to call for educational or vocational programs, no point in urging a change of focus for black men and women in their families, as even the black supremacist Louis Farrakhan has recommended with his million man march.

One can't deny that the majority of young men killing each other in gang wars are minorities. But one can deny that the reason they are so violent and immoral is because of their race. That is false and an insult to the majority of blacks and other minorities who are decent, law-abiding persons. One can't deny that minorities are undereducated as a group and underrepresented in our colleges and universities, and in the professions and skilled trades. But one can deny that the reason minorities are underrepresented is because their race makes them genetically inferior and incapable of competing with "white" America. It is true that many minorities are not in college or working as doctors or lawyers or teachers or auto mechanics, etc., because of their race. They have been discriminated against and deprived of educational and employment opportunities because of racial prejudice.

It is possible that some day we may be able to look at people of different races and see them as human beings without losing sight of what is special and unique about racial or ethnic membership. We do not need to be colorblind, nor should we strive to ignore racial differences. But they should be seen in a proper perspective: significant in forming us, but irrelevant to our status as human beings capable of both the highest moral and intellectual behavior and of bestial depravity and moronic incompetence.

In the meantime, we should heed Peter Singer's words:

...the genetic hypothesis does not imply that we should reduce our efforts to overcome other causes of inequality between people.

...the fact that the average IQ of one racial group is a few points higher than that of another does not allow anyone to say that all members of the higher IQ group have higher IQs than all members of the lower IQ group....

And, having a higher IQ does not justify racism (Singer, 1993), or any other kind of -ism, for that matter.

## Iridology

Iridology is the study of the iris of the eye in order to diagnose disease. Iridology is based on the questionable assumption that every organ in the human body has a corresponding location within the iris and that one can determine whether an organ is healthy or diseased by examining the iris rather than the organ itself. Iridology is likely to be practiced by a naturopath, a chiropractor, a homeopath or an acupuncturist, rather than by a traditional medical doctor. The Canadian Institute of Iridology says that "Iridology is one of the fastest growing fields in alternative health care in Canada today."

Traditional physicians see the iris as being part of the eye which regulates the amount of light entering. The iris is the colored part of the eye which has a contractile opening in the center, the pupil, which admits light to the lens which brings the light rays to a focus, forming an image upon the retina where the light falls upon the rods and cones, causing them to stimulate the optic nerve and transmit visual impressions to the brain. Traditional physicians also recognize that certain symptoms of non-ocular disease can be detected by an eye exam. They may even recognize and find amusing that Iris was the ancient Greek goddess who personified the rainbow.

Iridology was the invention of Ignatz Von Peczely, a 19th-century Hungarian physician. The story is that he got the idea for this novel diagnostic tool when he saw a similarity between the eyes of a man he was treating for a broken leg and the eyes of an owl whose leg Von Peczely had broken years earlier. The striking similarity consisted of a dark streak. The hunt was on. Von Peczely then went on to document similarities in eye markings and illnesses in his patients. Other wise men finished off the map of the eye. A typical map divides up the eye into sections, using the image of a clock face as a base. So, for example, if you want to know the condition of a patient's thyroid gland, you need not touch the patient to feel for any enlargement of the gland. Nor do you need to do any tests of the gland itself. All you need to do is look in the iris of the right eye at about half two and the iris of the left eye at about half nine. Discolorations, flecks, streaks, etc. in those parts of the eyes are all you need concern yourself with, if it is the condition of the thyroid you wish to know. For problems with the vagina or penis, look at 5 o'clock in the right eye. And so on. An iridologist can do an examination with nothing more than an iridology map, a magnifying glass and a flashlight.

Is there any scientific support for iridology? No. Why do so many people believe in it, then? If Von Peczely's reasoning is typical, we can surmise that he and other iridologists deceived themselves by looking for and finding correlations between eye markings and illness. They were working with vague notions of

"markings" and "illness." Diseases may not have been precisely or accurately diagnosed in many cases. They were able to validate iridology by finding many correlations that in fact were not established as causal relationships by rigorously defined controlled studies. Some of their correlations may be accurate, but many are undoubtedly bogus, due to very broad interpretations of "markings" and "disease." They found patterns where in fact there are no patterns. They misinterpreted data and gave extraordinary significance to confirmations, while ignoring or not seeking disconfirmations. Many of their confirmations may have been merely matters of self-validation. We have no way of knowing how much the power of suggestion played in their patients' illnesses. Many diagnoses were probably wrong, but no objective tests were done to check out the validity of the diagnoses. Some diagnoses may have been correct but the iridologists may have been using other signs besides eye markings to make their diagnoses. One thing they did not do were clearly defined, controlled, double-blind, randomized, repeatable, publicly presented studies. Had they done proper scientific testing of their claims, they would have been able to validate or invalidate iridology once and for all. Similar lack of rigorous scientific testing has led to self-deception in other similar fields such as reflexology and ear acupuncture.

With that said, it should not be assumed that the condition of the eye is an irrelevant diagnostic tool for non-eye diseases. However, recognizing symptoms of disease by looking in the eyes is not what iridology is about. Iridology goes way beyond this claim by maintaining that each organ has a counterpart in the eye and that you can determine the state of the organ's health by looking at a particular section of the eye. Ophthalmologists and optometrists can identify non-ocular health problems by examining the eye. If a problem is suspected, these doctors then refer their patients to an appropriate specialist for further examination.

What is most peculiar about the iris is that, on the one hand, each iris is absolutely unique and unchangeable, so much so that many claim that the iris is a better identifier of an individual than fingerprints. On the other hand, each iris allegedly changes with each change in state of each bodily organ. This would make the iris both immutable and in a state of constant flux, a magical union of the worlds of Parmenides and Heraclitus.

Jamais Vu

Jamais vu is the contrary of déjà vu. In jamais vu, an experience feels like it's the first time, even though the experience is a familiar one. Jamais vu occurs in certain types of amnesia and epilepsy.

Januarius a.k.a. St Gennaro

Januarius or St. Gennaro is the patron saint of Naples, Italy, whose dried blood is said to miraculously liquefy twice a year: on his feast day of September 19 and on the first Saturday in May. On those occasions, a vial allegedly containing the saint's dried blood is removed from the cathedral in Naples and taken on procession through the streets of Naples. The ritual used to be performed on December 16, "but the liquefaction occurred relatively rarely on those occasions--apparently due to the colder temperature--and those observances have been discontinued" (Nickell, 81). When the blood doesn't liquefy, the local superstition is that disaster looms.

This so-called miracle has been occurring for some 600 years without fail according to the faithful. Believers and uncritical reporters repeatedly confirm that the powdery substance kept in the vial is blood and that scientists cannot explain why it liquefies. However, Italian scientists who examined the vial of blood in 1902 and in recent years were not allowed to take a sample of the stuff to the lab. They were allowed to shine a light through the vial and on the basis of a spectroscopic analysis concluded the substance is blood (Nickell, 78). It is not true, however, to say that scientists can't explain why the stuff in the vial liquefies regularly. A professor of organic chemistry at the University of Pavia, Luigi Garlaschelli, and two colleagues from Milan offered thixotropy as an explanation. They made their own "blood" that liquefied and congealed, using chalk, hydrated iron chloride and salt water. Joe Nickell did the same with oil, wax and dragon's blood [a resinous dark-red plant product].

The Neapolitans are a superstitious people. There are about 20 allegedly miraculous vials of various saints' blood and nearly all of them are in the Naples region, "indicative of some regional secret" (Nickell, 79). Neapolitans believe that if the blood fails to liquefy, disaster is around the corner. They claim that on at least five occasions after the blood failed to liquefy there were terrible events such as a plague in 1527 and an earthquake in southern Italy that killed 3,000 people in 1980. The proponents of this alleged miracle do not mention how many times disaster didn't happen after the blood failed to liquefy, nor do they note how many times disaster did happen after the blood did liquefy. Even though the vial is only taken on parade twice a year, apparently the powder liquefies more than a dozen times a year.\* A bit of selective thinking seems to be going on here.



According to traditional Catholic hagiography, Januarius was a bishop beheaded during the reign of the emperor Diocletian (284-305). Yet, there is no historical record of his alleged blood relic before 1389, more than a thousand years after his martyrdom. Some doubt that Januarius even existed (Nickell, 79).

Most skeptics are convinced that whatever is in the vial is reacting to some natural phenomenon, such as temperature change or motion. Even some religious thinkers consider such 'miracles' frivolous and unworthy of God.

### Joy Touch

Joy touch is a meditative technique developed by Pete Sanders. He says it can help people lose weight, feel good, relax, quit smoking, eliminate life-threatening diseases, face the dentist, overcome fear of paranoia, transcend the body, get off drugs, become indifferent to the daily urges to rage and vent, etc.

The technique is reminiscent of meditating on the third eye in the middle of the forehead while silently humming OM! Sanders' twist is to have you imagine a line from the center of your forehead to the center of your brain (the site of the septum pellucidum). Then, imagine gently brushing that region of the brain.

Sanders teaches his discovery of joy touch (\$25 for a 2.5 hour session) in Sedona, Arizona, a New Age mecca for those in search of higher forms of consciousness. He is one of a rare breed--a faith healer who does not claim to be a psychologist or psychotherapist. (He claims to have an undergraduate degree from MIT in biomedical chemistry.) He is also the author of *You Are Psychic!*

The "scientific" theory behind the joy touch is explained this way by Sanders: the septum pellucidum is used as a remote control for the hypothalamus, generally considered the brain's pleasure center. The septum pellucidum has nerve connections to the hypothalamus and stimulates it directly. Exhilarating relief may come in 2 or 3 seconds and last as long as 5 to 30 minutes. Of course, any relief felt may be due to the placebo effect.

The critical thinker might think of applying Occam's razor and consider a direct imaginary massage of the hypothalamus itself, eliminating the seemingly superfluous step of sending massage ripples from the septum pellucidum. A word of caution: Do not try this at home! Sanders warns that since the hypothalamus is very close to the rage and anxiety centers of the limbic system within the brain, trying to stimulate the hypothalamus directly might backfire. Instead of finding oneself in a state of stoic ataraxia you might find yourself catatonic or enraged beyond the point of recovery. This may be dangerous to your health, but it could lead to a new career on talk-back radio or TV.

### Jung, Carl

Carl Jung (1875-1961), Synchronicity & The Collective Unconscious

Carl Jung was a Swiss psychiatrist and colleague of Freud's who broke away from Freudian psychoanalysis over the issue of the unconscious mind as a reservoir of repressed sexual trauma which causes all neuroses. Jung founded his own school of analytical psychology.

Jung believed in astrology, spiritualism, telepathy, telekinesis, clairvoyance and ESP. In addition to believing in a number of occult and paranormal notions, Jung contributed two new ones in his attempt to establish a psychology rooted in occult and pseudoscientific beliefs: synchronicity and the collective unconscious.

Synchronicity is an explanatory principle; it explains "meaningful coincidences" such as a beetle flying into his room while a patient was describing a dream about a scarab. The scarab is an Egyptian symbol of rebirth, he noted. Therefore, the propitious moment of the flying beetle indicated that the transcendental meaning of both the scarab in the dream and the insect in the room was that the patient needed to be liberated from her excessive rationalism. His notion of synchronicity is that there is an acausal principle that links events having a similar meaning by their coincidence in time rather than sequentially. He claimed that there is a synchrony between the mind and the phenomenal world of perception.

What evidence is there for synchronicity? None. Jung's defense is so inane I hesitate to repeat it. He argues that "acausal phenomena must exist...since statistics are only possible anyway if there are also exceptions" (1973, *Letters*, 2:426). He asserts that "...improbable facts exist--otherwise there would be no statistical mean..." (ibid.: 2:374). Finally, he claims that "the premise of probability simultaneously postulates the existence of the improbable" (ibid. : 2:540).

Even if there were a synchronicity between the mind and the world such that certain coincidences resonate with transcendental truth, there would still be the problem of figuring out those truths. What guide could one possibly use to determine the correctness of an interpretation? There is none except intuition and insight, the same guides that led Jung's teacher, Sigmund Freud, in his interpretation of dreams. The concept of synchronicity is but an expression of apophenia.

According to psychiatrist and author, Anthony Storr, Jung went through a period of mental illness during which he thought he was a prophet with "special insight." Jung referred to his "creative illness" (between 1913-1917) as a voluntary confrontation with the unconscious. His great "insight" was that he thought all his patients over 35 suffered from "loss of religion" and he had just the thing to fill up their empty, aimless, senseless lives: his own metaphysical system of archetypes and the collective unconscious.

Synchronicity provides access to the archetypes, which are located in the collective unconscious and are characterized by being universal mental predispositions not grounded in experience. Like Plato's Forms (eidos), the archetypes do not originate in the world of the senses, but exist independently of that world and are known directly by the mind. Unlike Plato, however, Jung believed that the archetypes arise spontaneously in the mind, especially in times of crisis. Just as there are meaningful coincidences, such as the beetle and the scarab dream, which open the door to transcendent truths, so too a crisis opens the door of the collective unconscious and lets out an archetype to reveal some deep truth hidden from ordinary consciousness.

Mythology, Jung claimed, bases its stories on the archetypes. Mythology is the reservoir of deep, hidden wondrous truths. Dreams and psychological crises, fevers and derangement, chance encounters resonating with "meaningful coincidences," all are gateways to the collective unconscious, which is ready to restore the individual psyche to health with its insights. Jung maintained that these metaphysical notions are scientifically grounded, but they are not empirically testable in any meaningful way. In short, they are not scientific at all, but pseudoscientific.

#### Kabalah

Cabala (also caballa, kabala, kaballa, Kaballah, qaballah, etc.)

The Cabala is a collection of esoteric writings of various rabbis and a few medieval Christians, consisting of mystical and numerological interpretations of Hebrew scriptures. The authors of the Cabala treat every letter, word, number, and accent of Scripture as if it were a secret code containing some profound but hidden meaning put there by God for some profound and hidden purpose, including prophecy. The Cabala also provides methods of interpretation of the occult marks on paper that the less spiritually gifted take to be mere words to be understood either literally or figuratively. The purpose of the Cabala is apparently to read God's mind and thereby become one with the divine.

Like all other mystical works and movements, cabalists believe that the only world worth knowing is the divine realm "above" and that one's life on earth should be spent trying to understand the mystery of the "upper level." This transcendental quest represents to the atheist a rejection of the earthly realm of facts, suffering, uncertainty and impotence in favor of a fantasy realm of the imagination and a sharing in eternal bliss and omnipotence. To philosophers such as Nietzsche, mysticism is nihilism's expression of the will to power. Those who are part of the esoteric group are made to feel powerful and superior to outsiders by the magic of their fanciful imaginations.

#### Kabalarian Philosophy

The Kabalarian Philosophy (KP) was the brainstorm of Mr. Alfred J. Parker. Since the death of Mr. Parker in 1964, the Kabalarians, headquartered in Vancouver, B.C., have been led by Ivon Shearing who was sentenced to five years in prison in 1997 for sexually abusing several teenage girls over a twenty-five year period.\*

KP "teaches a concept of constructive living which provides the key to understanding how to control life to bring into reality the happiness, mental freedom, and personal success that everyone seeks." The Kabalarians have a website where they offer for sale many of Mr. Parker's exciting books. If you get chills at the sound of such expressions as the following, then KP is for you:

"to understand one's true purpose in life, one's spiritual relationship to all things, and to fulfil one's destiny"

"....constructive growth and evolution to a higher state...."

"...improvement of humanity's intelligence reflecting greater harmony, purpose, and attainment of universal ideals...."

"...learn to live in harmony with the laws of life...."

"Health, happiness, success, and personal fulfilment.... "

Why KP rather than any of the other million and one solutions to the riddle of existence? Because the others lack "tangible reality." One tangible reality which KP has is "Name Analysis." According to the KP,

Every alphabet has a consistent mathematical order, which allows it to be measured. An analysis of the letters in your name will determine the qualities of your personality.

Your name determines your every experience. It defines your personal strengths [sic] and weaknesses both mentally and physically. It interprets your whole nature. It shows your position in life and your measure of success or failure. When you are named your destiny is created.

This sounds similar to another tangible reality known as numerology, According to KP my destinies are:

The name of Bob gives you the desire to be original and independent, and to utilize your abilities in leadership. You are inclined to be candid in your expression, saying things straight-to-the-point but without intending offence [sic]. If this name is used a great deal, you would be practical, skeptical, and very individual in your approach to life. With a desire to assume responsibility early in life. The weaknesses would show through head tension causing sinus trouble, headaches or headcolds.

Your name of Robert creates a refined, diplomatic nature that elicits the co-operation and respect of others. You appreciate a high standard of living and the attendant luxuries and comforts; however, the name does spoil ambition and confidence, and creates a self-depreciating quality that is a deterrent when you must force an issue or even carry out an important decision.

For some reason, middle or last names are not important, but I couldn't resist looking mine up anyway.

The name of Todd has some very fine characteristics but it does not give you verbal expression. You have profound thoughts on life but do not always express them for fear of being misunderstood. This name makes you fond of nature and you appreciate being by yourself where you can relax and ponder over life's mysteries. As you desire peace and harmony, you avoid people when there is anything you find unpleasant. Thus you appear somewhat unsociable and aloof. You have to guard against a jealous nature which causes misunderstanding and wrong feelings in close association. You also tend to take a know-it-all attitude and to be domineering, which others feel and resent. Reading, writing, and art are forms of expression that you most appreciate. Worry and responsibility are causes of frustration. The greatest lack in this name is in verbal expression, which is so necessary for success. Physically, you could be affected in the respiratory system, lungs and heart, etc.

Your name of Carroll creates extreme sensitivity to the thoughts of others and a total lack of expression of your own thoughts and feelings, except through the medium of writing. Under this name you seldom find anyone who, you feel, understands you. You are easily embarrassed and then you become quiet and secretive in order to avoid being laughed at or misunderstood. You keep your thoughts and feelings inside and only feel really relaxed and at peace at such times when out in nature or listening, alone, to beautiful music. This name also gives you a weakness in your chest which could lead to pleurisy or heart murmurs, or any trouble affecting the bronchial organs.

Of course, some of these descriptions are correct. They would be true of almost anybody. Some of the more specific claims are correct, but most are not. An analysis of this sort of personality profiling is taken up in the entry on the Forer effect.

What is unique about KP is its advocates believe that you can change your destiny by changing your name. You can call them and they will help you do this, should you find another name with a better destiny than the one your ignorant parents unwittingly strapped on you at birth. For example, maybe the following describes a destiny you would not like to have:

The name of ----- gives you sensitivity and refinement, an appreciation of nature, and cultural interests. You are able to express yourself through writing, more so than verbally. You abhor vulgarity, and any signs of friction or violence disturb you. You want to work in a position with a refined atmosphere, rather than one of noise and confusion. You can be affected by the thoughts of others. Uncontrolled feelings and moods of depression are the result. This name does not give you the strength of mind and body to carry out your plans. In fact, the high-strung nature resulting from use of this name has a physically weakening influence, robbing you of vitality and limiting your endurance for hard work. Your health could be adversely affected by this name, giving rise to weaknesses in the respiratory organs, kidneys, and bladder.

If the fate of this name is not to your liking, change your name from Adolph to Adolf. It will make a world of difference and will be good for your bladder.

## Karma

"...good and evil fortunes fall to the lot of pious and impious alike..." ---Spinoza

Karma is a law in Hinduism which maintains that every act done, no matter how insignificant, will eventually return to the doer with equal impact. Good will be returned with good; evil with evil. Since Hindus believe in reincarnation, karma knows no simple birth/death boundaries. If good or evil befall you, it is because of something you did in this or a previous lifetime.

Karma is sometimes referred to as a "moral law of cause and effect." Karma is both an encouragement to do good and to avoid evil, as well as an explanation for whatever good or evil befalls a person.

On one level, karma serves to explain why good things happen to bad people and bad things happen to good people. The injustices of the world, the seeming random distribution of good and evil, are only apparent. In reality, everybody is getting what he or she deserves. Even the child brutalized by drugged adults deserves the horror. The mentally ill, the retarded, the homosexuals, and the millions of Jews killed by the Nazis deserved it for evil they must have done in the past. The slave beaten to within a breath of death deserved it, if not for what he did today, then for what he did in some previous lifetime. Likewise for the rape victim. She is just getting what she deserves. All suffering is deserved, according to the law of karma.

Despite the fact that there could be no evidence for a metaphysical belief in karma, the idea of karma is popular among many in western cultures where it has become detached from its Hindu roots. The theosophists, for example, believe in karma and reincarnation. So does James Van Praagh, who claims to be a psychic conduit for all the billions of people who have died over the centuries.

Let's say someone kills someone . . . at a bank machine.... It could be two things. It could be, the person who committed the crime used their free will to do that. Or this might sound weird, but it could have been a karmic situation where that person who was murdered had to be paid back for murdering the other person in a previous incarnation. [Amazon.com interview with James Van Praagh]

Van Praagh makes it clear that he thinks it is karma, not free will, that leads people to kill one another. If Van Praagh is right, we may as well dismantle our ethical and criminal justice systems. Everybody is just playing out his or her karma. Nobody is really good or evil. Nobody is really responsible for anything they do. We're all just karmic pawns doing a dance with destiny. But why? Why would such an amoral principle such as karma be paraded forth as if it explained the ultimate justice of an indifferent universe? Because, says Van Praagh, "We are on this earth to learn lessons. This is our schoolroom here. . . . We must go through certain lessons in order to grow." According to Van Praagh, life on earth is actually life in purgatory. We are here working out our sins, evolving our souls, burning off some karma. These are the same feeble reasons theodocists give for the existence of evil in a world allegedly created by an Omnipotent, All-Good God. Van Praagh's version of karma is not likely to be accepted by Hindus or Buddhists. They would maintain that when a person does evil, they are acting freely. And when a person suffers evil, it is because of some evil freely done by that person in the past.

If pushed further, theosophists and Western theodocists (those who try to justify the ways of God) ultimately appeal to the "mystery" of it all. But there is no mystery to evil if we recognize that there is no purpose to life, there is no life after death, there is no reward in Heaven or punishment in Hell, there is no nirvana. While there may not be any meaning to life, there are many meaningful lives. Belief in karma, however, is not essential for a meaningful life. In fact, karma as understood by Van Praagh seems to make life trivial, a mere working out of a metaphysical "law" which reduces all humans to dehumanized creatures, devoid of morality and responsibility, mere causes and effects in a pointless system. Karma does not allow that the evil which befalls you may be undeserved.

How did such a notion as karma become an essential belief in a major religion? How did it find such a large audience outside of India? It is a law for sheep. We should not wonder that the shepherds advocate it. It is a law for the passive, for those who will not disturb the status quo, who will accept whatever evil is done as "natural" and inevitable. Karma is a law for slaves, for the vanquished. It was not slaves who invented religious dogmas. The masters knew what they were doing. Accept whatever evil happens; strive to be good, i.e., to follow the orders of the masters and to behave in an orderly fashion.

What peasant would think there had to have been a first life which had no past life? How did karma work then? If it didn't work or was not needed in the first life, why should it be needed for other lives? The masters would have had answers. They always do. They are the masters of language. Using only the power of words, they can reconcile inexorable laws with freedom. They can make contradictions appear to be

tautologies. And if the masters didn't have the answers, they could always demean those who dared to question what they couldn't understand! It's a mystery and everybody loves a mystery! If that didn't work, there was always death. That usually shuts up the dissident and the troublemaker. Maybe. But what works just as well, if not better, is the promise of eternal bliss. Be good, obey the moral rules, don't go against the grain, accept your role, etc., and eternal bliss will be yours. Disobey and suffer the consequences. The motivation is not much different than the promise of Heaven and the threat of Hell.

#### Kirlian "Photography"

In 1939, Semyon Kirlian, a Russian, discovered by accident that if an object on a photographic plate is subjected to a high-voltage electric field, an image is created on the plate. The image looks like a colored halo or coronal discharge. This image is said to be a physical manifestation of the spiritual aura or "life force" which allegedly surrounds each living thing.

Allegedly, this special method of "photographing" objects is a gateway to the paranormal world of auras. Actually, what is recorded is due to quite natural phenomena such as pressure, electrical grounding, humidity and temperature. Changes in moisture (which may reflect changes in emotions), barometric pressure, and voltage, among other things, will produce different 'auras'.

Living things (like the commonly photographed fingers) are moist. When the electricity enters the living object, it produces an area of gas ionization around the photographed object, assuming moisture is present on the object. This moisture is transferred from the subject to the emulsion surface of the photographic film and causes an alternation of the electric charge pattern on the film. If a photograph is taken in a vacuum, where no ionized gas is present, no Kirlian image appears. If the Kirlian image were due to some paranormal fundamental living energy field, it should not disappear in a simple vacuum. [Hines]

There have even been claims of Kirlian photography being able to capture "phantom limbs", e.g., when a leaf is placed on the plate and then torn in half and "photographed", the whole leaf shows up in the picture. This is not due to paranormal forces, however, but to residues left from the initial impression made by the whole leaf or to fraud.

Parapsychologist Thelma Moss popularized Kirlian photography as diagnostic medical tool with her books *The Body Electric* (1979) and *The Probability of the Impossible* (1983). She was convinced that the Kirlian process was an open door to the "bioenergy" of the astral body. Moss came to UCLA in mid-life and earned a doctorate in psychology. She experimented with and praised the effects of LSD and was in and out of therapy for a variety of psychological problems, but managed to overcome her personal travails and become a professor at UCLA's Neuropsychiatric Institute. Her studies focused on paranormal topics, such as auras, levitation and ghosts. One of her favorite subjects at UCLA was Uri Geller, whom she "photographed" several times. She even made several trips to the Soviet Union to consult with her paranormal colleagues. Moss died in 1997 at the age of 78.

Moss paved the way for other parapsychologists to speculate that Kirlian "photography" was parapsychology's Rosetta stone. They would now be able to understand such things as acupuncture, chi, orgone energy, telepathy, etc., as well as diagnose and cure whatever ails us. For example, Bio-Electrography claims to be

...a method of investigation for biological objects, based on the interpretation of the corona-discharge image obtained during exposure to a high-frequency, high-voltage electromagnetic field which is recorded either on photopaper or by modern video recording equipment. Its main use is as a fast, inexpensive and relatively non-invasive means for the diagnostic evaluation of physiological and psychological states.

The reliability of diagnosing illnesses by photographing auras is not very high, however. Bio-Electrography should not be confused with Esoteric Colorpuncture, Peter Mandel's therapy, which unites acupuncture and Kirlian photography.

None of these Kirlian methods of diagnosis should be confused with other types of medical photography, e.g., roentgen-ray computed tomography, magnetic resonance imaging, single photon/positron emission computed tomography and other useful types of medical imaging, none of which have anything to do with auras.

Knight, J.Z.

Ramtha (J.Z. Knight)

Ramtha is a 35,000 year-old warrior-spirit who appeared in the kitchen of a Tacoma, Washington, woman in 1977. J.Z. Knight claims that she is Ramtha's channel. The pretty blonde pretends to go into a trance and speaks medieval or Elizabethan English in a guttural, husky voice. Ms. Knight has thousands of followers and has made millions of dollars performing as Ramtha at seminars (\$1,000 a crack) and at her Ramtha School of Enlightenment, and from the sales of tapes, books and accessories [Clark and Gallo]. She must have hypnotic powers, as otherwise normal people think her command that they spend hours blindfolded in a cold and muddy, doorless maze, is rational and will somehow help them realize self-fulfillment. These people are in the dark in more than one way as they seek the 'void at the center.'

J.Z. Knight used to be "spiritually restless," but not anymore. She's been enlightened by Ramtha from Atlantis via Lemuria. He first appeared to her, she says, while she was in business school having extraordinary experiences with UFOs. It seems as if she read L.Ron Hubbard while in school, as well as Edgar Cayce. The Great One invades her body and speaks through her mouth whenever Ms. Knight is scheduled to put on a performance. She must have a great rapport with her spirit companion, since he shows up whenever she needs him. It is not clear why Ramtha chose Ms. Knight, but it is very clear why J.Z. chose Ramtha: fame and fortune, or simple delusion.

Knight claims to believe that she's lived many lives. If so, one wonders what she need Ramtha for: she's been there, done that, herself, in past lives. She ought to be able to speak for herself after so many reincarnations! But as Knight says, we only use 10% of our brain. Perhaps that accounts for her need for Ramtha to show the way. The claim that we only use 10% of our brain is a rather common one among New Agers but what is it based on? Is it based on the fundamental neurological fact that if every neuron in one's brain fired at once, the result would be disastrous? Actually, I'm not sure I know what it means to say that we only use 10% of our brain, but if it means that only a small fraction of the brain's neurons are firing during any given perception, conception, dream, etc., then that is absolutely correct and absolutely trivial. In any case, she should be glad that only a fraction of the brain's cells are at work at any given moment: it will keep her from having seizures or from going crazy.

Knight also claims that spirit or consciousness can "design thoughts" which can be "absorbed" by the brain and constructed "holographically". These thoughts can affect your life. If this means what I think it means, then Ms. Knight has taken the notion of proving the obvious to new heights: she has discovered that one's thoughts can affect one's life! On another level, however, she is passing on some traditional pap about the soul and the body. The soul "wears" the body like a suit of clothes; therefore, since two bodies can wear the same suit of clothes, so two souls can wear the same body. Yes. And so could three or four or four hundred, for that matter. Lucky for most of us that our spirits are possessive and selfish and don't let other spirits in to wear our bodies. Otherwise, we might have to start a school or a cult or be forced to read Edgar Cayce while wearing a pyramid hat.

Knight not only has rewritten the book on neurology, she has also rewritten the book on archaeology and history. The world was not at all like the scholars of the world say it was 35,000 years ago. We were not primitive hunters and gatherers who liked to paint in caves. No, there were very advanced civilizations around then. It doesn't matter that there is no evidence for this, because Knight has rewritten the book of evidence as well. Evidence is what appears to you, even in visions and hallucinations and delusions. I suppose evidence could also be anything you felt like making up. So, when you are told that Ramtha came first from Lemuria in the Pacific ocean, do not seek out scholars to help you understand that ancient civilization because the scholars of the world do not believe Lemuria existed except as a fantasy. When you are told that the Lemurians were a great civilization from the time of the dinosaurs, do not expect to be burdened with evidence. There isn't any evidence. The only mammals around at the time of the dinosaurs were primitive and non-hominid, very much like lemurs. Maybe the Lemurians were really lemurs. No, because the Lemurians came from "beyond the North star", which explains why all humans ever since have looked to the sky with longing.

But as cool as Lemuria was, it could not compare with its counterpart in the Atlantic ocean. Knight's story of Ramtha in Atlantis is too bizarre to retell. Only L. Ron Hubbard could really appreciate the depth of the story, anyway. Let's just say that Ramtha was a warrior who appeared to Edgar Cayce and leave it at that. Her story is appealing to those who are not comfortable in today's world. The past must have been better. It must have been safer then, and people must have been more noble. This message is especially appealing to people who feel that the modern world is an ill-fitting suit of clothes. Nobody listens to you, no one cares about you, but God loves you and you love God, and when you hear voices, that's a good thing. You were poor but now you're rich, were weak but now are strong. You are amazing, Grace!

Ramtha, like Christ, ascended into heaven, after his many conquests, including the conquest of himself. He said he'd be back and he kept his promise by coming to Knight in 1977 while she was in her pyramid power phase. She put a toy pyramid on her head and lo and behold if that wasn't a signal for Ramtha to return to the land of the living dead!

And he looked at me and he said: "Beloved woman, I am Ramtha the Enlightened One, and I have come to help you over the ditch" And, well, what would you do? I didn't understand because I am a simple person

so I looked to see if the floor was still underneath the chair. And he said: "It is called the ditch of limitation", and he said: "And I am here, and we are going to do a grand work together."

So, the first rule of the wise is: beware the ditch of limitation! Apparently Knight's husband-to-be fell in the ditch because he was there at the time but was so busy lining up pyramids with a compass that he didn't see Ramtha. He did feel his magnetic charm, however; for, according to Knight (and who wouldn't believe her??), the compass needle was spinning around madly. So I take it that the pyramids never got lined up properly that day. Furthermore, the pyramid man (a dentist, by the way) saw "ionization" in the kitchen air. (From her description of the scene, he may have been passing out the nitrous oxide or peyote, as well.)

Ramtha then became Knight's personal tutor for two years, teaching her everything from theology to quantum mechanics. Maybe that is why she seems so smart. But it doesn't explain why a being from a civilization so advanced as Atlantis would be fascinated by her gas stove. Anyway, he taught her to have out-of-body experiences. The experience was so extraordinary she had to dig very deep for a metaphor to try to convey the bliss she felt: "I felt like .... like a fish in the ocean."

Her big break came when her son, Brandy, developed "an allergic reaction to life." He had to have a few shots but he was allergic to the allergy shots. Fortunately, "the Ram" (as Knight calls her spirit invader) came to the rescue and taught her therapeutic touch. She healed Brandy with prayer and her touch "in less than a minute," greatly reducing her medical bills. She had performed a miracle and now nothing would stop her from entering the public arena.

The kicker in all this, and perhaps the reason J.Z. Knight is so successful in getting followers and students, is that Ramtha turns out to be a feminist who recognizes that if he appeared in his own masculine body he would just perpetuate the myth that God is male and further contribute to the eternal abuse of women.

That's what he said. So women have been abused by men, and herded by men through religion to perform according to those religious doctrines, and in fact, women were despised by Jehovah. So, he said: "It is important that when the teachings come through, they come through the body of a woman."

This feminization of God must be pleasing to many people, who are tired of masculine divinities. Even those of us men who don't believe in gods will probably agree that J.Z. is a lot prettier than J.C. Yet, her message is no more appealing than that of any other religion. She claims that Ramtha will help people master their humanity and "open our minds to new frontiers of potential." Unsurprisingly, there has been some opposition to Ramtha's little cult of about 3,000 followers. They're just trying to find the God within, though I wonder if they realize that you don't get past the door without the price of admission.

One would think that it doesn't take a rocket scientist to figure out that the likelihood of a 35,000-year-old Cro-Magnon ghost suddenly appearing in a Tacoma kitchen to a homemaker to reveal profundities about centers and voids, self-love and guilt-free living, or love and peace, is close to zero. Yet, the will to believe is so strong in many people that even such an obvious absurdity seems reasonable. Plus, for many followers, believing in Ramtha "works." As one follower put it, "I watched great changes come over people around me--people who lacked hope came alive again." The fact is that many people's lives are so void of meaning and significance that even the ridiculous--if it offers meaning and direction--appears reasonable, if not profound. Their lives are made better, at least for a while, by their newfound beliefs.

One might say, then, that it would be good to leave the Ramthas of the world alone. After all, they're helping people, even if they are frauds. As long as they're not hurting anyone, let them be. Even if they are hurting people, the victims are adults who freely choose to be exploited and abused. Don't we have the right to be victims if we so choose?!

Sometimes. But sometimes those adults bring their children. Sometimes those adults are not as free as the rest of us. Sometimes a Ramtha takes more than your money. No one should ever forget the reverend Jim Jones and the mass suicide in 1978 of more than 900 cultists in Jonestown, Guyana. Not that Ms. Knight is a threat to her followers' lives, only to their dignity.

#### Koro (Shook Yang)

Koro is a psychological disorder characterized by delusions of penis shrinkage and retraction into the body, accompanied by panic and fear of dying. This delusion is rooted in Chinese metaphysics and cultural practices. The disorder affects mainly Chinese men and is associated with beliefs that unhealthy or abnormal sexual acts (such as sex with prostitutes, masturbation, or even nocturnal emissions) disturbs the yin/yang equilibrium which allegedly exists when a husband has sex with his wife, i.e., during "normal intercourse." This disturbance of metaphysical harmony (loss of yang) manifests itself in penis shrinkage. Yang is the vital essence of the male and when inappropriately expelled, it is believed, the result is a potentially fatal dose of koro.

Koro is also thought to be transmitted through food. In 1967, there was a koro epidemic in Singapore after newspapers reported cases of koro due to eating pork which came from a pig that had been inoculated against swine fever. Not only did pork sales go down, but hundreds of koro cases followed. The power of the press to cause panic was matched by their equal power to quell the imbalance they had caused. They gave ample access to the Singapore Medical Association and Ministry of Health who convinced the people that koro was a result of fear, thus ending the epidemic.

## Landmark Forum

### Landmark Forum/Landmark Education Corporation

Landmark Forum is a Large Group Awareness Training program in which up to 150 people take a seminar together aimed at helping them realize their true potential.

Landmark Forum began in 1985 by those who had purchased the est "technology" from Werner Erhard. In 1991 the group changed its name to Landmark Education Corporation (LEC), which continues to offer the Landmark Forum training, along with several other programs emphasizing communication and productivity. Erhard's brother, Harry Rosenberg, heads LEC, which does some \$50 million a year in business and has attracted some 300,000 participants. LEC is headquartered in San Francisco, as was est, and has 42 offices in 11 countries. Apparently, however, Erhard is not involved in the operation of LEC.

LEC is aimed at New Age explorers of the 1990s, not Flower Children from the 60s and 70s who were attracted to est. The search for "It", which characterized est, is out. Also out is the Zen master approach of est, which was often abusive, profane, demeaning and authoritarian. The Forum is apparently just as authoritarian as est but not as profane or abusive. Extraordinary bladder control, a requirement of est training, is apparently not a requirement of LEC participants.

LEC aims to help people transform their lives by teaching them specific communication and life skills along with some heavy philosophical training. The advertised goals of LEC seem very grand and very vague. The programs are hailed as "original, innovative and effective." They "allow participants to produce extraordinary and even miraculous results, and provide a useful, practical new freedom which brings a quality of effectiveness and plan to one's everyday life." Landmark is dedicated to "empowering people in generating unlimited possibilities and making a difference. Our work provides limitless opportunities for growth and development for individuals, relationships, families, communities, businesses, institutions and society as a whole." They are "successful" and "internationally recognized." They are "committed to generating extraordinary communication --powerful listening and committed speaking that results in self-expression and fulfillment." Landmark is "exciting, challenging and enjoyable." "Well being, self-expression, accountability and integrity are the tenets upon which we stand. This stand leads to our extraordinary customer, assistant and employee satisfaction." And, of course, LEC wants to help you fulfill all your human potential, your "capacity to create, generate, invent and design from nothing." [Landmark Education Charter] As I said, very grand and very vague, but inspiring nonetheless.

LEC sessions must be a very emotional experience. I have never attended a session of either est or Landmark but from what I can gather from those who have, the experience is not likely to be dull or non-emotive. Jill P. Capuzzo writes that "Other seminars may offer supportive hugs; this one hits you between the eyes." She also claims that "One of the most irritating aspects of The Forum is the hard sell to sign up future participants. Leaders encourage people to bring friends and family to [a] session to help celebrate their newfound love of life and invite them to enroll in the next available weekend." Capuzzo claims that 20 percent of the participants in her sessions brought visitors to the open session and nearly half the original participants signed up for an advanced course.

Andy Testa, on the other hand, posted an account of his experience with Landmark Forum, in which he claims that he was hounded by recruiters who insisted that his resistance was proof he needed their help.

Some people claim to have had breakdowns after attending such programs as Landmark Forum [see Lell, who had one after attending Landmark sessions, and Abstracts of Articles in Psychological Journals concerning est and The Forum]. According to Robert Howe, Stephanie Ney, 45, claims that a two-day Landmark Forum seminar "stripped her of her natural psychological defenses and unleashed the specter of a failed relationship with her father," leading to a nervous breakdown and commitment to a psychiatric clinic. Yet, I would not be too quick to blame Landmark for the harm experienced by some of their clients. Many of those who seek out cults like Scientology or self-help programs such as Landmark are troubled already. Some are deeply troubled and the training might send them over the edge. But whose fault is that? Such people might have gone to the movies and been pushed over the edge, like the man who started murdering "evil" women after seeing Cecil B. DeMille's film, *The Ten Commandments*.

Another participant describes his Forum experience as "the most powerful and dangerous experience in my life." He claims that he was so disoriented after the seminar that he couldn't work for three days. He



claims that those "three days after my Forum were a living hell, unlike anything I had experienced in 21 years of formal training and six years of medical residency in New York City." However, this participant also said that he would do it again!

A Hare Krishna devotee advises fellow spiritual travelers to take the LEC training. He claims that the average person reports that Landmark seminars change lives for the better by bringing about improved effectiveness in relating to others, increased personal productivity, greater self-confidence, help in making good decisions by learning how to identify what's really important in life, and help in learning how to live a more satisfying life without making life more complicated. He thinks Landmark can help people achieve transcendental realization. Paul Derengowski, formerly of the Christian cult-watch group Watchman.org, thinks that Landmark "has theological implications." Since the training seems to emphasize that one's past and current beliefs are hindering self-growth, it is easy to see why defenders of traditional religions would fear such programs as Landmark Forum. In effect, to those who are members of traditional faiths, programs such as Landmark are saying: your religion is a hindrance to becoming your true self.

Others have found practical value in the LEC training. In a personal correspondence, a Ph.D. in Political Science from Princeton claims

I have found the primary value of the Forum to be in what I have learned that continues to be of practical use in my everyday life long after taking the course.

When asked to elaborate, he wrote the following: ...the emphasis of the Forum is indeed on action, not on feeling good about yourself or other intangible goals. In this regard, one of the arguments presented is that much of our behavior is based on erroneous assumptions about how people will respond to our actions and what the "meaning" of past actions of theirs was. Once you recognize the existence of the assumptions you make (and they are unique to each person), you can see how they are affecting your perception of events and decide for yourself whether or not your interpretation is valid. In many cases you will discover that it is not and then have the choice of whether or not to change your behavior accordingly.

In my case I would cite three examples: First would be my relationship with my wife. I used to hide my fears and worries from her on the assumption that sharing them with her would make her feel insecure. I thought that she needed to feel that I was absolutely stable and dependable. In fact, of course, by doing this I was making her feel powerless. I was always there to help her, but she was never able to help me. Once I recognized this I became more willing to share my worries and concerns with her. The result is she feels closer to me (I know this because she says she does) and our relationship has become more equal and mutually supportive.

The second example would be my relationship with my father...I had built up this story in my mind that he didn't really love me, that all the things he had done for me growing up he had merely done out some kind of a sense of duty. I had actually told people this. Once I saw that this too was a story that I had created (when I learned that he had actually read my Ph.D. dissertation, word for word, the story became pretty unsustainable), I was able to apologize to him and for the first time I can remember, was able to hug my dad. (I realize that this would have sounded really corny to me before this happened, but that was probably because I was trying to deny that my relationship with my father was important. The fact is that our relationships with our parents are always important to us, even if they are very distant and remote ones like mine were.)

A final example would be how I interact with strangers. Thinking of myself as a geek all my life I have always been sensitive to my unhipness and therefore avoided talking much to people I didn't know, for fear of exposing my essential nerdness. Having realized that this is my perception of myself, not other people's, I no longer feel inhibited about talking to them and find myself chatting inanely with people in the post office, the woman who cuts my hair, etc. [Roger, personal correspondence]

How is it possible that the same training can produce such different responses?

There is evidence that many of those who sign up for LGAT programs such as Landmark Forum are not necessarily normal, healthy adults. Y. Klar, R. Mendola, J. D. Fischer, R. C. Silver, J. M. Chinsky and B. Goff, reported in the *Journal of Consulting & Clinical Psychology* [1990;58(1):99-108] that

A study was conducted to assess the psychosocial characteristics of individuals who become involved in large group awareness training (LGAT) programs. Prospective participants in The Forum, which has been classified as an LGAT, were compared with nonparticipating peers and with available normative samples on measures of well-being, negative life events, social support, and philosophical orientation. Results revealed that prospective participants were significantly more distressed than peer and normative samples of community residents and had a higher level of impact of recent negative life events compared with peer (but not normative) samples.

People who are having problems, are dissatisfied, feel unfulfilled, desire direction, etc., are the kind of people who sign up for seminars that will help them. It is almost inevitable that the vast majority of people

who would get involved be in some sort of distress. Likewise, by "regression" we would expect many people to have upswings and experience fewer problems, be more satisfied and fulfilled, feel less lost, etc., after periods of distress. It is predictable that many participants in self-growth programs will attribute their sense of improvement to the programs they've taken, but much of their reasoning may be post hoc.

On the other hand, it is also post hoc reasoning to assume that very disturbed individuals who deteriorate rapidly after attending LGAT seminars, do so because of their participation. Those in need of psychotherapy should not participate in LGAT programs. They may be too intense for the emotionally fragile. It is not without good reason that Landmark Forum requires prospective participants to sign a statement declaring that they are mentally and physical well. This may protect them from legal action should a client have a breakdown after attending the Forum. But it also gives notice that the program is not for the mentally or physically unstable

The training emphasizes not only how to communicate better but how to relate better to those around you, as it forces the participant to reflect on and examine his or her life. Such courses, if they are really good, will inspire many people to create themselves anew. Many will see positive effects immediately. In fact, many are so impressed that they want to share the experience with others. They become zealots and recruiters for the program. Part of their zealotry, however, derives from the intense pressure put on them to bring their friends and family into the program, and to sign up for follow-up courses. The main marketing tool Landmark uses is high-pressure direct contact with participants, including phone calls that border on harassment, according to some participants. Some critics even think that recruitment is the main goal of the program (Faltenmayer).

#### The Varieties of The Lec Experience

From what I have read by those who have been involved in est or Landmark Forum, the experience is at minimum disrupting and provocative, at best life transforming. This would indicate that something reaches deep into the emotional life of some participant's. Some, like Rabbi Yisroel Persky, claim that what they are being given are little more than "common-sense concepts cloaked in esoteric packaging" (Faltenmayer). But what is common-sense to an educated and well-read person (in the fields of psychology, philosophy, and communication arts), may seem like golden insights to others. Yet, while there must be something of substance to the content of the message (culled from the great minds, after all) the importance of the messenger and the way the message is delivered cannot be overestimated. The messenger must be believable. He or she must appear sincere. He must exude confidence. She must know how to use her voice and body to get her message across. He must be a master of communication skills. She must have wit and humor. He must be a raconteur. She must not only talk the talk but appear to clearly walk the walk as well. And he must do it with a large group and utilize the energy and enthusiasm of the group members to infect each other. If she or he is successful, the participants will leave charged up and ready to take on the world. The revival will have revived them. They will leave running on sixteen cylinders. They will be tuned up, turbocharged, and empowered to change their lives.

That is why so many people feel they have benefited from programs such as Landmark Forum, neurolinguistic programming, est (or even Scientology or Amway). The programs have given people a positive direction and focus, and surrounded them with like-minded folks for reinforcement. They have helped them achieve peace of mind or to accomplish goals they had been unable to accomplish heretofore. They have helped with personal relationships with spouses and children or helped them justify getting out of relationships with their friends and family. The program has forced them to be more self-conscious, forced them to think and examine their lives, something most people don't do on an ordinary Tuesday. Any time a rational person reflects on his or her life, or on some of the bigger issues in life, it feels good or it puts things in perspective. Either way, it is usually satisfying.

Many who take the LEC training feel that Landmark Forum has given them the power and self-esteem they lacked. Some of the good feeling and carryover in behavior may be long-lasting, or it may be temporary, like the rush that follows an inspirational meeting, or the new perception of reality that follows an intense emotional experience. Much of the improvement in feeling may be due to predictable regression and might explain the urge of many participants to want to take the follow-up courses and advanced seminars. These can get quite costly. For example: LEC offers an advanced course for \$700 and two advanced courses on Communication and Power for \$1,050. LEC charges \$1,700 for The Wisdom Program.

#### Large Group Awareness Training programs

Large Group Awareness Training (LGAT) programs are personal development training programs in which dozens to hundreds of people are given several hours to several days of intense instruction aimed at helping participants begin to discover what is hindering them from achieving their full potential and living more satisfied lives. LGAT programs have also been developed for corporations and public agencies, where the focus is on improving management skills, conflict resolution, general institutional strengthening, and

dealing with the eternal problem of employees who drink too much or use too many drugs. LGAT gurus claim to know how to help people become more creative, intelligent, and psychologically and economically more healthy. Above all, they focus on the role interpersonal communication plays in self-esteem and in defining our relationships with others.

LGAT gurus claim to know why their participants are not happy or why they are not living fulfilled lives. They assume everyone is being hindered by the same things and that one approach will suit all. Some LGAT gurus use public television and books as their vehicles. Others give seminars in hotel ballrooms. Some use infomercials and peddle books and tapes to the masses to help get them on the path to self-realization and success.

The U.S. Marines might think it takes a few years to "become all that you can be," but the gurus of self-help think it can be done in a few hours or days. These gurus might all take the one-size-fits-all cookie cutter approach to self-help, but the founders of such programs as est, Landmark Forum, neuro-linguistic programming, Tony Robbins seminars, etc., use their own unique cookie cutters.

Though some advocate visualization, self-hypnosis, and other techniques for achieving self-realization, most LGAT programs focus on communication skills and the effect of language on thought and behavior. Those running the programs must excel in those skills. The trainers are motivators. They must use their powerful communication skills to persuade others to believe that (a) they (the trainers) know something valuable about fulfilling one's potential; (b) the valuable knowledge can be transmitted to the participant in a short time; (c) the trainee can expect to reap tangible, even if subjective, benefits in a short time (such as improved relationships with others or feeling better about oneself); and (d) the trainee has only experienced a small taste of the wonderful pleasure and fulfillment that awaits those who sign up for advanced training. In short, the trainers are not just teachers; they are sellers. Their main job is to motivate participants to buy more services, i.e., sign up for more courses. The fact that trainers are unlikely to do any follow-up on their trainees, except to try to persuade them to take more courses, indicates that their main interest is not in helping people lead more fulfilling lives. The trainers have a sales job to do. They are paid commissions for the number of people they recruit and train, not for the number of people they truly help. It is not in their interest to do follow-up studies on their trainees. It is in their interest to do follow-up recruiting calls.

A short amount of reflection should make it apparent that the gurus of personal development training are like those infomercial stars who promise to share with you their secrets on how to make millions of dollars by taking out classified ads or by buying repossessed properties. The real money is not in taking out classified ads or buying repossessions; otherwise, that is what the infomercial star would be doing instead of making infomercials. The real money is in selling the idea to others. If the trainers who work for Tony Robbins or Landmark Forum could realize their true potential in a meaningful, lucrative way, would they take a sales commission job? Would they work for a guru for a relatively small sum of money, while investing a rather extensive amount of time in the hopes of some sort of breakthrough? No. If they want to reach their own true potential they must break away and start their own personal training program. Which is exactly what many of them do. (See the entry on neuro-linguistic programming. In NLP, breakaway or rogue trainers has become a major economic problem, requiring licensure and a suitable coterie of lawyers to keep the master students from realizing their true potential independently, as Tony Robbins and several others have done.)

Personal training programs are likely to be successful, however, if only because (a) the participants are strongly motivated toward self-improvement and (b) the trainers force participants to reflect on themselves, their lives and their relationships. Such motivation and reflection will result in either perceived insights or renewed effort to gain such insights. Being surrounded by many others in search of the Promised Land serves to energize participants and to give them hope. Ultimately, the main product being sold by human potential gurus is hope. It should be obvious that in itself this is not a bad thing. We all need hope. Without hope, there is no point in making plans for the future. Without hope, there is no point in working on a relationship or setting goals. Thus, insofar as participation in Large Group Awareness Training increases one's hope for finding one's way and for achieving one's goals, then it is good. Even false hope may be better than no hope at all.

Since fear is a major obstacle to hope, the human potential trainers must help participants overcome those fears which hinder development. For example, there can be no hope of achieving a goal if the fear of failure is so strong that one avoids setting goals in order to avoid failing. After all, if you don't try something, you can't fail at it. Likewise, no troubled relationship can improve if one fears rejection by the other to such a degree that one will not even try to heal the wounds. One must overcome fears of failure, rejection, ridicule, humiliation, etc., if one is to have any hope of achieving a very meaningful existence as a human being. One is powerless to achieve anything if one is paralyzed by fear. Empowerment to achieve requires empowerment to overcome one's fears and thereby give one hope. The most direct way to empower someone would be to convince them that if what they most fear were to happen, not only would nothing be worse than it already is, but most likely things would be even better than they are. Another way is to convince people that their own beliefs are hindrances to success and that they can replace those beliefs at will.

No one knew this better than Leo Buscaglia, one of the more successful LGAT gurus of the 1970s and 1980s. He used books, lectures and public television programs to promote the idea that the key to everything is love. He popularized notions that Nietzsche, Bertrand Russell and B. F. Skinner had written about, e.g., the psychological power of loving those you fear. "Love your enemies, " he would say. "It'll kill them!" Your enemy doesn't have to be another person, however. Your own fears can be your enemies. Embrace your fears, it'll kill them. If your relationship fails, what is the worst that can happen? The relationship ends. You can dwell on it, crawl into yourself, withdraw, surrender. Or you can learn from it, grow, develop, be prepared for a better relationship in the future. It's up to you. As the Stoics said: know what's in your power and what is not. Don't try to change what is not in your power to change. You can't control what others say or do, but you can control your attitude, your emotional response, to what they say or do. In short, if you don't try, you can't succeed. If you try and fail, you can still succeed. It's up to you. It is up to the human potential guru or trainer to convince you of this.

Self-growth programs such as est, Landmark Forum, neuro-linguistic programming (and even cults like Scientology) can point to many "successes." They can demonstrate that their programs "work." They can bring forth to testify on their behalf hundreds, if not thousands, of satisfied customers, many of them famous celebrities such as John Denver, John Travolta, Yoko Ono, Cher, Valerie Harper and others. Many people apparently find that their lives are better after they get involved in est, NLP, Landmark Forum, or Scientology. Those of us who have been trained to study philosophy and psychology, who have a deep sense of the nature of speculation and empirical research, are able to recognize the pseudoscientific nature of such programs. We know that testimonials do not validate a self-help program. We know that there is significant post hoc reasoning by both gurus and their followers. We are aware of the role of subjective validation, confirmation bias, wishful thinking, the regressive fallacy, and communal reinforcement in the success of such programs. We know there is little or no research done by the promoters of these programs to (a) test causal claims that might establish some degree of effectiveness to their methods; (b) establish clear criteria for what counts as "successful" training; (c) keep records of "failures" or those who feel ripped off or harmed by the program.

Nevertheless, despite the lack of proof that these programs work the way their advocates claim, and despite the fact that many trainers are overly zealous in their recruitment of participants in seminars and advanced seminars, many participants benefit greatly from such programs. Unfortunately, many of those who feel they have benefited do not understand that others may not benefit at all from such programs. To their healthy friends and family members, the zealot may appear to have been brainwashed. Their enthusiasm seems unnatural and disproportionate. If they were unbalanced before taking the program, they may appear to have gone beyond "breakthrough" into "breakdown."

#### Law of Truly Large Numbers

The law of truly large numbers says that, with a large enough sample, many things which seem so odd as to not be coincidental are actually likely to happen and are not so odd after all.

For example, you might be in awe of the person who won the lottery twice, thinking that the odds of anyone winning twice are astronomical. The New York Times once ran a story about a woman who won the New Jersey lottery twice, calling her chances "1 in 17 trillion." However, statisticians Stephen Samuels and George McCabe of Purdue University calculated the odds of someone winning the lottery twice to be something like 1 in 30 for a four month period and better than even odds over a seven year period. Why? Because players don't buy one ticket for each of two lotteries, they buy multiple tickets every week (Persi and Mosteller).

Some people find it surprising that there are more than 16 million others on the planet who share their birthday. At a typical football game with 50,000 fans, most fans are likely to share their birthday with about 135 others in attendance. (The notable exception will be those born on February 29. There will only be about 34 fans born on that day.)

You may find it even more astounding that "In a random selection of twenty-three persons there is a 50 percent chance that at least two of them celebrate the same birthdate." [Martin]

On the other hand, you might say that the odds of something happening are a million to one. Such odds might strike you as being so large as to rule out chance or coincidence. However, with 5.9 billion people on earth, a million to one shot will occur frequently. Say the odds are a million to one that when a person has a dream of an airplane crash, there is an airplane crash the next day. With 5.9 billion people having an average of 250 dream themes each per night [Hines, p.50], there should be about 1.5 million people a day who have dreams that seem clairvoyant. The number is actually likely to be larger, since we tend to dream about things that legitimately concern or worry us, and the data of dreams is usually vague or ambiguous, allowing a wide range of events to count as fulfilling our dreams.

Lenz, Frederick

Rama (a.k.a. Frederick Lenz 1950-1998)

Zen Master Rama was Frederick P. Lenz, Ph.D. (in English) and businessman (Advanced Systems, Inc.). Thousands of people paid as much as \$5,000 per seminar to be enlightened by this self-proclaimed guru, psychic and miracle worker. Here is what one of his followers said he learned from his master: "Spiritually advanced people work with computers because it makes a lot of money. The more money you make, the better you meditate" (Clark and Gallo,102).

Rama used a variety of so-called mind-control techniques to seduce his disciples. He had his subjects stare at him for long hours until they would hallucinate and "see" Lenz begin to glow or change shapes. Lenz told his followers that having these "visions" mean they were psychic.

Rama seduced many of his female followers by telling them that he only has sex with women who have a rare sort of karma. He also told women that having sex with him would elevate them to a higher plane of consciousness. It is hard for a skeptic to believe that such a line would work with any woman, but apparently it does.

Rama took religious freedom and tantric gullibility to new heights in his book *Surfing the Himalayas: A Spiritual Adventure* (1997). There he tells us of his adventures "snowboarding through Tantric myetiolem" and offers such bits of wisdom as

Ultimately, thinking is a very inefficient method of processing data...

And,

The relational way of doing things is to move your mind to a fourth condition, a condition of heightened awareness. In a condition of heightened awareness, you elevate your conscious mind above the stream of extraneous data -- out of dimensional time and space, so to speak -- and you meld your mind instead with the pure intelligent consciousness of the universe.

Bob Frankenberg, Chairman and CEO of Novell, claims the book "entertains and enlightens" and calls it "a wonderful contrast of Eastern spirituality and Western pragmatism." Phil Jackson, coach of the Chicago Bulls, said the book "Brings levity and humor to a subject often relegated to a mundane, boring prospect." The book became a best-seller. Within a year Rama published another cult classic: *Snowboarding to Nirvana*.

Unfortunately, all his Tantric wisdom couldn't save Rama. The day before taxes were due in 1998, he drowned in Conscience Bay near his exclusive residence in the exclusive Old Field section of Setauket on Long Island, New York. Rumor has it that he was stoned when he fell off the dock. An unidentified woman described by police as "incoherent" was found to be in Lenz's house at the time his body was recovered by police divers. Lenz was 48 at the time of his death. Cult expert Joe Szimbart claims that Lenz was suffering from liver cancer and committed suicide by overdosing on Phenobarbital (*Skeptical Inquirer*, July/August 1998).

## Levitation

Levitation is the act of ascending into the air and floating in apparent defiance of gravity. Spiritual masters are often depicted as levitating and the ability to levitate is taken as sign of blessedness by some. Others see levitation as a conjurer's trick. No one really levitates; they just appear to do so. Clever people can use illusion, "invisible" string, and magnets to make things appear to levitate.

There are people in transcendental meditation who will sit cross-legged and hop up and down on their butts, claiming that they are flying. Perhaps they are...for one-millionth of a second one millimeter above the ground. They say they feel lighter than air and are quite proud of their butt-hopping achievements.

## Ley Lines

Ley lines are alleged alignments of ancient sites or holy places such as stone circles, standing stones, cairns, and churches. Interest in ley lines began with the publication in 1922 of *Early British Trackways* by Alfred Watkins (1855-1935), a self-taught amateur archaeologist and antiquarian. Based upon the fact that on a map of Blackwardine, near Leominster, England, he could link a number of ancient landmarks by a

series of straight lines, he became convinced that he had discovered an ancient trade route. Interest in these alleged trade routes as sources of mystical energy has become very popular among New Agers in Great Britain.

Today, ley lines have been adopted by New Age occultists everywhere as sources of power or energy, attracting not only curious New Agers but aliens in their UFOs and locals with their dowsing rods. These New Age occultists believe that there are certain sites on the earth which are filled with special "energy." Stonehenge, Mt. Everest, Ayers Rock in Australia, Nazca in Peru, the Great Pyramid at Giza, Sedona (Arizona), Mutiny Bay, among other places, are believed to be places of special energy. There is no evidence for this belief save the usual subjective certainty based on uncontrolled observations by untutored devotees. Nevertheless, advocates claim that the alleged energy is connected to changes in magnetic fields. None of this has been scientifically verified. Maps have been produced, however, with lines on them which allegedly mark off special energy spots on earth. For example, the Seattle Arts Commission gave \$5,000 to a group of New Age dowsers, the Geo Group, to do a ley line map of Seattle. Photographs of the result, a defaced satellite photo of the Seattle area, can be purchased for \$7.00 from the group. It proudly proclaims that the "project made Seattle the first city on Earth to balance and tune its ley-line system." The Arts Commission has been criticized by skeptical citizens for funding a New Age, pagan sect, but the artwork continues to be displayed on a rotating basis in city-owned buildings within Seattle.

Citizens had every right to be skeptical. Here is what the Geo Group has to say about their project:

The vision of the Seattle Ley-Line Project is to heal the Earth energies within the Seattle city limits by identifying ley-line power centers in Seattle, neutralizing negative energies and then amplifying the positive potential of the ley-line power centers. We believe the result will be a decrease in disease and anxiety, an increased sense of wholeness and well-being and the achievement of Seattle's potential as a center of power for good on Spaceship Earth.

The Geo Group's vision is little more than a profession of faith. It is reminiscent of the claim of Transcendental Meditation that group meditation could reduce local crime rates. The Geo Group's methods have been just as effective as TM.

Polygraph ("Lie Detector")

"I don't know anything about lie detectors other than they scare the hell out of people."  
--Richard Nixon

A polygraph is an instrument that simultaneously records changes in physiological processes such as heartbeat, blood pressure, and respiration. The polygraph is used as a "lie detector" by police departments, the FBI, the CIA, the KGB, the KKK, federal and state governments, and numerous private agencies. The underlying theory of the polygraph is that when people lie they also get measurably nervous about lying. The heartbeat increases, blood pressure goes up, breathing rhythms change, perspiration increases, etc. A baseline for these physiological characteristics is established by asking the subject questions whose answers the investigator knows. Deviation from the baseline for truthfulness is taken as sign of lying.

There are three basic approaches to the polygraph test:

The Control Question Test (CCT). This test compares the physiological response to relevant questions about the crime with the response to questions relating to possible prior misdeeds. "This test is often used to determine whether certain criminal suspects should be prosecuted or classified as uninvolved in the crime" (APA).

The Directed Lie Test (DLT). This test tries to detect lying by comparing physiological responses when the subject is told to deliberately lie and to responses when they tell the truth.

The Guilty Knowledge Test (GKT). This test compares physiological responses to multiple-choice type questions about the crime, one choice of which contains information only the crime investigators and the criminal would know about.

Psychologists do not think either the CCT or the DLT is scientifically sound, but a majority surveyed by the American Psychological Association think that the Guilty Knowledge Test is based on sound scientific theory and consider it "a promising forensic tool." However, they "would not advocate its admissibility [in court] in the absence of additional research with real-life criminal cases." One major problem with this test is that it has no controls. Also, unless the investigators have several pieces of insider information to use in their questioning, they run the risk of making a hasty conclusion based on just one or two "deviant" responses. There may be many reasons why a subject would respond differently to the "insider" choice than he or she does to the other choices for a particular question. Furthermore, not responding differently

to the "insider" choices for several questions should not be taken as proof the subject is innocent. He or she may be a sociopath, a psychopath, a simply a good liar.

Is there any evidence that the polygraph is really able to detect lies? Well, the machine measures changes in blood pressure, breath rate and respiration rate. When a person lies it is assumed that these physiological changes occur in such a way that a trained expert can detect whether or not the person is lying. Is there a scientific formula or law which establishes a regular correlation between such physiological changes and lying? No. Is there any scientific evidence that polygraph experts can detect lies using their machine at a significantly better rate than non-experts using other methods? No. There are no machines and no experts that can detect with a high degree of accuracy when people, selected randomly, are lying and when they are telling the truth.

Some people, such as Senator Oren Hatch, don't trust the polygraph machine, even if used by an expert like Paul Minor who trained FBI agents in their use. Anita Hill passed a polygraph test administered by Minor who declared she was telling the truth about Clarence Thomas. Hatch declared that someone with a delusional disorder could pass the test if the liar really thought she was telling the truth. Hatch may be right, but the ability of sociopaths and the deluded to pass a polygraph test is not the reason such machines cannot accurately detect lies with accuracy any greater than other methods of lie detection.

The reason the polygraph is not a lie detector is because what it measures--changes in heartbeat, blood pressure, and respiration--can be caused by many things. Nervousness, anger, sadness, embarrassment and fear can all be causal factors in altering one's heart rate, blood pressure or respiration rate. Having to go to the bathroom can also be causative. There are also a number of medical conditions such as colds, headaches, constipation, or neurological and muscular problems which can cause the physiological changes measured by the polygraph. The claim that an expert can tell when the changes are due to a lie and when they are due to other factors has never been proven. Even if the device measures nervousness, one cannot be sure that the cause of the nervousness is fear of being caught in a lie. Some people may fear that the machine will indicate they are lying when they are telling the truth and that they will be falsely accused of lying.

In California and many other states, the results of polygraph tests are inadmissible as evidence in a court of law. This may be because polygraph tests are known to be unreliable, or it may be because what little benefit may be derived from using the polygraph is far outweighed by the potential for significant abuse by the police. The test can easily be used to invade a person's privacy or to issue a high-tech browbeating of suspects. Skeptics consider evidence from polygraphs no more reliable than testimony evoked under hypnosis, which is also not allowed in a court of law in California and many other states.

In 1998, the U.S. Supreme Court argued that Military Rule of Evidence 707, which makes polygraph evidence inadmissible in court-martial proceedings, does not unconstitutionally abridge the right of accused members of the military to present a defense (United States, Petitioner v. Edward G. Scheffer).

The American Civil Liberties Union strongly supported the passage of the Employee Polygraph Protection Act of 1988 (EPPA) which outlaws the use of the polygraph "for the purpose of rendering a diagnostic opinion regarding the honesty or dishonesty of an individual." Actually, the EPPA doesn't really outlaw the polygraph across the board. Federal, state and local governments can still use the polygraph. The federal government can give polygraph tests to government contractors involved in national security projects. In the private sector, security and pharmaceutical firms can still use the polygraph on current or prospective employees. Furthermore, any employer can administer polygraph tests

...in connection with an ongoing investigation of an economic loss or injury to his/her business on these conditions: The employee under suspicion must have had access to the property, and the employer must state in writing the basis for a reasonable suspicion that the employee was guilty (ACLU).

The ACLU supported the EPPA not only because of the lack of evidence for the accuracy of the polygraph, but because of abuses related with its administration, including, but not limited to, the invasion of privacy.

For example, in order to establish "normal" physiological reactions of the person being tested, "lie detector" examiners ask questions that purposely embarrass, frighten and humiliate workers. An ACLU lawsuit in 1987 revealed that state employees in North Carolina were routinely asked to answer such questions as "When was the last time you unintentionally exposed yourself after drinking?" and "Who was the last child that got you sexy?" Polygraphs have been used by unscrupulous employers to harass union organizers and whistle-blowers, to coerce employees into "confessing" infractions they did not commit, and to falsely implicate fellow employees (ACLU).

Why would so many government and law enforcement agencies, and so many private sector employers, want to use the polygraph if the scientific community is not generally convinced of their validity? Is it just wishful thinking? Do the users of the polygraph want to believe there is a quick and dirty test to determine who's lying and who's not, so they blind themselves to the lack of evidence? Perhaps, but there are other factors as well, such as the esoteric technology factor. The polygraph machine looks like a sophisticated,

space-age device of modern technology. It can be administered correctly only by experts trained in its arcane ways. Non-experts are at the mercy of the high-tech, specially trained wizards who alone can deliver the prize: a decision as to who is lying and who is not.

Another reason for the polygraph's popularity is the pragmatic fallacy factor: it works! Case after case can be used to exemplify that the polygraph works. There are the cases of those who failed the test and whose lying was corroborated by other evidence. There are the cases of those who, seeing they are failing the test, suddenly confess. What is the evidence that the rate of correct identification of lying corroborated by extrinsic evidence is greater than the rate of identification of lying by non-technological means? There isn't any. The proofs are anecdotal or based on fallacious reasoning such as thinking that a correlation proves a causal connection.

On the other hand, it is possible that one of the main reasons so many government, law enforcement and private sector employers want to use polygraphs is because they think the test will frighten away liars and cheats who are seeking jobs, or it will frighten confessions out of those accused of wrongdoing. In other words, the users of the machine don't really believe it can detect lies, but they know that the people they administer it to think the machine can catch them in a lie. So, the result is the same as if the test really worked: they don't hire the liar/cheat and they catch the dishonest employee.

#### Loch Ness Monster ("Nessie")

"Nessie" is an alleged creature living in Loch Ness, a long, deep lake near Inverness, Scotland. Many sightings of the "monster" have been recorded, going back at least as far as St. Columba, the Irish monk who converted most of Scotland to Christianity in the 6th century. Columba apparently converted Nessie, too; for it is said that until he went out on the waters and soothed the beast, she had been a murderess.

The modern legend of Nessie begins in 1934 with Dr. Robert Kenneth Wilson, a London physician, who allegedly photographed a plesiosaur-like beast with a long neck emerging out of the murky waters. That photo created quite a fuss. Before the photo, Loch Ness was the stuff of legend and myth. The locals knew the ancient history of the sea serpent. But people came to the lake more to relax than to go on expeditions looking for mythical beasts. After the photo, the scientific experts were called in. First, they examined the photo itself. Could be a plesiosaur. Yes, but it could be a tree trunk, too. Or an otter. Later, there would be explorations by a submarine with high tech sensing devices. Today, we have a full-blown tourist industry said to have generated about \$37 million in 1993, complete with submarine rides (about one hundred bucks an hour in 1994) and a multi-media tourist center.

#### Photos and Tabloids

There have been other photographs of Nessie, as well. The tabloids will pay good money for a photo of Nessie, and some enterprising souls have camped out for years in hopes of capturing the elusive beast on film. One good photo and they can retire for life! The Smithsonian even has a WWW page on Nessie, where it advocates continued scientific investigation into the matter. According to the Smithsonian,

Even though most scientists believe the likelihood of a monster is small, they keep an open mind as scientists should and wait for concrete proof in the form of skeletal evidence or the actual capture of such a creature.

We suggest...that those individuals interested in such a phenomenon...join the International Society of Cryptozoology, a scientific organization that critically looks at issues involving unknown creatures of unexpected form and size, and subjects them to technical review.

Keep on looking! Of course, this is the same Smithsonian which, in the January 1996 issue of its monthly magazine, ran a highly uncritical article on dowsing. We have come to expect the disingenuous defense of open-mindedness from the tabloids as they exploit our love of mystery and wonder; but we thought the Smithsonian would take a higher road and present empirical studies instead of uncritical wishful thinking. It may be the case that the Smithsonian has found that in order to compete and survive it must cater to the tabloid mentality of the general public and elected officials. What's next? Bigfoot T-shirts as part of their annual membership drive?

#### Sightings and Testimonials

In addition to the photographs of Nessie, there have been numerous sightings reported in the testimonials of unquestionably reliable witnesses. How could anyone look at all this "evidence" and dismiss Nessie as a figment of people's imagination, as just another case of pareidolia (another Virgin Mary in the tortilla)? Easy. Let's start with the photographs.



In a story not nearly as fascinating or obscure as the Piltdown man episode, but at least on par with the faked fairy photos that gulled Arthur Conan Doyle, the most famous photo of Nessie as a relative of the long-extinct plesiosaurs was reported to have been faked. David Martin, a zoologist, and Alastair Boyd, were members of a scientific project to find Nessie. They are credited by the London Sunday Telegraph [March, 12, 1994] as having dug up the story of the faked photo, which was staged using a toy submarine. Christian Spurling, who died in the fall of 1993, was said to have made a deathbed confession of his role in the prank. The fake photo was not taken by Wilson--his name was used to give the photo stature and integrity--but by Spurling's stepbrother, Ian Wetherell. Ian's father, Marmaduke ("Duke") Wetherell, had been hired by the London Daily Mail to find the monster. Wetherell was a filmmaker who described himself as a "big game hunter." What bigger game could there be than Nessie? Except that the big game was actually a small model of a sea serpent made of plastic wood attached to a 14-inch toy submarine! Actually, the game did get big as the little prank created such a huge fuss that the pranksters decided that the best thing for them to do would be to keep quiet.

Alastair Boyd, mentioned above as one of the researchers who uncovered the photo hoax, claims he made a genuine sighting of Nessie in 1979. His Nessie didn't look like a dinosaur, though. More like a whale, he said. It was at least 20 feet long and he says he saw it roll around in the water. Now, it's not likely that there are any 20-foot otters, but there are 20-foot logs. There are also errors in guessing at the size of things seen in the distance for a few seconds under less than ideal conditions. No matter, Boyd is convinced there are creatures in the loch. But this much we already know. Of course there are creatures in the loch. But are they 20-foot long monsters the size of a whale which no one has yet been able to find and clearly see?

Is it a fish, a wake, a wave?

Since the Loch Ness monster story has been around for more than 1500 years, if there is a monster it is not likely that it is the same monster seen by St. Columba. Or, are we to believe that not only is Nessie very big, she is very old as well, a veritable Methusala among beasts? In short, there must be more than one monster. I'll leave it to the zoologists to calculate how many monsters are necessary to maintain the species over the years. One report I read claimed that a minimum population of ten creatures would be needed to sustain the population. The same report claims that Loch Ness is incapable of sustaining a predator weighing more than about 300 kg (about 660 pounds) [The Naturalist, winter 1993/94, reported in The Daily Telegraph]. Adrian Shine, head of the Loch Ness Project, once said the monster could be a Baltic sturgeon, a primitive fish with a snout and spines which can grow up to nine feet long and weigh in at around 450 pounds. This may sound like just another fish story to some, but there is scientific evidence that Nessie is, at best, a big fish in a big lake, or a big wake in a big lake. Shine, who has been studying the Loch Ness story for some twenty-five years, now thinks that what people see when they think they see the "monster" is actually an underwater wave.

#### Some Bare Bone Facts

The Naturalist reported on extensive studies of the lake's ecology that indicate that the lake is capable of supporting no more than 30 metric tons of fish. (The food chain of the lake is driven by bacteria which break down vegetation, rather than algae like most lakes.) Estimating that a group of predators would weigh no more than 10 percent of the total weight of the fish available for them to consume, researchers arrived at the 300-kg (660-lb.) statistic. It strikes me as extremely odd that with all the sophisticated technology, the submarines, and the thousands of voyeurs that after all these years we still don't have a single specimen. We don't have a carcass; we don't even have a bone to examine. With at least ten of these huge monsters swimming around in the lake at any given time, you'd think that there would be at least one unambiguous sighting by now. You would think so, that is, unless you want to keep the hoax/myth/legend alive. I can't deny that there are good economic reasons for keeping the Loch Ness monster myth alive. It's good for tourism. And there are all those "scientific" investigations to be paid for with government funds and private donations: full employment for cryptozoologists. Then, of course, there is all that film sold to photographers in search of The Big One. But tourism grew out of the myth, not the other way around. This story would be told with or without multi-media centers and gift shops full of Nessie mementos.

Besides the photo which Mr. Boyd and others have exposed as a fake, there are many other photos of Nessie to consider. Not all photos of Nessie are fakes. Some are genuine photos of the lake. These photos are always very gray and grainy, taken of murky waters with lots of shadows and outlines. There is no question that in some of these there does appear to be a form which could be taken for a sea serpent. The form could also be taken for a log, a shadow on a wave, a wave itself, driftwood or flotsam. Anyone who has traveled around Loch Ness will not be disappointed in the variety of forms which one will see when looking out upon the waters. The lake is very long, and on the day I was there it was very turbulent, even though the day was a rather pleasant one as far as Scottish summer days go. Obviously, since I was there for only one day, I had not come to Loch Ness to do any serious research into the monster. I'll confess that

I didn't even bother to stop in Drumnadrochit to take in the Loch Ness Monster Exhibit, which, according to Fodor's guide book to Scotland, "presents the facts and the fakes."

I was on vacation, traveling with my wife, daughter, future son-in-law, and a dear friend. We headed down the B862, which affords intermittent views of the lake from the east side. It was a pleasant drive among moors and conifer spikes, but nothing spectacular in a land of glorious spectacles. The drive northward on the west bank along the A82 takes you right along the lake in many places and past the famous Urquhart castle, a "favorite monster-watching spot" (Fodor's).

Urquhart is on the tourist bus trail and gets more than its share of visitors. I had wanted to stop there and take advantage of its excellent location for monster watching but I couldn't get into the parking lot. I drove north past the castle, looking for a place to turn around, and after many miles finally found one. I drove south, past the castle again, as the parking lot guard waved me on by the castle: the lot was still full. I drove for miles looking for a place to turn around again, finally found one, and made a third pass with the same result. Was it a sign from Nessie? We had to do most of our viewing of Loch Ness from the road. While we didn't see any monsters that day, I still have a vivid memory of one of Scotland's longest (24 miles) and certainly its deepest lake (750, 800, or 900 ft. in places, depending on which source you pick). I have no doubt that anyone who stared across those murky, wavy, shadowy waters would see many things that could be Nessie. I don't doubt that many, if not most, of the thousands of witnesses who testify to having seen Nessie are honest, decent folk who have interpreted their perceptions according to their wishes. They have come to the lakeside and they have been blessed with a visitation! They are truly special and their lives are now marked forever as unique. Best of all: they have a story to tell for the rest of their lives. In many ways they are like the young lady who declared that the highlight of her life was when she saw music icon Michael Jackson being whisked through a department store: "it was like seeing a UFO," she declared! I'll bet she'll be telling the story of her Michael Jackson sighting for years to come. Who knows to what epic proportions the young lady's tale might grow? Perhaps it will grow as big as Loch Ness itself, like the legend of Nessie.

#### Lucid Dreaming

...in order to dream, You gotta still be asleep.  
--Bob Dylan, "When You Gonna Wake Up?" (1979) [hope he doesn't mind the irony]

The seventh type of dreams, which I call lucid dreams, seems to me the most interesting and worthy of the most careful observation and study. Of this type I experienced and wrote down 352 cases in the period between January 20, 1898, and December 26, 1912.

In these lucid dreams the reintegration of the psychic functions is so complete that the sleeper remembers day-life and his own condition, reaches a state of perfect awareness, and is able to direct his attention, and to attempt different acts of free volition. Yet the sleep, as I am able confidently to state, is undisturbed, deep and refreshing. I obtained my first glimpse of this lucidity during sleep in June, 1897, in the following way. I dreamt that I was floating through a landscape with bare trees, knowing that it was April, and I remarked that the perspective of the branches and twigs changed quite naturally. Then I made the reflection, during sleep, that my fancy would never be able to invent or to make an image as intricate as the perspective movement of little twigs seen in floating by. ---Frederik van Eeden, *A Study of Dreams* (1913)

Lucid dreaming is dreaming while being aware that you are dreaming. Lucid dreaming advocates strive to control and guide their dreams. Why would you want to guide your dreams? Some desire to avoid recurring nightmares. Others desire fun. Some New Age lucid dreamers, however, believe that lucid dreaming is essential for self-improvement and personal growth.

Stephen LaBerge, Ph.D., creator of the New Age lucid dream movement for the spiritually challenged, claims that lucid dreaming is

a priceless treasure that belongs to each of us. This treasure, the ability to dream lucidly, gives us the opportunity to experience anything imaginable -- to overcome limitations, fears, and nightmares, to explore our minds, to enjoy incredible adventure, and to discover transcendent consciousness.

Ordinary dreams give a hint of these possibilities, through their regular violation of the rules of waking life, and their occasional offering of insights into our lives. The art of dreaming is a learnable skill, and I believe the highest level of that skill is found in lucid dreaming. Lucid dreams are dreams in which you know that you are dreaming, and are aware that the dream is your own creation.

With lucidity comes an astonishing, exhilarating feeling of freedom -- the knowledge that you can do anything, unbound by any laws of physics or society. One of the first joys of many lucid dreamers is flying:

soaring like a bird, freed from the restraints of gravity. From there, people can go on to discover the vast power of lucid dreaming for transforming their lives.

If you need help with your lucid dreaming, you can purchase books, tapes, scientific publications and induction devices, such as the DreamLight (\$1,200), the DreamSpeaker (\$150) or the NovaDreamer (\$275), from LaBerge's Lucidity Institute. If that's not enough, for \$1,000 you can attend a seminar at a prestigious university such as Stanford where you can learn all the latest techniques to help you tap into your "unconscious mind," an absolute necessity for living the good life. For an additional \$35 you can even get 2.0 units of nursing continuing education credit through the Institute of Transpersonal Psychology.

Why Dr. LaBerge doesn't just advocate daydreaming to do all this wonderful transcendent stuff is explained by Frederick van Eeden. When we're awake, we are logical and feel restricted by conventional social rules and those oppressive laws of nature. Our imaginations would be too repressed by our waking consciousness to allow us to let go and fly with spirits or view intricate twigs. So, we must sleep to free the imagination. At least this is less dangerous than taking hallucinogenic drugs to liberate one's soul.

At first, it might appear that the Lucidites want to teach us to control the content of our dreams. LaBerge sure makes it sound like the point is to control your dreams so you experience things like flying. Yet, he claims that is not the case.

Lucidity and control in dreams are not the same thing. It is possible to be lucid and have little control over dream content, and conversely, to have a great deal of control without being explicitly aware that you are dreaming. Nonetheless, becoming lucid in a dream is likely to increase your deliberate influence over the course of events. Once you know you are dreaming, you are likely to choose some activity that is only possible in dreams. You always have the choice of how much control you want to exert, and what kind. For example, you could continue with whatever you were doing when you became lucid, with the added knowledge that you are dreaming. Or you could try to change everything--the dream scene, yourself, other dream characters, etc. It is not always possible to perform "magic" in dreams, like changing one object into another or transforming scenes. A dreamer's ability to succeed at this seems to depend a lot on the dreamer's confidence. If you believe that you cannot do something in a dream, you will probably not be able to. [FAQ]

Should our goal be to sleep forever and live in a dreamworld? Where is the evidence that the more lucid dreams a person has the better off he or she is? How will having more flying or surfing dreams transform one's life? Such dreams may be fun but could they be had without spending thousands of dollars on Dr. LaBerge's dream aids?

For some lucid dreamers the main goal of lucid dreaming is to have lucid dreams that are indistinguishable from OBEs. Flying free from the restraints of gravity in one's dreams takes some people out of their bodies to hover and watch themselves dreaming lucidly.

Some skeptics do not believe that there is such a state as lucid dreaming [e.g., Malcolm, *Dreaming* (London: Routledge, 1959)]. Skeptics don't deny that sometimes in our dreams we dream that we are aware that we are dreaming. What they deny is that there is special dream state called the 'lucid state.' The lucid dream is therefore not a gateway to "transcendent consciousness" any more than nightmares are. But LaBerge claims that he has proved the skeptics wrong:

We provided the necessary verification by instructing subjects to signal the onset of lucid dreams with specific dream actions that would be observable on a polygraph (i.e., eye movements and fist clenches). Using this approach, LaBerge, Nagel, Dement & Zarcone (1981)[*Psychophysiological correlates of the initiation of lucid dreaming*, *Sleep Research*, 10, 149.] reported that the occurrence of lucid dreaming during unequivocal REM sleep had been demonstrated for five subjects.

That should be proof enough to awaken any narcoleptic skeptic. If not, one should consider that self-awareness resides in the prefrontal cortex, which shows reduced activity during sleep for most people most of the time. This reduced activity may well be why we can dream of the most bizarre things without being aware of how bizarre they are until we wake up and remember them. Perhaps lucid dreaming is possible for some people because their frontal lobes don't rest during sleep.

## Lunar Effects

### Full Moon and Lunar Effects

The full moon has been linked to crime, suicide, mental illness, disasters, accidents, birthrates, fertility, and werewolves, among other things. Some people even buy and sell stocks according to phases of the moon, a method probably as successful as many others. Numerous studies have tried to find lunar effects. So far, the studies have failed to establish anything of interest, except that the idea of the full moon

definitely sends some lunatics (after luna, the Latin word for moon) over the edge. (Lunar effects that have been found have little or nothing to do with human behavior, e.g., the discovery of a slight effect of the moon on global temperature,\* which in turn might have an effect on the growth of plants.\*)

Ivan Kelly, James Rotton and Roger Culver examined over 100 studies on lunar effects and concluded that the studies have failed to show a reliable and significant correlation (i.e., one not likely due to chance) between the full moon, or any other phase of the moon, and each of the following:

- the homicide rate
- traffic accidents
- crisis calls to police or fire stations
- domestic violence
- births of babies
- suicide
- major disasters
- casino payout rates
- assassinations
- kidnappings
- aggression by professional hockey players
- violence in prisons
- psychiatric admissions
- agitated behavior by nursing home residents
- assaults
- gunshot wounds
- stabblings
- emergency room admissions
- behavioral outbursts of psychologically challenged rural adults
- lycanthropy
- vampirism
- alcoholism
- sleep walking
- epilepsy

If so many studies have failed to prove a significant correlation between the full moon and anything, why do so many people believe in these lunar myths? Kelly, Rotton, and Culver suspect four factors: media effects, folklore and tradition, misconceptions, and cognitive biases. I would add a fifth factor: communal reinforcement.

#### The Media Perpetuates Lunar Myths

Kelly, et al., note that lunar myths are frequently presented in films and works of fiction. "With the constant media repetition of an association between the full moon and human behavior it is not surprising that such beliefs are widespread in the general public," they say. Reporters also "favor those who claim that the full moon influences behavior." It wouldn't be much of a story if the moon was full and nothing happened, they note. Anecdotal evidence for lunar effects is not hard to find and reporters lap it up, even though such evidence is unreliable for establishing significant correlations. Relying on personal experience ignores the possibility of self-deception and confirmation bias. Such evidence may be unreliable, but it is nonetheless persuasive to the uncritical mind.

#### Folklore and Tradition

Many lunar myths are rooted in folklore. For example, an ancient Assyrian/Babylonian fragment stated that "A woman is fertile according to the moon." Such notions have been turned into widespread misconceptions about fertility and birthrates. For example, Eugen Jonas, a Slovakian psychiatrist, was inspired by this bit of folklore to create a method of birth control and fertility largely rooted in astrological superstitions. The belief that there are more births during a full moon persists today among many educated people. Scientific studies, however, have failed to find any significant correlation between the full moon and number of births (See "Lunar phase and birth rate: A fifty-year critical review," by R. Martens, I. Kelly, and D. H. Saklofske, *Psychological Reports*, 63, 923-934, "Lunar phase and birthrate: An update," by I. Kelly and R. Martens, *Psychological Reports*, 75, 507-511). In 1991, Benski and Gerin reported that they had analyzed birthdays of 4,256 babies born in a clinic in France and "found them equally distributed throughout the synodic (phase) lunar cycle" (Kelly, et al. 1996, 19). In 1994, Italian researchers Periti and Biagiotti reported on their study of 7,842 spontaneous deliveries over a 5-year period at a clinic in Florence. They found "no relationship between moon phase and number of spontaneous deliveries" (Kelly, et al. 1996, 19).

Despite the fact that there is no evidence of a significant correlation between phases of the moon and fertility, some people not only maintain that there is, they have a "scientific" explanation for the non-existent correlation. According to "Angela" of AstraConceptions at fertilityrhythms.com,

...photic (light) signals sent by the lens and retina of the eyes are converted into hormone signals by the pineal gland. It is the pineal gland which signals the onset of puberty in humans and plays a part in the fertility rhythms of all species.

In animals which reproduce seasonally, it is the changing light patterns which trigger the fertility cycle. The gradual change in both the length of day and the changing angle of the sun in the sky (caused by earth's motion) is interpreted by the pineal gland as a signal to commence the fertility season.

Of course, humans do not reproduce seasonally. Our fertility cycles exhibit an obvious monthly rhythm. The light source which has a monthly periodicity is, of course, the Moon.

It is interesting to note that menstruation is actually a shedding process. Just as the average menstrual cycle is 28 days in length, the human body sheds a layer of skin approximately every 28 days.

Yes, that is very interesting to note...if you are interested in sympathetic magic. (The author also finds it noteworthy that animals which reproduce seasonally also shed their coats seasonally.) The author continues

...it is not only the changing day length but also the changing angular position of the sun which triggers this process; the pineal gland receives photic (light) impressions and converts these into hormonal messages which signal the onset of these cycles.

With humans the cycles of fertility (and shedding) are triggered by photic impressions as well. Yet our cycles have a monthly periodicity which is obviously synchronized with fluctuations of the lunar light.

Obviously. However, the light of the moon is a very minor source of light in most women's lives, and is no more likely than the moon's gravitational force to have a significant effect upon a woman's ovulation. Furthermore, the average menstrual cycle is 28 days but varies from woman to woman and month to month, while the length of the lunar month is a consistent 29.53 days.\* Some of us have noticed that these cycles are not identical. Furthermore, it would seem odd that natural selection would favor a method of reproduction for a species like ours that depended on the weather. Clouds are bound to be irregularly and frequently blocking moonlight, which would seem to hinder rather than enhance our species' chance for survival.

Some mythmakers believe that long ago women all bled in sync with the moon, but civilization and indoor electric lighting (or even the discovery of fire by primitive humans) has messed up their rhythmic cycle. This theory may seem plausible until one remembers that there are quite a few other mammals on the planet who have not been affected by firelight or civilization's indoor lighting and, with the exception of the opossum, their cycles aren't in harmony with the moon. In the lemur, on the other hand, "estrus and sex tend to occur around the time of the full moon."\* In short, given the large number of types of mammals on our planet, one would expect that by chance some species' estrus and menstrual cycles would harmonize with lunar cycles. It is doubtful that there is anything of metaphysical significance in this.

What we do know is that there has been very little research on hormonal or neurochemical changes during lunar phases. James Rotton's search of the literature "failed to uncover any studies linking lunar cycles to substances that have been implicated as possible correlates of stress and aggression (e.g., serotonin, melatonin, epinephrine, norepinephrine, testosterone, cortisol, vasopressin [directly relevant to fluid content], growth hormone, pH, 17-OHCS, adrenocortical hormone)."\* One would think that this area would be well-studied, since hormones and neurochemicals are known to affect menstruation and behavior.

#### Misconceptions

Kelly et al. note that misconceptions about such things as the moon's effect on tides have contributed to lunar mythology. Many people seem to think that since the moon affects the ocean's tides, it must be so powerful that it affects the human body as well. It is actually a very weak tidal force. A mother holding her child "will exert 12 million times as much tidal force on her child as the moon" (Kelly et al., 1996, 25). Astronomer George O. Abell claims that the moon's gravitational pull is less than that of a mosquito (Abell 1979). Despite these physical facts, there is still widespread belief that the moon can cause earthquakes. It doesn't; nor does the sun, which exerts much less tidal force on the earth than the moon.\*

The fact that the human body is mostly water largely contributes to the notion that the moon should have a powerful effect upon the human body and therefore an effect upon behavior. It is claimed by many that the earth and the human body both are 80% water. This is false. Eighty percent of the surface of the earth

is water. Furthermore, the moon only affects unbounded bodies of water, while the water in the human body is bounded.

Also, the tidal force of the moon on the earth depends on its distance from earth, not its phase. Whereas the synodic period is 29.53 days, it takes 27.5 days for the moon to move in its elliptical orbit from perigee to perigee (or apogee to apogee). Perigee (when the moon is closest to earth) "can occur at any phase of the synodic cycle" (Kelly et al. 1990, 989). Higher tides do occur at new and full moons, but not because the moon's gravitational pull is stronger at those times. Rather, the tides are higher then because "the sun, earth, and moon are in a line and the tidal force of the sun joins that of the moon at those times to produce higher tides" (Kelly et al. 1990, 989).

Many of the misconceptions about the moon's gravitational effect on the tides, as well as several other lunar misconceptions, seem to have been generated by Arnold Lieber in *The Lunar Effect* (1978), republished in 1996 as *How the Moon Affects You*. Lieber incorrectly predicted a catastrophic earthquake would hit California in 1982 due to the coincidental alignment of the moon and planets.

cognitive biases and communal reinforcement

Finally, many believe in lunar myths because they have heard them repeated many times by members of the mass media, by police officers, nurses, doctors, social workers, and other people with influence. Once many people believe something and enjoy a significant amount of communal reinforcement, they get very selective about the type of data they pay attention to in the future. If one believes that during a full moon there is an increase in accidents, one will notice when accidents occur during a full moon, but be inattentive to the moon when accidents occur at other times. If something strange happens and there is a full moon at the time, a causal connection will be assumed. If something strange happens and there is no full moon, no connection is made, but the event is not seen as counterevidence to the belief in full moon causality. Memories get selective, and perhaps even distorted, to favor a full moon hypothesis. A tendency to do this over time strengthens one's belief in the relationship between the full moon and a host of unrelated effects.

The Moon, Madness and Suicide

Probably the most widely believed myth about the full moon is that it is associated with madness. However, in examining over 100 studies, Kelly, Rotton and Culver found that "phases of the moon accounted for no more than 3/100 of 1 percent of the variability in activities usually termed lunacy" (1996, 18). According to James Rotton, "such a small percentage is too close to zero to be of any theoretical, practical, or statistical interest or significance."\*

Finally, the notion that there is a lunar influence on suicide is also unsubstantiated. Martin, Kelly and Saklofske reviewed numerous studies done over nearly three decades and found no significant association between phases of the moon and suicide deaths, attempted suicides, or suicide threats. In 1997, Gutiérrez-García and Tusell studied 897 suicide deaths in Madrid and found "no significant relationship between the synodic cycle and the suicide rate" (1997, 248). These studies, like others which have failed to find anything interesting happening during the full moon, have gone largely, but not completely\*, unreported in the press.

Update: According to Allan Hall of the *Sunday-Times*, German researchers Hans-Joachim Mittmeyer of the University of Tübingen and Norbert Filipp from the Health Institute of Reutlingen claim that "a study of police reports for 50 new and full Moon cycles" shows that the moon is "responsible for binge drinking."

According to Hall, Mittmeyer and Filipp claim in their paper "Alcohol Consumption and the Moon's Influence" to have studied police arrest reports and blood-alcohol tests of 16,495 people and Mittmeyer said "The results show there is a definite correlation between new and full Moons and the amount of alcohol consumed."

Hall writes:

More of those with an excess of 2ml of alcohol per 100ml of blood inside them - drunk, according to German law - were caught by police during the five-day full Moon cycle.

On average 175 drink[sic]-drivers per day were caught in two German states two days before a full Moon, 161 were caught during the full Moon cycle and the figure dropped to about 120 per day at other times.

This very unclear statement has to be interpreted. I took it to mean that an average of 175 drunk drivers were caught each day on days one and two of the five-day cycle. Thus, if the average for the whole five-day cycle was only 161, there were substantially fewer drunk drivers caught on the night of the full moon. Thus, it appeared to me that the researchers were not able to correlate the full moon with an increase in

arrests, so they created 'the full moon cycle', a five day period, which gave them the statistical correlations they were looking for.

Apparently, however, I was wrong in my interpretation of Hall's meaning and Hall erred in his reading of a report from the German Press Agency DPA which erred in its reading of the original paper which erred in its interpretation of the data.

Jan Willem Nienhuys, a mathematician in the Eindhoven (Netherlands) University of Technology, claims that "Hall's story is a garbled version of a story by the German Press Agency DPA." According to Nienhuys, Hall invented the notion of a five-day full Moon cycle; the expression is not used by Mittmeyer and Filipp in their paper. Furthermore, 668 of the 16,495 arrested and tested were found to be sober, leaving 15,827 with alcohol in their blood, but only 4,512 with more than 0.2 percent blood alcohol (i.e., drunk).

According to Nienhuys, the 161 figure refers to the average number of drunk drivers arrested on any given date in the lunar month; he believes this number was arrived at by dividing 4,512 by 28 (rather than 29.53, the length of a lunar month) and hence should be 153, not 161. About the only thing Hall got right, says Nienhuys, is that Mittmeyer and Filipp do claim to have found a significant correlation between the moon and excessive drinking. He notes that the pair provide graphs but no statistical analysis of their data. When such an analysis is done, says Nienhuys, one discovers that the study is "pompous pseudoscience." According to Nienhuys, a standard statistical test yields p-values which show that there is nothing to investigate.

Here is the data, according to Nienhuys. Day 0 is the day of the new moon and day 14 is the full moon.

day drunks drinkers, including drunks

0 145 551  
1 160 528  
2 162 552  
3 122 527  
4 162 538  
5 157 531  
6 156 504  
7 158 560  
8 140 523  
9 152 540  
10 150 552  
11 146 477  
12 173 563  
13 150 545  
14 150 523  
15 149 498  
16 145 543  
17 142 539  
18 143 507  
19 119 508  
20 157 532  
21 163 552  
22 156 513  
23 148 530  
24 154 528  
25 158 536  
26 175 582  
27 176 581  
28 169 590

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4437 15553  
missing 75 274

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4512 15827  
The three big days were the 12th, 26th and 27th. You figure it out!

(Nienhuys article, entitled "Triply garbled tripe" is being prepared for publication. He was kind enough to send me a pre-publication copy of the paper.)

Lycanthropy

The delusional belief that one has turned into an animal, especially a werewolf. In Europe during the Middle Ages, lycanthropy was commonly believed to occur due to witchcraft or magic. One modern theory is that the rye bread of the poor was often contaminated with the fungus ergot, which caused hallucinations and delusions about werewolves.

## Lysenkoism

Lysenkoism refers to an episode in Russian science featuring a non-scientific peasant plant-breeder named Trofim Denisovich Lysenko [1898-1976]. Lysenko was the leading proponent of Michurianism during the Lenin/Stalin years. I. V. Michurin, in turn, was a proponent of Lamarckism. Lamarck was an 18th century French scientist who argued for a theory of evolution long before Darwin. Lamarck's theory, however, has been rejected by evolutionary scientists because it is not nearly as powerful an explanation of evolution as natural selection.

According to Lamarck, evolution occurs because organisms can inherit traits which have been acquired by their ancestors. For example, giraffes find themselves in a changing environment in which they can only survive by eating leaves high up on trees. So, they stretch their necks to reach the leaves and this stretching and the desire to stretch gets passed on (somehow) to later generations. As a result, a species of animal which originally had short necks evolved into a species with long necks.

Natural selection explains the long necks of the giraffes as a result of the workings of nature which allowed the species to feed off of the leaves which grow high on trees rather than graze as short-legged, short necked animals are prone to do. There was no purposive behavior which was a response to the environment which was then passed on to later generations. There was simply an environment which included trees with leaves up high and that was a favorable food source to long-legged, long-necked animals such as the giraffe. In fact, according to natural selection, if that were the only food source available, only animals with long- necks, or animals which can climb or fly, would survive. All others would become extinct. There is no plan here, divine or otherwise, according to natural selection. Furthermore, there is nothing special signified by the fact that a species has survived. Survival of the fittest means only that those who have survived were fit to survive. It doesn't mean that those who survive are superior to those species which don't. They've survived because they were fit to adapt to their environment, e.g., they had long necks when there was a good supply of food readily available high up in the trees and there were no other catastrophic disadvantages to their height. For example, if a species got so tall that it became impossible to mate, it would become extinct. Or, if the only food source on high happened to have a substance in it which rendered giraffes sterile, there would be no more giraffes, no matter how hard they tried to will themselves potent.

Lamarckism is favored by those who see will as the primary driving force of life, e.g., the 20th century French philosopher Henri Bergson. Darwinism, or natural selection, is hated by many of those who believe God created everything and everything has a purpose: the fundamentalist teleologists of the world. One might think that Marxists would prefer Darwinism with its mechanical, materialistic, deterministic, non-purposive concept of natural selection. Lamarckism looks like it might be preferred by free market advocates with their emphasis on will, effort, hard work and choice. But then Russia and the Soviet Union weren't really Marxists. They turned the dictatorship of the proletariat into the dictatorship of the professional dictator (Lenin, then Stalin). And even with the death of Stalin, the dictatorship of the communist party leaders who controlled everything, including the economy, took over.

In any case, Michurin's views on evolution found favor with the party leadership in the Soviet Union. When the rest of the scientific world were pursuing the ideas of Mendel and developing the new science of genetics, Russia led the way in the effort to prevent the new science from being developed in the Soviet Union. Thus, while the rest of the scientific world could not conceive of understanding evolution without genetics, the Soviet Union used its political power to make sure that none of their scientists would advocate a genetic role in evolution.

It was due to Lysenko's efforts that many real scientists, those who were geneticists or who rejected Lamarckism in favor of natural selection, were sent to the gulags or simply disappeared from the USSR. Lysenko rose to dominance at a 1948 conference in Russia where he delivered a passionate address denouncing Mendelian thought as "reactionary and decadent" and declared such thinkers to be "enemies of the Soviet people." [Gardner] He also announced that his speech had been approved by the Central Committee of the Communist Party. Scientists either groveled, writing public letters confessing the errors of their way and the righteousness of the wisdom of the Party, or they were dismissed. Some were sent to labor camps. Some were never heard of again.

Under Lysenko's guidance, science was guided not by the most likely theories, backed by appropriately controlled experiments, but by the desired ideology. Science was practiced in the service of the State, or more precisely, in the service of ideology. The results were predictable: the steady deterioration of Soviet biology.



Could something similar happen in the U.S.? Well, some might argue that it already has. First, there is the creationist movement which has tried, and at times been successful, in banning the teaching of evolution in public schools. With Duane Gish leading the way, who knows what would happen if Pat Robertson became President of the United States and Jerry Falwell his secretary of education. Then, of course, there are several well-known and well-financed scientists in America who also seem to be doing science in the name of ideology: not the ideology of fundamentalist Christianity but the ideology of racial superiority. Lysenko was opposed to the use of statistics, but had he been clever enough to see how useful statistics can be in the service of ideology, he might have changed his mind. Had he seen what J. Philippe Rushton, Arthur Jensen, Richard Lynn, Richard Herrnstein or Charles Murray have done with statistical data to support their ideology of racial superiority, Lysenko might have created a department of Supreme Soviet Statistics and proven with the magic of numbers the superiority of Lamarkism to natural selection and genetics. For these social pseudoscientists have never seen a statistical correlation they couldn't turn into a causal claim fitting their racist ideology. Lysenko might have done the same for his Michurian/Lamarkian ideology.

### Macrobiotics

Macrobiotics is a way of life characterized by a special diet said to optimize the balance of yin and yang. George Ohsawa (1893-1966) started the macrobiotics movement with the publication of his *Zen Macrobiotics* in 1965. Michio Kushi popularized the movement in the United States.

Ohsawa claims that foods have yinness and yangness, and that a proper diet balances yin and yang. He makes such claims as that schizophrenia is a yin disease and one who is so afflicted should drink yang fluids. Kushi makes such claims as that cancer "is the body's own defense mechanism to protect itself against long-term dietary and environmental abuse." How he knows this is not mentioned.

If a macrobiotic diet is healthy it is by accident, since foods are selected not for their physical or nutritional qualities, but for their metaphysical properties.

The macrobiotic diet consists mainly of whole grains, vegetables, and beans.

### Magick

Magick is the alleged art and science of causing change in accordance with the will by non-physical means.

Magick is associated with all kinds of paranormal and occult phenomena, including but not limited to: ESP, astral projection, psychic healing, the cabala, chakras. Magick uses various symbols, such as the pentagram, as well as a variety of symbolic ritual behaviors aimed at achieving powers which allow one to contravene the laws of physics, chemistry, etc. Magick should be confused with magic, which is the art of conjuring and legerdemain.

The religions based on the Old and New Testaments have long associated magick with false prophets, based upon the belief that Satan regularly exhibits his powers to and shares them with humans. Using powers which contravene natural forces is good if done by or through God (white magick), according to this view. Such exhibitions of divine power are called miracles. If done by diabolical forces, it is evil (black magick).

The idea of being able to control such things as the weather or one's health by an act of will is very appealing. So is the idea of being able to wreak havoc on one's enemies without having to lift a finger: just think it and thy will will be done. Stories of people with special powers are appealing, but for those contemplating becoming a magus consider this warning from an authority on the subject:

...magick ritual (or any magick or occultism) is very dangerous for the mentally unstable. If you should somehow 'get out too far', eat 'heavy foods' . . . and use your religious background or old belief system for support. But remember too, that weird experiences are not necessarily bad experiences. [Phil Hansford, *Ceremonial Magick*]

Those are words of wisdom to live by: the weird is not necessarily bad. On the other hand, the weird is not necessarily good, either.

The magic of performing magicians is related to magick in that performers use tricks and deception to make audiences think they have done things which, if real, would require supernatural or paranormal powers, e.g., materializing objects such as rings or ashes, doves or rabbits. Some magicians have attributed their feats not to magic but to supernatural or paranormal powers, e.g., Sai Baba and Uri Geller.

Of course, the beauty and magic of nature has nothing to do with magick. There is the magic of the birth of a healthy child; the magic of true love. There is the magic of getting out of bed in the morning through an act of will. Unfortunately, this only seems to be magic to those who do not have this power. Those of us who can direct our bodies through acts of will too often take this power for granted. We fail to see the wondrousness of simple things, like wiping the sweat from one's brow. We take for granted the act of opening our eyes to feast on the sublimity of glaciers and oceans or the beauty of sunsets or meadows of wild flowers. These are truly magical deeds and, when contemplated, hold enough wonder to fill universes. But for many, it seems, such real magic will never be enough.

### Magnet Therapy

"I know of no scientist who takes this claim seriously...It's another fad. They come and go like copper bracelets and crystals and all of these things, and this one will pass too." --Robert Park of the American Physical Society.

Magnet therapy is a type of "alternative" medicine which claims that magnetic fields have healing powers. Some claim that magnets can help broken bones heal faster, but most of the advocacy comes from those who claim that magnets relieve pain. Most of the support for these notions is in the form of testimonials and anecdotes, and can be attributed to "placebo effects and other effects accompanying their use" (Livingston, 1998). There is almost no scientific evidence supporting magnetic therapy. One highly publicized exception is a double-blind study done at Baylor College of Medicine which compared the effects of magnets and sham magnets on the knee pain of 50 post-polio patients. The experimental group reported a significantly greater reduction in pain than the control group.

A less publicized study at the New York College of Podiatric Medicine found that magnets did not have any effect on healing heel pain. Over a 4-week period, 19 patients wore a molded insole containing a magnetic foil, while 15 patients wore the same type of insole with no magnetic foil. In both groups, 60% reported improvement.

Despite the fact that there has been virtually no scientific testing of magnetic therapy, a growing industry is producing magnetic bracelets, bands, insoles, back braces, mattresses, etc., and claiming miraculous powers for their products. The magnet market may be approaching \$150 million annually (Collie). (Lerner claims that U.S. sales are near the half billion mark and that world-wide magnetic therapy is bringing in nearly twice as much.) Magnets are becoming the gimmick of choice of chiropractors and other "pain specialists." Former potter, Marlynn Chetkof sells Russell Biomagnetic products, and advises that magnets are better than painkillers or living with pain (Collie). Even a bankrupt building contractor, Rick Jones, is trying to cash in on the current magnet craze. He has formed a company called Optimum Health Technologies, Inc. to market his "Magnassager," a hand-held vibrator with magnets retailing for \$489. Jones claims his invention "isn't just another massage device." He says it uses an electromagnetic field to help circulate blood while it's massaging the muscles. Jones raised \$300,000 from investors and spent it all on "product development and marketing." Not a cent was spent on scientific testing of the device, though he did give \$20,000 to a physiologist to evaluate his device "to make sure that it was not gimmicky" (Kasler). Also, a massage therapist claims that the Magnassager eases "the pain from carpal tunnel syndrome." How the therapist knows this is not clear.

The claim that magnets help "circulate blood" is a common one among supporters of magnet therapy, but there is no scientific evidence that magnets do anything to the blood. Even though the evidence is lacking that magnets have anything other than a placebo effect, theories abound as to how they work. Some say magnets are like a shiatsu massage; some claim magnets affect the iron in red blood cells; still others claim that magnets create an alkaline reaction in the body (Collie). Bill Roper, head of Magnetherapy claims that "Magnets don't cure or heal anything. All they do is set your body back to normal so the healing process can begin" (Collie). How he knows this is not clear.

Some supporters of magnetic therapy seem to base their belief on a metaphysical assumption that all illness is due to some sort of imbalance or disharmony in energy. The balance or flow of electromagnetic energy must be restored to restore health, and magnets are thought to be able to do this.\*

The most rabid advocates of magnet therapy are athletes such as Jim Colbert and John Huston (golfers), Dan Marino (football) and Lindsay Davenport (tennis). Their beliefs are based on little more than post hoc reasoning. It is possible that the relief a magnetic belt gives to a golfer with a back problem, however, is not simply a function of the placebo effect. It may well be due to the support or added heat the belt provides. The product might work just as well without the magnets. The relief might well be due to regression. However, athletes are not given to scientific testing any more than are the manufacturers of magnetic gimmickry.

Athletes aren't the only ones enamored of the power of magnets to heal. Dr. Richard Rogachefsky, an orthopedic surgeon at the University of Miami, claims to have used magnets on about 600 patients, including people who have been shot. He says that the magnets "accelerate the healing process." His evidence? He can tell by looking at X-rays. Dr. William Jarvis is skeptical. He says that "Any doctor who relies on clinical impressions, on what they think they see, is a fool" (Collie). There is a good reason scientists do controlled double-blind studies to test causal efficacy: to prevent self-deception.

Dr. Mark S. George, an associate professor of psychiatry, neurology and radiology at the Medical University of South Carolina in Charleston, did a controlled experiment on the use of magnets to treat depression. He only studied twelve patients for two weeks, however, so his results are of little significance.

While sales of magnetic products keep rising, there are a few scientific studies going on. The University of Virginia is testing magnets on sufferers of fibromyalgia. The Universities of Miami and Kentucky are testing magnets on people with carpal tunnel syndrome (Collie). At present, however, we have no good reason to believe that magnets have any more healing power than crystals or copper bracelets.

### Mahasamadhi

Mahasamadhi, according to Hinduism, is a God-illuminated master's conscious exit from the body at the time of physical death.

### Malachy, Saint

(Bishop Malachy O'Morgair, 1094-1148)

"In the final persecution of the holy Roman Church there will reign Peter the Roman, who will feed his flock amongst many tribulations; after which the Seven-hilled City (Rome) will be destroyed and the dreadful Judge will judge the people." --so saith Malachy, prophet of doom

Malachy was born in Armagh (in what is now Northern Ireland) and is believed by many to have had the gift of prophecy. He predicted British oppression for the Irish (good call) and conversion of the English back to Catholicism (bad call, but hope springs eternal in the mystic's heart, so, maybe next year...). According to the Abbé Cucherat, Malachy had strange visions of the future, including a list of the popes until the end of time.\*

Some Roman Catholics think Malachy has predicted that Armageddon is just around the corner and that after the current pope there will only be two more popes before the end of the world. Of course Malachy didn't name the popes by name--otherwise we'd all be believers in his prophetic skills. He gave them descriptive names. John Paul II, the current pope, is number 110 and he was christened "De Labore Solis," from the labor of the sun. Those who have the gift of interpretation tell us that this is an accurate prophecy because John Paul II's father was a laborer and he has traveled around the earth (like the sun? well, remember, the prediction was pre-Copernicus). Some think the name refers to the fact that there was a total eclipse of the sun when JP II was born.

It is said that Malachy even predicted the rise of the Beatles and the assassination of John F. Kennedy. Skeptics might beg to differ and argue that sometimes this interpretation frenzy gets out of hand. (Remember when a disc jockey interpreted the Abbey Road album cover to mean Paul McCartney is dead? He's barefoot. Dead people don't wear shoes and apparently being barefoot is a Mafia sign of death. There's a parked car with the plate number 28IF. Paul was 27 when the Album was made and the cover photo taken, but he would have been 28 on his next birthday, if he had lived. Ringo's wearing black. He's an undertaker. John's wearing white. He's a preacher. George is wearing jeans and a jean shirt. He's dressed like a gravedigger. The rest of the car's license plate is LMW. Linda McCartney Weeps, what else? There's a hearse in the background. Or is it a taxi or a limousine? Doesn't matter. A hearse carries the dead, Charon taxis the dead across the Styx, mourners take a limo.)

Malachy's prophecies are said to have been locked away for four hundred years before they were allegedly discovered in 1590 in the Roman Archives.

They were first published by Arnold de Wyon, and ever since there has been much discussion as to whether they are genuine predictions of St. Malachy or forgeries.\*

A wise man once said: For those with the gift of divine and Catholic faith no further explanation of the above is necessary. And for those without the divine and Catholic faith no explanation is possible.\*

Truer words were never spoke. Thus, those with faith may worry, while those of us who think this is just one more dollop of codswallop may continue to make our life insurance payments.

## Manifesting

Manifesting is allegedly a way for the average person, without need of paranormal or divine powers, to do magick and perform miracles. All one needs is the will to exercise one's magic on the universe.

"Manifesting is the art of creating what you want at the time that you want it," says John Payne (aka Omni, a "being of light" channeled by Mr. Payne).

Manifesting is an eclectic hodgepodge of CYOR (create your own reality), visualization techniques, positive thinking, goal-setting, self-analysis, selective thinking, and post hoc reasoning, supported by tons of anecdotes. The purpose of manifesting is to get what you want by actively making your dreams come true, rather than passively waiting for someone to fulfill your dreams. For example Anne Marie Evers recommends "affirmation" as the best way to manifest one's desires. She has written a book titled *Affirmations: Your Passport To Happiness*. Ms. Evers writes:

**What Is An Affirmation:** An Affirmation is a declaration of acceptance used to fill oneself with an abundance of freedom, prosperity and peace. An Affirmation is the vehicle of the manifestation of your desires. Affirmations are powerful, positive statements of belief recited consistently out loud and sent out into the Universe. The spoken word drives thoughts and images deep into both our conscious and subconscious minds. Slowly, firmly, concentrate on each word, phrase and the idea behind it. We know repetition is the Mother of Learning.

According to Ms. Evers, the first step to getting what you want is to "prepare the soil of your subconscious mind by forgiving everyone and everything that has EVER hurt you, then forgive yourself." This may seem to be a bit too dramatic if all one wants to do is, say, fix a broken garage door. Jeannine, for example, didn't seem too concerned about forgiveness when her garage door was broken. She followed the advice of self-proclaimed expert manifesters Fred Fengler and Todd Varnum, authors of *Manifesting Your Heart's Desire*.

I remembered reading your book and decided to manifest a fix. I started talking to the door and asking it to work. I . . . used to talk to plants and they tended to grow better so I talked to the door. After a few minutes of communicating with the door I pushed the button and the door worked perfectly.

Fengler and Varnum give other examples of successful manifesters. For example, an anonymous writer told them how he or she sold a business.

I decided to manifest using my will power. As I went to sleep, I said out loud, "OK universe, this is what I want. I want an offer. I want a good offer. In fact I want TWO offers. In fact I want them TOMORROW!"

The next day was perfectly normal. I "reminded" the universe it was 4 PM and the office would close at 5:30. I felt confident that the universe would take care of me no matter what happened. Within ten minutes, I had a call from one prospect who said he had an offer and would be right over. Ten minutes after he left the offer off, I got a call from my business consultant. He told me that a second offer was being written and it would be on my desk in 24 hours, which it was.

I accepted the first offer, and we flawlessly closed the deal in less than two weeks.

That's all there is to it. You let the universe know what you want and you'll get it! This should be good news to those superstitious folks who try to sell real estate by burying a statue of St. Joseph on the property. There is an easier way: manifesting!

Varnum explains that by asserting yourself to the universe you express extra energy in your emotion. The universe listens to people with extra energy as long as one has no fear and is willing to accept whatever the universe hands out. Varnum's caveat reminds me of the warnings of faith healers who tell those who can't get rid of their cancer by faith that they don't really have faith. If the universe fails to give you what you demand, it is because your desire is not coming from the right place. If you get what you desire, then your desire came from the right place.

## No Coincidences

Manifesting is another New Age technique which denies there is any such thing as coincidence. For example, Fengler and Varnum, in recommending a book on manifesting write:

Some people call it luck or coincidence--or just plain magic. It is the gift of being in the right place at the right time, of having opportunity fall into your lap. But what if you could create your own luck, make "coincidences" happen, even bring a few miracles into your daily life? Drawing on over twenty years of teaching the art of manifestation, David Spangler shows you how to do just that. Called a "strikingly new, spiritually aware approach to personal power and the fulfillment of your dreams," this new book [Everyday Miracles: The Inner Art of Manifestation] is a complete rewriting and updating of David's classic book, Manifestation.

Fengler and Varnum's own book, Manifesting Your Heart's Desire, is hailed by the authors as a three year "study," but it is little more than a collection of stories from a group of people who met regularly to learn a variety of manifesting techniques. One of the more popular techniques is visualization.

One of Fengler and Varnum's anecdotes involves a girl who was having trouble learning to ride a horse. She visualized riding the way her instructor told her to ride and at the next lesson she was riding well. Visualization seems quite different, however, from talking to your garage door or vocalizing your wishes so the whole universe can hear them. Visualization is mental practice. It is a way to boost confidence. It requires clarifying goals. All of these can help a person who is trying to accomplish some physical feat, like riding a horse or hitting a golf ball. But no amount of visualization will create reality. A golfer can visualize hitting a hole-in-one from now until doomsday without it ever happening. There are some people who believe they can fight cancer by visualizing little cellular warriors killing off cancer cells. The likelihood of such visualization creating the reality desired is near zero. You might as well visualize yourself flying or being in six places at once. If anyone could fix a flat tire by visualization they would be collecting a million dollars from James Randi. But, manifesters don't need Randi; they can get a million dollars just by visualizing it or letting the universe know that that's what they want.

Another manifestor is John Payne of Omni World, who channels a being he calls Omni. According to Payne,

manifesting is the art of creating what you want at the time that you want it. Many of you are becoming aware that you create your own reality...Each and every object and event in your life has been created by you, whether or not you are conscious of the fact. Your reality, the Earth plane, is the result of the mass consciousness of all souls that are incarnate within your system of things. Each and every event in your life can be traced back to a belief and emotion that originated the impulse for it to manifest itself into reality as you experience it at present. In our realms, the realms of pure essence and light, we can create what we want at an instant. We the Beings of Light have mastered our emotions and thoughts and can therefore direct our energies with precision and clarity so that we may create what we want. You are also learning this skill in this lifetime and you can choose to change what you experience in your reality at any moment you wish to.

If Payne and the other beings of light can create what they want in an instant, then they must not want very much, except maybe a few followers who might buy their books, tapes, crystals, etc. If these beings are so powerful, why don't they end the ethnic hatred in Bosnia, Northern Ireland, the Middle East, etc? Payne is telling us that he and the other beings of pure essence and light could make this world a better place but for some reason they choose not to. I think we all know the reason.

If Payne restricted himself to gibberish about Omni and the beings of light we might do well to ignore him, but it is because of the sensible advice he sprinkles in amongst the metaphysical gobbledygook, that Payne is worthy of consideration. For example, he offers the quite reasonable advice to write down a list of things that give you joy and things you desire to "create." (Let's give Payne the benefit of loose linguistics and call the desire to quit smoking, for example, the desire to create yourself as a non-smoker.) He also advises that you write up a list of fears you have regarding what you want to create, i.e., consider the obstacles to achieving your goal.

I have to agree with Payne about the value of writing things down as a powerful way of uncovering beliefs. When asked why I am writing the Skeptic's Dictionary I sometimes say that I do it in order to find out what I really think about certain things and what I believe. Writing is a form of "thinking out loud." But the difference between thinking about quitting smoking and writing the words "I am going to quit smoking on November 17th" and saying those words to others is enormous. A silent thought or wish does not pack the wallop of a stated commitment, nor is it as likely to be acted upon.

Of course, Payne can't stand being too down to earth for long. He recommends that you write your goals down

...making use of the non-dominant hand. If you are right handed then the non-dominant hand is the left hand and if you are left handed, the non-dominant hand is the right hand. By using your non-dominant hand to write out the answers when uncovering your hidden beliefs, you can tap into the deep inner wisdom of the inner child and your soul. This system of uncovering your inner self and it's [sic] truths can lead to unprecedented levels of healing and harmony.

Why using your non-dominant hand should be the gateway to deep anything is not mentioned.

Payne also recommends visualizing the achievement of your goals and keeping a diary or journal. This is sound advice for people who have trouble clearly identifying their goals and ways to achieve them, as well as for those who have so many goals that it is difficult to keep track of them all, much less develop plans to fulfill them. He also advises that you set aside some time each day where you will not be disturbed. I would use this time to write in my journal, to think and plan. Payne, on the other hand, advises you to use the time to pray, create sacred ceremonies or write a mantra.

Payne also recommends networking with friends. Create a group where you discuss your goals and plans for achieving them. This is not a bad idea if you have friends with the same goals you have. But it is unlikely to work if you all have different goals, unless the focus of the group is something very general such as "achieving your goals." But then Payne, not one to leave well enough alone, advises that we call out his name three times when we start our group so he can energize our goals.

#### Another Anecdote

I would like to offer up an anecdote which may or may not confirm the manifesting hypothesis. In 1976, three young men kidnapped a bus full of young school children in Chowchilla, California. Two of the young men were Eagle scouts and the other was an heir to a fortune. They had a dream to prove to their parents, themselves and the world that they could be somebody and do something important on their own. So they terrorized 26 kids and their bus driver by kidnapping them at gunpoint, driving them around for eleven hours in darkened vans and then burying them alive. The trio are still in prison some twenty years later. Their plan had been little more than a vague idea for a year before something happened which led to their manifesting their desire. One of the trio was in hock for \$50,000. The need for a vast sum of money is a great spur to visualization. As one of the kidnappers wrote: "We had to try it. Everyone has one goal in life, we had that....It was a good plan. Everything worked good until that night." I presume he means until the night they were caught. That wasn't part of the plan. They hadn't visualized getting caught. Fortunately, however, the children and their driver did not sit around visualizing their rescue or howling at the universe to save them. They did pray, but what got them out was not prayer. They dug their way out and made their own way to safety. They realized their desire the old fashioned way: they set a goal, determined the means to achieve it, considered the obstacles in their way and how to overcome them and then set to work. I wonder where they would be if they had followed the lead of the person who talked to her garage door. Would they still be waiting for someone to drop by and set them free?

Despite the obvious falsity of some of the main claims of manifesters, some of the techniques they recommend are quite good. For example, if you do not specify a goal, but merely express some vague wish like "someday I'm going to go to New Zealand," then you probably won't ever get your wish. But if you specify your desire, insist on having it satisfied, clarify the obstacles in the way of having it satisfied, determine what is needed to have your will be done, create a plan for achieving your goal, then you have a very good chance of getting what you want. On the other hand, a lot of manifesting seems to be little more than refusing to accept co-incidence as a fact of life, peppered with a lot of post hoc reasoning and selective thinking.

One good thing about manifesting is that it could take a person's attention away from the many bad things in life over which we have no control. By focusing on what you want, you may not dwell so much on the bad hand life has dealt you. By specifying your goals, you will be more likely to see troubles as obstacles to overcome rather than as hindrances blocking your chance of success.

On the other hand, it could also be very depressing to think that the only reason you are not getting what you want is because your desires are not coming from the right place.

#### Mapinguari

Bigfoot [a.k.a. Abominable Snowman of the Himalayas, Mapinguari (the Amazon), Sasquatch, Yowie (Australia) and Yeti (Asia)]

"There is a Yeti in the back of everyone's mind; only the blessed are not haunted by it."--an old Sherpa

Bigfoot is an apelike creature reportedly sighted hundreds of times in the U.S. (most often in the Pacific Northwest) and around the world since the mid-19th century. The creature is variously described as standing 7-10 ft (2-3 m) tall and weighing over 500 lb (227 kg), with footprints 17 in. (43 cm) long. The creature goes by many names, but in northern California it is known as "Bigfoot." The creature is big business along a stretch of US-101 in southern Humboldt County known as the Redwood Highway. Numerous shops line the roadway, each with its own gaping Bigfoot chainsaw-carved out of majestic redwood.

Most scientists discount the existence of such a creature because the evidence supporting belief in the survival of a prehistoric bipedal apelike creature of such dimensions is scant. The evidence consists mainly of testimony from Bigfoot enthusiasts, footprints of questionable origin, and pictures that could easily have been of apes or humans in ape suits. There are no bones, no scat, no artifacts, no dead bodies, no mothers with babies, no adolescents, no explanation for how a species likely to be communal has never been seen in family or group activity, no evidence that any individual, much less a community of such creatures, dwells anywhere near all the "sightings," etc. In short, the evidence points more towards hoaxing and delusion than real discovery. The Bigfoot legend seems to be primarily a function of enthusiastic fans of the paranormal, aided greatly by the mass media's enthusiastic catering to such enthusiasm. Yet, some believers dismiss all such criticism and claim that Bigfoot exists in another dimension and travels by astral projection. No wonder the creature is so hard to locate!

Besides the testimonials of enthusiastic fans, footprints and film provide the bulk of the evidence provided by proponents of Bigfoot. Of the few footprints available for examination in plaster casts, there is such great disparity in shape and configuration that the evidence "suggests many independent pranksters" (Dennett, 1996).

Probably the most well-known evidence for belief in Bigfoot's existence is the film shot by Bigfoot hunters Roger Patterson and Bob Gimlin on Oct 20, 1967, at Bluff Creek in northern California. The film depicts a walking apelike creature with pendulous breasts. Its height is estimated at between 6' 6" and 7' 4"; its weight at nearly one ton. Over thirty years have passed, yet no cryptozoologist has returned to the site and found any further evidence of the creature.

A group of Bigfoot enthusiasts calling themselves the North American Science Institute claim that they spent over \$100,000 to prove the film is of a genuine Bigfoot. However, according to veteran Hollywood director John Landis, "that famous piece of film of Bigfoot walking in the woods that was touted as the real thing was just a suit made by John Chambers" who helped create the ape suits in Planet of the Apes (1968). Howard Berger, of Hollywood's KNB Effects Group, also has claimed that it was common knowledge within the film industry that Chambers was responsible for a hoax that turned Bigfoot into a worldwide cult. According to Bobbie Short, Chambers denied these allegations in an interview and claims that Landis started the rumor about Chambers making the suit. According to Mark Chorvinsky, Chambers was involved in another Bigfoot hoax (the so-called "Burbank Bigfoot") but apparently Short did not ask him about that incident nor did he interview Landis for his version of the story. Believers in Bigfoot, such as Short and Loren Coleman, reject the hoax theory and maintain that the film is not of a man in an ape suit but is footage of a genuine Bigfoot.

According to David J. Daegling and Daniel O. Schmitt, "it is not possible to evaluate the identity of the film subject with any confidence." Their argument centers on uncertainties in subject and camera positions, and the reproducibility of the compliant gait by humans matching the speed and stride of the film subject.

Bigfoot is also the name of a fine Barleywine brewed by Sierra Nevada of Chico, California. (It is called a wine because it has an alcohol content of 8% and can't legally be called a beer in California.)

### Marfa lights

The Marfa lights are lights which are visible from a viewing area about 10 miles east of the town of Marfa, Texas. They are the main tourist attraction in the area. The lights are said to appear to bounce around in the sky, vanish and re-appear, and thus are considered a mystery by some. To others, the lights are not a mystery. They are navigational lights for space aliens or ghosts or swamp gas or radioactive bursts or ball lightning.

Skeptics who view the lights with strong binoculars claim that they are nothing more than the headlights and tail lights of cars in the Chinati Mountains on U.S. highway 67.

### "Mars Effect"

The "Mars Effect" is the name given to Michel Gauquelin's "astrobiological" claim that when Mars is in certain sectors of the sky great athletes are born in numbers indicative of a non-chance correlation. If this were true, astrologers believe that it would provide support for their theories that the things in the sky are actively influencing who and what we become. However, such correlations are notoriously slippery. Not only are they ambiguous (who counts as a "great" athlete?), but significant correlations between variables that are not significantly related are expected to occur occasionally.

In any case, what Gauquelin claims about Mars and athletes isn't true, according to a study by seven French scientists. They took a sample of 1,066 French athletes and compared them to 85,280 others for birth times, dates and location of Mars at birth. The study didn't support the "Mars Effect."

Gauquelin preferred to call his work in this area "astrobiology" rather than astrology. He also claimed to find a significant correlation between Jupiter and military prowess, as well as between Venus and artists.

#### Mars, face on

The face on Mars is the image of some photographs of the Cydonia region of Mars taken in 1976 by the Viking Orbiter. The image is most likely of a natural formation but some people see a face or a building and are convinced that it was constructed by intelligent beings.

According to Gary Posner, the one most responsible for the view that the face on Mars is an alien construction is Richard C. Hoagland, author of *The Monuments of Mars: A City on the Edge of Forever* (1987).

NASA claims that the photos are just a play of light and shadow. Some took this explanation as a sure sign of a cover-up. Some engineers and computer specialists digitally enhanced the NASA images. This soon gave birth to the claim that the face was a sculpture of a human being located next to a city whose temples and fortifications could also be seen. Some began to wonder: were these built by the same beings who built the ancient airports in Peru and who were now communicating to us through elaborate symbols carved in wheat crop circles? Others took the wonder to the level of belief, based on the flimsiest of evidence and the grandest of imagination. Carl Sagan's more down-to-earth explanation for the face on Mars is that it is the result of erosion and winds and other natural forces (Sagan, 52-55). Such a view seems most reasonable under the circumstances.

On the other hand, maybe the face on Mars was done by the artist who did the Shroud of Turin. Some who have looked closely have seen a family resemblance.

#### Massage Therapy

A massage is the rubbing or kneading of parts of the body to aid circulation or to relax the muscles. Massage therapy is a massage which includes a metaphysical explanation usually couched in terms of "balancing" some sort of "energy."

A massage is usually relaxing and usually feels good. Most of us, however, could not explain the physical and physiological mechanisms causing the relaxation and pleasure. Most of us probably suspect it has something to do with the pleasure of being touched by another person and with the physical movement of muscles and other body parts.

Most of us know from experience how the touch of another person can be soothing, comforting and spirit-enhancing: healing, if you will. Massage therapists claim to understand the metaphysical reasons for the uplifting and relaxing effect of massage. Their explanations vary. Here are a few culled from an article in *The Davis Enterprise* [January 10, 1993, p. C-1 and C-3]. The article features local "massage therapist" Karen Khamashta using Ortho-Bionomy, Reflexology, and Polarity.

Ortho-Bionomy works by contacting the body's "trigger points." According to this theory, when a trigger point is contacted, you "immediately relieve pain and restore the body's natural balance and rhythm."

Reflexology works by allegedly unblocking the 7,200 nerve endings in each foot so that they can respond to all of the glands, organs and other parts of the body and improve the blood supply as well. This supposedly helps the body "reach a balanced state."

Polarity therapy is based on "balancing the life energy that moves through every part of the body...and...moves in currents, or channels within and around the body." Polarity therapy "attempts to eliminate blockages in these channels which can cause imbalance and illness." The theory is that "if the body's currents are balanced, the person relaxes and is able to heal more efficiently." Polarity therapy is a kind of acupuncture without the needles. In acupuncture the metaphysical energy that gets blocked is known as chi.

Another massage therapist, Christy Freidrich says "A lot of what I do is to try to help people with their structural balance. Over a period of time, people end up learning more about structure and how it works."



Massage therapy sounds as if it has as its goal something similar to therapeutic "touch"--restoring harmony and balance to one's life energy. But the massage therapist uses "palpation for assessment of ... energy blockages", while the therapeutic touch practitioner appears to be just waving her hands over your aura. Personally, I would prefer palpation.

Massage therapists who are certified by the National Certification Board for Therapeutic Massage and Bodywork must take 500 hours of education classes and pass an examination. They must know some basic anatomy and physiology, as well as some first-aid. Despite the emphasis on balancing energy, none of the practice questions provided by the NCBTMB involve metaphysics.

The American Massage Therapy Association claims that: Research shows [massage] reduces the heart rate, lowers blood pressure, increases blood circulation and lymph flow, relaxes muscles, improves range of motion, and increases endorphins, the body's natural painkillers. Therapeutic massage enhances medical treatment and helps people feel less anxious and stressed, relaxed yet more alert.

They don't mention who did the research and where one might verify these claims. Nor do they mention that these effects are likely to be temporary or that similar results might be achieved by meditating, walking, or reading a good book.

The AMTA also claims that therapeutic massage "can help" with

Allergies  
Anxiety  
Arthritis (Both Osteoarthritis and Rheumatoid Arthritis)  
Asthma and Bronchitis  
Carpal Tunnel Syndrome  
Chronic and Temporary Pain  
Circulatory Problems  
Depression  
Digestive Disorders, Including Spastic Colon, Constipation and Diarrhea  
Headache, Especially When Due to Muscle Tension  
Insomnia  
Myofascial Pain (A Condition of The Tissue Connecting The Muscles)]  
Reduced Range of Motion  
Sinusitis  
Sports Injuries, Including Pulled or Strained Muscles and Sprained Ligaments  
Stress  
Temporomandibular Joint Dysfunction (TMJ)

Something that "can help" with so many disorders and dysfunction should be very popular. According to the AMTA Americans spend from \$2 billion to \$4 billion on massage therapy per year. However, "can help" is not a very strong claim, and those with serious medical problems such as cardiac problems, depression or sinusitis would do well to consult a physician.

Since massage therapy is essentially an unregulated profession, making claims that massage therapists are qualified to treat medical conditions such as allergies, infectious diseases, phlebitis, etc., seems like quackery. This has not stopped the profession from expanding to the point where even dogs and horses can get a healing massage the Linda Tellington-Jones holistic way.

## Materialism

### Philosophical Materialism (aka Physicalism)

Philosophical materialism (physicalism) is the metaphysical view that there is only one substance in the universe and that substance is physical, empirical or material. Materialists believe that spiritual substance is a delusion. Paranormal, supernatural or occult phenomena are either delusions or reducible to physical forces.

Materialists are not necessarily atheists, nor do they deny the reality of such things as love or justice, beauty or goodness.

## Medium

In spiritualism, a medium is one to whom spirits communicate directly. In an earlier, simpler but more dramatic age, a good medium would produce voices, apports, ring bells, float or move things across a darkened room, produce automatic writing, and, in short, provide good entertainment value for the money.

Today, a medium is likely to write trite but inspiring books and say he or she is channeling. (In Biblical times channelers called themselves prophets.)

Some channelers give good entertainment by speaking in grave Elizabethan accents or gravelly, husky voices, while claiming to be ancient warriors or reincarnated ghosts. But the medium most likely to be on Larry King Live (CNN) or Art Bell is someone like James Van Praagh, whose technique is to ask questions of his victims and claim he hears the voices of their dead loved ones responding. He then passes on messages such as "he forgives you." A spiritualist fraud would be more likely to pass on the message "give more money to me and my group." [Keene]

## Memory

Memory is the retention and ability to recall information, personal experiences, and procedures (skills and habits).

There is no universally agreed upon model of the mind/brain, and no universally agreed upon model of how memory works. Nevertheless, a good model for how memory works must be consistent with the subjective nature of consciousness and with what is known from scientific studies (Schacter, 1996). Subjectivity in remembering involves at least three important factors:

Memories are constructions made in accordance with present needs, desires, influences, etc.

Memories are often accompanied by feelings and emotions.

Memory usually involves the rememberer's awareness of the memory (Schacter, 1996).

Two models of thinking which are popular with materialists are the behaviorist model (thinking is a set of behaviors) and that of cognitive psychology (the brain is like a computer). Neither can account for the subjective and present-need basis of memory (Schacter, 1996). The Freudian model posits an area of the unconscious where memories of traumatic experiences are stored. Though unconscious of them, such memories are claimed to be significant causal factors in shaping conscious thought and behavior. This model is not consistent with what is known about the memory of traumatic experiences. There is a great deal of supportive evidence for the claim that the more traumatic an experience, the more likely one is to remember it. Novel visual images, which would frequently accompany traumas, stimulate the hippocampus and left inferior prefrontal cavity and will become part of long-term memory.

Current studies in neuroscience strongly support the notion that a memory is a set of encoded neural connections. Encoding can take place in several parts of the brain. Thus, neural connections are likely to go across various parts of the brain. The stronger the connections, the stronger the memory. Recollection of an event can occur by a stimulus to any of the parts of the brain where a neural connection for the memory occurs. If part of the brain is damaged, access to any neural data that was there is lost. On the other hand, if the brain is healthy and a person is fully conscious when experiencing some trauma, the likelihood that they will forget the event is near zero, unless either they are very young or they later experience a brain injury.

Furthermore, the Freudian model often assumes that childhood sexual abuse is usually unconsciously repressed and that psychological problems in adulthood are caused by the unconscious memory of childhood abuse. There is, however, no body of scientific evidence to support either that such abuse is unconsciously repressed or that these experiences are significant causal factors of adult psychological problems.

Finally, the model of memory that sees the brain recording everything one experiences is a model that contradicts what is known about how memories are constructed. Even so, in a survey of psychologists by Loftus and Loftus, 84% said they believe every experience is permanently stored in the mind (Schacter, 1996, 76).

## A Popular Model of Memory

One of the most popular models of memory sees memory as a present act of consciousness, reconstructive of the past, stimulated by an analogue of an engram called the "retrieval cue." The engram is the neural network representing fragments of past experiences which have been encoded. The evidence is strong that there are distinct types and elements of memory which involve different parts of the brain, e.g., the hippocampus and ongoing incidents of day-to-day living (short-term or working memory); the

amygdala and emotional memories (Schacter, 1996, 213). Memories might better be thought of as a collage or a jigsaw puzzle than as "tape recordings," "pictures" or "video clips" stored as wholes. On this model, perceptual or conscious experience does not record all sense data experienced. Most sense data is not stored at all. What is stored are rather bits and fragments of experience which are encoded in engrams. Exactly how they are encoded is not completely understood.

This popular model of memory rejects the idea that individual memories are stored in distinct locations in the brain. That idea seems to have become solidified by Wilder Graves Penfield's experiments done in the 1950's. He placed electrodes on the surface of the exposed temporal lobes of patients and was able to elicit "memories" in 40 of 520 patients. Many psychologists (and lay people) refer to these experiments as proof that memories are just waiting for the right stimulus to be evoked. Schacter points out that the Penfield experiments are not very good evidence for this belief. Not only could Penfield only elicit "memories" in about 1 out of every 8 patients, he did not provide support for the claim that what was elicited was actually a memory and not a hallucination, fantasy or confabulation.

### Forgetting

On the model described in the previous two paragraphs, forgetting is due to either:

weak encoding (why we forget most things, including our nightly dreams);  
lack of a retrieval cue (we seem to need something to stimulate memory);  
time and the replacement in the neural network by later experiences (how many experiences do you remember from many years ago?);  
repetitive experiences (you'll remember the one special meal you had at a special restaurant, but you won't remember what you had for lunch a year ago Tuesday), or  
a drive to keep us sane. (Imagine the brain overload that would occur if we were to never forget anything, the stated goal of L. Ron Hubbard's dianetics. His followers should read Jorge Luis Borges "Funes, the Memorious," a story about such a being.)  
The chances of remembering something improve by "consolidation," which creates strong encoding. Thinking and talking about an experience enhance the chances of remembering it. One of the better known techniques of remembering involves the process of association.

### Source Memory

Many people have vivid and substantially accurate memories of events which are erroneous in one key aspect: the source of the memory. For example:

In the 1980 presidential campaign, Ronald Reagan repeatedly told a heartbreaking story of a World War II bomber pilot who ordered his crew to bail out after his plane had been seriously damaged by an enemy hit. His young belly gunner was wounded so seriously that he was unable to evacuate the bomber. Reagan could barely hold back his tears as he uttered the pilot's heroic response: "Never mind. We'll ride it down together." ...this story was an almost exact duplicate of a scene in the 1944 film *A Wing and a Prayer*. Reagan had apparently retained the facts but forgotten their source (Schacter, 1996, 287).

An even more dramatic case of source amnesia is that of the woman who accused memory expert Dr. Donald Thompson of having raped her. Thompson was doing a live interview for a television program just before the rape occurred. The woman had seen the program and "apparently confused her memory of him from the television screen with her memory of the rapist" (Schacter, 1996, 114). Studies by Marcia Johnson et al. have shown that the ability to distinguish memory from imagination depends on the recall of source information.

Jean Piaget, the great child psychologist claimed that his earliest memory was of nearly being kidnapped at the age of two. He remembered details such as sitting in his baby carriage, watching the nurse defend herself against the kidnapper, scratches on the nurse's face, and a police officer with a short cloak and a white baton chasing the kidnapper away. The story was reinforced by the nurse and the family and others who had heard of the story. Piaget was convinced that he remembered the event. However, it never happened. Thirteen years after the alleged kidnapping attempt, Piaget's former nurse wrote to his parents to confess that she had made up the entire story. Piaget later wrote that "I therefore must have heard, as a child, the account of this story...and projected it into the past in the form of a visual memory, which was a memory of a memory, but false" (Tavris).

### Amnesia and Implicit Memory

Though all forgetting is a type of amnesia, we usually reserve that term for forgetting caused by the effects of drugs/alcohol, brain injuries, or physical or psychological traumas. One of the more interesting types of amnesia is what psychiatrists call the fugue state. An otherwise healthy person travels a good

distance from his home, and when found has no memory of how he got there or who he is. The fugue state is usually attributed to recent emotional trauma. It is rare and is typically neither permanent nor recurring.

Limited amnesia, however, is quite common. Limited amnesia occurs in people who suffer a severe physical or psychological trauma, such as a concussion or being rendered unconscious. Football players who suffer concussions and accident victims who are rendered unconscious, typically do not remember what happened immediately before the event. The scientific evidence indicates, however, that some sort of implicit memory may exist which can be troubling to one whose amnesia is due to having been rendered unconscious by an assailant. Schacter notes the case of a rape victim who could not remember the rape, which took place on a brick pathway. The words brick and path kept popping into her mind, but she did not connect them to the rape. She became very upset when taken back to the scene of the rape, though she didn't remember what had happened there (Schacter, 1996, 232).

Implicit memory is memory without awareness. It differs substantially from repressed memory. Implicit memories are not necessarily repressed, nor are they necessarily the result of trauma. They are weakly encoded memories which can affect conscious thought and behavior. Retrieval cues do not bring about a complete memory of some events because most of the event was not encoded.

Daniel Schacter and Endel Tulving introduced the terms 'implicit memory' and 'explicit memory' in their attempt to find a common language for those who believe there are several distinct memory systems and those who maintain there is only one such system. Schacter writes: "The nonconscious world of implicit memory revealed by cognitive neuroscience differs markedly from the Freudian unconscious. In Freud's vision, unconscious memories are dynamic entities embroiled in a fight against the forces of repression; they result from special experiences that relate to our deepest conflicts and desires. . . . [I]mplicit memories . . . arise as a natural consequence of such everyday activities as perceiving, understanding, and acting" (Schacter, 1996, 190-191).

Most lost memories are lost because they were never elaborately encoded. Perception is mostly a filtering and defragmenting process. Our interests and needs affect perception, but most of what is available to us as potential sense data will never be processed. And most of what is processed will be forgotten. Amnesia is not rare, but is the standard condition of the human species. We do not forget simply to avoid being reminded of unpleasant things. We forget either because we did not perceive closely in the first place or we did not encode the experience either in the parietal lobes of the cortical surface (for short-term or working memory) or in the prefrontal lobe (for long-term memory).

Long-term memory requires elaborative encoding in the inner part of the temporal lobes. If the left inferior prefrontal lobe is damaged or undeveloped, there will be grave difficulty with elaborative encoding. This area of the brain is undeveloped in very young children (under the age of three). Hence, it is very unlikely that any story of having a memory of life in the cradle or in the womb is accurate. The brains of infants and very young children are capable of storing fragmented memories, however. Such memories cannot be explicit or deeply encoded, but they can nevertheless have influence. In fact, there are numerous situations--such as cryptomnesia-- where memory can be manifested without awareness of remembering.

semantic, procedural, and episodic memory

Memory researchers distinguish several types of memory systems. Semantic memory contains conceptual and factual knowledge. Procedural memory allows us to learn new skills and acquire habits. Episodic memory allows us to recall personal incidents that uniquely define our lives (Schacter, 1996, 17). Another important distinction is that between field and observer memory. Field memories are those where the rememberer sees himself or herself in the scene. Observer memories are those seen through the rememberer's eyes. The fact that many memories are field memories is evidence, as Freud noted, of the reconstructive nature of memories (Schacter, 1996, 21).

#### Accuracy of Memory

How accurate and reliable is memory? Studies on memory have shown that we often construct our memories after the fact, that we are susceptible to suggestions from others that help us fill in the gaps in our memories. That is why, for example, a police officer investigating a crime should not show a picture of a single individual to a victim and ask if the victim recognizes the assailant. If the victim is then presented with a line-up and picks out the individual whose picture the victim had been shown, there is no way of knowing whether the victim is remembering the assailant or the picture.

Another interesting fact about memory is that studies have shown that there is no significant correlation between the subjective feeling of certainty a person has about a memory and the memory being accurate. Also, contrary to what many people believe, hypnosis does not aid memory's accuracy. Because subjects are extremely suggestible while hypnotized, most states do not allow as evidence in a court of law testimony made while under hypnosis (Loftus, 1979).

Furthermore, it is possible to create false memories in people's minds by suggestion, even memories of previous lives which were never lived. Memory is so malleable that we should be very cautious in claiming certainty about any given memory without corroborative evidence.

#### How Does Memory Work?

We do not know exactly how memory works, though there are many explanatory models for memory. Some of these models identify memory with brain functions. On this model, for example, memory diminishes with age because neurons die off as we get older. There are only three ways to overcome this fact of nature: 1. figure out a way to stop neurons from dying; 2. figure out a way to stimulate the growth of new neurons; or 3. figure out a way to get the remaining neurons to function more efficiently and pick up the slack. So far, it looks like options 2 and 3 are the most promising. Some positive results have been reported regarding the stimulation of the growth of new brain cells by fetal implants. Fred Gage of The Salk Institute has reported that recent research in neurogenesis is encouraging. They have observed the growth of neurons in the dentate gyrus, a portion of the hippocampus (which controls learning and short term memory), in mice that were placed in a stimulating environment. Gage has also grafted immature cells from the spinal cord to the hippocampus and found that they produced new neuronal cells. There is also growing support for the notion that exercising the body and the brain tend to preserve neurons. "Use it or lose it" turns out to be literally true for brain cells.

Neurological research has also produced some success getting neurons to work better with ampakines, chemical compounds sometimes called "memory drugs." The first tests with humans showed excellent results, but the samples were too small to justify drawing any conclusion except that more studies are needed.

For those who think that memory is a function of some non-physical reality, such results should cause some reflection, though I doubt that a non-physical model of the mind will lead to any significant research which will benefit humankind. For those who posit that memory is a brain function, there is not only a direction for research to follow, but hope of success for discovering something truly useful.

#### Men in Black (M.I.B.)

The Men in Black are believed to be very strange creatures, perhaps aliens or government agents, who visit UFO witnesses and warn them not to tell anyone about their UFO experiences.

John Keel in *The Mothman Prophecies* (1975) talks about the M.I.B., as did Gray Barker in *They Knew Too Much About Flying Saucers* (1956). The M.I.B. are said to favor older model dark Cadillacs. They don't like to be photographed, though they have been reported to dress in black. Their mystique may soon wear off, however, as a film, a TV series, a magazine and a video game have been developed around their strange antics.

John Sherwood (aka Dr. Richard H. Pratt) has come clean about the role Gray Barker, head of Saucerian Publications, played in perpetuating the myth of the M.I.B.

"*They Knew Too Much About Flying Saucers* made the Men In Black feared within UFO circles during the late 1950's and 1960's," claims Sherwood, but the book was impure fiction, written purely to make money with little concern for the difference between fact and fiction. It was Barker who published a 17-year old Sherwood's *Flying Saucers are Watching You*, which the author now claims was his "only corrupt journalistic experience," i.e., he wrote with little concern for the difference between fact and fiction. Yet Sherwood admits that he (as Dr. Pratt) played along when UFOers tagged him as having been silenced by the M.I.B.

#### Mentalist

A mentalist is a performer who uses trickery and deception to create the illusion of having paranormal or supernatural powers.

#### Mesmerism

Mesmerism is a bit of medical quackery developed in the 18th-century by Dr. Franz Anton Mesmer. It involves some social role playing with the mesmerizer making suggestions and his clients becoming absolutely mesmerized by him. Mesmer used his extraordinary powers of suggestion to send people into

frenzied convulsions or sleeplike trances. He was so successful that to this day we use his name to describe the exercise of such powers over others.

In the early 1770s, Mesmer, a Viennese physician who got his doctorate for a plagiarized dissertation on how the planets affect health, met Maximillian Hell, a Viennese Jesuit and healer. The rest, as they say, is history. Fr. Hell cured people with a magnetic steel plate. Hell's "proof" of magnetic healing was that it worked, i.e., he had a lot of satisfied customers. Mesmer plagiarized Hell's magnetic therapy and posited that it works because there is a very subtle magnetic fluid flowing through everything but which sometimes gets disturbed and needs to be restored to its proper flow. Hell, Mesmer theorized, was unblocking the flow of this magnetic fluid with his magnets. (I wonder if Mesmer had heard about the Chinese belief in chi and the use of acupuncture to unblock its flow. I wonder too if practitioners of therapeutic touch got their inspiration from Mesmer.) Mesmer eventually discovered that he got the same results without the magnets. Rather than attribute this to the placebo effect, he posited that "animal magnetism" accounted for his ability to correct the flow of the universal magnetic fluid. (Today, the term "animal magnetism" means mesmerism or hypnotic power, but I have heard it misused more than once by females to mean a sexy male and by members of both sexes to mean someone to whom animals are attracted.)

Mesmer also discovered that even though he didn't need magnets to get results, the dramatic effect of waving a magnetized pole over a person, or having his subjects sit in magnetized water or hold magnetized poles, etc., while he moved around in brightly colored robes playing the scientific faith healer, made for better drama and for larger audiences. He was able to evoke from a number of his clients entertaining behaviors ranging from sleeping to dancing and having convulsions. Mesmer did basically what today's hypnotists do in the showroom and the clinic, and what faith healers do in the circus tents and churches, only he did them together, making a great show out of his magnetic cures. With Louis XVI's and Marie Antoinette's help, Mesmer set up a Magnetic Institute where he had his patients do such things as sit with their feet in a fountain of magnetized water while holding cables attached to magnetized trees. He was later denounced as a fraud by a commission which included Benjamin Franklin, as well as by the French medical establishment.

Did Fr. Hell and Dr. Mesmer really cure anyone? No, of course not. Did any of their patients feel better after taking the cure, or did they declare that they had been healed? Yes, of course. Faith healers and quacks always have "successes." In some cases, they create the illnesses themselves through their power of suggestion and the receptiveness of their subjects. These iatrogenic diseases may or may not have painful physical manifestations. These "diseases" can be as serious as demonic possession or as trivial as excessive giggling. They can present dramatic manifestations such as convulsions or soporific manifestations such as a sleeplike stupor. According to Nicholas Spanos, such patients are not really sick until they agree to play the role of the sick patient for the heroic doctor/savior. Spanos also argues that so-called dissociation or multiple personality disorder is an iatrogenic disease and got established as a treatable illness in much the same way that exorcism for demonic possession, psychoanalysis for hysteria, and fads such as mesmerism got established. Spanos maintains that there is no such thing as multiple personalities, that the idea is a social creation accepted by certain patients who learn to play the roles expected of them as a person with multiple personality disorder (MPD). (Robert Baker makes the same argument for hypnosis.)

Spanos describes the way in which a social group can get many of its members to play the role of the possessed person who must be exorcised by the shaman or priest, who also learns his role in a social context. Spanos sees little difference in the development of "hysteria" and its cures, MPD and its cures, and Mesmer and his cures. Indeed, I think few would argue that the sociocognitive approach of Spanos is most appropriate when explaining how a person can rave about the success she had with a therapist who convinced her that her headaches were due to an entity who was dwelling in her aura and had to be persuaded to leave so that the patient could get better. Does the entity-release therapist really cure anyone? Of course not. Do her patients feel better after therapy? Yes, some do. Do her patients testify to their being healed by the therapy? Yes, some do.

But what about those who really are sick when they come to healers such as Hell or Mesmer, or to modern healers such as Andrew Weil or Deepak Chopra? Don't some of them have their cancers cured, their migraines annihilated, their upset stomachs appeased, their sight restored, their life returned to them after they have died? What can't be denied is that some people sometimes have their lives changed by faith healers. It is my belief that these changes occur because the one cured has a very strong desire to make the changes happen and the changes are a reasonable possibility for a human to achieve by an act of will, e.g., a chain smoker quits smoking after a few visits to a hypnotist or an acupuncturist or an entity-release therapist, or even after one visit to a faith healer. A cancerous pancreas in its last stages of functioning, on the other hand, is not going to be cleansed of disease by an act of will. Nor will it be cleansed by a magnet or a prayer.

When characters such as Mesmer "cure" people, it is his subjects who "cure" themselves. They provide the rapport with their master, and they respond to his suggestions because they agree to respond to them. In short, all such "healing" is done by faith. Sometimes the cure or behavior change might be accomplished

by less troubling and less expensive alternative means. For example, Deepak Chopra charges \$25,000 per performance where he spouts out a few platitudes and give spiritual advice while warning against the ill effects of materialism. His audiences are apparently not troubled by his living in a \$2.5 million house in La Jolla, California, which he can easily afford since he has amassed millions of dollars from the sales of his books, tapes, herbs, appearances, etc. His followers have faith in him and agree to follow his suggestions because they desire to do so. But because he does not use the props of the hypnotist or the faith healer, we wonder how he can cast such a spell over so many people. The answer does not lie in the study of Deepak Chopra, but in the study of his followers and the role-playing game that so many people seem to need to play.

It should be noted, in conclusion, that the spirits of Father Hell and Doctor Mesmer might be happy to know that magnetic stimulation of the brain's left prefrontal cortex is being tested as a possible aid for depressed patients. Most depression can now be controlled with pharmaceutical treatment, but very severe cases seem to respond only to electroconvulsive therapy (ECT), the kind featured in *One Flew Over the Cuckoo's Nest* and lampooned by almost anyone in the media or public eye who brings up the topic. Researchers at the National Institute of Mental Health (NIMH) are hoping that repetitive transcranial magnetic stimulation (TMS) will work like ECT but without the side effects (seizures and memory loss, in some patients). This research is not based on a belief in animal magnetism or universal magnetic fluids, but upon the facts that (1) ECT works even though nobody knows how; (2) the left prefrontal cortex has been implicated as a site of abnormally low metabolism in depressed brains; (3) after ECT and TMS there are widespread increases in brain metabolism; (4) after ECT many patients experience a dramatic improvement in mood; and (5) preliminary studies have found some mood improvement in some patients who have been treated with TMS. However, do not look for another Mesmer to arise from the medical establishment and take this show on the road. Scientists are investigating TMS, not faith healers. They may end up concluding the treatment is worthless or harmful.

## Metaphysics

Metaphysics is a branch of philosophy consisting of ontology and cosmology.

The term 'metaphysics' is often used to entail ideas and theories as to what kinds of beings are real, the nature of those beings and of the concepts used to think about those beings. For example, a theory of mind would be a metaphysical theory concerned with mental phenomena and related concepts such as perception, idea, consciousness, memory, intention, motive, reasoning, etc.

However, typically, 'metaphysics' refers to broad theories of reality, such as materialism and dualism, and to broad issues regarding the nature of reality.

Why is there something rather than nothing? Is there free will or is every action determined by causes? Was the universe created or has it always existed? Are there spiritual beings? Is there life after death? What is the nature of the universe, of substance, causality, etc.? These are all metaphysical questions.

Most philosophers would agree that metaphysical claims are not scientific and that contradictory metaphysical positions cannot be tested empirically to determine which is false. For example, materialism and dualism are contradictory but both theories are coherent and consistent with experience, and there is no empirical event that could falsify either theory.

Modern philosophy is often said to begin with Descartes, when the focus of philosophy turned to epistemological questions, i.e., questions regarding the origins, nature, and limits of knowledge. Metaphysical speculation about kinds of realities, which at one time dominated Western philosophy, has gradually given way to careful analyses of what can reasonably be posited about reality given what we know about the nature of how we come to experience reality and how we come to generate ideas about reality.

Philosophers give various reasons for preferring one metaphysical belief to another. One thinks one's own theory is more coherent than a rival theory, or that one's own belief has more explanatory power or requires fewer assumptions. Some argue that their metaphysical beliefs fit better with what is known from other disciplines such as science, history, or psychology. Some criticize rival theories for being too farfetched, that though they are possible they are implausible.

Some defend their metaphysical beliefs by appealing to the consequences of belief, e.g., it gives hope for an afterlife or meaning to existence. Others maintain that such considerations are irrelevant to the truth of the claims, and indicate the belief is based more on desire than good logical reasons.

Since coherent metaphysical beliefs cannot be refuted it is sometimes maintained that philosophers adhere to their metaphysical theories more out of personal disposition and temperament than evidence and proof.

Some consider metaphysics to represent what is highest in human nature, the drive to know and understand the nature of the universe in which we find ourselves while we move towards our inevitable end. Others consider metaphysics, specifically speculative metaphysics about non-empirical and transcendent realities, to be, more or less, bunk. Metaphysics, as an enterprise attempting to understand the structure of what must be, given the nature of experience, seems to be philosophically and, perhaps, emotionally, unavoidable.

### Metempsychosis

Metempsychosis is the belief that at death the soul passes into another human or animal body.

### Metoposcopy

Metoposcopy is the interpretation of facial wrinkles, especially those on the forehead, to determine the character of a person. It is also used as a type of divination and has been used in conjunction with astrology. This pseudoscience was invented by the great 16th century mathematician, physician, and astrologer Gerolomo Cardano (1501-1576). Legend has it that Cardano starved himself to death at the age of seventy-five rather than live and run the risk of falsifying his horoscope and thereby discredit his beloved astrology.

The drawing reproduced here is from Cardano's *Metoposcopia* and shows the position of the planets on the wrinkles of the forehead. Cardano's science of forehead reading did not catch on, unlike the typhus fever of which he gave the first clinical description.

Had metoposcopy any merit, Cardano would undoubtedly have been hailed as one of the great benefactors of inept men. He declared that one could tell by the lines on her face which woman is an adulteress and which has a hatred of any lewdness. Con men, too, would have owed Cardano an eternal debt; for, he claimed to be able to tell the generous from the trickster. On the other hand, many simpletons might have trembled at his warning that having three curved furrows on the forehead proved one was a dissolute simpleton. In all, Cardano worked up about 800 facial figures, each associated with astrological signs and qualities of temperament and character. I looked in the Yellow Pages, but there were no metoposcopers listed.

### Mind

The mind is thought to be the seat of perception, self-consciousness, thinking, believing, remembering, hoping, desiring, willing, judging, analyzing, evaluating, reasoning, etc.

Dualists consider the mind to be an immaterial substance, capable of existence as a conscious, perceiving entity independent of any physical body. Dualism is popular with those who believe in life after death. The brain may decay, disintegrate, and be forever annihilated, but the mind (or soul) does not depend on the body for its existence and so may continue to flourish in another world. This belief in the mind as a substance which exists independently of the brain, however implausible, seems to be required for most religious doctrines, as well as for many New Age notions and therapies. Whereas dualist philosophers have long struggled with what is known as the mind-body problem, New Age gurus are calling for mind-body harmony in medicine, therapy and science. In short, philosophers have realized that there is a problem in explaining how two fundamentally different kinds of reality can affect one another, while New Age pundits think the problem has been caused by treating the two--mind and body--as if they do not interact.

Metaphysical materialists, on the other hand, consider the mind to be either the brain itself or an emergent reality, i.e., an entity separate from but brought into being by the workings of the brain. The latter doctrine is known as epiphenomenalism. For the materialist 'mind' is a catch-all term for a number of processes or activities which can be reduced to cerebral, neurological and physiological processes.

Behaviorists consider 'mind' to be a catch-all term for a set of behaviors.

There is probably no more fascinating topic in philosophy or neurology than mind or consciousness. Yet, despite the fact that the human mind has made it possible to gain all the understanding of the world and ourselves which we now possess, it has done precious little to help us understand the mind itself. For example, memory is something we all have to some degree or another. Yet, we do not fully understand the nature of memory, and several models of memory are equally plausible.



Models of mind or consciousness continue to occupy the brains of some of our best philosophers and scientists. Yet, despite the fact that the key to understanding the human mind is likely to be found in the study of the functioning human brain, many philosophers and psychologists continue to be guided by the belief that the mind can be adequately understood independently of the brain.

Philosophers, who have not yet adequately explained what the mind is, are nevertheless clear enough on the concept to believe there is a problem in proving that other minds exist. Presumably they use their own minds to either prove that other minds exist, or that other minds don't exist, or that other minds might exist but we'll never know for sure. This might be called the mind leading the mind problem.

## Mind Control

Mind control is the successful control of the thoughts and actions of another without his or her consent.

## Conceptions & Misconceptions of Mind Control

There are many misconceptions about mind control. Some people consider mind control to include the efforts of parents to raise their children according to social, cultural, moral and personal standards. Some think it is mind control to use behavior modification techniques to change one's own behavior, whether by self-discipline and auto-suggestion or through workshops and clinics. Others think that advertising and sexual seduction are examples of mind control. Still others consider it mind control to give debilitating drugs to a woman in order to take advantage of her while she is drugged.

Some of the tactics of some recruiters for religious, spiritual, or New Age human potential groups are called mind control tactics. Many believe that terrorist kidnap victims who convert to or become sympathetic to their kidnapper's ideology are victims of mind control (the so-called Stockholm syndrome). Similarly, women who stay with abusive men are often seen as victims of mind control. Many consider subliminal messaging in muzak, advertising, or on self-help tapes to be a form of mind control. Many also believe that it is mind control to use laser weapons, isotropic radiators, infrasound, non-nuclear electromagnetic pulse generators, and high-power microwave emitters to confuse or debilitate people. Many consider the "brainwashing" tactics (torture, sensory deprivation, etc.) of the Chinese during the Korean war and the alleged zombification of people in Voodoo as attempts at mind control.

Finally, no one would doubt that it would be a clear case of mind control to be able to hypnotize or electronically program a person so that he or she would carry out your commands without being aware that you are controlling his or her behavior.

## Clarification of The Term

A term with such slack in its denotation is nearly useless. In narrowing down the denotation the first thing to do is eliminate as examples of mind control those activities where a person freely chooses to engage in the behavior. Controlling one's thoughts and actions, whether by self-discipline or with the help of others, is an interesting and important topic, but it is not the same as brainwashing or programming people without their consent.

Using fear or force to manipulate or coerce people into doing what you want them to do should not be considered to be mind control. Inquisitions do not succeed in capturing the minds of their victims. As soon as the threat of punishment is lifted, the extorted beliefs vanish. You do not control someone who will escape from you the moment you turn your back.

To render a woman helpless by drugs so you can rape her is not mind control. Using a frequency generator to give people headaches or to disorient them is not the same as controlling them. You do not have control over a person's thoughts or actions just because you can do what you want to them or render them incapable of doing as they will. An essential component of mind control is that it involves controlling another person, not just putting them out of control or doing things to them over which they have no control.

## Fiction and Mind-Control

Some of the more popular misconceptions of mind control originated in fiction, such as "The Manchurian Candidate." In that film, an assassin is programmed so that he will respond to a post-hypnotic trigger, commit a murder, and not remember it later. Other books and films portray hypnosis as a powerful tool, allowing the hypnotist to have his sexual way with beautiful women or to program her to become a robotic courier, assassin, etc. To be able to use hypnosis in this powerful way is little more than wishful thinking.

Other fictional fantasies have been created that show drugs or electronic devices, including brain implants, being used to control the behavior of people. It has, of course, been established that brain damage, hypnosis, drugs or electric stimulation to the brain or neural network can have a causal effect on thought, bodily movement, and behavior. However, the state of human knowledge of the effects of various chemical or electrical stimulation to the brain is so impoverished that it would be impossible using today's knowledge and technology to do anything approaching the kind of mind control accomplished in fantasy. We can do things that are predictable, such as cause loss of a specific memory or arousal of a specific desire, but we cannot do this in a way which is non-intrusive or which would have the significance of being able to control a large array of thoughts, movements, or actions. It is certainly conceivable that some day we may be able to build a device which, if implanted in the brain, would allow us to control thoughts and actions by controlling specific chemical or electrical stimuli. Such a device does not now exist nor could it exist given today's state of knowledge in the neurosciences.

#### The Government and Mind-Control

There also seems to be a growing belief that the U.S. government, through its military branches or agencies such as the CIA, is using a number of horrible devices aimed at disrupting the brain. Laser weapons, isotropic radiators, infrasound, non-nuclear electromagnetic pulse generators, and high-power microwave emitters have been mentioned. It has already been established that agencies of our government have experimented on humans without their knowledge, in radiation experiments and in drug experiments. The claims of those who believe they have been unwilling victims of "mind control" experiments should not be dismissed as impossible or even as improbable. Given past practice and the amoral nature of our military and intelligence agencies, such experiments are not implausible. However, these experimental weapons, which are aimed at disrupting brain processes, should not be considered mind control weapons. To confuse, disorient or otherwise debilitate a person through chemicals or electronically, is not to control that person. To make a person lose control of himself is not the same as gaining control over him. It is a near certainty that our government is not capable of controlling anyone's mind, though it is clear that many people in many governments lust after such power.

In any case, some of the claims made by those who believe they are being controlled by these electronic weapons do not seem plausible. For example, the belief that radio waves or microwaves can be used to cause a person to hear voices transmitted to him seems unlikely. We know that radio waves and waves of all kinds of frequencies are constantly going through our bodies. The reason we have to turn on the radio or TV to hear the sounds or see the pictures being transmitted through the air is because those devices have receivers which "translate" the waves into forms we can hear and see. What we know about hearing and vision makes it very unlikely that simply sending a signal to the brain which can be "translated" into sounds or pictures would cause a person to hear or see anything. Someday it may be possible to stimulate electronically or chemically a specific network of neurons to cause specific sounds or sights of the experimenter's choosing to emerge in a person's consciousness. But this is not possible today. Even if it were possible, it would not necessarily follow that a person would obey a command to assassinate the president just because he heard a voice telling him to do so. Hearing voices is one thing. Feeling compelled to obey them is quite another. Not everyone has the faith of Abraham.

There seem to be a number of parallels between those who think they have been abducted by aliens and those who believe their minds are being controlled by CIA implants. So far, however, the "mind-controlled group" has not been able to find their John Mack, the Harvard psychiatrist who claims that the best explanation for alien abduction claims is that they are based on alien abduction experiences, not fantasies or delusions. A common complaint from the mind-controlled is that they can't get therapists to take them seriously. That is, they say they can only find therapists who want to treat them for their delusions, not help them prove they're being controlled by their government. Thus, it is not likely that the "mind-controlled CIA zombies" will be accused of having delusions planted in them by therapists, as alien abductees have, since they claim they cannot get therapists to take their delusions seriously. In fact, many of them are convinced that their treatment as deluded persons is part of a conspiracy to cover-up the mind control experiments done on them. Some even believe that False Memory Syndrome is part of the conspiracy. They claim that the idea of false memories is a plot to keep people from taking seriously the claims of those who are now remembering that they were victims of mind control experiments at some time in the past. It is hard to believe that they cannot find a wide array of incompetent therapists willing to take their claims seriously, if not willing to claim they have been victims of such experiments themselves.

#### Subliminal Advertising and Mind-Control

On a lighter note, one of the lesser myths about mind control is the notion that subliminal messages are effective controllers of behavior. Despite widespread belief in the power of subliminal advertising and messaging, the evidence of its significant effectiveness is based on anecdotes and unscientific studies by interested parties. You will search in vain for the scientific studies that demonstrate that playing inaudible

messages such as "do not steal" or "put that back" in muzak significantly reduces employee or customer theft.

disruption and harassment are not mind control

The above considerations should make it clear that what many people consider to be mind control would best be described by some other term, such as behavior modification, thought disruption, brain disabling, behavior manipulation, mind-coercion or electronic harassment. People are not now being turned into robots by hypnosis or brain implants. Furthermore, it should be obvious that given the state of neuroscientific knowledge, the techniques for effective mind control are likely to be crude, and their mechanisms imperfectly understood.

Thus, if we restrict the term 'mind' control to those cases where a person successfully controls another person's thoughts or actions without their consent, our initial list of examples of what people consider to be mind control will be pared down to just five items: the tactics of religious, spiritual, and other New Age recruiters; the tactics of husbands who control their wives; the Stockholm syndrome; the so-called brainwashing tactics of the Chinese inquisitors of American prisoners during the Korean war; and the alleged zombification of people in Voodoo.

The last can be dismissed as based on either fraud or the use of drugs to render people helpless. (See entry on zombis.)

Wives who are terrorized by their husbands or boyfriends are not victims of mind control, but of fear and violence. Still, there seem to be many cases where a battered woman genuinely loves her man and genuinely believes he loves her. She stays, beating after beating, not because she fears what he will do to her if she leaves, but because she really doesn't want to leave. Perhaps. But perhaps she doesn't leave because she is completely dependent on her lover/batterer. She doesn't stay just because she has nowhere to go. She needs him and stays because she is completely dependent on him. If a man can reduce a woman to a state of total dependency, he can control her. But is it true to say that he has controlled her mind? To what extent, if any, can a batterer take away the free will of his victim? He can reduce her choices so that staying with him is the only option she knows. What is the likelihood of this happening? It seems more likely that she will reduce her own choices by rationalizing his behavior and convincing herself that things will get better or that they really aren't that bad. If a man is not using brute force or the fear of violence to keep a woman around, then if she stays, it may be because of choices she has made in the past. Each time she was abused, she chose to stay. He may have used sweet and seductive talk to persuade her not to leave, but at some time in the relationship she was free to reject him. Otherwise, the relationship is based on fear and violence and mind control does not enter the picture. A woman who appears to be under the spell of a batterer is not a victim of mind control. She is a victim of her own bad choices. This is not to say that we should not sympathize with her plight or extend aid to her should she ask. She is where she is through bad luck and a series of bad choices, not because of mind control.

(Of course, I am ignoring those cases where the woman is mentally ill. In those cases, it is Nature, not her man, that has reduced her capacity for free choice. The abuser takes advantage of the situation, but he does not create it.)

Recruiters, Kidnappings and Inquisitions

That leaves recruiters for spiritual, religious, or personal growth groups; kidnapers; and inquisitors. First, the tactics of the recruiters differ substantially from those of kidnapers or inquisitors. Recruiters generally do not kidnap or capture their recruits, and they are not known to use torture as a typical conversion method. This raises the question of whether their victims are controlled without their consent. Some recruits are not truly victims of mind control and are willing members of their communities. Similarly, many recruits into mainstream religions should not be considered victims of mind control. To change a person's basic personality and character, to get them to behave in contradictory ways to lifelong patterns of behavior, to get them to alter their basic beliefs and values, would not necessarily count as mind control. It depends on how actively a person participates in their own transformation. You and I might think that a person is out of his mind for joining Scientology or Jehova's Witnesses, but their "crazy beliefs and behaviors" are no wilder than the ones that millions of mainstream religious believers have chosen to accept and engage in.

Some recruits into non-mainstream religions seem to be brainwashed and controlled to the point that they will do great evil to themselves or others at the behest of their leader, including murder and suicide. These recruits are often in a state of extreme vulnerability when they are recruited and their recruiter takes advantage of that vulnerability. Such recruits may be confused or rootless due to tragic life circumstances. They may be people who are mentally ill or brain damaged, emotionally disturbed, greatly depressed, traumatized by self-abuse with drugs or abuse at the hands of others, etc. Such people are very vulnerable to those who would like to control their thoughts and actions. They are vulnerable because they do not

have much control over their thoughts and actions. They are like passengers on a rudderless ship on a stormy sea. The recruiter has a rudder and he knows it. He also knows that the passenger knows he can only reach safety with a rudder. The trick is to get the passenger to want safety.

The techniques available to manipulate the vulnerable are legion. One technique is to give them the love they feel they do not get elsewhere. Convince them that through you and your community they can find what they're looking for, even if they haven't got a clue that they're looking for anything. Convince them that they need faith in you and that you have faith in them. Convince them that their friends and family outside the group are hindrances to their salvation. Isolate them. Only you can give them what they need. You love them. You alone love them. You would die for them. So why wouldn't they die for you? Love alone can only get you so far in winning them over. Fear is a great motivator. Fear that if they leave they'll be destroyed. Fear that if they don't cooperate they'll be condemned. Fear that they can't make it in this miserable world alone. Make them paranoid.

But love and fear may not be enough, so guilt must be used, too. Fill them with so much guilt that they will want to police their own thoughts. Remind them that they are nothing alone, but with you and God (or some Power or Technique) they are Everything. Fill them with contempt for themselves, so that they will want to be egoless, selfless, One with You and Yours. You not only strip them of any sense of self, you convince them that the ideal is be without a self. Keep up the pressure. Be relentless. Humiliate them from time to time. Soon they will consider it their duty to humiliate themselves. Control what they read, hear, see. Repeat the messages for eyes and ears. Gradually get them to make commitments, small ones at first, then work your way up until you own their property, their bodies, their souls. And don't forget to give them drugs, starve them, or have them meditate or dance or chant for hours at a time until they think they've had some sort of mystical experience. Make them think, "It was you, Lord, who made me feel so good." They won't want to give it up. They have never felt so good. Though they look as if they are in Hell to those of us on the outside, from the inside it looks like Heaven.

What religion doesn't use guilt and fear to get people to police their own thoughts? Even some therapists use similar methods to control their patients. Both prey on the vulnerable. Both demand total loyalty and trust as a price for hope and healing. Both often isolate their prey from loved ones and friends. Both try to own and control their clients. The methods of recruiters are not much different. Are the recruits, the converts to the faith, and the patients willing victims? How would we tell the difference between a willing victim and an unwilling victim? If we cannot do that, then we can't distinguish any true cases of mind control.

Recruiters and other manipulators are not using mind control unless they are depriving their victims of their free will. A person can be said to be deprived of his free will by another only if that other has introduced a causal agent which is irresistible. How could we ever demonstrate that a person's behavior is the result of irresistible commands given by a religious, spiritual, or personal growth leader? It is not enough to say that irrational behavior proves a person's free will has been taken from them. It may be irrational to give away all one's property, or to devote all one's time and powers to satisfying the desires of one's divine leader, or to commit suicide or plant poison bombs in subways because ordered to do so, but how can we justify claiming such irrational acts are the acts of mindless robots? For all we know, the most bizarre, inhumane, and irrational acts done by the recruits are done freely, knowingly and joyfully. Perhaps they are done by brain damaged or insane people. In either case, such people would not be victims of mind control.

That leaves for consideration the acts of kidnappers and inquisitors: the acts of systematic isolation, control of sensory input, and torture. Do these methods allow us to wipe the cortical slate clean and write our own messages to it? That is, can we delete the old and implant new patterns of thought and behavior in our victims? First, it should be noted that not everybody who has been kidnapped comes to feel love or affection for their kidnappers. And very few, if any, of those tortured by the Chinese went over to the other side. It may be that some kidnapped or captured people are reduced to a state of total dependency by their tormentors. They are put in a position similar to that of infancy and begin to bond with their tormentors much as an infant does with the one who feeds and comforts it. There is also the strange fascination most of us have with bullies. We fear them, even hate them, but often want to join their gang and be protected by them. It does not seem likely that people who fall in love with their kidnappers, or who turn against their country under torture, are victims of mind control. There is certainly some explanation why some people act as Patricia Hearst did and why others under similar circumstances would not have become "Tanya". But I doubt very much that mind control plays much of a role in the explanation. Some women are attracted to gangsters, but have few opportunities to interact with them. We do not need to revert to mind control to explain why Hearst became intimate with one of her terrorist captors. She may have thought she had to in order to survive. She may have been genuinely attracted to him. Who knows? Mind control is a better defense than "changed my mind about a life of crime" when facing bank robbery and murder charges. (Why would a woman with several children divorce her district attorney husband and marry the man he helped convict of murder? This happened in Texas, but I don't think we need to explain it in terms of mind control.)

Finally, it is widely believed that the Chinese were successful in brainwashing American prisoners of war during the Korean War. The evidence that their tactics of torture, isolation, sensory deprivation, etc., were successfully used to control the minds of their captives is non-existent. The myth of success by the Chinese is primarily due to the work of Edward Hunter, whose *Brainwashing in Red China: the Calculated Destruction of Men's Minds* (New York: Vanguard Press, 1951) is still referred to by those who see mind control tactics as a major menace today.

It seems then, that if we define mind control as the successful control of the thoughts and actions of another without his or her consent, mind control exists only in fantasy. Unfortunately, that does not mean that it will always be thus.

## Mineral Doctor

Joel D. Wallach, "The Mineral Doctor"

Joel D. Wallach, MS, DVM, ND, is a veterinarian and naturopath who claims that all diseases are due to mineral deficiencies, that everyone who dies of natural causes dies because of mineral deficiencies, and that just about anyone can live more than one hundred years if they take daily supplements of colloidal minerals harvested from a pit in Utah. He learned all this from living on a farm, working with Marlin Perkins (of Mutual of Omaha's "Wild Kingdom" fame), doing necropsies on animals and humans, and reading stories in *National Geographic* magazine and the 1934 novel by James Hilton, *The Lost Horizon*.

Dr. Wallach makes these claims despite the fact that in 1993 a research team from the Centers for Disease Control and Prevention in Atlanta, Georgia, reported the results of a 13-year study on 10,758 Americans which failed to find any mortality benefits from vitamin and mineral supplements. The study found that even though supplement users smoke and drink less than non-users, eat more fruits and vegetables than non-users, and are more affluent than non-users, they didn't live any longer than non-users. The study also found no benefit from taking vitamin and mineral supplements for smokers, heavy drinkers or those with chronic diseases.

The basic appeal of Dr. Wallach is the hope he gives to people who fear or are mistrustful of medical doctors and scientific knowledge. He gives hope to those who want to live for a really long time. He gives hope to those who are diagnosed with diseases for which current medical knowledge has no cure. He gives hope to those who want to avoid getting a terminal disease. And he gives hope to those who want to be healthy but who do not want to diet or exercise. All we have to do is drink a magic elixir of colloidal minerals and we'll be healthy. You can't just take your minerals in pill form, he warns us. You must take the colloidal variety in liquid form. Furthermore, this elixir must come from a pit in Utah, the only source approved by Dr. Wallach, and the only one, I suspect, in which he has a financial interest.

## The Audio Tape

Dr. Wallach seems to be most famous for a widely circulated audio tape he calls "Dead Doctors Don't Lie." The label of the tape I have notes that Dr. Wallach was a Nobel Prize nominee. This is true. He was nominated for a Nobel Prize in medicine by the Association of Eclectic Physicians "for his notable and untiring work with deficiencies of the trace mineral selenium and its relationship to the congenital genesis of Cystic Fibrosis." The Association of Eclectic Physicians is a group of naturopaths founded in 1982 by two naturopathic physicians, Dr. Edward Alstat and Dr. Michael Ancharski. In his book *Let's Play Doctor* (co-authored with Ma Lan, M.D., M.S.) he states that cystic fibrosis is preventable, is 100% curable in the early stages, can be managed very well in chronic cases, leading to a normal life expectancy (75 years). If these claims were true, he might have won the Prize. He didn't win, but he gave a lot of (false?) hope to parents of children with cystic fibrosis.

The basic danger of Dr. Wallach is not that people will be harmed by taking colloidal minerals, or even that many people will be wasting their money on a product they do not need. Many of his claims are not backed up with scientific control studies, but are anecdotal or fictional. Because he and other naturopaths exaggerate the role of minerals in good health, he may be totally ignored by the scientific community even if the naturopaths happen to hit upon some real connections between minerals and disease. Furthermore, there is the chance that legitimate scientific researchers may avoid this field for fear of being labeled a kook.

Dr. Wallach claims that there are 5 cultures in the world that have average life-spans of between 120 and 140 years: the Tibetans in Western China; the Hunzas in Eastern Pakistan; the Russian Georgians and the Armenians, the Abkhasians, and the Azerbaijanis. He also mentions the people of the Vilcabamba in Ecuador, and those who live around Lake Titicaca in Peru and Bolivia. The secret of their longevity is "glacier milk" or water full of colloidal minerals. It is probably news to these people that they live so long.

Dr. Wallach does not mention on what scientific data he bases his claims, but I am sure there are many anthropologists and tour book authors who would like to know about these Shangri-La havens.

He claims to have written over 70 articles in peer reviewed journals, but a search of the University of California periodical index list comes up with zero articles authored or co-authored by him, as did a search in the Multimedia Medical Reference Library. He claims to have written several books, but the only one in the UC library is Diseases of exotic animals: medical and surgical management (Philadelphia: Saunders, 1983) which he wrote with William J. Boever.

As mentioned above, his audio tape is titled "Dead Doctors Don't Lie." The label on the tape I have says "Learn why the average life span of an MD is only 58 years." On his tape, Dr. Wallach claims that "the average life span of an American is 75 years, but the average lifespan of an American doctor is only 58 years!" Maybe dead doctors don't lie, but this living one certainly stretches the truth. If he is telling the truth, it is not the whole truth and nothing but the truth. I contacted the American Medical Association and asked about the longevity of their members. Kevin Kenward responded and informed me that I was not the first person to question Dr. Wallach's statistics. According to Kenward, "Based on over 210,000 records of deceased physicians, our data indicate the average life-span of a physician is 70.8 years." One wonders where Dr. Wallach got his data. The only mention in his tape of data on physician deaths is in his description of a rather gruesome hobby of his: he collects obituaries of local physicians as he takes his mineral show from town to town . Maybe he extrapolated his statistic from this "data"?

On his tape, Dr. Wallach says

...what I did was go back to school and become a physician. I finally got a license to kill (laughter), and they allowed me to use everything I had learned in veterinary school about nutrition on my human patients. And to no surprise to me, it worked. I spent 12 years up in Portland, Oregon, in general practice, and it was very fascinating.

Dr. Wallach is an N.D., a doctor of naturopathy, not an M.D. as his tape obviously suggests. It is unlikely that most of the people in his audience know that naturopaths call themselves physicians and that there is a very big difference between an M.D. and an N.D. He also claims he did hundreds of autopsies on humans while working as a veterinarian in St. Louis. How does a veterinarian get to do human autopsies?

Well, again, to make a long story short, over a period of some twelve years I did 17,500 autopsies on over 454 species of animals and 3,000 human beings who lived in close proximity to the zoos, and the thing I found out was this: every animal and every human being who dies of natural causes dies of a nutritional deficiency.

To accomplish this, he would have to do 6 autopsies a day, working 5 days a week for the twelve years and taking only a two-week vacation each year. He was allegedly performing all these autopsies in addition to his other duties, and presumably while he was writing essays and books as well. Maybe all those minerals gave him superhuman powers!

#### An Attack and A Panegyric

Dr. Wallach's "Dead Doctors Don't Lie" tape is both an attack on the medical profession and a panegyric for minerals. The attack is vicious and mostly unwarranted, which weakens his credibility about the wonders of minerals. For example, he claims that "300,000 Americans are killed each year in hospitals through neglect and sloppy mistakes." This statistic is taken from Ralph Nader, he says. As far as I know, there has never been a national study of the issue. There was a study done in New York in 1991 (The Harvard Medical Practice Study) which found that nearly 4 percent of patients were harmed in the hospital and 14 percent of these died, presumably of their hospital-inflicted injuries. Lucian L. Leape, a Boston physician, extrapolated from this data that as many as 180,000 Americans may be dying each year of medical injuries suffered at the hands of medical care providers. Statistical extrapolations are notoriously unreliable, but the fact that large numbers of people are being killed by medical personnel in hospitals should not be ignored. However, it doesn't follow from the fact that medical personnel are killing patients through incompetence that it is safer to seek treatment from a naturopath, especially one who recommends minerals for your cancer, heart disease, cystic fibrosis, schizophrenia, or just about any other ailment imaginable.

Also worth noting is Dr. Wallach's tone and attitude toward the medical profession. He does not come across as an objective, impersonal scientist. He delights in ridiculing "Haavaad" University and cardiologists who die young from heart attacks. (My mother's cardiologist will probably die young. He only went into the field because he was born with a congenital heart defect. But when this man dies, Dr. Wallach will say the cause of death was "mineral deficiency." Apparently, the science of genetics is not taught at colleges of naturopathy.) He reverts to name calling on several occasions, as well. Doctors, he says, routinely commit many practices that would be considered illegal in other fields. At one point he claims that the average M.D. makes over \$200,000 a year in kickbacks. This ludicrous claim didn't even

get a peep of skeptical bewilderment from his audience. He sounds like a bitter, rejected oddball who is getting even with the medical profession for ignoring him and his "research."

In addition to citing his many scientific studies and years of research as proof that we need mineral supplements for good health, Dr. Wallach presents U.S. Senate document #264. This paper claims that U.S. soils are 85% depleted of essential minerals. According to Dr. Wallach, that is why we can't get enough minerals from our foods. He has further evidence, too:

...to live to be 100+ we need to consume 90 nutrients per day...60 minerals, 16 vitamins, 12 amino acids and 3 fatty acids...there are some 10 diseases associated with the lack of each of these 90 nutrients or potentially 900 diseases...the American Medical Association did a study in 1939 and came to the conclusion that it is no longer feasible to get all the vitamins we need from foods.

I wonder if the AMA has done any studies on this issue since 1939? If so, why aren't they mentioned? And why, even if mineral supplements are needed can't we buy them off the shelf of our local supermarket? Because they aren't "colloidal." He suggests at one point in his tape that minerals in pill form aren't absorbed at all; they just pass right through the body and out into the sewer lines. But why do our colloidal minerals have to come from a pit in Utah? Here is his explanation:

the only place you can get these in the United States is from a prehistoric Valley in southern Utah that, according to geologists, seventy-five million years ago had sixty to seventy-two minerals in the walls and the floor of that valley, and those trees and the grasses in that valley and that forest took up all the metallic minerals and made colloidal minerals in their tissues. About that time there was a volcanic eruption which entombed that valley with a thin layer of mud and ash, not thick enough or heavy enough to crush or pressurize this into oil or coal. It was very dry in here, so it never became fossilized or petrified. Okay. Never became rock.

Today, if you put a shaft into this valley, it's still just dried hay. It's seventy-five million year old hay, according to geologists. You can still see the grass and the leaves and the twigs and the pine cones and the bark and so forth. And we grind this plant material up into a flour, very small, particle sized flour, just like a good wheat flour and for three to four weeks we soak it in filtered spring water and when it reaches a specific gravity of 3.0, it's very heavy, it has thirty-eight grams of this colloidal mineral in it per quart or liter and by actual analysis it has sixty colloidal minerals in it. This particular product has been on the market since 1926. It's the only nutritional product on the market that has a legal consent decree from a federal court and an approval from the U.S. Department of Health and Human Services to be harvested and sold as a nutritional supplement. Everybody else who has a vitamin, or mineral, or what not, just follows the labeling requirements of the FDA. This is the only one that, in fact, has a federal consent decree to do it, because it passed all their tests. It's the only one that has been put to this level of test because it works.

How do we know it works? Dr. Wallach guarantees it. Or your money back! Should you trust him? Why wouldn't you trust someone who tells stories about people in China who lived to be over 250 years old or about a 137 year-old cigar-smoking woman! Of course, it is up to you to infer that they lived so long because they took colloidal minerals, though the good Dr. has enough sense not to make such a claim. In case you are still not convinced of this man's trustworthiness, let me inform you that, according to Dr. Wallach, for the past twenty years there have been cures for arthritis, diabetes and ulcers. These cures were discovered by veterinarians, who also discovered the cause of Alzheimer's disease years ago.

In conclusion, Dr. Wallach has spawned a small industry of mineral sellers, including some MLM projects and a few who advertise on the WWW. Keeping in the truthful mode of Dr. Wallach, some of these WWW sites quote Linus Pauling as saying "You can trace every sickness, every disease, and every ailment to a mineral deficiency." This claim is supposed to come from the man who spent much of the latter part of his long life as an advocate for vitamin C. Maybe Dr. Pauling didn't know the difference between a vitamin and a mineral. I think it is more likely that Dr. Wallach and his followers don't know the difference between fact and fiction.

## Miracles

A miracle is "a transgression of a law of nature by a particular volition of the Deity, or by the interposition of some invisible agent" (Hume, 123n). Theologians of the Old & New Testament religions consider only God-willed contravention of the laws of nature to be true miracles. However, they admit others can do and have done things which contravene the laws of nature; such acts are attributed to diabolical powers and are called "false miracles." Many outside of the Biblical based religions believe in the ability to transgress laws of nature through acts of will in consort with paranormal or occult powers. They generally refer to these transgressions not as miracles, but as magick.

All religions report numerous and equally credible miracles. As Hume noted, the religions of the world have established themselves upon their miracles. If so, then they cancel each other out. That is, each religion establishes itself as solidly as the next, thereby overthrowing and destroying its rivals. Hume compares deciding amongst religions on the basis of their miracles to the task of a judge who must evaluate contradictory, but equally reliable, testimonies.

More telling, though, is the fact that the more ancient and barbarous a people is, the greater the tendency for miracles and prodigies of all kinds to flourish.

...it forms a strong presumption against all supernatural and miraculous relations that they are observed chiefly to abound among ignorant and barbarous nations; or if a civilized people has ever given admission to any of them, that people will be found to have received them from ignorant and barbarous ancestors, who transmitted them with that inviolable sanction and authority which always attend received opinions (Hume, 126).

Hume was a historian, as well as a philosopher, and it did not go unnoticed by him that the further back in history one goes, the more reports of miracles ones finds. While there are still many people today who believe in miracles, no modern historian fills his or her books with accounts of miraculous events. It is improbable that the report of even a single miracle would find its way into such texts today. Indeed, only those who cater to the superstitious and credulous, such as the National Enquirer and a good portion of the rest of the mass media, would even think of reporting an alleged miracle without taking a very skeptical attitude towards it. No scholarly journal today would consider an author rational if he or she were to sprinkle reports of miracles throughout a treatise. The modern scholar dismisses all such reports as either lies or cases of collective hallucination.

Hume was aware that no matter how scientific or rational a civilization became, belief in miracles would never be eradicated. Human nature is such that we love the marvelous and the wondrous. Human nature is also such that we love even more to be the bearer of a story of the marvelous and the wondrous. The more wondrous our story, the more merit both we and it attain. Vanity, delusion and zealotry have led to more than one pious fraud supporting a holy and meritorious cause with gross embellishments and outright lies about witnessing miraculous events (Hume, 136).

Hume's greatest argument against belief in miracles, however, was modelled after an argument made by John Tillotson, Archbishop of Canterbury. Tillotson and others, such as William Chillingworth before him and his contemporary Bishop Edward Stillingfleet, had argued what they called a "commonsense" defense of Christianity, i.e., Anglicanism. Tillotson's argument against the Catholic doctrine of transubstantiation or "the real presence" was simple and direct. The idea contradicts sense that the bread and wine used in the communion ceremony is really changed in substance so that what is bread and wine to all the senses is really the body and blood of Christ. If it looks like bread, smells like bread, tastes like bread, then it is bread. To believe otherwise is to give up the basis for all knowledge based on sense experience. Anything could be other than it appears to the senses. This argument has nothing to do with the skeptical argument about the uncertainty of sense knowledge. This is an argument not about certainty but about reasonable belief. If the Catholics are right about transubstantiation, then a book might really be a bishop, for example, or a pear actually be Westminster Cathedral. The accidents of a thing would be no clue as to its substance. Everything we perceive could be completely unrelated to what it appears to be. Such a world would be unreasonable and unworthy of God. If the senses can't be trusted in this one case, they can't be trusted in any. To believe in transubstantiation is to abandon the basis of all knowledge: sense experience.

Hume begins his essay on miracles by praising Tillotson's argument as being "as concise and elegant and strong as any argument can possibly be supposed against a doctrine so little worthy of a serious refutation." He then goes on to say that he fancies that he has (118)

discovered an argument of a like nature which, if just, will, with the wise and learned, be an everlasting check to all kinds of superstitious delusion, and consequently will be useful as long as the world endures; for so long, I presume, will the accounts of miracles and prodigies be found in all history, sacred and profane.

His argument is a paradigm of simplicity and elegance (122):

A miracle is a violation of the laws of nature; and as a firm and unalterable experience has established these laws, the proof against a miracle, from the very nature of the fact, is as entire as any argument from experience can possibly be imagined.

Or put even more succinctly (122):

There must...be a uniform experience against every miraculous event, otherwise the event would not merit that appellation.

The logical implication of this argument is that (123)



no testimony is sufficient to establish a miracle unless the testimony be of such a kind that its falsehood would be more miraculous than the fact which it endeavors to establish.

What Hume has done is to take the commonsense Anglican argument against the Catholic doctrine of transubstantiation and applied it to miracles, the basis of all Christian sects. The laws of nature have not been established by occasional or frequent experiences of a similar kind, but of uniform experience. It is "more than probable," says Hume, that all men must die, that lead can't remain suspended in air by itself and that fire consumes wood and is extinguished by water. If someone were to report to Hume that a man could suspend lead in the air by an act of will, Hume would ask himself if "the falsehood of his testimony would be more miraculous than the event which he relates." If so, then he would believe the testimony. However, he does not believe there ever was a miraculous event established "on so full an evidence."

Consider the fact that the uniformity of experience of people around the world has been that once a human limb has been amputated, it does not grow back. What would you think if a friend of yours, a scientist of the highest integrity with a Ph.D in physics from Harvard, were to tell you that she was off in Spain last summer and met a man who used to have no legs but now walks on two fine, healthy limbs. She tells you that a holy man rubbed oil on his stumps and his legs grew back. He lives in a small village and all the villagers attest to this "miracle." Your friend is convinced a miracle occurred. What would you believe? To believe in this miracle would be to reject the principle of the uniformity of experience, upon which laws of nature are based. It would be to reject a fundamental assumption of all science, that the laws of nature are inviolate. The miracle cannot be believed without abandoning a basic principle of empirical knowledge: that like things under like circumstances produce like results.

Of course there is another constant, another product of uniform experience which should not be forgotten: the tendency of people at all times in all ages to desire wondrous events, to be deluded about them, to fabricate them, create them, embellish them, enhance them, and come to believe in the absolute truth of the creations of their own passions and heated imaginations. Does this mean that miracles cannot occur? Of course not. It means, however, that when a miracle is reported the probability will always be greater that the person doing the reporting is mistaken, deluded or a fraud than that the miracle really occurred. To believe in a miracle, as Hume said, is not an act of reason but of faith.

#### Mokele-Mbembe

The mokele-mbembe is an alleged living sauropod dinosaur now living in the Likouala swamp region of the Republic of Congo (Zaire). The animal has allegedly been encountered by local pygmies who have given the creature its name. Mokele-mbembe means, depending on your source, "rainbow", "one that stops the flow of rivers", or "monstrous animal." The mokele-mbembe is allegedly the size of an elephant (the favorite prey of the local pygmies) with a very long reptilian neck. The creature is said to be hairless, reddish-brown, brown, or gray, with a tail five to ten feet long. Footprints left on land are of a three-clawed foot. But the creature apparently spends most of its time in the water.

There would have to be a significant number of the huge creatures to survive for some 70 million years. Yet, they seem to have done so without leaving a single carcass, no bone fragments, no fossils, no anything except big stories.

#### Moody, Raymond

Raymond Moody is a parapsychologist with a medical degree (from the Medical College of Georgia) and Ph.D.s in philosophy and psychology (from the University of Virginia). He has written several books on the subject of "life after life" and created the myth of the typical near-death experience as featuring the following: a buzzing or ringing noise; a sense of blissful peace; a feeling of floating out of one's body and observing it from above; moving through a tunnel into a bright light; meeting dead people, saints, Christ, angels, etc.; seeing one's life pass before one's eyes; and finding it all so wonderful that one doesn't want to return to one's body. This composite experience is based mostly on liberal interpretations of testimonials and anecdotes from doctors, nurses and patients. Characteristic of Moody's work is the glaring omission of cases that don't fit his hypothesis. If Moody is to be believed, no one near death has had a horrifying experience. Maybe that is why his books have sold in the tens of millions.

Moody conducts his paranormal studies at his private research institute in rural Alabama, which he calls The John Dee Memorial Theater of the Mind. Dee popularized crystal gazing in 16th century England. Moody is continuing in the spirit of Dee, trying to evoke apparitions of the dead under controlled conditions. Moody has a mirrored room where guests come to scry, hoping for a visit from a dead loved one. ABC reporter Diane Sawyer tried it out for about 45 minutes but didn't have any visitors. Maybe she didn't have a strong enough desire to see a dead loved one. Maybe she didn't have a strong enough belief that gazing

into mirrors can induce an altered state of consciousness. Maybe she should have stayed in the room for a day or two.

While there are many frauds who claim to be able to see into the past or future by various means of divination, there probably are also many who hallucinate due to sensory deprivation, extreme concentration on a single item and lengthy gazing at a uniform or kaleidoscopic surfaces. Nevertheless, Moody and many of his guests claim success at having spirits visit them in the mirrored room. Moody, like Charles Tart, is convinced that an altered state of consciousness is the gateway to the other world. Mirror gazing is just one of many methods Moody uses to try to induce an altered state.

Moody is also an advocate of past life regression. He claims that he was skeptical about reincarnation until undergoing hypnotherapy during which he discovered that he had had nine past lives. Naturally, he has written a book on the subject. He claims that just about anyone can experience a "past-life journey" and that such trips help one overcome phobias, compulsions, addictions and depression, among other things.

On May 10, 1998, Moody accepted an appointment to the Bigelow Chair in Consciousness Studies at The University of Nevada, Las Vegas. He succeeds another well-known parapsychologist, Charles Tart. UNLV used to be known for its basketball teams, but in recent years it has become known as the Harvard of the West. Perhaps alien abduction advocate Dr. John Mack will succeed Moody.

Upon his appointment, Moody was quoted as saying: "I am thrilled to have the opportunity to teach again, and believe that UNLV should be applauded for its determination to adhere to the strictest standards of scientific rigor regarding claims of rational 'evidence' or 'proof' of the continuation of consciousness upon bodily death. . .the extraordinary states of consciousness commonly deemed paranormal are an enduring human concern that will not go away, and I have been hopeful that students with a serious interest in these topics would have a setting within which they could learn about paranormal phenomena from a non-ideological perspective." Indeed. It remains to be seen what kind of non-ideological rigor Moody will apply to his work. He has given some indication of his non-ideological rigor by announcing that he has invited Brian Weiss, M.D., "expert in past life regression," to conduct a community forum at UNLV. He has also invited to UNLV a person named Dianne Arcangel who, says Moody, is "an expert in the field of facilitated apparitions."

## Moon

### Full Moon and Lunar Effects

The full moon has been linked to crime, suicide, mental illness, disasters, accidents, birthrates, fertility, and werewolves, among other things. Some people even buy and sell stocks according to phases of the moon, a method probably as successful as many others. Numerous studies have tried to find lunar effects. So far, the studies have failed to establish anything of interest, except that the idea of the full moon definitely sends some lunatics (after luna, the Latin word for moon) over the edge. (Lunar effects that have been found have little or nothing to do with human behavior, e.g., the discovery of a slight effect of the moon on global temperature,\* which in turn might have an effect on the growth of plants.\*)

Ivan Kelly, James Rotton and Roger Culver examined over 100 studies on lunar effects and concluded that the studies have failed to show a reliable and significant correlation (i.e., one not likely due to chance) between the full moon, or any other phase of the moon, and each of the following:

- the homicide rate
- traffic accidents
- crisis calls to police or fire stations
- domestic violence
- births of babies
- suicide
- major disasters
- casino payout rates
- assassinations
- kidnappings
- aggression by professional hockey players
- violence in prisons
- psychiatric admissions
- agitated behavior by nursing home residents
- assaults
- gunshot wounds
- stabbings
- emergency room admissions

- behavioral outbursts of psychologically challenged rural adults
- lycanthropy
- vampirism
- alcoholism
- sleep walking
- epilepsy

If so many studies have failed to prove a significant correlation between the full moon and anything, why do so many people believe in these lunar myths? Kelly, Rotton, and Culver suspect four factors: media effects, folklore and tradition, misconceptions, and cognitive biases. I would add a fifth factor: communal reinforcement.

#### The Media Perpetuates Lunar Myths

Kelly, et al., note that lunar myths are frequently presented in films and works of fiction. "With the constant media repetition of an association between the full moon and human behavior it is not surprising that such beliefs are widespread in the general public," they say. Reporters also "favor those who claim that the full moon influences behavior." It wouldn't be much of a story if the moon was full and nothing happened, they note. Anecdotal evidence for lunar effects is not hard to find and reporters lap it up, even though such evidence is unreliable for establishing significant correlations. Relying on personal experience ignores the possibility of self-deception and confirmation bias. Such evidence may be unreliable, but it is nonetheless persuasive to the uncritical mind.

#### Folklore and Tradition

Many lunar myths are rooted in folklore. For example, an ancient Assyrian/Babylonian fragment stated that "A woman is fertile according to the moon." Such notions have been turned into widespread misconceptions about fertility and birthrates. For example, Eugen Jonas, a Slovakian psychiatrist, was inspired by this bit of folklore to create a method of birth control and fertility largely rooted in astrological superstitions. The belief that there are more births during a full moon persists today among many educated people. Scientific studies, however, have failed to find any significant correlation between the full moon and number of births (See "Lunar phase and birth rate: A fifty-year critical review," by R. Martens, I. Kelly, and D. H. Saklofske, *Psychological Reports*, 63, 923-934, "Lunar phase and birthrate: An update," by I. Kelly and R. Martens, *Psychological Reports*, 75, 507-511). In 1991, Benski and Gerin reported that they had analyzed birthdays of 4,256 babies born in a clinic in France and "found them equally distributed throughout the synodic (phase) lunar cycle" (Kelly, et al. 1996, 19). In 1994, Italian researchers Periti and Biagiotti reported on their study of 7,842 spontaneous deliveries over a 5-year period at a clinic in Florence. They found "no relationship between moon phase and number of spontaneous deliveries" (Kelly, et al. 1996, 19).

Despite the fact that there is no evidence of a significant correlation between phases of the moon and fertility, some people not only maintain that there is, they have a "scientific" explanation for the non-existent correlation. According to "Angela" of *AstraConceptions* at [fertilityrhythms.com](http://fertilityrhythms.com),

...photoc (light) signals sent by the lens and retina of the eyes are converted into hormone signals by the pineal gland. It is the pineal gland which signals the onset of puberty in humans and plays a part in the fertility rhythms of all species.

In animals which reproduce seasonally, it is the changing light patterns which trigger the fertility cycle. The gradual change in both the length of day and the changing angle of the sun in the sky (caused by earth's motion) is interpreted by the pineal gland as a signal to commence the fertility season.

Of course, humans do not reproduce seasonally. Our fertility cycles exhibit an obvious monthly rhythm. The light source which has a monthly periodicity is, of course, the Moon.

It is interesting to note that menstruation is actually a shedding process. Just as the average menstrual cycle is 28 days in length, the human body sheds a layer of skin approximately every 28 days.

Yes, that is very interesting to note...if you are interested in sympathetic magic. (The author also finds it noteworthy that animals which reproduce seasonally also shed their coats seasonally.) The author continues

...it is not only the changing day length but also the changing angular position of the sun which triggers this process; the pineal gland receives photoc (light) impressions and converts these into hormonal messages which signal the onset of these cycles.

With humans the cycles of fertility (and shedding) are triggered by photic impressions as well. Yet our cycles have a monthly periodicity which is obviously synchronized with fluctuations of the lunar light.

Obviously. However, the light of the moon is a very minor source of light in most women's lives, and is no more likely than the moon's gravitational force to have a significant effect upon a woman's ovulation. Furthermore, the average menstrual cycle is 28 days but varies from woman to woman and month to month, while the length of the lunar month is a consistent 29.53 days.\* Some of us have noticed that these cycles are not identical. Furthermore, it would seem odd that natural selection would favor a method of reproduction for a species like ours that depended on the weather. Clouds are bound to be irregularly and frequently blocking moonlight, which would seem to hinder rather than enhance our species' chance for survival.

Some mythmakers believe that long ago women all bled in sync with the moon, but civilization and indoor electric lighting (or even the discovery of fire by primitive humans) has messed up their rhythmic cycle. This theory may seem plausible until one remembers that there are quite a few other mammals on the planet who have not been affected by firelight or civilization's indoor lighting and, with the exception of the opossum, their cycles aren't in harmony with the moon. In the lemur, on the other hand, "estrus and sex tend to occur around the time of the full moon."\* In short, given the large number of types of mammals on our planet, one would expect that by chance some species' estrus and menstrual cycles would harmonize with lunar cycles. It is doubtful that there is anything of metaphysical significance in this.

What we do know is that there has been very little research on hormonal or neurochemical changes during lunar phases. James Rotton's search of the literature "failed to uncover any studies linking lunar cycles to substances that have been implicated as possible correlates of stress and aggression (e.g., serotonin, melatonin, epinephrine, norepinephrine, testosterone, cortisol, vasopressin [directly relevant to fluid content], growth hormone, pH, 17-OHCS, adrenocortropic hormone)."\* One would think that this area would be well-studied, since hormones and neurochemicals are known to affect menstruation and behavior.

#### Misconceptions

Kelly et al. note that misconceptions about such things as the moon's effect on tides have contributed to lunar mythology. Many people seem to think that since the moon affects the ocean's tides, it must be so powerful that it affects the human body as well. It is actually a very weak tidal force. A mother holding her child "will exert 12 million times as much tidal force on her child as the moon" (Kelly et al., 1996, 25). Astronomer George O. Abell claims that the moon's gravitational pull is less than that of a mosquito (Abell 1979). Despite these physical facts, there is still widespread belief that the moon can cause earthquakes. It doesn't; nor does the sun, which exerts much less tidal force on the earth than the moon.\*

The fact that the human body is mostly water largely contributes to the notion that the moon should have a powerful effect upon the human body and therefore an effect upon behavior. It is claimed by many that the earth and the human body both are 80% water. This is false. Eighty percent of the surface of the earth is water. Furthermore, the moon only affects unbounded bodies of water, while the water in the human body is bounded.

Also, the tidal force of the moon on the earth depends on its distance from earth, not its phase. Whereas the synodic period is 29.53 days, it takes 27.5 days for the moon to move in its elliptical orbit from perigee to perigee (or apogee to apogee). Perigee (when the moon is closest to earth) "can occur at any phase of the synodic cycle" (Kelly et al. 1990, 989). Higher tides do occur at new and full moons, but not because the moon's gravitational pull is stronger at those times. Rather, the tides are higher then because "the sun, earth, and moon are in a line and the tidal force of the sun joins that of the moon at those times to produce higher tides" (Kelly et al. 1990, 989).

Many of the misconceptions about the moon's gravitational effect on the tides, as well as several other lunar misconceptions, seem to have been generated by Arnold Lieber in *The Lunar Effect* (1978), republished in 1996 as *How the Moon Affects You*. Lieber incorrectly predicted a catastrophic earthquake would hit California in 1982 due to the coincidental alignment of the moon and planets.

#### cognitive biases and communal reinforcement

Finally, many believe in lunar myths because they have heard them repeated many times by members of the mass media, by police officers, nurses, doctors, social workers, and other people with influence. Once many people believe something and enjoy a significant amount of communal reinforcement, they get very selective about the type of data they pay attention to in the future. If one believes that during a full moon there is an increase in accidents, one will notice when accidents occur during a full moon, but be inattentive to the moon when accidents occur at other times. If something strange happens and there is a full moon at the time, a causal connection will be assumed. If something strange happens and there is no full moon, no connection is made, but the event is not seen as counterevidence to the belief in full moon

causality. Memories get selective, and perhaps even distorted, to favor a full moon hypothesis. A tendency to do this over time strengthens one's belief in the relationship between the full moon and a host of unrelated effects.

### The Moon, Madness and Suicide

Probably the most widely believed myth about the full moon is that it is associated with madness. However, in examining over 100 studies, Kelly, Rotton and Culver found that "phases of the moon accounted for no more than 3/100 of 1 percent of the variability in activities usually termed lunacy" (1996, 18). According to James Rotton, "such a small percentage is too close to zero to be of any theoretical, practical, or statistical interest or significance."\*

Finally, the notion that there is a lunar influence on suicide is also unsubstantiated. Martin, Kelly and Saklofske reviewed numerous studies done over nearly three decades and found no significant association between phases of the moon and suicide deaths, attempted suicides, or suicide threats. In 1997, Gutiérrez-García and Tusell studied 897 suicide deaths in Madrid and found "no significant relationship between the synodic cycle and the suicide rate" (1997, 248). These studies, like others which have failed to find anything interesting happening during the full moon, have gone largely, but not completely\*, unreported in the press.

update: According to Allan Hall of the Sunday-Times, German researchers Hans-Joachim Mittmeyer of the University of Tübingen and Norbert Filipp from the Health Institute of Reutlingen claim that "a study of police reports for 50 new and full Moon cycles" shows that the moon is "responsible for binge drinking."

According to Hall, Mittmeyer and Filipp claim in their paper "Alcohol Consumption and the Moon's Influence" to have studied police arrest reports and blood-alcohol tests of 16,495 people and Mittmeyer said "The results show there is a definite correlation between new and full Moons and the amount of alcohol consumed."

Hall writes:

More of those with an excess of 2ml of alcohol per 100ml of blood inside them - drunk, according to German law - were caught by police during the five-day full Moon cycle.

On average 175 drink[sic]-drivers per day were caught in two German states two days before a full Moon, 161 were caught during the full Moon cycle and the figure dropped to about 120 per day at other times.

This very unclear statement has to be interpreted. I took it to mean that an average of 175 drunk drivers were caught each day on days one and two of the five-day cycle. Thus, if the average for the whole five-day cycle was only 161, there were substantially fewer drunk drivers caught on the night of the full moon. Thus, it appeared to me that the researchers were not able to correlate the full moon with an increase in arrests, so they created 'the full moon cycle', a five day period, which gave them the statistical correlations they were looking for.

Apparently, however, I was wrong in my interpretation of Hall's meaning and Hall erred in his reading of a report from the German Press Agency DPA which erred in its reading of the original paper which erred in its interpretation of the data.

Jan Willem Nienhuys, a mathematician in the Eindhoven (Netherlands) University of Technology, claims that "Hall's story is a garbled version of a story by the German Press Agency DPA." According to Nienhuys, Hall invented the notion of a five-day full Moon cycle; the expression is not used by Mittmeyer and Filipp in their paper. Furthermore, 668 of the 16,495 arrested and tested were found to be sober, leaving 15,827 with alcohol in their blood, but only 4,512 with more than 0.2 percent blood alcohol (i.e., drunk).

According to Nienhuys, the 161 figure refers to the average number of drunk drivers arrested on any given date in the lunar month; he believes this number was arrived at by dividing 4,512 by 28 (rather than 29.53, the length of a lunar month) and hence should be 153, not 161. About the only thing Hall got right, says Nienhuys, is that Mittmeyer and Filipp do claim to have found a significant correlation between the moon and excessive drinking. He notes that the pair provide graphs but no statistical analysis of their data. When such an analysis is done, says Nienhuys, one discovers that the study is "pompous pseudoscience." According to Nienhuys, a standard statistical test yields p-values which show that there is nothing to investigate.

Here is the data, according to Nienhuys. Day 0 is the day of the new moon and day 14 is the full moon.

day drunks drinkers, including drunks

0 145 551

1 160 528

2 162 552

3 122 527  
4 162 538  
5 157 531  
6 156 504  
7 158 560  
8 140 523  
9 152 540  
10 150 552  
11 146 477  
12 173 563  
13 150 545  
14 150 523  
15 149 498  
16 145 543  
17 142 539  
18 143 507  
19 119 508  
20 157 532  
21 163 552  
22 156 513  
23 148 530  
24 154 528  
25 158 536  
26 175 582  
27 176 581  
28 169 590

-----  
4437 15553  
missing 75 274

-----  
4512 15827

The three big days were the 12th, 26th and 27th. You figure it out!

(Nienhuys article, entitled "Triply garbled tripe" is being prepared for publication. He was kind enough to send me a pre-publication copy of the paper

### Morphic Resonance

Morphic resonance is a term coined by Rupert Sheldrake for what he thinks is "the basis of memory in nature...the idea of mysterious telepathy-type interconnections between organisms and of collective memories within species."

Sheldrake has been trained in 20th century scientific models--he has a Ph.D. in biochemistry from Cambridge University (1967)--but he prefers Goethe and 19th century vitalism. Sheldrake prefers teleological to mechanistic models of reality. Rather than spend his life, say, trying to develop a way to increase crop yields, he prefers to study and think in terms outside of the paradigms of science, i.e., inside the paradigms of the occult and the paranormal. His latest book is entitled *Dogs That Know When Their Owners Are Coming Home: And Other Unexplained Powers of Animals*. He prefers a romantic vision of the past to the bleak picture of a world run by technocrats who want to control Nature even if that means destroying much of the environment in the process. In short, he prefers metaphysics to science, though he seems to think he can do the former but call it the latter.

'Morphic resonance' (MR) is put forth as if it were an empirical term, but it is no more empirical than 'engram', L. Ron Hubbard's term for the source of all mental and physical illness. The term is more on par with the Stoic's notion of the Logos or Plato's notion of the eidos [eidos] than it is with any scientific notion of laws of nature. What the rest of the scientific world terms lawfulness--the tendency of things to follow patterns we call laws of nature--Sheldrake calls morphic resonance. He describes it as a kind of memory in things determined not by their inherent natures, but by repetition. He also describes MR as something which is transmitted via "morphogenic fields." This gives him a conceptual framework wherein information is transmitted mysteriously and miraculously through any amount of space and time without loss of energy, and presumably without loss or change of content through something like mutation in DNA replication. Thus, room is made for psychic as well as psychical transmission of information. Thus,

it is not at all necessary for us to assume that the physical characteristics of organisms are contained inside the genes, which may in fact be analogous to transistors tuned in to the proper frequencies for translating invisible information into visible form. Thus, morphogenetic fields are located invisibly in and

around organisms, and may account for such hitherto unexplainable phenomena as the regeneration of severed limbs by worms and salamanders, phantom limbs, the holographic properties of memory, telepathy, and the increasing ease with which new skills are learned as greater quantities of a population acquire them.\*

While this metaphysical proposition does seem to make room for telepathy, it does so at the expense of ignoring Occam's razor. Phantom limbs, for example, can be explained without adding the metaphysical baggage of morphic resonance. So can memory, which does not require a holographic paradigm, by the way. And, in my view, so can telepathy. The notion that new skills are learned with increasing ease as greater quantities of a population acquire them, known as the hundredth monkey phenomenon, is bogus.

In short, although Sheldrake commands some respect as a scientist because of his education and degree, he has clearly abandoned science in favor of theology and philosophy. This is his right, of course. However, his continued pose as a scientist is unwarranted. He is one of a growing horde of "alternative" scientists whose resentment at the aspiritual nature of modern scientific paradigms, as well as the obviously harmful and seemingly indifferent applications of modern science, have led them to create their own paradigms. These paradigms are not new, though the terminology is. These alternative paradigms allow for angels, telepathy, psychic dogs, and hope for a future world where we all live in harmony and love, surrounded by blissful neighbors who never heard of biological warfare, nuclear bombs, or genetically engineered corn on the cob.

### Mozart Effect

"We have this common internal neural language that we're born with and so if you can exploit that with the right stimuli then you're going to help the brain develop to do the things like reason." -- Dr. Gordon Shaw

"We exposed these animals [rats] in utero and then sixty days after birth to different types of auditory stimulation and then we ran them in a spatial maze. And sure enough, the animals that were exposed to the Mozart completed the maze faster and with fewer errors. And now what we're doing is we're removing their brains so we can slice them and see neuro-anatomically precisely what has changed as a function of this exposure. So it may be that this intense exposure to the music is a type of enrichment that has similar effects on the spatial areas of the hippocampus of the brain." --Dr. Frances Rauscher

"Stories stressing that children's experiences during their early years of life will ultimately determine their scholastic ability, their future career paths, and their ability to form loving relationships have little basis in neuroscience." --John Bruer

The Mozart Effect is a term coined by Alfred A. Tomatis for the alleged increase in brain development that occurs in children under age 3 when they listen to the music of Wolfgang Amadeus Mozart.

The idea for the Mozart Effect originated in 1993 at the University of California, Irvine, with physicist Gordon Shaw and Frances Rauscher, a former concert cellist and an expert on cognitive development. They studied the effects on a few dozen college students of listening to the first 10 minutes of the Mozart Sonata for Two Pianos in D Major (K.448). They found a temporary enhancement of spatial-temporal reasoning, as measured by the Stanford-Binet IQ test. No one else has been able to duplicate their results. At least one researcher has found that listening to Mozart makes some people dumber (Halpern). Another commented that the "very best thing that could be said of their experiment—were it completely uncontested—would be that listening to bad Mozart enhances short-term IQ" (Linton). Rauscher has moved on to study the effects of Mozart on rats. Both Shaw and Rauscher have speculated that exposure to Mozart enhances spatial-reasoning and memory in humans.

In 1997, Rauscher and Shaw announced that they had scientific proof that piano and singing instruction are superior to computer instruction in enhancing children's abstract reasoning skills.

The experiment included three groups of preschoolers: one group received private piano/keyboard lessons and singing lessons; a second group received private computer lessons; and a third group received no training. Those children who received piano/keyboard training performed 34% higher on tests measuring spatial-temporal ability than the others. These findings indicate that music uniquely enhances higher brain functions required for mathematics, chess, science and engineering (Neurological Research, February 1997).

Shaw and Rauscher have stimulated an industry. They have also created their own institute: The Music Intelligence Neural Development Institute (M.I.N.D.). There is so much research going on to prove the wondrous effects of music that a web site has been created just to keep track of all the new developments: MüSICA., which has a section just on the Mozart Effect.

Shaw and Rauscher claim that their work has been misrepresented. What they have shown is "that there are patterns of neurons that fire in sequences, and that there appear to be pre-existing sites in the brain that respond to specific frequencies."\* This is not quite the same as showing that listening to Mozart increases intelligence in children. Nevertheless, Shaw is not going to wait for the hard evidence to pour in before he cashes in on the desire of parents to enhance their children's intelligence. He has book & CD coming out called Keeping Mozart in Mind. You can buy it from his institute after September 1999. He and his colleagues are convinced that since spatio-temporal reasoning is essential for many higher order cognitive tasks, stimulating the area of the brain associated with spatio-temporal reasoning and doing spatio-temporal exercises will increase a person's intelligence for math, engineering, chess, and science. They even have a software program for sale, which uses no language and aims at exercising spatio-temporal skills with the help of an animated penguin.

Shaw and Rauscher may have spawned an industry, but the mass media and others have created a kind of alternative science which supports the industry. Exaggerated and false claims about music have become so commonplace that it is probably a waste of time to try to correct them. For example, Jamal Munshi, an associate professor of Business Administration at Sonoma State University, collects tidbits of misinformation and gullibility. He posts them on the Internet as "Weird but True," including the claim that Shaw and Rauscher showed that listening to Mozart's sonata for two pianos in D major "increased SAT scores of students by 51 points." Actually, Shaw and Rauscher gave 36 UC Irvine students a paper folding and cutting test and found the Mozart group showed a temporary 8-9 point increase over their scores when they took the test after either a period of silence or listening to a relaxation tape. (Munshi also claims that science cannot explain how a fly flies. Scientists have been working hard on this crucial problem, so we should give them their due.)

Don Campbell, however, has become the Carlos Castaneda and P.T. Barnum of the Mozart Effect, exaggerating and distorting the work of Shaw, Rauscher and others for his own benefit. He has trademarked the expression The Mozart Effect and peddles himself and his products at [www.mozarteffect.com](http://www.mozarteffect.com). Campbell claims that he made a blood clot in his brain disappear by humming, praying, and envisioning a vibrating hand on the right side of his skull. Uncritical supporters of alternative medicine don't question this claim, though it is one of those safe claims that can't be proved or disproved. He might as well claim that angels took the clot away. (One wonders why, if music is so good for you, he got a blood clot in the first place. Accidentally listening to rap music?)

The claims that Campbell makes for music are of an almost rococo flamboyance. And like the rococo, just about as substantive. [Campbell claims music can cure just about anything that ails you.] His evidence is usually anecdotal, and even this he misinterprets. Some things he gets completely wrong.

And the whole structure of his argument collapses under simple common sense. If Mozart's music were able to improve health, why was Mozart himself so frequently sick? If listening to Mozart's music increases intelligence and encourages spirituality, why aren't the world's smartest and most spiritual people Mozart specialists? (Linton)\*

The lack of evidence for the Mozart Effect has not deterred Campbell from becoming a favorite on the lecture circuit with the naive and uncritical.

When McCall's wants advice on how to lose the blues with music, when PBS wants to interview an expert on how the voice can energize you, when IBM wants a consultant to use music to increase efficiency and harmony in the workplace, when the National Association of Cancer Survivors wants a speaker on the healing powers of music, they turn to Campbell (Campbell's website, [www.mozarteffect.com](http://www.mozarteffect.com)).

The governors of Tennessee and Georgia have started programs which give a Mozart CD to every newborn. Hundreds of hospitals were given free CDs of classical music in May of 1999 by the National Academy of Recording Arts and Sciences Foundation. These are well-intentioned gestures, but are they based on solid research that classical music increases a child's intelligence or an adult's healing process?

Not according to Kenneth Steele, a psychology professor at Appalachian State University, and John Bruer, head of the James S. McDonnell Foundation in St. Louis. Contrary to all the hype, they claim that there is no real intelligence enhancing or health benefit to listening to Mozart. Steele and his colleagues Karen Bass and Melissa Crook claim that they followed the protocols set forth by Shaw and Rauscher but could not "find any kind of effect at all," even though their study tested 125 students. They concluded that "there is little evidence to support intervention programs based on the existence of the Mozart effect." Their research appears in the July 1999 issue of Psychological Science.

In his book *The Myth of the First Three Years*, Bruer attacks not only the Mozart Effect but several other related myths based on the misinterpretation of recent brain research.

The Mozart Effect is an example of how science and the media mix in our world. A suggestion in a few paragraphs in a scientific journal becomes a universal truth in a matter of months, eventually believed even by the scientists who initially recognized how their work had been distorted and exaggerated by the



media. Others, smelling the money, jump on the bandwagon and play to the crowd, adding their own myths, questionable claims, and distortions to the mix. In this case, many uncritical supporters line up to defend the faith because at stake here is the future of our children. We then have books, tapes, CDs, institutes, government programs, etc. Soon the myth is believed by millions as a scientific fact. In this case, the process met with little critical resistance because we already know that music can affect feelings and moods, so why shouldn't it affect intelligence and health? It's just commonsense, right? Yes, and all the more reason to be skeptical.

## MFD

(Multi-Frequency Discrimination or Molecular Frequency Discrimination)

The term refers to devices known as Long Range Locators used to find buried treasures, water, archaeological sites, etc. We are told that Noah's Ark was discovered in Turkey using one of these things! Others deny this, claiming that the alleged Ark has been exposed for years, is easily visible from the air, and is known to the locals.

One reason the world does not know more about these wonderful devices is because many of their users are engaged in illegal activities. Of course, the treasure hunters don't think of it that way. According to them it is because of "State and Federal bureaucracy" which "has made permitting so restrictive and the penalties so severe that there is a fear of announcing the smallest of finds."

As far as I can tell, an MFD is some sort of electronic device which can detect metal, infrared frequencies, temperature, magnetic fields or some other known property of physical objects. The likelihood that an MFD can distinguish Noah's Ark from a trash heap or buried treasure from buried garbage is about the same as a metal detector telling the difference between a gold watch and a pop top from a beer can.

## Multi-Level Marketing

(a.k.a. Network Marketing)

Multi-level marketing is system of marketing which puts more emphasis upon the recruiting of distributors than on the selling of products. As such, it is intrinsically flawed. MLM is very attractive, however, because it sells hope and appears to be outside the mainstream of business as usual. It promises wealth and independence to all. Unfortunately, no matter what the product, MLM is doomed to produce more failures than successes. For every MLM distributor who makes a decent living or even a decent supplemental income, there are at least ten who do little more than buy products and promotional materials, costing them much more than they will ever earn as an MLM agent. The most successful MLM scheme is Amway, with nearly two million distributors worldwide.

The reason MLM schemes cannot succeed is because MLM marketing is, in essence, a legal pyramid scheme. The basic idea is for a sales person to recruit more sales persons. This is very advantageous to those who own the company and supply the products, especially since the sales persons in MLMs are also customers. But it is puzzling why a sales person would think it is to his or her advantage to increase the number of competing sales persons.

The idea behind MLM is simple. For example, let's imagine you have one product to sell. A common MLM product is some sort of panacea, such as a vitamin or mineral supplement. You could do what most businesses do: either sell it directly to consumers or find others who will buy your product from you and sell it to other people. MLM schemes require that you recruit people not only to buy and sell your product, but who will also recruit people who will not only buy and sell your product but also recruit people....ad infinitum. Only there never is an infinitum to move towards. This may seem unusual to traditional business people. Why, you might wonder would you recruit people to compete with you? For, isn't that what you are doing, when you recruit people to sell the same products you are selling? MLM magic will convince you that it is reasonable to recruit competitors because they won't really be competitors since you will get a cut of their profits. This will take your mind off the fact that no matter how big your town or market, it is finite. The well will go dry soon enough. There will always be some distributors who will make money in an MLM scheme. The majority, however, must fail due to the intrinsic nature of all pyramid schemes.

This is not to say there is no benefit to MLM membership. You get certain tax write-offs. You get to buy products, some of which you will be happy with. You get to go to inspirational meetings, some of which will make you feel good. You may meet new friends and you may even make a few bucks. But more than likely you will end up alienating some family and friends. You will probably end up buying more stuff than you sell. And you will learn a lot about deceiving yourself and others. You won't be allowed to tell anyone how you are really doing, for example. You will always have to think positive, even if that means lying. You will

have to tell anyone who asks that you are doing great, that business is wonderful, that you've never seen anything go so fast and bring you income so quickly.

The dangers of MLM schemes have been well-articulated by others. If you are thinking of joining any MLM program, I advise you to first read Dean Van Druff's *What's Wrong With Multi-Level Marketing* or Robert Fitzpatrick's *False Profits - Seeking Financial and Spiritual Deliverance in Multi-Level Marketing and Pyramid Schemes*.

Finally, imagine a group of rational people who want to live well and who want their neighbors to live well, too. If such a group were to start a new society and had to develop a rational economic system, would multi-level marketing be a likely component of the new system? I doubt it. Who in their right mind would suggest multi-level marketing as a way to market and distribute consumer goods? Also, how many economists consider multi-level marketing to be a reasonable element of an economic system? The idea of selling goods to people and encouraging them to sell the goods to others, rather than selling the goods yourself, seems contra-rational.

### Multi-Level Marketing (MLM) Harassment

Multi-level Marketing harassment is a form of economic harassment in the work place whereby a superior uses his or her power to recruit a subordinate into a multi-level marketing scheme. Like sexual harassment, MLM harassment can be subtle or blatant. The most blatant form would be using the direct threat of not hiring or promoting, or even firing someone for not agreeing to become an "independent" MLM agent. Of course, talented managers know many subtle ways to suggest to their subordinates that their success with the company depends upon their saying 'yes' to the boss.

One of the most successful MLM companies is Amway. The basic formula is simple. First, there is the "Company", which has a product or array of products. Second, there are the independent distributors who (a) sell the Company product and (b) recruit new distributors who do the same, ad infinitum if possible. The reason distributors don't just sell the Company product is that they receive "bonuses" for sales made by their recruits. Theoretically, the richest independent distributor would have dozens, hundreds, thousands, even millions of subordinate distributors who would be doing the actual selling, while the Big One did little or no selling of the Company product at all. That is, the emphasis of MLM schemes is not selling the Company product but selling the Company itself.

It should be obvious, then, that the Big Cheese of a non-MLM company could stand to reap substantial economic rewards from having a little army of "independent distributors" (read "coerced employees who will buy the MLM Company products and recruit others to do so). MLM infestation is inevitable in non-MLM bureaucracies. The main bait may be the promise of extra cash to the subordinate, but superiors (managers, purchasers, personnel officers, supervisors, etc.) are really interested in their own extra cash. Superiors who have bought into the Unimagined Wealth Dream of most MLM schemes will not have many scruples recruiting their subordinates. It is possible that the superiors may even deceive themselves into thinking that they are offering bona fide economic opportunities to their subordinates. It is also quite likely that many employees will not feel coerced but will buy into the Unimagined Wealth Dream themselves. (Just as some bosses may delude themselves into thinking that they are really offering an opportunity to an employee's sexual happiness when they make sexual advances to a subordinate. And, just as some people who are seduced by their bosses, end up marrying the boss.) These facts complicate matters, and may sometimes make it difficult to prove harassment occurred. After all, if you are agreeable, how can anyone say you were harassed?

But it is not just large, bureaucratic businesses which may see MLM harassment. Schools, for example, may also be prone to MLM harassment. In fact, anywhere there is a person who has power over others, the opportunity for MLM harassment emerges. Fear of not being hired or re-hired and fear of not being promoted or of being fired can be powerful incentives to get on board the MLM bandwagon.

As far as I know, there are no laws prohibiting superiors of non-MLM organizations from recruiting inferiors into MLM schemes. Nor are there laws for discriminating against someone solely because they did not want to join an MLM scheme. Thus, even if you could prove beyond a reasonable doubt that the only reason you were fired from your last job as a structural engineer was because you refused to become an Amway agent when asked to do so by your superior, you may have no recourse in a court of law.

Because of the potential for abuse of power, one would think that companies and organizations would as a standard rule prohibit MLM recruitment. But how many of us have worked at a place which has a policy against MLM harassment? Very few, I think. The exception, of course, would be if you work for one of the Armed Services. Our military organizations know quite well how easy it is for superior officers to take advantage of those who are their juniors. And they have rules which forbid such behavior. For example, you will find the following rule in the Code of Federal Regulations (32 CFR Sec. 721.6)

## Standards of conduct governing naval personnel

(c) Using naval position. Naval personnel are prohibited from using their official positions to improperly induce, coerce, or in any other manner improperly influence any person to provide any benefit, financial or otherwise, to themselves or others....

(e) Commercial solicitations by naval personnel. To eliminate the appearance of coercion, intimidation, or pressure from rank, grade, or position, all naval personnel are prohibited from making commercial solicitations or sales to DOD [Department of Defense] personnel who are junior in pay grade, or position, at any time or place.

Commercial sales, whether or not solicited, are prohibited between officer and enlisted military personnel....

(1) This prohibition includes, but is not limited to, the solicitation and sale of insurance, stocks, mutual funds, real estate, and other commodities or goods.

In fact, naval personnel are forbidden to engage in outside employment, with or without compensation, if that employment is

inconsistent with the requirements of this instruction, including the requirement to avoid actions and situations which reasonably can be expected to create the appearance of a conflict of interest.

How many private corporations include such protection against abuse of power in their employees' manual?

It should be emphasized that MLM harassment goes way beyond the kind of intimidation one feels when the boss brings in her kid's school candy bars and asks you buy them for the Save the World Fund. The one-time only or the once-in-a-while extortion is small change--however inconvenient--compared to having to become an MLM agent. The difference is like the difference between having to go to Church on Christmas and having to join a cult.

## Multiple Personality Disorder

[Dissociative Identity Disorder]

...students often ask me whether multiple personality disorder (MPD) really exists. I usually reply that the symptoms attributed to it are as genuine as hysterical paralysis and seizures....

--Dr. Paul McHugh

Multiple personality disorder (MPD) is a psychiatric disorder characterized by having at least one "alter" personality which controls behavior. The "alters" are said to occur spontaneously and involuntarily, and function more or less independently of each other. The unity of consciousness, by which we identify our selves, is said to be absent in MPD. Another symptom of MPD is significant amnesia which can't be explained by ordinary forgetfulness. In 1994, the American Psychiatric Association's DMS-IV replaced the designation of MPD with DID: dissociative identity disorder. The label may have changed, but the list of symptoms remained essentially the same.

Memory and other aspects of consciousness are said to be divided up amongst "alters" in the MPD. The number of "alters" identified by various therapists ranges from several to tens to hundreds. There are even some reports of several thousand identities dwelling in one person. There does not seem to be any consensus among therapists as to what an "alter" is. Yet, there is general agreement that the cause of MPD is repressed memories of childhood sexual abuse. The evidence for this claim has been challenged, however, and there are very few reported cases of MPD afflicting children.

Psychologist Nicholas P. Spanos argues that repressed memories of childhood abuse and multiple personality disorder are "rule-governed social constructions established, legitimated, and maintained through social interaction." In short, Spanos argues that most cases of MPD have been created by therapists with the cooperation of their patients and the rest of society. The experts have created both the disease and the cure. This does not mean that MPD does not exist, but that its origin and development are often, if not most often, explicable without the model of separate but permeable ego-states or "alters" arising out of the ashes of a destroyed "original self."

A rather common view of MPD is given by philosopher Daniel Dennett.

...the evidence is now voluminous that there are not a handful or a hundred but thousands of cases of MPD diagnosed today, and it almost invariably owes its existence to prolonged early childhood abuse, usually

sexual, and of sickening severity. Nicholas Humphrey and I investigated MPD several years ago ["Speaking for Our Selves: An Assessment of Multiple Personality Disorder," *Raritan*, 9, pp. 68-98] and found it to be a complex phenomenon that extends far beyond individual brains and the sufferers.

These children have often been kept in such extraordinary terrifying and confusing circumstances that I am more amazed that they survive psychologically at all than I am that they manage to preserve themselves by a desperate redrawing of their boundaries. What they do, when confronted with overwhelming conflict and pain, is this: They "leave." They create a boundary so that the horror doesn't happen to them; it either happens to no one, or to some other self, better able to sustain its organization under such an onslaught--at least that's what they say they did, as best they recall.

Dennett exhibits minimal skepticism about the truth of the MPD accounts, and focuses on how they can be explained metaphysically and biologically. For all his brilliant exploration of the concept of the self, the one perspective he doesn't seem to give much weight to is the one Spanos takes: that the self and the multiple selves of the MPD patient are social constructs, not needing a metaphysical or biological explanation so much as a social-psychological one. That is not to say that our biology is not a significant determining factor in the development of our ideas about selves, including our own self. It is to say, however, that before we go off worrying about how to metaphysically explain one or a hundred selves in one body, or one self in a hundred bodies, we might want to consider that a phenomenological analysis of behavior which takes that behavior at face value, or which attributes it to nothing but brain structure and biochemistry, may be missing the most significant element in the creation of the self: the sociocognitive context in which our ideas of self, disease, personality, memory, etc., emerge. Being a social construct does not make the self any less real, by the way. And Spanos should not be taken to deny either that the self exists or that MPD exists.

But if thinkers of Dennett's stature accept MPD as something which needs explaining in terms of psychological dynamics limited to the psyche of the abused rather than in terms of social constructs, the task of convincing therapists who treat MPD to accept Spanos' way of thinking is Herculean. How could it be possible that most MPD patients have been created in the therapist's laboratory, so to speak? How could it be possible that so many people, particularly female people [85% of MPD patients are female], could have so many false memories of childhood sexual abuse? How could so many people behave as if their bodies have been invaded by numerous entities or personalities, if they hadn't really been so invaded? How could so many people actually experience past lives under hypnosis, a standard procedure of some therapists who treat MPD? How could the defense mechanism explanation in terms of repression of childhood sexual trauma and dissociation for MPD not be correct? How could so many people be so wrong about so much? Spanos' answer makes it sound almost too easy for such a massive amount of self-deception and delusion to develop: it's happened before and we all know about it. Remember demonic possession?

Most educated people today do not try to explain epilepsy, brain damage, genetic disorders, neurochemical imbalances, feverish hallucinations, or troublesome behavior by appealing to the idea of demonic possession. Yet, at one time, all of Europe and America would have accepted such an explanation. Furthermore, we had our experts--the priests and theologians--to tell us how to identify the possessed and how to exorcise the demons. An elaborate theological framework bolstered this worldview, and an elaborate set of social rituals and behaviors validated it on a continuous basis. In fact, every culture, no matter how primitive and pre-scientific, had a belief in some form of demonic possession. It had its shamans and witch doctors who performed rituals to rid the possessed of their demons. In their own sociocognitive contexts, such beliefs and behaviors were seen as obviously correct, and were constantly reinforced by traditional and customary social behaviors and expectations.

Most educated people today believe that the behaviors of witches and other possessed persons--as well as the behaviors of their tormentors, exorcists, and executioners--were enactments of social roles. With the exception of religious fundamentalists (who still live in the world of demons, witches and supernatural magic), educated people do not believe that in those days there really were witches, or that demons really did invade bodies, or that priests really did exorcise those demons by their ritualistic magic. Yet, for those who lived in the time of witches and demons, these beings were as real as anything else they experienced. In Spanos' view, what is true of the world of demons and exorcists is true of the psychological world filled with phenomena such as repression of childhood sexual trauma and its manifestation in such disorders as MPD.

Spanos makes a very strong case for the claim that "patients learn to construe themselves as possessing multiple selves, learn to present themselves in terms of this construal, and learn to reorganize and elaborate on their personal biography so as to make it congruent with their understanding of what it means to be a multiple." Psychotherapists, according to Spanos, "play a particularly important part in the generation and maintenance of MPD." According to Spanos, most therapists never see a single case of MPD and some therapists report seeing hundreds of cases each year. It should be distressing to those trying to defend the integrity of psychotherapy that a patient's diagnosis depends upon the preconceptions of the therapist. However, an MPD patient typically has no memory of sexual abuse upon entering therapy. Only after the therapist encourages the patient do memories of sexual abuses emerge. Furthermore, the

typical MPD patient does not begin manifesting "alters" until after treatment begins (Piper). MPD therapists counter these charges by claiming that their methods are tried and true, which they know from experience, and those therapists who never treat MPD don't know what to look for.\*

Multiple selves exist, and have existed in other cultures, without being related to the notion of a mental disorder, as is the case today in North America. According to Spanos, "Multiple identities can develop in a wide variety of cultural contexts and serve numerous different social functions." Neither childhood sexual abuse nor mental disorder is a necessary condition for multiple personality to manifest itself. Multiple personalities are best understood as "rule-governed social constructions." They "are established, legitimated, maintained, and altered through social interaction." In a number of different historical and social contexts, people have learned to think of themselves as "possessing more than one identity or self, and can learn to behave as if they are first one identity and then a different identity." However, "people are unlikely to think of themselves in this way or to behave in this way unless their culture has provided models from whom the rules and characteristics of multiple identity enactments can be learned. Along with providing rules and models, the culture, through its socializing agents, must also provide legitimation for multiple self enactments." Again, Spanos is not saying that MPD does not exist, but that the standard model of (a) abuse (b) withdrawal of original self and then (c) emergence of alters is not needed to explain MPD. Nor is the psychological baggage that goes with that model: repression, recovered memory of childhood sexual abuse, integration of alters. Nor are the standard diagnostic techniques: hypnosis, including past life regression, and Rorschach tests.

It should be noted that books and films have had a strong influence on the belief in the nature of MPD, e.g., *Sybil*, *The Three Faces of Eve*, *The Five of Me*, or *The Minds of Billy Milligan*. These mass media presentations influence not only the general public's beliefs about MPD, but they affect MPD patients as well. For example, Flora Rheta Schreiber's *Sybil* is the story about a woman with sixteen personalities allegedly created in response to having been abused as a child. Before the publication of *Sybil* in 1973 and the 1976 television movie starring Sally Fields as *Sybil*, there had been only about 75 reported cases of MPD. Since *Sybil* there have been some 40,000 diagnoses of MPD, mostly in North America.

*Sybil* has been identified as Shirley Ardell Mason, who died of breast cancer last year at the age of 75. Her therapist has been identified as Cornelia Wilbur, who died in 1992, leaving Mason \$25,000 and all future royalties from *Sybil*. Schreiber died in 1988. Three documentaries and several books about the case are now in the works. The bottom line: Mason had no MPD symptoms before therapy with Wilbur, who used hypnosis and other suggestive techniques to tease out the so-called "personalities." *Newsweek*, (January 25, 1999) reports that, according to historian Peter M. Swales (who first identified Mason as *Sybil*), "there is strong evidence that [the worst abuse in the book] could not have happened."

Dr. Herbert Spiegel, who also treated "*Sybil*", believes Wilbur suggested the personalities as part of her therapy and that the patient adopted them with the help of hypnosis and sodium pentothal. He describes his patient as highly hypnotizable and extremely suggestible. Mason was so helpful that she read the literature on MPD, including *The Three Faces of Eve*. The *Sybil* episode seems clearly to be symptomatic of an iatrogenic disorder. Yet, the *Sybil* case is the paradigm for the standard model of MPD. A defender of this model claims that "the relationship of multiple personality to child abuse was not generally recognized until the publication of *Sybil*."\*

#### Defenders of MPD

The defenders of the MPD/DID standard model of genesis, diagnosis and treatment, on the other hand, argue that the disease is actually underdiagnosed because its complexity makes it very difficult to identify. Dr. Philip M. Coons, who is in the Department of Psychiatry at the Indiana University School of Medicine, claims that "there is a professional reluctance to diagnose multiple personality disorder." He thinks this "stems from a number of factors including the generally subtle presentation of the symptoms, the fearful reluctance of the patient to divulge important clinical information, professional ignorance concerning dissociative disorders, and the reluctance of the clinician to believe that incest actually occurs and is not the product of fantasy." Dr. Coons also claims that demonic possession was "a forerunner of multiple personality."\*

Another defender of the standard model of MPD, Dr. Ralph Allison, has posted his diagnosis of Kenneth Bianchi, the so-called Hillside Strangler, in which the therapist admits he has changed his mind several times. Bianchi, now a convicted serial killer serving a life sentence, was diagnosed as having MPD by defense psychiatrist Jack G. Watkins. Dr. Watkins used hypnosis on Bianchi and "Steve" emerged to an explicit suggestion from the therapist. "Steve" was allegedly Bianchi's alter who did the murders. Prosecution psychiatrist and expert on hypnosis Martin T. Orne argued successfully before the court that the hypnosis and the MPD symptoms were a sham.\*

Dr. Allison claims that the controversy over MPD is one between therapists, who defend the standard model, and teachers, who deny MPD exists.\* The battle took place in committee when preparing the DMS-IV, he claims. The teachers won and MPD was removed and DID replaced it. Dr. Allison also believes that

MPD patients have an Inner Self Helper (ISH) who is aware of such things as "the Creator", "Celestial Intelligent Energy" (angels) and the patient's past lifetimes.\* He claims that when dissociation occurs before the age of seven, the immortal "Essence" or "spiritual nature takes" on the role of Inner Self Helper, known as risei in Japanese. This Essence, he says, is "separable from the body at death."\*

Note: The DMS-IV is the current version (1994) of the American Psychiatric Association's Diagnostic & Statistical Manual of Mental Disorders. It lists 410 mental disorders, up from 145 in DMS-II (1968). The first edition in 1952 listed 60 disorders. Some claim that this proliferation of disorders indicates an attempt of therapists to expand their market; others see the rise in disorders as evidence of better diagnostic tools. According to Dr. Ralph Allison, MPD was called "Hysterical Dissociative Disorder" in DMS-II and did not have its own code number. MPD was listed and coded in DMS-III, but removed in DMS-IV and replaced with DID.

### Murphy, Bridey

On a dark and dreary day in 1952, Morey Bernstein hypnotized Virginia Tighe. She began speaking in an Irish brogue and claimed that she was Bridey Murphy, a 19th century woman from Cork, Ireland. Bernstein hypnotized Virginia/Bridey many times after that. While under hypnosis, she sang Irish songs and told Irish stories, always as Bridey Murphy. Bernstein's book, *The Search for Bridey Murphy*, became a best-seller. Recordings of the hypnotic sessions were made and translated into more than a dozen languages. The recordings sold well, too. The reincarnation boom in American publishing had begun.

Newspapers sent reporters to Ireland to investigate. Was there a red-headed Bridey Murphy who lived in Ireland in the nineteenth century? Who knows, but one paper--the *Chicago American*--found one in Chicago in the 20th century. Bridie Murphey Corkell lived in the house across the street from where Virginia Tighe grew up. What Virginia reported while hypnotized were not memories of a previous life but memories from her early childhood. Whatever else the hypnotic state is, it is a state where one's fantasies are energetically displayed. Many people were impressed with the details of Tighe's hypnotic memories, but the details were not evidence of past life regression, reincarnation or channeling. They were evidence of a vivid imagination, a confused memory, fraud, or a combination of the three.

As Martin Gardner says, "Almost any hypnotic subject capable of going into a deep trance will babble about a previous incarnation if the hypnotist asks him to. He will babble just as freely about his future incarnations....In every case of this sort where there has been adequate checking on the subject's past, it has been found that the subject was weaving together long forgotten bits of information acquired during his early years" (Gardner).

### Myers-Briggs Type Indicator®

The Myers-Briggs Type Indicator® is an instrument for measuring a person's preferences, using four basic scales with opposite poles. The four scales are: (1) extraversion/introversion; (2) sensate/intuitive; (3) thinking/feeling; and (4) judging/perceiving. "The various combinations of these preferences result in 16 personality types," says Consulting Psychologists Press, Inc., which owns the rights to the instrument. Types are typically denoted by four letters, such as INTJ, to represent one's tendencies on the four scales. The INTJ is also referred to as Introverted Intuition with Thinking or Introversion, Intuition with Thinking and Judging.

According to CPP, the Myers-Briggs™ instrument is "the most widely used personality inventory in history" (approximately 2,000,000 people a year take the MBTI®).\* CPP claims that it

helps you improve work and personal relationships, increase productivity, and identify leadership and interpersonal communication preferences for your clients.\*

Many schools use the MBTI® in career counseling. A profile for each of the sixteen types has been developed. This consists of a list of "characteristics frequently associated with your type."\* The INTJ, for example, is frequently

insightful, conceptual and creative  
rational, detached, and objectively critical  
likely to have a clear vision of future possibilities  
apt to enjoy complex challenges  
likely to value knowledge and competence  
apply high standards to themselves and others  
independent, trust their own judgments and perceptions more than those of others  
usually seen by others as reserved and hard to know

The people at CPP aren't too concerned if the list doesn't seem to match your type. They advise such persons to see the one who administered the test and ask for help in finding a more suitable list by changing a letter or two in your 4-letter type!\* Furthermore, no matter what your preferences, your behavior will still sometimes indicate contrasting behavior. Thus, no behavior can ever be used to falsify the type and any behavior can be used to verify it.

Sometimes the list of preferences is put in paragraph form such as the following provided by St. Mary's College Ipswich in Australia.

The INTJ is independent, innovative, logical and driven by the inner world of ideas and possibilities. The INTJ often appears to others as a quietly self-confident (and sometimes stubborn) critic of the status quo--convinced that reality can be altered, the future reshaped. Wherever there is a need for change in systems, programs, concepts or theories, INTJs will be working behind the scenes to reorganize and revise. This type's focused attention to the personal mission may be inspiring or frankly obsessive, depending on the observer's viewpoint or the success of the enterprise.

Introspective and somewhat shy, INTJs place their trust in logical analysis and intuition to guide their thoughts and decisions. More feeling types may find them chilly, and more practical types accuse them of being unrealistic....INTJs take their cues mostly from those they recognize as intelligent. Often attracted to theoretical, analytical and methodological areas of inquiry, INTJs succeed in a wide variety of fields, from ones heavily dependent on mathematics and science to more philosophical, literary or applied disciplines.

St. Mary's College claims that the MBTI® "is a very useful tool to enlarge and deepen our self-knowledge and understanding of our behaviour....It can be of real benefit to us in making informed life-choices and in relationship building." SMC tells its students that "TYPE is a shorthand way of describing four sets of mental processes. Types are not pigeonholes, but describe preferred ways of functioning in the world."

You will gain great benefit from an understanding of your own and other's Personality Type. It has helped tens of thousands in choice of career; understanding of how they react and work in both social and job situations; what makes them comfortable and uncomfortable in their interactions with others; what they need to do to "recharge"; and what they can expect in their personal development as they mature.

With this kind of support, you would wonder what kind of fool would have anything negative to say about the MBTI®? After all, it is claimed that the instrument has been scientifically validated over decades of refinement by highly qualified personnel.

I'll start with the so-called science that began it all: Carl Jung's work on psychological types.

### Jung's Psychological Types

The MBTI® is based upon Carl Jung's notions of psychological types. The MBTI® was first developed by Isabel Briggs Myers (1897-1979), who had a bachelor's degree in political science from Swarthmore College and no academic affiliation, and her mother, Katharine Cook Briggs.\* Katharine's father was on the faculty of Michigan Agricultural College (now Michigan State University). Her husband was a research physicist and became Director of the Bureau of Standards in Washington. Isabel's husband, Clarence Myers, was a lawyer. Apparently, because Clarence was so different from the rest of the family, Katherine became interested in types. She introduced Isabel to Jung's book, *Psychological Types*. The rest, as they say, is history. Both became avid "type watchers". Their goal was a noble one: to help people understand themselves and each other so that they might work in vocations that matched their personality types. This would make people happier and make the world a more creative, productive and peaceful place in which to live.

According to Jung, some of us are extraverts (213).\* They are "more influenced by their surroundings than by their own intentions" (302). The extravert is the person "who goes by the influence of the external world--say society or sense perceptions...." (303). He also claims that "the world in general, particularly America, is extraverted as hell, the introvert has no place, because he doesn't know that he beholds the world from within" (303). I take this to mean that extraverts way outnumber introverts. The introvert "goes by the subjective factor....he bases himself on the world from within...and...is always afraid of the external world....He always has a resentment" (303). Jung knows these things because he is a careful observer of people. He only did one statistical study in his life and that was in astrology (315). In fact, Jung disdained statistics. "You can prove anything with statistics," he said (306). He preferred interpreting anecdotes.

Jung also claimed that "there is no such thing as a pure extravert or a pure introvert. Such a man would be in the lunatic asylum. They are only terms to designate a certain penchant, a certain tendency....the tendency to be more influenced by environmental factors, or more influenced by the subjective factor, that's all. There are people who are fairly well balanced and are just as much influenced from within as from without, or just as little" (304).

Furthermore, Jung claimed that thinking and feeling is another dichotomy to be used in psychological typing. "Thinking roughly speaking, tells you what [something] is. Feeling tells you whether or not it is agreeable or not, to be accepted or rejected (306)". The final dichotomy, according to Jung, is the sensation/intuition dichotomy. "Sensation tells you that there is something....And intuition--now there is a difficulty....There is something funny about intuition" (306). Even so, he defines intuition as "a perception via the unconscious" (307).

Jung claims that it took him a long time to discover that not everybody was a thinking (or intellectual) type like himself. He claims that he discovered there are "four aspects of conscious orientation" (341) or psychic functions. He claims he arrived at his typology "through the study of all sorts of human types" (342). These four orientations cover it all, he claims.

I came to the conclusion that there must be as many different ways of viewing the world [as there are psychological types]. The aspect of the world is not one, it is many--at least 16, and you can just as well say 360. You can increase the number of principles, but I found the most simple way is the way I told you, the division by four, the simple and natural division of a circle. I didn't know the symbolism then of this particular classification. Only when I studied the archetypes did I become aware that this is a very important archetypal pattern that plays an enormous role (342).

Jung's evidence is his clinical observations and is basically anecdotal. He talks about the extravert and the introvert as types. He also talks about the thinking type, the feeling type, the sensation type, and the intuition type. His evidence for his claims is not based upon any controlled studies. He said he "probably would have done them" if he had had the means (315). But as it was, he says, "I had to content myself with the observation of facts" (315).

#### Jungian Anecdotes

To support his notion that "intuitive types very often do not perceive by their eyes or by their ears, they perceive by intuition" (308), Jung tells a story about a patient. She had a nine a.m. appointment and said to Jung: "you must have seen somebody at eight o'clock." She tells him she knows this because "I just had a hunch that there must have been a gentleman with you this morning." She knows it was a gentleman, she says, because "I just had the impression, the atmosphere was just like a gentleman was here." Jung seems uninterested in critically examining her claims. The anecdote seems to support his picture of the intuitive type. He doesn't consider that she may have seen the gentleman leave but failed to mention this to Jung, perhaps to impress him with her power of intuition. Jung notes that the room smelled of tobacco smoke and there was a half-smoked cigar in an ash tray "under her nose." Jung claims she didn't see it. He doesn't even consider that she may have seen it and smelled the stench of the cigar but did not call attention to it.

The reason scientists do controlled studies rather than rely solely on their clinical observations and memories as Jung did is because it is easy to deceive ourselves and fit the data to our hypotheses and theories. Another Jungian anecdote will help exemplify this point. A male "sensation type" and a female "intuitive type" were in a boat on a lake. They were watching birds dive after fish. According to Jung, "they began to bet who would be the first to see the bird [when it emerged from the water]. Now you would think that the one who observes reality very carefully--the sensation type--would of course win out. Not at all. The woman won the bet completely. She was beating him on all points, because by intuition she knew it beforehand" (306-307, emphasis added). One couple, one try. That's it. No more evidence is needed. The truth is that Jung doesn't know any more than I do why the woman was better at the game than the man. Perhaps the man lost on purpose as part of a misguided plan to seduce the woman. Who knows? But Jung is clearly begging the question with this and most of his other "observations of facts," as he calls these stories.

Some of his anecdotes may have been entirely fictional. For example, to support his notions of intuition and synchronicity, he says:

For instance, I speak of a red car and at that moment a red car comes along. I hadn't seen it, it was impossible because it was behind the building until just this moment when the red car appears. Now this seems mere chance. Yet the Rhine experiments [on ESP] proves that these cases are not mere chance. Of course many of these things are occurrences to which we cannot apply such an argument, otherwise we would be superstitious. We can't say, "This car has appeared because some remarks had been made about a red car. it is a miracle that the red car appears." it is not, it is chance, just chance. But these "chances" happen more often than chance allows, and that show there is something behind it (315, emphasis added).

Again, had Jung an understanding of statistics he would know that what he thinks happens more often than chance allows, in fact happens in accordance with what chance not only allows but also expects.

In short, Jung's typology is more philosophy than science. What is science, I would say is bad science because he didn't do controlled studies and he relied too heavily upon his own insights and evaluations of



what he observed. His terminology is imprecise and equivocal. Finally, there is no meaningful way to falsify his claims about psychological types. Contrary behaviors can be made to fit any type. Jung believed that an extravert would have an introverted unconscious and an introverted thinker might compensate by an extraverted feeling, etc., further complicating the typology (311). It would also make it impossible to test his claims about types. In short, his work is a towering example of confirmation bias, self-deception, and wishful thinking.

I think Jung realized the limitations of his work and I am not so sure that he would have approved of the MBTI®. "My scheme of typology," he noted, "is only a scheme of orientation. There is such a factor as introversion, there is such a factor as extraversion. The classification of individuals means nothing, nothing at all. It is only the instrumentarium for the practical psychologist to explain for instance, the husband to a wife or vice versa" (305).

However, his typology seems to imply that science is just a point of view and that using intuition is just as valid a way of seeing and understanding the world and ourselves, as careful observation under controlled conditions. Never mind that that is the only way to systematically try to minimize self-deception or observing the effects of factors we are not aware of (x-factors). Intuition may be a valid way of perceiving, but it is not a valid way of understanding the natural world.

Isabel Briggs Myers Made Similar Mistakes.

In describing the writing of the Manual, she mentioned that she considered the criticisms a thinker would make, and then directed her own thinking to find an answer. An extravert to whom she was speaking said that if he wanted to know the criticisms of thinkers, he would not look into his own head. He would go find some thinkers, and ask them. Isabel looked startled, and then amused.\*

This anecdote typifies the dangers self-validation. To think that you can anticipate and characterize criticisms of your views fairly and accurately is not just arrogant, it is not intelligent, even if it is typical of your personality type. Others will see things you don't. It is too easy to create straw men instead of facing up to the strongest challenges that can be made against your position. It is not because of type that one should send out one's views for critical appraisal by others. It is the only way to be open-minded and complete in one's thinking. To suggest that only people of a certain type can be open-minded or concerned with completeness is to encourage sloppy and imprecise thinking.

Jung's philosophy seems to imply that "alternative" sciences are just as valid as the natural sciences that are taught in our universities. It implies a relativism which implies that nobody has a lock on truth about the world, that everybody sees the world the way they do because of their orientations and that no one way of seeing the world can claim to be superior to any other. I think this view is misleading at best and false at worst. We do have ways to weed out erroneous scientific views. We can't achieve infallibility but we can achieve reasonable probabilities in many of things that matter to us. Jung is correct as far as metaphysical beliefs are concerned, of course. But he does not seem interested in the distinction between scientific and metaphysical beliefs. His main concern was practical, not with theories in science or philosophy of science. A psychological type, he said, is "just a skeleton to which you have to add the flesh....It is a means to an end. It only makes sense, such a scheme [of types] when you deal with practical cases" (312).

Pre-Jungian Typologies

Psychological typology did not originate with Jung, of course. Remember the four temperaments? Each of us, at one time, would have been considered to be either melancholic, sanguine, phlegmatic, or choleric. These classifications go back at least as far as the ancient physician Hippocrates in the middle of the fifth century B.C.E. He explained the four temperaments in terms of dominant "humors" in the body. The melancholic is dominated by yellow "bile" in the kidneys; the sanguine by humors in the blood; the phlegmatic by phlegm; and the choleric by the black bile of the liver. Hippocrates was simply adding to the ancient Greek insight that all things reduce to earth, air, water, and fire. Each of the four elements had its dualities: hot/cold and dry/moist. A person's physical, psychological, and moral qualities could be easily understood by his temperament, his dominant 'humors,' the four basic elements, or whether he was hot and wet or cold and dry, etc. This ancient personality type-indicator "worked" for over one thousand years. Of course, cynics might attribute this success to confirmation bias. It also "put a heavy brake on physiological research since there were few phenomena for which the humors could not be made to yield some sort of easy explanation."\*

Today, most of us have abandoned Hippocrates' personality scheme because we do not find it to have any meaningful use. However, it must have been useful to have lasted for so long. How is the utility of such conceptual schemes measured? Perhaps by the same criteria we use today. How does the scheme help one understand oneself and others? Knowing these things can help us achieve our main goals in life and assist us in establishing good relationships with others. For example, a typical medieval choleric might see

that his temperament suited him for work as a holy inquisitor. He could find the best path in life suited to him as he tried to achieve his main goal in life: the salvation of his eternal soul. Knowing his own temperament could help him plan his life. He might want to choose a cold and wet wife (a phlegmatic) as a counterbalance to his own hot and dry nature. He would know what obstacles he would have to overcome because of his intrinsic disposition, and he would be guided as to what occupation might suit him best. Knowing the four temperaments could help him understand others, even those unfortunate cold and dry melancholics on his rack or in his thumbscrews. In short, he could easily confirm that the theory "works."

### The Myers-Briggs Instrument

Isabel Briggs Myers learned test construction by studying the personnel tests of a local bank. She worked up her inventories with the help of family and friends and she tested her early tests on thousands of schoolchildren in Pennsylvania. Her first longitudinal study was on medical students, who she followed up after 12 years and found that their occupations fit their types. She eventually became convinced that she knew what traits people in the health professions should have ("accurate perception and informed judgment").\* She not only thought her tests could help select who would make good nurses and physicians, "she hoped the use of the MBTI in training physicians and nurses would lead to programs during medical school for increasing command of perception and judgment for all types, and for helping students choose specialties most suited to their gifts."\*

Others eventually helped her modify and develop her test, which was taken over by CPP in 1975. CPP has turned it into the instrument it is today. "I know intuitive types will have to change the MBTI," she said. "That's in their nature. But I do hope that before they change it, they will first try to understand what I did. I did have my reasons."

### personality profiles and astrological readings

As noted above, sixteen distinct personality profiles are generated by the Myers-Briggs™ instrument, based upon which side of the four scales one tends towards. Technically, the instrument is not supposed to be used to spew out personality profiles and pigeonhole people, but the temptation to do so seems irresistible. (See the profiles provided for students by St. Mary's College in Australia, mentioned above.) Others have followed suit and providing personality tests and profiles has become a kind of entertainment on the Internet. Reading these profiles is like reading something from Omar the astrologer or Madame Sophie the psychic biorhythmist. Below is a somewhat lengthy Myers-Briggs profile. Judge for yourself. See how well the profile fits you. The experience is very reminiscent of James Randi's experiment with biorhythms and Forer's cold reading of strangers.

You have a great deal of warmth, but may not show it until you know a person well. You keep your warm side inside, like a fur-lined coat. You are very faithful to duties and obligations related to ideas or people you care about. You take a very personal approach to life, judging everything by their inner ideals and personal values.

You stick to your ideals with passionate conviction. Although your inner loyalties and ideals govern your life, you find these hard to talk about. Your deepest feelings are seldom expressed; their inner tenderness is masked by a quiet reserve.

In everyday matters you are tolerant, open-minded, understanding, flexible, and adaptable. But if your inner loyalties are threatened, you will not give an inch. Except for your work's sake, you have little wish to impress or dominate. The people you prize the most are those who take the time to understand their values and the goals they are working toward.

Your main interest lies in seeing the possibilities beyond what is present, obvious, or known. You are twice as good when working at a job you believe in, since your feeling puts added energy behind your efforts. You want your work to contribute to something that matters to you--human understanding, happiness, or health. You want to have a purpose beyond your paycheck, no matter how big the check. You are a perfectionist whenever you care deeply about something.

You are curious about new ideas and tend to have insight and long-range vision. At times you are interested in books and language and are likely to have a gift of expression; with talent you may be an excellent writer. You can be ingenious and persuasive on the subject of your enthusiasms, which are quiet but deep-rooted. You are often attracted to counseling, teaching, literature, art, science, or psychology.

You may feel such a contrast between your ideals and your actual accomplishments that you burden yourself with a sense of inadequacy. It is important for you to use your intuition to find ways to express your ideals; otherwise you will keep dreaming of the impossible and accomplish very little. If you find no channel for expressing your ideals, you may become overly sensitive and vulnerable, with dwindling confidence in life and in yourself.\*

I don't know about you, but this fits me pretty well....at least the parts that were right do...I've kind of forgotten the details of what I just typed and proofread, but I have a strong feeling it was pretty accurate. I especially like the fact that it ignored my dark side.

Here are some more excerpts from Myers-Briggs® profiles. I think each of the following fits me. Do they fit you?

Serious, quiet, earn success by concentration and thoroughness. Practical, orderly, matter-of-fact, logical, realistic and dependable. See to it that everything is well organized. Take responsibility. Make up their own minds as to what should be accomplished and work toward it steadily, regardless of protests or distractions.

Usually have original minds and great drive for their own ideas and purposes. In fields that appeal to them, they have a fine power to organize a job and carry it through with or without help. Skeptical, critical, independent, determined, sometimes stubborn. Must learn to yield less important points in order to win the most important.

Quiet and reserved. Especially enjoy theoretical or scientific pursuits. Like solving problems with logic and analysis. Usually interested mainly in ideas, with little liking for parties or small talk. Tend to have sharply defined interests. Need careers where some strong interest can be used and useful. The first profile is of an ISTJ (introversion, sensation, thinking, judgment), a.k.a. The Trustee. These types comprise 6% of the population. The second is of INTJ (introversion, intuition, thinking judgment), a.k.a. The Scientist. These types make up 1% of the total population. The last is of an INTP (introversion, intuition, thinking, perception), a.k.a. The Architect. These types make up 1% of the population.

Psychological tests such as the Myers-Briggs Type Indicator® seem to be little more than sophisticated parlor games. They will be validated by their seemingly good fit with the data, in the same way that astrologers and biorhythmists find predictive patterns fitting their readings and charts, i.e., by confirmation bias and the ambiguity of basic terms and the Byzantine complexity that ultimately allows any kind of behavior to fit any personality type. The big difference, of course, is that psychological testing has the backing of a community of university statisticians to reinforce its notions. It is a cottage industry.

#### Uses of The MBTI®

The MBTI® is used in business to decide whom to hire and it is frequently used by managers as some sort of productivity tool. By getting people to "understand" themselves and their co-workers better by knowing their personality types, it is hoped that people will be more productive. As mentioned above, Isabel Myers thought her work could be used to develop medical school programs that would train the appropriate types in the appropriate ways.\* This idea, too, has caught on. Some have recommended changes in the "goals, activities, instructional methodologies, and types of instructional programs within technology education" based on the belief that instruction should "fit" the average (in the sense of 'mode', most frequently occurring type) personality type of technology students.\* Still others have recommended 16 different types of instruction, one for each of the 16 types, based on the notion that there must be 16 learning styles if there are 16 personality types.\*

Some think there are only nine basic personality types and follow the enneagram. As Jung said, there could be any number of types, even 360, if we wished. Who is right? Maybe they're both wrong. Perhaps we need only think of two types, those from Mars and those from Venus, as John Gray, Ph.D., claims.

See related entries on the enneagram and Jung.

\* The spelling of extravert is Jung's preference. The numbers in parentheses refer to the McGuire text, which is a collection of interviews with Jung. Most of the material quoted here is from the second (pp 296-315) or the fourth (pp 335-352) of four filmed interviews Jung did with Richard I. Evans of the University of Houston in 1957 in Zurich.

#### Natural

Something present in or produced by nature is natural, such as an earthquake or typhoon, or a poisonous mushroom. Death is natural in the sense that to die is to conform to the ordinary course of living things in nature. For a diabetic to die from lack of insulin would be natural. It would be unnatural for a diabetic to inject natural or synthetic insulin, since injections are not natural. Rotting wood on your porch is natural in the sense that you have not used anything artificial to protect it. The smell of rotting garbage is natural. Meanness and cruelty are natural to some people; that is, they are inherent, non-acquired personal traits. Some people are apparently natural born killers. Squishing bugs and kicking cats is natural for some

people, in the sense that they do such things spontaneously, without reflecting on their actions. Nudity is the only natural state for animals, even humans. All clothing is artificial, that is, not natural. So are the fillings in your teeth. So is all make-up and jewelry. Bearded men are natural. To shave is to do something unnatural. The present Pope commits an unnatural act every day!

Just because something is natural does not mean that it is good, safe or healthy. Herbs are natural but they are also drugs when used in the diagnosis, treatment, or prevention of a disease. The chemicals which comprise synthetic drugs are natural. St. John's Wort (*Hypericum perforatum*) is natural, but it is a drug. Why do some people say that they prefer St. John's Wort to drugs for depression? If someone said that he preferred Irish whiskey to alcohol, we'd think he was confused. St. John's Wort contains hypericin, which inhibits monoamine oxidase, a chemical associated with depression. In other words, St. John's Wort (hypericin) is a "MAO inhibitor". MAO inhibitors are commonly prescribed by medical doctors to treat depression. Other types of anti-depressants have become more popular because they have far fewer side effects. MAO inhibitors should not be used when a person eats substances containing the amino acid tyramine or bacteria with enzymes that can convert tyrosine to tyramine, viz., alcoholic beverages, products made with yeast, aged cheese, sour cream, liver, canned meats, salami, sausage, pickled herring, eggplant and soy sauce. Otherwise, convulsions, extremely high fever and death by natural causes may occur.

Some plants are lethal even though they are natural. But if you die from eating a lethal but natural plant, you will not be said to have died of natural causes. Ditto, if you die from being bitten by a poisonous snake whose venom is quite natural. If you die from lung cancer caused by smoking tobacco, a natural plant, you will, however, be said to have died of natural causes.

Fleas on dogs are natural. Flea collars are unnatural. Mosquitoes and flies are natural, though most people find them to be a nuisance and prefer the unnatural comfort of mosquitoless nights and flyless barbecues. Eating meat might be a natural act, but eating cooked meat is unnatural. Most sauces put on meat are made with both natural and artificial ingredients. Salt is natural, but some healthy people avoid salt like the plague.

Civilization is unnatural. Indoor plumbing is unnatural. Corrective lenses are unnatural. So are automobiles. Think about that the next time you drive to the garden shop to get some natural fertilizer for your garden or to your naturalist herb shop for a little pick-me-up.

To have a broken arm set by a physician is unnatural. To let it heal spontaneously would be natural, even if debilitating for life. Getting a medical degree is unnatural. Foraging and experimenting by trial and error would be natural, even if often lethal. Children born with no brains or other monstrous deformities are natural. Brain surgery to remove a tumor is unnatural.

Anything supernatural is unnatural but is usually considered to be good by those who believe in the supernatural. Reading and writing are unnatural. Urinating whenever one has the urge is natural, but uncivilized. Marijuana is natural, so it must be good, right? LSD is unnatural, though mescaline is natural. Ergot is natural. Mold and bacteria and viruses are natural. Arsenic is natural. To strike back when struck is natural, but considered unchristian. Turning the other cheek when struck is considered Christian but it is unnatural.

Monogamy is natural among some mammals, but unnatural for most mammals. Reproduction is natural but marriage is unnatural. Using condoms is unnatural. Dying of AIDS is to die of natural causes. Herpes is natural. Raping women is natural to some men, but it is usually regarded as evil nonetheless. Pedophilia seems to be natural in some people, but does that make it good?

In fact, ultimately everything which is made is comprised of nothing but natural atoms, molecules, elements, or substances. So, if everything is basically natural, why do some people make such a big fuss about using only what is natural? I don't know. It seems unhealthy to me. But at least it helps one avoid having to ask difficult questions about whether something really is good, safe or healthy. All you need to know is that something is "natural" and you don't have to think about its value. How nice.

## Naturalism

Naturalism is a metaphysical theory which holds that all phenomena can be explained mechanistically in terms of natural (as opposed to supernatural) causes and laws. Naturalism posits that the universe is a vast machine or organism, devoid of general purpose and indifferent to human needs and desires.

Naturalism is often confused with atheism, materialism, logical positivism, empiricism, determinism and scientism.

The Deistic founders of the United States of America were advocates of naturalism. Deism admits a transcendent creator of the universe, but denies that the creator interferes with Nature. Hence, understanding God is unnecessary to understanding the world.

Pantheistic philosophies--such as that of the ancient Stoics, John Scotus Eriugena (Ireland, 9th century), Giordano Bruno (Italy, 16th century), and Spinoza (Holland, 17th century)--are naturalistic. In pantheism, God is the world.

Thus, naturalism neither denies nor affirms the existence of God, either as transcendent or immanent. However, naturalism makes God an unnecessary hypothesis and essentially superfluous to scientific investigation. Reference to moral or divine purposes has no place in scientific explanations. On the other hand, the scope of science is limited to explanation of empirical phenomena without reference to forces, powers, influences, etc., which are supernatural.

The difference between naturalistic and supernaturalistic views in Western philosophy might best be understood by noting that the former favors mechanistic explanations, while the latter favors teleological ones. Mechanistic explanations are dysteleological, i.e., they make no reference to purposes or design, except metaphorically as in biology (e.g., the heart was designed to pump blood).

The difference between mechanistic and teleological views may best be understood by considering a few examples.

#### The Sex Drive

From a teleological point of view, the sex drive is designed to reproduce the species. The pleasure which accompanies sex is the main inducement to carry out the purpose of reproduction. If sex were generally painful, it would be avoided by most members of the species, and hence that species would become extinct. Some Catholic theologians maintain that to engage in sex for the purpose of reproduction is the only proper sexual motive. To frustrate the reproductive purpose of sex is to act contrary to divine purpose and is immoral. Birth control and homosexuality, therefore, are morally wrong because they are unnatural.

From a mechanistic point of view, the sexual urge is purposeless. It was not designed to motivate animals to reproduce. Rather, animals with a strong sexual drive reproduce, and hence flourish. A species with a weak sexual drive would be unlikely to survive. According to this view, the purpose of sex can't be frustrated, since sex, in general, has no purpose. (Of course, the desire to have sex with a particular person is purposive. That is the purpose: to have sex with a particular person, whatever gender that person might be.) Since nothing has been designed to fulfill a particular purpose, moral goodness and evil cannot be determined by their being natural or not. Some other ethical principle, such as utility, must be invoked. In any case, naturalism does not imply that all things are good since all things are natural.

#### Bee Pollination

From a teleological point of view, bee pollination of orchards is purposive and part of a design. To the mechanist, bees just do their thing and, as a result, orchards get pollinated. If no animals existed which do what bees do, orchards wouldn't exist. The world would be a different place, but it would still be a world. Different mechanisms mean different worlds. The choice is not between this world or none at all, but this world or some other one.

#### Pedophilia

To the teleological supernaturalist, pedophiles and sexual predators exist for some sort of divine purpose. To the mechanistic naturalist, child molesters and child murderers are purposeless. Their desires may be natural but that does not mean that they should be fulfilled. Both the supernaturalist and the naturalist hold pedophiles and sexual predators accountable for their evil behavior. The naturalist, however, need not feel any need to try to explain why such evil exists. Some naturalists might seek causal explanations which deny that evil is chosen behavior by evil persons with evil desires. All naturalists might agree that the desires themselves are explicable entirely by causal mechanisms outside the scope of personal responsibility. But, not all would agree that acting on the desires is completely explicable without reference to the freedom and responsibility of the evil doer.

#### What Is The Purpose of Evil?

The supernaturalist, with his moral and spiritual purposes inherent in every aspect of reality, must come up with some sort of explanation for the existence of evil. The branch of theology which tries to explain such things is called theodicy. In theodicy it is considered reasonable and acceptable to say of evil, "the ways of

the Lord are mysterious, indeed." Or, as God allegedly said to Job when he dared to ask "Why me?": "Hath thou an arm like the Lord?" In short, "I'm God; I don't have to explain myself to anybody." Evil exists and since God is good you can be sure that there is a good reason for evil. Take it on faith.

#### Teleology According To Spinoza

Spinoza maintained that teleological thinking represents the primitive thinking of our pre-scientific ancestors. The pursuit of "final causes" led nowhere in the human quest to understand Nature. Only when humankind gave up the anthropomorphic way of thinking, which understands the weather, geology, physics, etc., in terms of divine purposes, could progress in knowledge of Nature be made. History has proved Spinoza right. Teleological theories, such as supernaturalism, are scientifically superfluous.

On the other hand, Spinoza's attack on teleology was complete: he did not believe that human behavior was to be explained differently from anything else in Nature. Human behavior is to be explained in terms of mechanistic causes, just as the behavior of all natural phenomena are to be explained. Humans are no more free to change their behavior than falling stones are to change their direction. And neither humans nor falling stones are responsible for their behavior or movements. However, Spinoza's denial of free will is no more a necessary consequence of naturalism than is his pantheism. That is, neither determinism nor pantheism are entailed by naturalism.

#### Naturopathy

Naturopathy is a system of therapy and treatment which relies exclusively on natural remedies, such as sunlight, supplemented with diet and massage. However, some naturopaths have been known to prescribe such unnatural treatments as colon hydrotherapy for such diseases as asthma and arthritis.

#### Nazca Lines

The Nazca lines are geoglyphs and geometric line clearings in the Peruvian desert. They were made by the Nazca people, who flourished between 200 BCE and 600 CE along rivers and streams that flow from the Andes. The desert itself runs for over 1,400 miles along the Pacific Ocean. The area of the Nazca art is called the Pampa Colorada (Red Plain). It is 15 miles wide and runs some 37 miles parallel to the Andes and the sea. Dark red surface stones and soil have been cleared away, exposing the lighter colored subsoil, creating the "lines". There is no sand in this desert. From the air, the "lines" include not only lines and geometric shapes, but also depictions of animals and plants in stylized forms. Some of the forms, including images of humans, grace the steep hillsides at the edge of the desert.

The Nazca lines are communal. Their creation took hundreds of years and required a large number of people working on the project. Their size and their purpose have led some to speculate that visitors from another planet either created or directed the project. Erich von Däniken thinks that the Nazca lines formed an airfield for alien spacecraft\*, an idea first proposed by James W. Moseley in the October 1955 issue of Fate and made popular in the early sixties by Louis Pauwels and Jacques Bergier in *The Morning of the Magicians*. If Nazca was an alien airfield, it must have been a very confusing airfield, consisting as it does of giant lizards, spiders, monkeys, llamas, dogs, hummingbirds, etc., not to mention the zigzagging and crisscrossing lines and geometric designs. It was very considerate of the aliens to depict plants and animals of interest to the locals, even though it must have meant that navigation would be more difficult than a straight runway or a large clearing. Also, the airport must have been a very busy place, needing 37 miles of runway to handle all the traffic. However, it is unlikely spacecraft could have landed in the area without disturbing some of the artwork or the soil. There is no evidence of such disturbance.

The alien theory is proposed mainly because some people find it difficult to believe that a race of primitive "Indians" could have the intelligence to conceive of such a project, much less the technology to bring the concept to fruition. The evidence points elsewhere, however. The Aztecs, the Toltecs, the Inca, the Maya, etc., are proof enough that the Nazca did not need extraterrestrial help to create their art gallery in the desert.

In any case, one does not need a very sophisticated technology to create large figures, geometrical shapes, and straight lines, as has been shown by the creators of so-called crop circles. The Nazca probably used grids for their giant geoglyphs, as their weavers did for their elaborate designs and patterns. The most difficult part of the project would have been moving all the stones and earth to reveal the lighter subsoil. There really is nothing mysterious about how the Nazca created their lines and figures.

Some think it is mysterious that the figures have remained intact for so many hundreds of years. However, the geology of the area solves that mystery.

Stones (not sand) comprise the desert surface. Rusted by humidity, their darkened color increases heat absorption. The resulting cushion of warm surface air acts as a buffer against the wind; while minerals in the soil help to solidify the stones. On the "desert pavement" thus created in this dry, rainless environment, erosion is practically nil - making for remarkable preservation of the markings.\*

The mystery is why. Why did the Nazca engage in such a project involving so many people for so many years?

G. von Breunig thinks the lines were used for running footraces. He examined the curved pathways and determined that they were partially shaped by continuous running.

Anthropologist Paul Kosok briefly maintained that the lines were part of an irrigation system, but soon rejected the notion as impossible. He then speculated that the lines formed a gigantic calendar. Maria Reiche, a German immigrant and apprentice archaeologist to Julio Tello of the University of San Marcos, developed Kosok's theory and spent most of her life collecting data to show that the lines represent the Nazca's astronomical knowledge. Reiche identified many interesting astronomical alignments, which had they been known to the Nazca might have been useful in planning their planting and harvesting. However, there are so many lines going in so many different directions that not finding many with interesting astronomical alignments would have been miraculous.

### Modern Anthropology and The Lines

The Nazca lines became of interest to anthropologists after they were seen from the air in the 1930s. It is unlikely that a project of this magnitude was not religious in purpose. To involve the entire community for many centuries indicates the supreme significance of the site. Like pyramids, giant statues, and other monumental art, the Nazca art speaks of permanence. It says: we are here and we are not moving. These are not nomads, nor are they hunters and gatherers. This is an agricultural society. It is, of course, a pre-scientific agricultural society, who turned to magic and superstition (i.e., religion) to assist them with their crops. The Nazca had the knowledge to irrigate, plant, harvest, collect, distribute, etc. But the weather is fickle. Things might go smoothly for years, or even centuries, and then, in a single generation entire communities are forced to leave because of extended drought or because of floods or tidal waves, volcanic eruptions, earthquakes, fires, or whatever else Mother Nature might hurl their way.

Was this a site for worship? Was this the Mecca of the Nazca? a place of pilgrimage? Were the images part of rituals aimed at appeasing the gods or asking for help with the fertility of the people and the crops, or with the weather or with a good supply of water? That the figures could not be seen as those in the heavens might see them would not be that important for religious or magical purposes. In any case, similar figures to the giants at Nazca decorate the pottery found in nearby burial sites and it is apparent from their cemeteries that the Nazca were preoccupied with death. Mummified remains litter the desert, discarded by grave robbers. Was this a place for rituals aimed at bringing immortality to the dead? We don't know, but if this mystery is ever to be cleared up it will be by serious scientists, not by alienated pseudoscientific speculators molding the data to fit their extraterrestrial musings.

### Nazism

#### Holocaust Denial and nazism (National Socialism)

Nazism is the term used to the nationalistic, anti-Communist and anti-Semitic doctrines and policies of Goering, Goebbels, Himmler and Adolf Hitler's National Socialist German Workers' party. The Nazis ruled Germany from 1933 until 1945 when Germany surrendered and admitted defeat in their war of aggression which had initiated World War II. The Nazi party has been outlawed in Germany ever since.

The Nazis preached the superiority of the Aryan master race led by an infallible Führer (leader) who would establish a pan-Germanic Third Reich lasting a thousand years while annihilating the Jews and Communists, the main scapegoats for all Germany's problems. Millions of Jews, Poles, Russians, gypsies, Catholics, gays and handicapped people were interned in concentration camps where they died or were executed or experimented on. Millions more were used for forced labor.

Today, the term 'nazi' is used to designate anyone engaging in or ordering barbarous acts. The term is used to describe those who advocate force, including murder, of a variety of scapegoats whom they blame for their own, the nation's or the world's problems. Included in this list of scapegoats are homosexuals, blacks, liberals, foreigners, Muslims, Christians, Jews, Arabs, among others.

The term 'nazi' is also purposely chosen for self-description by groups of people who find solace and inspiration in the thoughts and actions of Adolf Hitler. The danger of such people is not because they don't

understand the evils of nazism, but because they do. They are part of a growing number of people who think there are conspiracies everywhere which can explain why their lives are so dreary and hopeless. They are part of a growing mass of deluded people who think they are superior because of a few genetic codes. They feel they should have a special place in the order of things, but are being denied because of a conspiracy to keep them down and elevate the weak and undeserving. Some of these neo-nazis also pay homage to Satan and are great believers in the occult. However, I think it would be a mistake to think that occultism is the root of neo-Nazism. The causal connection is not a strong one.

It is true, however, that Nazism has sometimes been characterized by certain skeptics as being significantly affected by occultists in high places. There were occultists in high places in Nazi Germany. There were also Christians in high (and low) places in Nazi Germany. However, to find a causal link between belief in the occult and nazism is a stretch. Think of all the occultists, Christians and other supernaturalists, who have occupied the White House lately. Was Ronald Reagan another Adolf Hitler, and Nancy another Eva Braun? Is the CIA's waste of time and money on psychic spies proof that democracy in America is at an end? I think the historical evidence is overwhelming that belief in the occult, the supernatural, the paranormal and pseudoscientific knows no political boundaries. Nor does racial hatred.

The malicious treatment of the Jews at the hands of the Nazis is referred to as the Holocaust. It has become a symbol of evil in our times. Like many symbols, the Holocaust has become sacrosanct. To many people, both Jews and non-Jews, the Holocaust symbolizes the horror of genocide against the Jews. Some modern anti-Semites have found that attacking the Holocaust causes as much suffering to some Jews as attacking Jews themselves. The term for attacking any aspect of the symbology or mythology of the Holocaust is "Holocaust Denial". It seems to be the main motivation for the Institute for Historical Review and its journal of Historical Review which since 1980 has been publishing articles attacking the accuracy of this or that claim about the Holocaust. Yes, one "historical" journal devoted almost exclusively to the issue of making the Holocaust seem like an exaggeration of biased historians. This institute was founded in 1978; it claims to be a "research, educational and publishing center devoted to truth and accuracy in history." If truth and historical accuracy were the only goals of this group, I doubt that it would cause such an uproar. However, it seems that its promoters are more concerned with hatred than with truth. Thus, even those inaccuracies which they correctly identify are met with scorn and derision. For they never once deal with the central question of the Holocaust. They deal with numbers: were there six million or four million or ? Jews who died or were killed? They deal with technical issues: could this shower have been used as a gas chamber? Were these deaths due to natural causes or not? They deal with minor facts: did Hitler issue a Final Solution order or not? If so, where is it? What they do not deal with is the question of racial laws, of arresting and imprisoning millions of people in several countries for the crime of "race," of herding people together like animals and transporting them to "camps" where millions died of disease, malnutrition, or were murdered. What the Holocaust deniers do not deal with is racial hatred. I do not wonder why.

Michael Shermer devotes two chapters of *Why People Believe Weird Things* to the arguments of the Holocaust Deniers. He takes up many of their arguments and refutes them one by one. For example, one of the favorite appeals of the Holocaust deniers is to demand some prove that Hitler gave the order for the extermination of the Jews (or the mentally retarded, mentally ill, and physically handicapped). Holocaust deniers point to Himmler's telephone notes of November 30, 1941, as proof that there was to be no liquidation of the Jews. The actual note says: "Jewish transport from Berlin. No liquidation." Whatever the note meant, it did not mean that Hitler did not want the Jews liquidated. The transport in question, by the way, was liquidated that evening. In any case, if Hitler ordered no liquidation of the Berlin transport, then liquidation was going on and he knew about it. Hitler's intentions were made public in his earliest speeches. Even as his regime was being destroyed, Hitler proclaimed: "Against the Jews I fought open-eyed and in view of the whole world....I made it plain that they, this parasitic vermin in Europe, will be finally exterminated." Hitler at one time compared the Jews to tuberculosis bacilli which had infected Europe. It was not cruel to shoot them if they would not work or if they could not work. He said: "This is not cruel if one remembers that even innocent creatures of nature, such as hares and deer when infected, have to be killed so that they cannot damage others. Why should the beasts who wanted to bring Bolshevism be spared more than these innocents?"

In my view, however, the racist community doesn't believe its false notions about the Holocaust for any of the reasons for weird beliefs listed by Shermer. They believe them because such beliefs are empowering. They make the believer feel superior and they allow evil to be rationalized as good. Ultimately, many weird beliefs are the beliefs of groups, not isolated individuals. Understanding the dynamics of social belief is no small undertaking and certainly goes beyond wishful thinking and laziness. The Holocaust deniers feed off of each other's anti-Semitism. But what gave birth to their hatred of the Jews? Resentment and projection of their own inadequacies onto another race? Perhaps. That was Sartre's argument, following Nietzsche's lead, in *Anti-Semite and Jew*. The Holocaust Denial seems based upon wanting to believe because the belief fits in with the believer's prejudices.

Near-Death Experiences (NDEs)



'Near-death experiences' ('NDEs') is a term used by parapsychologists to describe a wide array of experiences reported by some people who have nearly died or who have thought they were going to die. There is no single experience shared by all those near death. Nor do all those reporting near-death experiences share a single identical experience. Even those experiences of most interest to parapsychologists--such as the "mystical experience," the "light at the end of the tunnel" experience, the "life review" experience, and the "out-of-body" experience--rarely occur together in near-death experiences.

Two M.D.s who have popularized the idea that the NDE is proof of life after death are Elizabeth Kübler-Ross and Raymond Moody. The former is well-known for her work on death and dying and believes it is possible to have sex with the spirits of the dead. The latter is an M.D. with Ph.D.s in philosophy and psychology but whose favorite title seems to be 'parapsychologist'. He has written several books on the subject of "life after life" and has comprised a list of features he considers to be "typical" of the near-death experience. They are based mostly on liberal interpretations of testimonials and anecdotes from doctors, nurses and patients. The list of NDE features has been repeated by many of his followers. Characteristic of Moody's work is the glaring omission of cases that don't fit his hypothesis. If Moody is to be believed, no one near death has had a horrifying experience. Yet, there are numerous reports of bad NDE trips involving tortures by elves, giants, demons, etc. Some parapsychologists take these good and bad NDE trips as evidence of heaven and hell. They believe that some people actually leave their bodies and go to the other world for a time before returning to their bodies. If so, then what is one to conclude from the fact that most people near death experience nothing? Is that fact good evidence that there is no afterlife? Such reasoning is on par with supposing that dreams in which one appears to oneself to be outside of one's bed are to be taken as evidence of out-of-body experiences (OBEs).

Moody focuses on OBEs by persons who nearly die. He also made popular the notion that the NDE is generally an experience of feeling extreme peacefulness, a buzzing or ringing sound, a passage into darkness and then a passage into the light. However, what little research there has been in this field indicates that these sensations are more likely if the conditions that set off the experience would naturally affect brain states, such as cardiac arrest and anesthesia. The conditions which lead to the NDE seem to significantly affect the nature of the experience. Furthermore, many people who have not been near death have had experiences which seem identical to NDEs. These mimicking experiences are usually the result of psychosis (due to severe neurochemical imbalance) or drug usage, such as hashish or LSD.

Moody thinks that NDEs prove the existence of life after death. Skeptics believe that NDEs can be explained by neurochemistry and are the result of brain states that occur due to a dying brain. For example, "neural noise" and "retino-cortical mapping" explain the common experience of passage down a tunnel from darkness into a bright light. According to Susan Blackmore, vision researcher Dr. Tomasz S. Troscianko of the University of Bristol speculated:

If you started with very little neural noise and it gradually increased, the effect would be of a light at the centre getting larger and larger and hence closer and closer....the tunnel would appear to move as the noise levels increased and the central light got larger and larger....If the whole cortex became so noisy that all the cells were firing fast, the whole area would appear light (Blackmore, 85).

Blackmore attributes the feelings of extreme peacefulness of the NDE to the release of endorphins in response to the extreme stress of the situation. The buzzing or ringing sound is attributed to cerebral anoxia and consequent effects upon the connections between brain cells. [p. 64]

Dr. Karl Jansen has reproduced NDEs with ketamine, a short-acting, hallucinogenic, 'dissociative' anaesthetic.

The anaesthesia is the result of the patient being so 'dissociated' and 'removed from their body' that it is possible to carry out surgical procedures. This is wholly different from the 'unconsciousness' produced by conventional anesthetics, although ketamine is also an excellent analgesic (pain killer) by a different route (i.e. not due to dissociation). Ketamine is related to phencyclidine (PCP). Both drugs are arylcyclohexylamines - they are not opioids and are not related to LSD. In contrast to PCP, ketamine is relatively safe, is much shorter acting, is an uncontrolled drug in most countries, and remains in use as an anaesthetic for children in industrialised countries and all ages in the third world as it is cheap and easy to use. Anaesthetists prevent patients from having NDE's ('emergence phenomena') by the co-administration of sedatives which produce 'true' unconsciousness rather than dissociation.

According to Dr. Jansen, ketamine can reproduce all the main features of the NDE, including travel through a dark tunnel into the light, the feeling that one is dead, communing with God, hallucinations, out-of-body experiences, strange noises, etc. This does not prove that there is no life after death, but it does prove that an NDE is not proof of an afterlife. In any case, the so-called "typical" NDE is not typical of anything, except the tendency of parapsychologists to selectively isolate features of a wide array of experiences and fit them to a paranormal or supernatural hypothesis.

Finally, Quigg Lawrence (Blinded by the Light) thinks that NDEs are the work of Satan. That is at least as good an answer as that they are due to real visits to other planes of reality.

Nessie

Loch Ness monster ("Nessie")

"Nessie" is an alleged creature living in Loch Ness, a long, deep lake near Inverness, Scotland. Many sightings of the "monster" have been recorded, going back at least as far as St. Columba, the Irish monk who converted most of Scotland to Christianity in the 6th century. Columba apparently converted Nessie, too; for it is said that until he went out on the waters and soothed the beast, she had been a murderess.

The modern legend of Nessie begins in 1934 with Dr. Robert Kenneth Wilson, a London physician, who allegedly photographed a plesiosaur-like beast with a long neck emerging out of the murky waters. That photo created quite a fuss. Before the photo, Loch Ness was the stuff of legend and myth. The locals knew the ancient history of the sea serpent. But people came to the lake more to relax than to go on expeditions looking for mythical beasts. After the photo, the scientific experts were called in. First, they examined the photo itself. Could be a plesiosaur. Yes, but it could be a tree trunk, too. Or an otter. Later, there would be explorations by a submarine with high tech sensing devices. Today, we have a full-blown tourist industry said to have generated about \$37 million in 1993, complete with submarine rides (about one hundred bucks an hour in 1994) and a multi-media tourist center.

Photos and Tabloids

There have been other photographs of Nessie, as well. The tabloids will pay good money for a photo of Nessie, and some enterprising souls have camped out for years in hopes of capturing the elusive beast on film. One good photo and they can retire for life! The Smithsonian even has a WWW page on Nessie, where it advocates continued scientific investigation into the matter. According to the Smithsonian,

Even though most scientists believe the likelihood of a monster is small, they keep an open mind as scientists should and wait for concrete proof in the form of skeletal evidence or the actual capture of such a creature.

We suggest...that those individuals interested in such a phenomenon...join the International Society of Cryptozoology, a scientific organization that critically looks at issues involving unknown creatures of unexpected form and size, and subjects them to technical review.

Keep on looking! Of course, this is the same Smithsonian which, in the January 1996 issue of its monthly magazine, ran a highly uncritical article on dowsing. We have come to expect the disingenuous defense of open-mindedness from the tabloids as they exploit our love of mystery and wonder; but we thought the Smithsonian would take a higher road and present empirical studies instead of uncritical wishful thinking. It may be the case that the Smithsonian has found that in order to compete and survive it must cater to the tabloid mentality of the general public and elected officials. What's next? Bigfoot T-shirts as part of their annual membership drive?

Sightings and Testimonials

In addition to the photographs of Nessie, there have been numerous sightings reported in the testimonials of unquestionably reliable witnesses. How could anyone look at all this "evidence" and dismiss Nessie as a figment of people's imagination, as just another case of pareidolia (another Virgin Mary in the tortilla)? Easy. Let's start with the photographs.

In a story not nearly as fascinating or obscure as the Piltdown man episode, but at least on par with the faked fairy photos that gulled Arthur Conan Doyle, the most famous photo of Nessie as a relative of the long-extinct plesiosaurs was reported to have been faked. David Martin, a zoologist, and Alastair Boyd, were members of a scientific project to find Nessie. They are credited by the London Sunday Telegraph [March, 12, 1994] as having dug up the story of the faked photo, which was staged using a toy submarine. Christian Spurling, who died in the fall of 1993, was said to have made a deathbed confession of his role in the prank. The fake photo was not taken by Wilson--his name was used to give the photo stature and integrity--but by Spurling's stepbrother, Ian Wetherell. Ian's father, Marmaduke ("Duke") Wetherell, had been hired by the London Daily Mail to find the monster. Wetherell was a filmmaker who described himself as a "big game hunter." What bigger game could there be than Nessie? Except that the big game was actually a small model of a sea serpent made of plastic wood attached to a 14-inch toy submarine! Actually, the game did get big as the little prank created such a huge fuss that the pranksters decided that the best thing for them to do would be to keep quiet.

Alastair Boyd, mentioned above as one of the researchers who uncovered the photo hoax, claims he made a genuine sighting of Nessie in 1979. His Nessie didn't look like a dinosaur, though. More like a whale, he said. It was at least 20 feet long and he says he saw it roll around in the water. Now, it's not likely that there are any 20-foot otters, but there are 20-foot logs. There are also errors in guessing at the size of things seen in the distance for a few seconds under less than ideal conditions. No matter, Boyd is convinced there are creatures in the loch. But this much we already know. Of course there are creatures in the loch. But are they 20-foot long monsters the size of a whale which no one has yet been able to find and clearly see?

#### Is It A Fish, A Wake, A Wave?

Since the Loch Ness monster story has been around for more than 1500 years, if there is a monster it is not likely that it is the same monster seen by St. Columba. Or, are we to believe that not only is Nessie very big, she is very old as well, a veritable Methusala among beasts? In short, there must be more than one monster. I'll leave it to the zoologists to calculate how many monsters are necessary to maintain the species over the years. One report I read claimed that a minimum population of ten creatures would be needed to sustain the population. The same report claims that Loch Ness is incapable of sustaining a predator weighing more than about 300 kg (about 660 pounds) [The Naturalist, winter 1993/94, reported in The Daily Telegraph]. Adrian Shine, head of the Loch Ness Project, once said the monster could be a Baltic sturgeon, a primitive fish with a snout and spines which can grow up to nine feet long and weigh in at around 450 pounds. This may sound like just another fish story to some, but there is scientific evidence that Nessie is, at best, a big fish in a big lake, or a big wake in a big lake. Shine, who has been studying the Loch Ness story for some twenty-five years, now thinks that what people see when they think they see the "monster" is actually an underwater wave.

#### Some Bare Bone Facts

The Naturalist reported on extensive studies of the lake's ecology that indicate that the lake is capable of supporting no more than 30 metric tons of fish. (The food chain of the lake is driven by bacteria which break down vegetation, rather than algae like most lakes.) Estimating that a group of predators would weigh no more than 10 percent of the total weight of the fish available for them to consume, researchers arrived at the 300-kg (660-lb.) statistic. It strikes me as extremely odd that with all the sophisticated technology, the submarines, and the thousands of voyeurs that after all these years we still don't have a single specimen. We don't have a carcass; we don't even have a bone to examine. With at least ten of these huge monsters swimming around in the lake at any given time, you'd think that there would be at least one unambiguous sighting by now. You would think so, that is, unless you want to keep the hoax/myth/legend alive. I can't deny that there are good economic reasons for keeping the Loch Ness monster myth alive. It's good for tourism. And there are all those "scientific" investigations to be paid for with government funds and private donations: full employment for cryptozoologists. Then, of course, there is all that film sold to photographers in search of The Big One. But tourism grew out of the myth, not the other way around. This story would be told with or without multi-media centers and gift shops full of Nessie mementos.

Besides the photo which Mr. Boyd and others have exposed as a fake, there are many other photos of Nessie to consider. Not all photos of Nessie are fakes. Some are genuine photos of the lake. These photos are always very gray and grainy, taken of murky waters with lots of shadows and outlines. There is no question that in some of these there does appear to be a form which could be taken for a sea serpent. The form could also be taken for a log, a shadow on a wave, a wave itself, driftwood or flotsam. Anyone who has traveled around Loch Ness will not be disappointed in the variety of forms which one will see when looking out upon the waters. The lake is very long, and on the day I was there it was very turbulent, even though the day was a rather pleasant one as far as Scottish summer days go. Obviously, since I was there for only one day, I had not come to Loch Ness to do any serious research into the monster. I'll confess that I didn't even bother to stop in Drumnadrochit to take in the Loch Ness Monster Exhibit, which, according to Fodor's guide book to Scotland, "presents the facts and the fakes."

I was on vacation, traveling with my wife, daughter, future son-in-law, and a dear friend. We headed down the B862, which affords intermittent views of the lake from the east side. It was a pleasant drive among moors and conifer spikes, but nothing spectacular in a land of glorious spectacles. The drive northward on the west bank along the A82 takes you right along the lake in many places and past the famous Urquhart castle, a "favorite monster-watching spot" (Fodor's).

Urquhart is on the tourist bus trail and gets more than its share of visitors. I had wanted to stop there and take advantage of its excellent location for monster watching but I couldn't get into the parking lot. I drove north past the castle, looking for a place to turn around, and after many miles finally found one. I drove south, past the castle again, as the parking lot guard waved me on by the castle: the lot was still full. I drove for miles looking for a place to turn around again, finally found one, and made a third pass with the

same result. Was it a sign from Nessie? We had to do most of our viewing of Loch Ness from the road. While we didn't see any monsters that day, I still have a vivid memory of one of Scotland's longest (24 miles) and certainly its deepest lake (750, 800, or 900 ft. in places, depending on which source you pick). I have no doubt that anyone who stared across those murky, wavy, shadowy waters would see many things that could be Nessie. I don't doubt that many, if not most, of the thousands of witnesses who testify to having seen Nessie are honest, decent folk who have interpreted their perceptions according to their wishes. They have come to the lakeside and they have been blessed with a visitation! They are truly special and their lives are now marked forever as unique. Best of all: they have a story to tell for the rest of their lives. In many ways they are like the young lady who declared that the highlight of her life was when she saw music icon Michael Jackson being whisked through a department store: "it was like seeing a UFO," she declared! I'll bet she'll be telling the story of her Michael Jackson sighting for years to come. Who knows to what epic proportions the young lady's tale might grow? Perhaps it will grow as big as Loch Ness itself, like the legend of Nessie.

### Neuro-Linguistic Programming (NLP)

I think the more you want to become more and more creative you have to not only elicit other peoples' (plural) strategies and replicate them yourself, but also modify others' strategies and have a strategy that creates new creativity strategies based on as many wonderful states as you can design for yourself. Therefore, in a way, the entire field of NLP is a creative tool, because I wanted to create something new.  
--Richard Bandler

Neuro-linguistic Programming (NLP) is one of many New Age Large Group Awareness Training programs. NLP is a competitor with Landmark Forum, Tony Robbins, and legions of other enterprises which, like the Sophists of ancient Greece, travel from town to town to teach their wisdom for a fee. Robbins is probably the most successful "graduate" of NLP. He started his own empire after transforming from a self-described "fat slob" to a firewalker to (in his own words) "the nation's foremost authority on the psychology of peak performance and personal, professional and organizational turnaround." The founders of NLP, Richard Bandler and John Grinder, might disagree.

NLP has something for everybody, the sick and the healthy, individual or corporation. In addition to being an agent for change for healthy individuals taught en masse, NLP is also used for individual psychotherapy for problems as diverse as phobias and schizophrenia. NLP also aims at transforming corporations, showing them how to achieve their maximum potential and achieve great success.

### What is NLP?

NLP was begun in the mid-seventies by a linguist (Grinder) and a mathematician (Bandler) who had strong interests in (a) successful people, (b) psychology, (c) language and (d) computer programming. What exactly is NLP? This is a difficult question to answer because those who started it and those involved in it use such vague and ambiguous language that NLP can mean different things to different people. While it is difficult to find a consistent description of NLP among those who claim to be experts at it, one metaphor keeps recurring. NLP claims to help people change by teaching them to program their brains. We were given brains, we are told, but no instruction manual. "NLP offers you a user-manual to your brain." 1 The brain-manual seems to be a metaphor for NLP training, which is sometimes referred to as "software for the brain." Furthermore, NLP, consciously or unconsciously, relies heavily upon (1) Freud's notion of the unconscious mind as constantly influencing conscious thought and action; (2) metaphorical behavior and speech, especially building upon the methods used in Freud's Interpretation of Dreams; and (3) hypnotherapy as developed by Milton Erickson. NLP is also heavily influenced by the work of Gregory Bateson and Noam Chomsky.

One common thread in NLP is the emphasis on teaching a variety of communication and persuasion skills, and using self-hypnosis to motivate and change oneself. Most NLP practitioners advertising on the WWW make grand claims about being able to help just about anybody become just about anything. The following is typical:

NLP can enhance all aspects of your life by improving your relationships with loved ones, learning to teach effectively, gaining a stronger sense of self-esteem, greater motivation, better understanding of communication, enhancing your business or career... and an enormous amount of other things which involve your brain. 2

Some advocates claim that they can teach an infallible method of telling when a person is lying. Some claim that people fail only because their teachers have not communicated with them in the right "language". One NLP guru, Dale Kirby, informs us that one of the presuppositions of NLP is "No one is wrong or broken." So why seek remedial change? On the other hand, what Mr. Kirby does have to say about NLP which is intelligible does not make it very attractive. For example, he says that according to NLP

"There is no such thing as failure. There is only feedback." Was NLP invented by the U.S. Military to explain their "incomplete successes"? When the space shuttle blew up within minutes of launch, killing everyone on board, was that "only feedback"? If I stab my neighbor and call it "performing non-elective surgery" am I practicing NLP? If I am arrested in a drunken state with a knife in my pocket for threatening an ex-girlfriend, am I just "trying to rekindle an old flame"?

Another NLP presupposition which is false is "If someone can do something, anyone can learn it." This comes from people who claim they understand the brain and can help you reprogram yours. The only thing that separates the average person from Einstein or Pavarotti or the World Champion Log Lifter is NLP. Right.

NLP is said to be the study of the structure of subjective experience, but a great deal of attention seems to be paid to observing behavior and teaching people how to read "body language." But there is no common structure to non-verbal communication, any more than there is a common structure to dream symbolism. There certainly are some well-defined culturally determined non-verbal ways of communicating, e.g., pointing the back of the hand at another, lowering all fingers but the one in the middle, has a definite meaning in American culture. But when someone tells me that the way I squeeze my nose during a conversation means I am signaling him that I think his idea stinks, how do we verify whether his interpretation is correct or not? I deny it. He knows the structure, he says. He knows the meaning. I am not aware of my signal or of my feelings, he says, because the message is coming from my subconscious mind. How do we test these kinds of claims? We can't. What's his evidence? It must be his brilliant intuitive insight because there is no empirical evidence to back up this kind of stuff. Sitting cross-armed at a meeting might not mean that someone is "blocking you out" or "getting defensive". She may just be cold or have a back ache or simply feel comfortable sitting that way. It is dangerous to read too much into non-verbal behavior. Those splayed legs may simply indicate a relaxed person, not someone inviting you to have sex. At the same time, much of what NLP is teaching is how to do cold reading. This is valuable, but an art not a science, and should be used with caution.

Finally, NLP claims that each of us has a Primary Representational System (PRS), a tendency to think in specific modes: visual, auditory, kinaesthetic, olfactory or gustatory. A person's PRS can be determined by words the person tends to use or by the direction of one's eye movements. Supposedly, a therapist will have a better rapport with a client if they have a matching PRS. None of this has been supported by the scientific literature.\*

Bandler's Institute

Bandler's First Institute of Neuro-Linguistic Programming and Design Human Engineering has this to say about NLP:

"Neuro-Linguistic Programming (NLP) is defined as the study of the structure of subjective experience and what can be calculated from that and is predicated upon the belief that all behavior has structure....Neuro-Linguistic Programming was specifically created in order to allow us to do magic by creating new ways of understanding how verbal and non-verbal communication affect the human brain. As such it presents us all with the opportunity to not only communicate better with others, but also learn how to gain more control over what we considered to be automatic functions of our own neurology." 3

We are told that Bandler took as his first models Virginia Satir ("The Mother of Family System Therapy"), Milton Erickson ("The Father of Modern Hypnotherapy") and Fritz Perls (early advocate of Gestalt Therapy) because they "had amazing results with their clients." The linguistic and behavioral patterns of such people were studied and used as models. These were therapists who liked such expressions as 'self-esteem', 'validate', 'transformation', 'harmony', 'growth', 'ecology', 'self-realization', 'unconscious mind', 'non-verbal communication', 'achieving one's highest potential'--expressions which serve as beacons to New Age transformational psychology. No neuroscientist or anyone who has studied the brain is mentioned as having had any influence on NLP. Also, someone who is not mentioned, but who certainly seems like the ideal model for NLP, is Werner Erhard. He started est a few miles north (in San Francisco) of Bandler and Grinder (in Santa Cruz) just a couple of years before the latter started their training business. Erhard seems to have set out to do just what Bandler and Grinder set out to do: help people transform themselves and make a good living doing it. NLP and est also have in common the fact that they are built up from a hodgepodge of sources in psychology, philosophy, and other disciplines. Both have been brilliantly marketed as offering the key to success, happiness, and fulfillment to anyone willing to pay the price of admission. Best of all: no one fails out of these schools!

The Ever-Evolving Bandler

When one reads what Bandler says, it may lead one to think that some people sign on just to get the translation from the Master Teacher of Communication Skills himself:

One of the models that I built was called strategy elicitation which is something that people confuse with modeling to no end. They go out and elicit a strategy and they think they are modeling but they don't ask the question, "Where did the strategy elicitation model come from?" There are constraints inside this model since it was built by reducing things down. The strategy elicitation model is always looking for the most finite way of accomplishing a result. This model is based on sequential elicitation and simultaneous installation.

I am sure many would agree that with communication like this, Bandler must have a very special code for programming his brain.

Bandler claims he keeps evolving. To some, however, he may seem mainly concerned with protecting his economic interests by trademarking his every burp. He seems extremely concerned that some rogue therapist or trainer might steal his work and make money without him getting a cut. One might be charitable and see Bandler's obsession with trademarking as a way to protect the integrity of his brilliant new discoveries about human potential (such as charisma enhancement) and how to sell it. Anyway, to clarify or to obscure matters--who knows which?-- what Bandler calls the real thing can be identified by a license and the trademark from The Society of Neuro-Linguistic Programming™. However, do not contact this organization if you want detailed, clear information about the nature of NLP, or DHE (Design Human Engineering (which will teach you to hallucinate designs like Tesla did), or PE (Persuasion Engineering™) or MetaMaster Track™, or Charisma Enhancement™, or Trancing™, or whatever else Mr. Bandler and associates are selling these days. Mostly what you will find on Bandler's page is information on how to sign up for one of his training sessions. For example, you can get 6 days of training for \$1,800 at the door (\$1,500 prepaid). What will you be trained in or for? Bandler has been learning about "the advancement of human evolution" and he will pass this on to you. For \$1,500 you could have taken his 3-day seminar on Creativity Enhancement (where you could learn why it's not creative to rely on other people's ideas, except for Bandler's).

#### Grinder and Corporate NLP

John Grinder, on the other hand, has gone on to try to do for the corporate world what Bandler is doing for the rest of us. He has joined Carmen Bostic St Clair in a organization called Quantum Leap, "an international organisation dealing with the design and implementation of cross cultural communication systems." Like Bandler, Grinder claims he has evolved new and even more brilliant "codes".

...the New Code contains a series of gates which presuppose a certain and to my way of thinking appropriate relationship between the conscious and unconscious parts of a person purporting to train or represent in some manner NLP. This goes a long way toward insisting on the presence of personal congruity in such a person. In other words, a person who fails to carry personal congruity will in general find themselves unable to use and/or teach the New Code patterns with any sort of consistent success. This is a design I like very much - it has the characteristic of a self-correcting system.

It may strike some people that terms like "personal congruity" are not very precise or scientific. This is probably because Grinder has created a "new paradigm". Or so he says. He denies that his and Bandler's work is an eclectic hodgepodge of philosophy and psychology, or that it even builds from the works of others. He believes that what he and Bandler did was "create a paradigm shift." But before examining this so-called paradigm shift, it should be noted that there was certainly no paradigm shift in their work with respect to belief in the role the unconscious mind in human thought, desire, and behavior. They took that notion directly from Freud.

The following claim by Grinder provides some sense of what he thinks NLP is:

My memories about what we thought at the time of discovery (with respect to the classic code we developed - that is, the years 1973 through 1978) are that we were quite explicit that we were out to overthrow a paradigm and that, for example, I, for one, found it very useful to plan this campaign using in part as a guide the excellent work of Thomas Kuhn (The Structure of Scientific Revolutions) in which he detailed some of the conditions which historically have obtained in the midst of paradigm shifts. For example, I believe it was very useful that neither one of us were qualified in the field we first went after - psychology and in particular, its therapeutic application; this being one of the conditions which Kuhn identified in his historical study of paradigm shifts. Who knows what Bandler was thinking?

One can only hope that Bandler wasn't thinking the same things that Grinder was thinking, at least with respect to Kuhn's classic text. Kuhn did not promote the notion that not being particularly qualified in a scientific field is a significant condition for contributing to the development of a new paradigm in science. Furthermore, Kuhn did not provide a model or blueprint for creating paradigm shifts! His is an historical work, describing what he believed to have occurred in the history of science. Nowhere does he indicate that a single person at any time did, or even could, create a paradigm shift in science. Individuals such as Newton or Einstein might provide theories which require paradigm shifts for their theories to be adequately

understood, but they don't create the paradigm shifts themselves. Kuhn's work implies that such a notion is preposterous.

Grinder and Bandler should have read Kant before they set off on their quixotic pursuit. Kant's "Copernican revolution" might be considered a paradigm shift by Bandler and Grinder, but it is not what Kuhn was talking about when he was describing the historical development of scientific theories. Kuhn restricted his concern to science. He made no claim that anything similar happens in philosophy and he certainly did not imply that anything NLP did, or is doing, constitutes a paradigm shift. Kuhn claimed that paradigm shifts occur over time when one theory breaks down and is replaced by another. Scientific theories break down, he claimed, when new data can't be explained by the old theories or when they no longer explain things as well as some newer theory. What Bandler and Grinder did was not in response to any crisis in theory in any scientific field and so cannot even be considered as contributing to a paradigm shift much less being one itself.

What Grinder seems to think Kuhn meant by "paradigm shift" is something like a gestalt shift, a change in the way we look at things, a change in perspective. Kant might fit the bill for this notion. Kant rejected the old way of doing epistemology, which was to ask 'how can we bring ourselves to understand the world?' What we ought to ask, said Kant, is 'how is it possible that the world comes to be understood by us?' This was truly a revolutionary move in the history of philosophy, for it asserted that the world must conform to the conditions imposed on it by the one experiencing the world. The notion that one has the truth when one's mind conforms with the world is rejected in favor of the notion that all knowledge is subjective because it is impossible without experience which is essentially subjective. Copernicus had said, in essence, let's see how things look with the Sun at the center of the universe, instead of the Earth. Kant said, in essence, let's examine how we know the world by assuming that the world must conform to the mind, rather than the mind conform to the world. Copernicus, however, could be considered as contributing to a paradigm shift in science. If he were right about the earth and other planets going around the sun rather than the sun and the other planets going around the earth--and he was--then astronomers could no longer do astronomy without profound changes in their fundamental concepts about the nature of the heavens. On the other hand, there is no way to know if Kant is right. We can accept or reject his theory. We can continue to do philosophy without being Kantians, but we cannot continue to do astronomy without accepting the heliocentric hypothesis and rejecting the geocentric one. What did Grinder and Bandler do that makes it impossible to continue doing psychology or therapy or semiotics or philosophy without accepting their ideas? Nothing.

#### Do People Benefit From NLP?

While I do not doubt that many people benefit from NLP training sessions, there seem to be several false or questionable assumptions upon which NLP is based. Their beliefs about the unconscious mind, hypnosis and the ability to influence people by appealing directly to the subconscious mind are unsubstantiated. All the scientific evidence which exists on such things indicates that what NLP claims is not true. You cannot learn to "speak directly to the unconscious mind " as Erickson and NLP claim, except in the most obvious way of using the power of suggestion.

NLP claims that its experts have studied the thinking of great minds and the behavior patterns of successful people and have extracted models of how they work. "From these models, techniques for quickly and effectively changing thoughts, behaviors and beliefs that get in your way have been developed."<sup>4</sup> But studying Einstein's or Tolstoy's work might produce a dozen "models" of how those minds worked. There is no way to know which, if any, of the models is correct. It is a mystery why anyone would suppose that any given model would imply techniques for quick and effective change in thoughts, actions and beliefs. I think most of us intuitively grasp that even if we were subjected to the same experiences which Einstein or Tolstoy had, we would not have become either. Surely, we would be significantly different from whom we've become, but without their brains to begin with, we would have developed quite differently from either of them.

#### In Conclusion

It seems that NLP develops models which can't be verified, from which it develops techniques which may have nothing to do with either the models or the sources of the models. NLP makes claims about thinking and perception which do not seem to be supported by neuroscience. This is not to say that the techniques won't work. They may work and work quite well, but there is no way to know whether or not the claims behind their origin are valid. Perhaps it doesn't matter. NLP itself proclaims that it is pragmatic in its approach: what matters is whether or not it works. However, how do you measure the claim "NLP works"? I don't know and I don't think NLPers know, either. Anecdotes and testimonials seem to be the main measuring devices. Unfortunately, such a measurement may reveal only how well the trainers teach their clients to persuade others to enroll in more training sessions.

Postscript: On a more cheerful note, Bandler has sued Grinder for millions of dollars. Apparently, the two great communicators and paradigm innovators couldn't follow their own advice or perhaps they are modeling their behavior after so many other great Americans who have found that the most lucrative way to communicate is by suing someone with deep pockets. Grinder has published a statement on the WWW regarding this unfortunate state of affairs. NLP is big on metaphors and I doubt whether this nasty lawsuit is the kind of metaphor they want to be remembered by. Is Bandler's putting a trademark on half a dozen expressions a sign of a man who is simply protecting the integrity of NLP or is it a sign of a greedy megalomaniac?

### New Age Psychotherapies

"It is possible that the most important decision in the history of therapy was the idea that it should be paid for by the hour." – Jay Haley

"To society's loss, there is an alarming laxity within the mental health professions when it comes to monitoring, commenting on, and educating the public about what is good therapy, what is negligent behavior by trained professionals, and what is or borders on quackery." –Singer and Lalich, "Crazy" Therapies

A psychotherapy is a treatment technique for mental and emotional disorders. There are many types of psychotherapy. Some have been empirically tested and are known to be very effective, such as cognitive therapy. Many New Age therapies, however, are little more than a mixture of metaphysics, religion and pseudoscientific "insights". There may be reasonable disagreements over what constitutes successful therapy, but successful therapy should not require one to believe in God, reincarnation, alien abductions, possession by entities, inner children, Primal Pains, channeling, miracles, or any other metaphysical, religious or pseudoscientific notion.

For in-depth descriptions of some of the latest New Age therapies one should read "Crazy" Therapies by Margaret Thaler Singer and Janja Lalich, or view Ofra Bikel's "Divided Memories," first aired on Frontline on April 4, 1994, and available on video tape for \$133.50 (\$155 abroad) from:

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Denver CO 80203  
303-831-9000

Bikel's documentary of therapists allows the practitioners to confidently display their arrogance and incompetence. The therapists are oblivious to the fact that they are being used to demonstrate the monstrosity of their pseudoscientific and self-deceptive work. Therapist after therapist talks freely about how uninterested they are in the truth and how indifferent they are to the families they help destroy. They are uniform in their dismissal of critics as being "in denial". Patient after patient is paraded forth by the therapists as evidence of their good work, yet none of the patients seem better for the therapy and many seem hopelessly ill.

Trying to find a meaningful common thread in the therapies is not too difficult, but its meaningfulness does not enhance the position of those who think these therapies are scientific. One common thread is the belief that a person having problems is not likely to be responsible for those problems. Another thread is the belief that the cause of a problem is some traumatic past event, such as being stabbed in the stomach in a previous lifetime or being sexually abused as a child, the latter being the repressed memory therapists' one-size-fits-all explanation of emotional disorder. Childhood sexual abuse is not only the cause of most problems, according to these therapists, it is the cause around which their lives revolve. The repressed memory therapists are not bothered that most of their patients do not remember being abused. Repressed memory therapy will help them recall the trauma. Several therapists claim to have been abused themselves; one discovers her abuse while treating a patient who is remembering her abuse. That a therapist would inject his or her problems into treatment and consider the beliefs about a past life of a patient to be relevant to the patient's illness makes these New Age therapies look more like cults than science.

Another common thread is the belief that the patient must discover the cause of his or her problem to be helped. This "insight" approach to psychotherapy is very old, but has never been scientifically tested or validated. Nor does there seem to be any clear idea as to what it means to be helped by psychotherapy. The only common thread regarding cure seems to be that the patient believes she knows what caused her problems. Believing you know who or what harmed you in the past is the cure. The quality of the patient's life, the interaction of the patient in significant social settings--such as with one's family, friends, and co-workers--is irrelevant. Having the patient trust the therapist is all-important. To gain this trust one of the common tactics of the therapists is to turn the patient against the patient's family. This is done by leading



the patient to believe that the cause of the patient's problems is a family member or several family members. The family cannot help the patient because the family is the cause of the patient's problems. One or more family members abused the patient and is now either a liar or in denial; the other family members are deluded or in conspiracy to protect the evil family member. Of course, this demand that the therapist be trusted by the patient has its corollary: the patient puts all her faith in the therapist in return. The patient has been persecuted; the therapist is her savior.

#### Lack of Interest In Truth or Accuracy

The most appalling thread holding these therapies together is the profound lack of interest in truth or accuracy. Neither patient nor therapist is to be concerned with facts or tangible evidence that the "believed cause" actually happened. In fact, whether the "believed cause" is the real cause is irrelevant to the therapy. The patient creates truth and it is as real to the patient as facts are to the skeptic. That's all that matters. We all live in a delusion, proclaims one therapist. So, it is of no concern to him that his patient's "believed cause" is pure delusion. Any first-year psychology student recognizes the projection in that claim. The viewer, however, needs no training to see that this therapist is clearly deluded when he claims that he did not induce his patient's bizarre tale of ritual abuse by her satanic cult parents and grandparents. His total lack of interest in corroborating evidence to his patient's story, his lack of concern for the family he was helping to destroy, his disingenuous claims about needing to accept on faith everything his patient tells him, his apparent obliviousness to the absurdity and cruelty of inducing his patient to file a \$20 million lawsuit against her family, his deluded claim that he can tell in the first session with a patient whether or not she has been abused as a child, all add up to the self-labeled therapeutic package: delusion.

The overwhelming impression left by Bikel's documentary is that there are a number of New Age therapists who are mixing metaphysics, religion and quackery. They have no interest in facts or truth, and, because they are pseudoscientific, have no way of testing whether they are valid or not.

Singer and Lalich's "Crazy" Therapies documents the wide range of pseudoscientific therapies popular among New Age therapists. The authors attribute part of the popularity of bizarre therapies to the rise in irrationality and the demand for such items on talk shows and the book circuit. Some therapists, like Sondra Ray, an advocate of "rebirthing therapy", consider themselves to be spiritual guides, not scientists. They are proud of their lack of scientific support. Some claim that mental illness is caused by possession by spirit entities which must be placated. Others use past-life regression to find the cause of the problem. Some treat alien abduction claims as non-delusional. There are several cathartic therapies that involve primal screaming, rebirthing, or reparenting. None of these therapies has any scientific validity. Others, such as facilitated communication and Eye Movement Desensitization and Reprocessing (EMDR) appear scientific but at the expense of good sense and good science. None of these therapies have been proven effective by independent scientific studies, nor are they generally accepted as effective in the scientific community. Their support comes mainly from the "insight" and observations of their founders, and patient response, which is analyzed and evaluated by the therapists themselves. Most of the innovative therapists reviewed by Singer and Lalich seem uninterested in scientifically testing their theories, though most seem attached to technical jargon.

It is difficult to select the most egregious New Age therapy, but Neural Organization Technique (NOT) developed by chiropractor Carl Ferreri, is hard to top. Ferreri decided, without the slightest hint of scientific evidence, that all mental and physical problems are due to misaligned skulls. Other chiropractors are deluded for thinking that it is the spine which is misaligned and needs adjustments. Ferreri believes that as you breathe, the bones in your skull move, causing misalignments that can be corrected by manipulation. This theory was put into practice without the slightest proof that cranial bones move or that there is any sense to the notion of "standard alignment" of the cranial bones. Ferreri was not stopped by logic, however, but by lawsuits and criminal charges.

#### Long List of "Crazy" Therapies

The list of "crazy" therapies is too long to reproduce here, but Singer and Lalich describe the following:

Leonard Orr developed energy breathing and rebirthing theory. According to Orr, if you learn how to breathe energy well, you can breathe away diseases and physical or emotional pain.

Marguerite Secheyane and John Rosen practice the theory of regression and reparenting. The therapist becomes the patient's surrogate parent to make up for the terrible job her real parents did.

Jacqui Shiff's theory is that the patient must wear diapers, suck his thumb and drink from a baby bottle to be cured.

Sondra Ray and Bob Mandel believe that your problems are due to the way you were born. They will help "rebirth" you, properly this time.

John Fuller, Bruce Goldberg, Brian Weiss, Edith Fiore, Richard Boylan, David Jacobs, Budd Hopkins and John Mack use hypnosis to discover the patient's past or future lives as an alien abductee, in an effort to "help" them.

John Bradshaw's theory is that you have an "inner child" you must nurture and be good to, if you are to be healthy.

Arthur Janov practices Primal Therapy. According to Janov, the patient must rid herself of Primal Pain which can be eradicated only by learning the Proper Way to Scream and Capitalize.

Daniel Casriel's New Identity Process (NIP) involves screaming which allegedly unblocks what's blocked. Casriel's scream is a better kind of scream than Janov's.

Nolan Saltzman practices Bio Scream Psychotherapy. His screaming is better than Casriel's or Janov's because it has more Love in it.

Finally, there is hypnotherapy. Hypnotherapy is extremely popular and is practiced by thousands of therapists who got their training in a weekend seminar or a short course. Singer and Lalich note that

There are no licensing requirements, no prerequisites for training, and no professional organization to which those who hypnotize others are accountable. You can be a real estate agent, a graphic artist, an English teacher, or a hairdresser and also call yourself a hypnotherapist by hanging a certificate on your wall that states you took as few as eighteen hours of courses in hypnosis. (p. 53)

This lack of oversight leads to all sorts of abuses and malpractice.

#### Priming

Many hypnotherapists seem unaware that they are priming their patients. The dangers of this practice are stated by Martin Orne: "The cues as to what is expected may be unwittingly communicated before or during the hypnotic procedure, either by the hypnotist or by someone else, for example, a previous subject, a story, a movie, a stage show, etc. Further, the nature of these cues may be quite obscure to the hypnotist, to the subject, and even to the trained observer." (p. 96) Yet, many hypnotherapists seem oblivious to the dangers and pitfalls of using hypnosis in a therapeutic session.

Many New Age therapists seem oblivious to facts with which any competent therapist should be concerned. For example, all these therapists develop theories which exclude the possibility that a patient might either have a physical problem or a character flaw. No patient is physically ill. No mental disorder is biochemical. No patient is responsible for his or her problems. It is always someone else or something else which has the faults. Patients apparently never lie, manipulate, deceive, cheat, distort, rationalize, err, etc. If a patient has a "fault," it is that he or she is not completely trusting of the therapist. Patients have "mental diseases", "emotional problems", or "syndromes", not character flaws. It would be an astounding fact to discover that emotionally disturbed or mentally troubled persons are completely without flaws in their moral character. Yet, these advocates of "crazy" therapies seem to treat all patients as if they were innocent children, incapable of the slightest peccadillo.

Most of the therapists discussed by Bikel, Singer and Lalich seem oblivious or indifferent to their role in priming and prompting their patients. They condition their patients, prompt them, and in some cases, clearly plant notions in their patient's minds. They give their patients books to read or videos to watch, not to help the patient understand a problem but to prime the patient for belief in some crazy therapy. They plant notions during hypnosis, group sessions, etc., and then these planted notions are "recovered" and offered as validation of their therapeutic techniques and theories. Rather than provide real therapy, these "crazy" therapists indoctrinate patients into their own worldviews. This is surreal pseudoscience at its worst.

#### New World Order

Illuminati, The New World Order & Paranoid Conspiracy Theorists (PCTs)

What is at stake is more than one small country [Kuwait], it is a big idea - a new world order, where diverse nations are drawn together in common cause to achieve the universal aspirations of mankind: peace and

security, freedom, and the rule of law. Such is a world worthy of our struggle, and worthy of our children's future. --President George Bush in his state of the union address, January 16, 1991

The Illuminati was a secret society in Bavaria in the late 18th century. They had a political agenda which included republicanism and abolition of monarchies, which they tried to institute by means of "subterfuge, secrecy, and conspiracy," including the infiltration of other organizations.\* They fancied themselves to be "enlightened" but they had little success and were destroyed within fifteen years of their origin (Pipes, 1997).

Paranoid conspiracy theorists (PCTs) believe the Illuminati cabal still exists, either in its original form or as a paradigm for later cabals. Many PCTs believe "that large Jewish banking families have been orchestrating various political revolutions and machinations throughout Europe and America since the late eighteenth century, with the ultimate aim of bringing about a satanic New World Order."\* What George Bush was talking about in his state of the union address in 1991 was no less than the establishment of a single world government with the anti-Christ (whom some say is Bill Clinton, but could be Pat Robertson) at its head.

In the paranoid mind, the Illuminati succeeded in their goals, and have now infiltrated every government and every aspect of society. They are responsible for every evil and every unjust act that ever occurs anywhere; the fact that absolutely no evidence of their existence can be found only serves to make them stronger and more frightening. They are the demon in the closet, and will probably never disappear from the paranoid fantasy world of right-wing conspiracy theorists.\*  
--New England Skeptical Society

Although there are two main "sects" of PCTs, the militant Christian fundamentalist branch and the UFO/alien branch, and although they each think the other is evil or nuts, their paranoia has the same focus: the end is near.

#### The Illuminati and The Anti-Christ

The Illuminati are hastening the coming of the anti-Christ and the end of the world.

For those of us who still accept the Bible as God's revealed will to man, it's a matter of great concern to see the increasing propaganda for, and emergence of, a New World Order.... both Old and New Testaments warned us that the culmination of history would be marked by the reunion of the nations of the old Roman Empire in Europe; the restoration of the state of Israel (and the increasing hostility of all nations toward her); the implementation of a one-world governmental system; the imposition of a world-wide cashless monetary system; the development of a syncretistic [sic] world religion, based upon man, and presided over by a false prophet; the rise to power of a benign world dictator, who (once firmly in control) would eliminate individual freedoms, demonstrate iron-willed ferocity and cruelty, and make himself the object of worship; and world-wide apostasy [sic], coupled with active persecution and execution of believing Jews and Christians.\*

--Jay Whitley, PCT and purveyor of Emergency Dehydrated Food Kits

According to the PCTs, the Illuminati are the ones who rule the world, though they are pulling the strings from behind the scenes. They have been doing this for centuries. How is this known? Just look at what they've done and are doing? Federal income tax, the state of Israel, the assassination of the KKK (Kennedy, King, Kennedy), the United Nations, FEMA, AIDS, WACO, E.D., VD, the ATM card, the hula hoop, Microsoft, the euro--these and many other events did not just happen without connection. They are all part of a plot to take over the world, establish a single tyrannical government and hasten Armageddon.

#### The Major Players

Here is a typical set of the PCT's notions, extolled in a review of an author who claims he has exposed the Illuminati:

Who really controls world events from behind-the-scene? Years of extensive research and investigation have gone into this massively documented work [Bloodlines of the Illuminati]. In almost 600 pages, Fritz Springmeier discloses mind-boggling facts and never before revealed truths about the top Illuminati dynasties. Discover the amazing role these bloodlines have played--and are now wielding--in human history, with family names such as Astor, DuPont, Kennedy, Onassis, Rockefeller, Rothschild, Russell, Van Duyn, and Krupp. You'll also learn of the secretive, Chinese Li family, which operates with impunity in the U.S.A. and around the world. Along the way you'll find out why President John F. Kennedy and actress Grace Kelly were killed; who created the United Nations; who controls the two major U.S. political parties; how the Rothschilds invented and control modern-day Israel; who secretly founded false religions such as the Jehovah Witnesses; and much, much more. A literal encyclopedia of rare, unbelievable information!\*

The "information" is certainly unbelievable, but it is not rare enough. Another PCT "sect" holds that it is the aliens who rule the Illuminati who rule the world, etc.

David Icke

David Icke, another pundit of the Illuminati, gets messages from alien "Illuminati-reptilians" who explain to him such things as the Gregorian calendar.

The whole scenario [sic] was planned centuries ago because the reptilians, operating from the lower fourth dimension, and indeed whatever force controls them, have a very different version of "time" than we have, hence they can see and plan down the three-dimensional "time"-line in a way that those in three-dimensional form cannot.\*

Icke fancies himself "The most controversial author and speaker in the world."\* For him, the origin of the Illuminati is extraterrestrial. He knows this because he is contacted regularly with messages from beyond by the alien lizards. He puts these messages into books (at least five, so far).

There was a time when a man who claimed to be in contact with alien reptiles would have been shunned by the world. In today's open society, such a man is as likely to become a cult hero, guest lecturer at universities, or an author featured on talk shows, as he is to be committed to an asylum.

Jim Keith

Another expositor on these hidden agendas and worldwide conspiracies is Jim Keith, who died on September 7, 1999, during surgery to repair a leg he injured at the Burning Man Festival. Keith, a former executive Scientologist and author of nine conspiracy books (including Saucers of the Illuminati) could see things the rest of us don't. Was this because he was better at seeing or because his imagination ran wild? He watches a Coke ad and sees fellatio and anal penetration.\* You can imagine what he sees or hears when he gives his attention to world history.

Ken Adachi

Ken Adachi has a fine conspiracy page. He leaves no event unaccounted for as part of the plot to take over the world and hasten the Apocalypse. The Illuminati, however, is only one aspect of the occult cabal. He has transmogrified the New World Order into a cabal itself. According to Mr. Adachi

An extremely powerful civilian dominated cabal, the New World Order, includes Majesty Twelve [MJ-12], The Illuminati, Order of the Quest, The Bilderberg Group, The Trilateral Commission, The Executive Committee of The Council on Foreign Relations, The PI-40 Committee, The Jason Group, The Club of Rome, The Group, The Royal Institute of International Affairs, The Open Friendly Secret Society, The Rosicrucians, The Brotherhood of the Dragon (or Snake), The Russell Trust, The Black Families (of Europe), Skull & Bones, the Scroll & Key, The Knights of Malta, the Illuminati arm of The Freemasons, and many, many other secretive groups.\*

What is most amusing about Mr. Adachi's page is that even though the end is near, he still asks us to please support his sponsor, an organization that can help with debt consolidation or a home loan. What is not so amusing is his identification of the Freemasons as a subversive cabal. This idea is popular among PCTs, especially with those on the religious right like Pat Robertson, who are also prone to be anti-Semitic.

Myron Fagan

Mr. Adachi may have a fine conspiracy WWW page but he seems to have borrowed everything from Mr. Fagan, who undertook to explain all of world history as a plot of the Illuminati to establish the New World Order. Waterloo, Diamond Jim Brady, the French Revolution, any war you care to name, homosexuals in the State Department, JFK, the United Nations, the ACLU, Jewish bankers, the Communist conspiracy to control Hollywood and make films that would hasten the arrival of the New World Order, etc. ad nauseam. Fagan's audiotape, "The Illuminati," is available online.

Fagan, born ca. 1888, was a playwright, director, producer, editor and public relations director for Charles Hughes, Republican candidate for president in 1916. In 1930, Fagan came to Hollywood and worked as a writer and director. In 1945, he says he saw some secret documents which led him to write Red Rainbow and Thieves Paradise. The former portrays Roosevelt, Stalin and others at Malta plotting to deliver the Balkans, Eastern Europe and Berlin to Stalin. The latter portrays the same group plotting to create the United Nations as a Communist front for one world government. Until his death, Fagan relentlessly uncovered plots for almost every historical event of any note. Fagan is the archetype for the PCT.

Milton William "Bill" Cooper

Cooper, a leader of the Arizona militia movement, wrote *The Secret Government: a Covenant with Death - The Origin, Identity, and Purpose of MJ-12*, a paper given in Las Vegas at a MUFON meeting in 1989 focusing essentially on his belief of a cover-up of an alien crash at Roswell. He also wrote *Secret Societies/ New World Order*. He claims that he got his information "directly from, or as a result of my own research into the TOP SECRET/MAJIC material WHICH I SAW AND READ between the years 1970 and 1973 as a member of the Intelligence Briefing Team of the Commander in Chief of the Pacific Fleet." (PCTs seem to like to use CAPS for EMPHASIS.) Cooper's veracity about his career in the Navy and his access to secret documents has been questioned publicly on alt.alien.visitor, as have other aspects of his personality. Cooper runs [williamcooper.com](http://williamcooper.com), a site which promotes his many rants, including an autobiographical page that might be of interest to certain mental health professionals.

Cooper's "investigations" uncover the usual conspiracies, although he also includes some of the new ones such as the conspiracy to use AIDS to thin out the population of blacks, Hispanics and homosexuals, a notion he put forth in a book called *Behold a Pale Horse*. What Cooper lacks in hard evidence he oversupplies in detail and imagination.\*

Robert Gaylon Ross, Sr.

Ross is owner of Ross International Enterprises (RIE) and is the author of nine books in progress. RIE is "a private company chartered to do anything that is legal, ethical and moral, anywhere in the world." Ross started RIE when he couldn't find a publisher for his manuscript, *Who's Who of the Elite*, an expose of the elite. Says Ross, after you visit his site

you will have been exposed to the REAL TRUTH about the conspiracy behind the Bilderbergs; Council on Foreign Relations; Trilateral Commission; Skull & Bones Society; Bohemian Grove and Bohemian Club; the CIA's involvement in trauma based mind control, drug smuggling and money laundering; where are the Wealthiest in the World; who really owns the Federal Reserve System; and the more accurate theories found in "Logical Physics".

Ross's unique twist is to relate "alternative physics" to the world of conspiracies and to offer for sale a rifle with scope from his conspiracy pages. If only he had had UFOs in his books, he would have no trouble getting them published with Illuminet Press, a publishing house devoted to nothing but conspiracy books involving aliens of some sort.

Why?

To enter the world of the PCTs is to enter Bedlam. Anyone interested in entering this world might want to start at UFOMind's page on Conspiracies - Claims of sinister collusions and grand deceptions. It would be pointless here to examine, much less attempt to refute, the delusions of people who think they have been turned into assassins by mind-control techniques so that they can carry out the will of inbred dynasties, that aliens are controlling the world, that none of the laws of science are actual, that the imagination and the thought of what is possible are better guides than the "physically manifested world," etc. A rational person might think many of the PCTs are joking. There are Internet sites that seem to be parody sites but it is difficult to tell, since there seems to be no belief, however inane or absurd, that the PCTs can't fit into their bizarre worldview. A rational person who never heard of Pat Robertson might well read his *New World Order* (Word Books, 1994) and think it must be a joke. Could anyone actually believe his rambling paranoia regarding Jewish bankers, Freemasons, Muslims, homosexuals, foreigners, etc.? Apparently so. Still, one wonders why PCTs exist and their numbers seem to be growing.

Of course, governments and some of the very rich have conspired to rule the world in one form or another. There are enough real conspiracies to satisfy even the greatest Pollyanna that one's government and the extremely rich and powerful don't play by the same rules, if they play by any rules at all, as decent folk. Those of us who have watched the U.S. government support one fascist dictator after another because he was "anti-communist" are uncomfortable to find that there are people who are so far to the right of the right-wing that they too want to expose the coverups. It is of no use to point out to the PCTs that our government led coups of democratically elected governments, assassinated leaders of nations and provided military and financial aid to thugs and murderers around the world, in a misguided belief that they were saving the world from communism, as well as opening up new markets for capitalist expansion. Many of the leaders and top agents in our government are and were evil and incompetent, but, as inept as they tend to be, even they would recognize the limits of their ambitions.

But, it is pointless to argue here because the PCTs are expert pseudohistorians: contradictory evidence is used to support rather than refute their notions. Does the U.S. Government go after the world's richest

man, Bill Gates? Hah! It's a charade, aimed at getting us off the scent. Wasn't Hitler the one who thought he could rule the world and didn't the Allies stop him? Hitler was a dupe, used to advance the sinister plot to rule the world by the Illuminati.

### Some Speculation

One can only speculate as to why PCTs exist. It is easy to explain their proliferation: modern mass communications has made it possible for anyone to become his or her own press and propaganda machine. But why PCTs in the first place? The only other experience I've had with such thinking was when I had to get involved with some mentally ill people. I am not joking here. A relative had a "psychotic break" and severe paranoia. We (a group of relatives) were all targets of assassination by some unknown evil people. They could be partially identified by their license plate numbers. If the number started with a "5" then they were evil. No amount of logic or reasoning as to the preposterousness of the notion that anyone would want to kill a person of absolutely no significance was of any use. No amount of reasoning as to how license plate numbers are assigned was of any use. Phone calls could only be made from "secure" lines, which involved either going to the fire department or talking your way up through a series of supervisors until you got a "good one." Through my ill relative I met others who were also afflicted with delusions and incredibly faulty judgment. They did not lose their ability to reason--in fact, my relative seemed even more intelligent in some ways when manic--but their assumptions were taken from sources inaccessible to the ordinary mind. They put vast faith in their intuitions and thought their ideas were brilliant insights when they were little more than the fancies of diseased brains. When I compare reading the literature of the PCTs to entering Bedlam, I mean to be taken literally.

For example, many PCTs consider the Great Seal of the United States and the motto *Novus Ordo Seclorum* to be Masonic and to mean New World Order. These "facts" are considered evidence in the argument to prove the vast conspiracy of the Illuminati. It is useless to argue against these "facts" with PCTs. They consider us dupes who would note that the Latin is usually translated as New World of the Ages and that the symbol of the eye in the pyramid relates to a poem in the Egyptian Book of the Dead.\* Even when it is pointed out that even granting that the Great Seal of the United States and the symbols on our dollar bill are Masonic (which they are not) and that *novus ordo seclorum* means New World Order (which it does not), nothing significant follows, certainly not that there is a vast conspiracy to take over the world.

Kay Redford Jamison, in *An Unquiet Mind* and *Touched With Fire: Manic Depressive Illness and the Artistic Temperament*, claims that there is strong evidence that many poets and other writers who have a great facility with connecting words and images in fantastic and enlightening ways, have been manic or manic depressive (bipolar). It could well be that the conspiratorial mind's facility with connecting the most disconnected events is rooted in brain chemistry. Who knows?

### Providence and Eschatology

I think it is likely that many PCTs in the West are initiated into their peculiar way of thinking by their religious training, in particular by their study of the Bible. They have been taught or they assume that everything happens for a purpose and that God ultimately has a reason for every event occurring just as it does. As it becomes more and more difficult to see this world as designed for anything, the theories get more and more preposterous to keep the teleological delusion alive. The war on evolution and homosexuality--encouraging the abandonment of science and stimulating murderous assaults--so obviously disproportionate by any rational standard, is difficult to explain without seeing the militant fundamentalists as beyond the last stages of desperation. The intense campaigns to expose possible alien abductions, UFOs, and mind-control is likewise preposterously disproportionate to any rational standard. It is becoming nearly impossible to account for the events on this planet with the assumption of a Divine Creator who has a plan and a rationale for everything. The systems of thought that must be created in order to maintain Divine Providence get more insane by the minute. (Explain Hitler, Slobodan Milosovich, or Ishii Shiro. Or, for that matter, explain WACO, Gulf War Syndrome, or any of a number of actual conspiracies engaged in by businessmen such as Bill Gates or political leaders such as Oliver North and his "neat" idea of a government within the government answerable to nobody, or Richard Nixon and the Watergate conspirators, or our formerly secret biological warfare programs.) There is, in fact, a New World Order emerging: the world of Alternative History, Alternative Physics, Alternative Medicine and, ultimately, Alternative Reality.

It is a very natural trait to try to make sense out of the world. The PCTs are trying desperately to make sense out of a world they can no longer relate to. The world is too complicated, too mean, too cold, too unsatisfying for them. In the real world, they are considered nothing and despair of ever being anything but on the outside looking in. They see science as telling them they are an accident and their lives are without meaning. In their alternative world, they rule and are hopeful. Everything is in its place or will be put in its place. There is order and meaning. Life is significant.

## The End Is Near

The actual mechanism by which PCTs arrive at their weird notions is not that difficult to ascertain. The mentally ill people I came to know couched their paranoid fears in terms of the F.B.I. and the C.I.A. They had no communal reinforcement of their delusions, however. No talk show host or publisher invited them to share their delusions with the world. They are under treatment, have been hospitalized, arrested, etc. They know that those around them will not accept their delusions. This is not true of religious or UFO groups. They reinforce each other and strengthen each other's resolve. They encourage each other to accept possibility as equal to probability, material experience as inferior to dreams, hallucinations, and out-of-body experiences, etc. They have no watchdog equivalent to I. F. Stone, and the mass media is too busy chasing tabloid rumors and celebrities to serve as a watchdog of anything. And since the PCTs function almost completely outside of the normal arenas where they would be challenged and forced to produce evidence in place of speculation, they flourish relatively unscathed and await their next appearance on the Art Bell or Mike Siegal or Pat Robertson show, seemingly oblivious to the absurdity of such behavior during the final days of planet earth.

## Noah's Ark

Noah's Ark is the boat built by the Biblical character Noah. At the command of his God, according to the story, Noah was to build a boat that could accommodate his extended family, about 50,000 species of animals and about one million species of insects. The craft had to be constructed to endure a divinely planned universal flood aimed at destroying every other person and animal on earth (except, I suppose, those animals whose habitat is liquid). This was no problem, according to Dr. Max D. Younce, who says by his calculations from Genesis 6:15 that the ark was 450 feet long, 75 feet wide and 45 feet deep. He says this is equivalent to "522 standard stock cars or 8 freight trains of 65 cars each." By some divine calculation he figures that all the insect species and the worms could fit in 21 box cars. He could be right, though Dr. Younce does not address the issue of how the big boxcar filled with its cargo rose with the rainwater level instead of staying put beneath the floodwaters.

Those not familiar with the story might wonder why God would destroy nearly all the descendants of all of the creatures he had created. The story is that God was displeased with all of his human creations, except for Noah and his family. Annihilating those one is displeased with has become a familiar tactic of the followers of this and many other gods.

Despite the bad example God set for Noah's descendants--imagine a human parent drowning his or her children because they were "not righteous"--the story remains a favorite among children. God likes good people. He lets them ride on a boat with a bunch of friendly animals. He shows them a great rainbow after the storm. And they all live happily ever after. Even adults like the story, though they might see it as an allegory with some sort of spiritual message, such as God is all-powerful and we owe everything, even our very existence to the Creator. Furthermore, the Creator expects us to behave ourselves. But there are some who take the story literally.

According to the story told in chapter 7 of Genesis, Noah, his crew and the animals lived together for more than 6 months before the floodwaters receded. There are a few minor logistical problems with this arrangement, but before getting to them, there is one other thing that needs commenting on. I think it is obvious that floods are no laughing matter. The destruction of life and property caused by floods has plagued many animals, not just humans, from time immemorial. To watch one's family or home swept away in floodwaters must be a terrible spectacle. To see one's children drown, one's life and dreams washed away in an instant, must be a devastating experience. But if one were to discover that the flood was not a whimsical effect of chance natural events, not unplanned and purposeless, but rather the malicious and willful act of a conscious being, one might add rage to the feelings of devastation. I suppose one could argue that it is God's world; he created it, so he can destroy it if he feels like it. But such an attitude seems inappropriate for an All-Good, Loving God.

## The "Finding" of The Ark

Yet, as preposterous as this story seems, there are people in the twentieth century who claim they have found Noah's ark. Yes, they say that when the flood receded, Noah and his zoo were perched upon the top of Mt. Ararat in Turkey. Presumably, at that time, all the animals dispersed to the far recesses of the earth. How the animals got to the different continents, we are not told. Perhaps they floated there on debris. More problematic, I think is how so many species survived when they had been reduced to just one pair or seven pairs of creatures. Also, you would think that the successful species which had the furthest to travel, would have left a trail of offspring along the way. What evidence is there that all species originated in Turkey? That's what the record should look like if the ark landed on Mt. Ararat.

Still, none of this deters the true believer from maintaining that the story of Noah's ark is the God's truth. Nor does it deter those who think the ark has been found. For example, in 1977 a pseudo-documentary called "In Search of Noah's Ark" was played on numerous television stations and CBS showed a special in 1993 entitled, "The Incredible Discovery of Noah's Ark." The first is a work of fiction claiming to be a documentary. The second was masterminded by George Jammal, who has admitted that the story was a hoax. Jammal said he wanted to expose religious frauds. His hoax was seen by about 20 million people, most of whom probably still do not know that Jammal did not want them to take it seriously.

During his show, Jammal produced what he called "sacred wood" from the ark, which he later admitted was wood taken from railroad tracks in Long Beach, California, which he had hardened by cooking in an oven. He also prepared other fake wood by frying a piece of California pine on his kitchen stove in a mix of wine, iodine, sweet-and-sour and teriyaki sauces. He also admitted that he had never been to Turkey. The program was produced by Sun International Pictures, based in Salt Lake City, and responsible for several pseudo-documentaries on Nostradamus, the Bermuda Triangle, the Shroud of Turin, and UFOs.

### The Evidence For A Universal Flood

Stories of floods are not unique to the ancient Jews.\* What geological or archaeological evidence is there of such a universal destruction of all human societies, all plants and all animals except for the ones on Noah's boat (or Ziusudra's [Sumeria], or Utnapishtim's [Babylon])? There should be a layer of sediment dating from the same time which contains all the bones of these poor creatures. There should be evidence that all human societies were wiped out simultaneously. No such evidence exists of a universal flood. Evidence of a great flood, perhaps caused by melting glaciers some 7,000 years ago, has been discovered off the coast of Turkey by Robert Ballard (who found the remains of the Titanic) and some have claimed this is evidence of Noah's flood, but this is pure and inane speculation.\* As archeological anthropologist John Alden notes

...the story in the Bible is clear -- it rained for weeks before Noah's flood, and after it stopped raining the floodwaters receded. The Black Sea flood wasn't caused by rain, and after the water rose it never went away. And neither [the Sumerian nor the Biblical] story mentions the most dramatic consequence of the Black Sea flood, which turned fresh water into salt. Noah's flood, in short, doesn't sound anything like the inundation of the Black Sea (Alden).

However, for the sake of argument, let's agree that there was a universal flood, but that somehow the evidence got twisted around so that geologically and archaeologically it doesn't appear that the flood occurred. There are still a few questions we should ask before accepting this theory. First, how big was this boat? The answer: really, really big! Would it float? Noah might have been given divine guidance here, so maybe this boat, bigger than any supertanker we've ever seen, could float. Remember that this is all done before the discovery of metallurgy, so the boat is made of wood and other natural materials. How many forests would it take to provide the lumber for such a boat? How many people working how many years would be required? Building a pyramid would be peanuts compared to building the ark. But remember, people lived a lot longer in those days. Noah was 600 years old when the project started. He must have been about 1,200 years old when it was finished. Think of the reputation he must have gained over those hundreds of years building a giant boat in the desert.

But let's say that, however implausible, such a boat could have been built using the technology of wooden-boat building known to the earliest peoples. After all, Noah allegedly had God's help in building his boat. There is still the problem of gathering the animals together from the various parts of the world that, as far as we know, Noah had no idea even existed. How did he get to the remote regions of the earth to collect exotic butterflies and Komoda dragons? How did he get all those species of dinosaurs to follow him home? (Fundamentalists believe dinosaurs and humans lived at the same time.) By the time he collected all his species, in twos and sevens, his boat would probably have rotted in the desert sun.

But let's grant that Noah was able to collect all the birds and mammals, reptiles and amphibians, and a couple of million insects, that he is said to have gathered together on his boat. There is still the problem of keeping the animals from eating one another. Or, are we to believe that the lion was lying down with the lamb on the ark? Did the carnivores become vegetarians for the duration of the flood? How did he keep the birds from eating the insects? Perhaps, the ark was stocked with foods for all the animals. After all, if Noah could engineer the building of a boat which could hold all those animals, it would have been a small feat to add room to store enough food to last for more than six months. Of course, Noah would have to store enough food for himself and his family, too. But these would have been minor details to such a man with such a plan guided by his God.

Still, it seems difficult to imagine how such a small crew could feed all these animals in a single day. There is just Noah, his wife, their three sons and three daughters-in-law. The "daily" rounds would take years, it seems. Delicacy forbids me from mentioning the problems of the "clean-up" detail, but I would have to say that if the noise of all those animals didn't drive Noah insane (not to mention the insect bites), the smell should have killed him. At least they didn't have to worry about water to drink. God provided water in abundance.



Nostradamus

(1503-1566)

Centuries I, Quatrain 78:

"D'un Chef vieillard nai'tra "ens hebet,, Degenerant par "sauoir & par armes."

("To an old leader will be born an idiot heir, weak both in knowledge and in war.") I. 78. (Some ungenerous souls think this quatrain refers to two birds named Bush solely because the younger Bush has a bit of trouble with the language. Codswallop!)

"The devil can cite Scripture to his purpose...." - Antonio, in the Merchant of Venice by W. Shakespeare

Michel Nostradamus was a 16th century French physician and astrologer. His modern followers see him as a prophet. His prophecies have a magical quality for those who study them: they are muddled and obscure before the predicted event, but become crystal clear after the event has occurred.

Nostradamus wrote four-line verses (quatrains) in groups of 100 (Centuries). Skeptics consider the "prophecies" of Nostradamus to be mainly gibberish. For example:

L'an mil neuf cens nonante neuf sept mois  
Du ciel viendra grand Roy deffraieur  
Resusciter le grand Roy d'Angolmois.  
Avant apres Mars regner par bon heur.

The year 1999 seven months

From the sky will come the great King of Terror.

To resuscitate the great king of the Mongols. Before and after Mars reigns by good luck. (X-72)

(or, according to the Alta Vista translator, appropriately called Babelfish:

The year millet nine taxable quotas ninety nine seven months  
Of the sky will come large Roy deffraior Resusciter large Roy d' Angolmois.  
Before after Mars regner by good hor.)

If something fell from the sky (in July, 1999), you can bet Nostradamus will be credited with predicting it, even if nobody can figure out who this Mongol king might be. In fact, if anything interesting happens in the sky in June, July, or August, it will be close enough for the true believer to consider it a confirmation of Nostradamus' gift.

One thing Nostradamus didn't predict was that he would become a one-man industry in the 20th century. Publishing houses will never go broke printing non-sense claiming to be the latest predictions culled from the manuscripts of Nostradamus.

Some claim that Nostradamus predicted the space shuttle disaster. Of course, they didn't recognize that he had predicted it until it was too late. Here is the passage:

D'humain troupeau neuf seront mis a` part,  
De iugement & conseil separez:  
Leur sort sera diuise' en depart,  
Kappa, Thita, Lambda mors bannis esgarez.

From the human flock nine will be sent away,  
Separated from judgment and counsel:  
Their fate will be sealed on departure  
Kappa, Thita, Lambda the banished dead err.

Thiokol made the defective O-ring that is blamed for the disaster. The name has a 'k', 'th' and an 'l'. What more proof does one need? Never mind that there were seven who died, not nine. The rest is vague enough to fit many different scenarios.

True believers, such as Erika Cheetham, believe that Nostradamus foresaw the invention of bombs, rockets, submarines, and airplanes. He predicted the Great Fire of London (1666) and the rise of Adolph Hitler and many other wonders.

Skeptics, such as James Randi, cast doubt upon the interpretation of Nostradamus' quatrains.

Here is how Randi and Cheetham read one of the more famous quatrains, allegedly predicting the rise of Adolph Hitler to power in Germany:

Bestes farouches de faim fleuves tranner  
Plus part du champ encore Hister sera  
En caige de fer le grand sera traisner  
Quand rien enfant de Germain observa.

Cheetham's version:

Beasts wild with hunger will cross the rivers,  
The greater part of the battle will be against Hitler.  
He will cause great men to be dragged in a cage of iron,  
When the son of Germany obeys no law.

Randi's version:

Beasts mad with hunger will swim across rivers,  
Most of the army will be against the Lower Danube.  
The great one shall be dragged in an iron cage  
When the child brother will observe nothing.

You can read their arguments for yourself, but I'd like to add one thing that neither mentions. 'Germania' is a term which refers to an ancient region of Europe, north of the Danube and east of the Rhine. It may also refer to a part of the Roman Empire corresponding to present-day northeastern France and part of Belgium and the Netherlands. To me, both versions of this prophetic poem are gibberish. And why anyone would think Hister refers to Hitler rather than exclusively to an area of the Danube, which even Nostradamians recognize as the common usage of the term in their hero's day, is beyond me.

In conclusion, let me note that there is a video program out known as "Nostradamus: Prophet of Doom." It is a highly uncritical and misleading presentation, mainly rehashing Cheetham's views, and has been broadcast by A & E in their biography series--a lowlight in an otherwise fairly informative series. James Randi, who has written a critical and skeptical book on the Nostradamus phenomenon, was interviewed for the program, but he claims his views were twisted or ignored. Says Randi

I now know what validity I will assign to anything the "Biography" program presents to me in the future, and I hope that my readers will, too. The lack of respect for truth and for the education of the viewers that was demonstrated by the show's producers, Craig Haffner, Donna Lusitana, and Scott Paddor, will not in the least trouble them; the money is already in the bank, and they just don't care.

Yet, how interesting would a program be that ran through a thousand quatrains, most of which are ludicrously obscure, and showed how each of them either made no sense or could be greatly stretched to fit events that had already occurred? The few "predictions" that seem precise are easily accounted for by coincidence and laws of chance. Any rigorous appraisal of this non-sense would be met with low ratings. Thus, don't look for such a program to occur in this millennium.

## Numerology

Numerology is the study of the occult meanings of numbers and their influence on human life.

According to an advertisement in Parade magazine [Feb.25, 1996], the definitive text on numerology was written by Matthew Goodwin, an MIT graduate who once worked in the personnel department of an architectural firm. He learned "this science of numbers" (as he calls it) from a clerk at the office. The ad is a pseudo-article, a print "infomercial," allegedly authored by J.J. Leonard, who is probably Goodwin himself, since the ad is nothing more than an invitation to send him \$9 for a numerological reading worth "\$80 or more." In his advertisement, he explains how numerology works.

It all starts with your name and birth date. They are the data base from which a numerologist is able to describe you, sight unseen. Number values are assigned to the letters in your name. By adding these--with the numbers in your birth date--in a multitude of combinations, a numerologist establishes your key numbers. He then interprets the meaning of these key numbers, which results in a complete description of your personal characteristics.

According to Mr. Goodwin, through numerology you can "see all the diverse parts of your personality and how they uniquely come together to make the person you are." This will enable you to "make the most of your strengths in a way that wasn't possible before."

Just what do you think the numerical odds are either (a) that a set of numbers associated with the letters of your name and your birth date will reveal who you are and what you should do with your life, or (b) that someone in personnel has figured out how to read those numbers? I'd say the odds are about zero. Nevertheless, numerology shouldn't be brushed off without a thorough examination of its underlying theory. Unfortunately, there doesn't seem to be any. We are just supposed to take Mr. Goodwin's word for it that numerology works, even though we have no idea how it works. That is, numerologists can produce a "reading" for you, just as astrologers, biorhythmists and Myers-Briggs can. And you will be amazed at how "accurate" the reading is! You may not even be aware at how selective your thinking has become as you are dazzled by the accuracy of your reading.

When you get your reading, you may find yourself ignoring the parts that don't fit you at all, and focusing on those parts that do seem to fit. They may actually fit you or they may fit your image of how you would like to be. No matter; if they fit, you may fall for it. You may even be tempted to go one step further and call your own personal psychic on one of the "friends" psychic hotlines. (I think the \$9 numerology reading might be cheaper, though.) The testimonials for numerology and the telephone psychics are quite similar. Marriages are saved, jobs are landed, personal problems are resolved and love is found.

I suppose some of the attractiveness of numerology and psychics comes from the desire to find somebody, even a total stranger with no knowledge of who you are, who will tell you that you are full of hidden strengths and powers and who will reinforce your deepest needs and emotions. At times, each of us feels unloved, misunderstood, confused, and rudderless. The testimonials sound good, a friend is a satisfied customer, and we are vulnerable. On the other hand, there are many who seem to be waiting for the next occult seer into the future, the past, the present...it doesn't matter, as long as someone else is doing the looking and will tell them what to do.

But the real attractiveness of numerology, over say palm or crystal reading or other non-numerical personality analysis and prophecy, is that numbers give the quackery an aura of both scientific and mystical authoritativeness, especially if complex statistical analysis is involved. The ad mentioned above for Mr. Goodwin's \$9 numerological reading, cites Pythagoras as the father of numerology. Certainly, the Pythagoreans were a cult with esoteric notions about the universe and numbers, including the notion of the harmony of the spheres. And, no doubt they found something mystical about the relations of sides of triangles which we have come to know as the Pythagorean theorem. But there is no evidence that Pythagoras thought he could analyze his disciples personality by assigning numbers to the letters of their names and their birth dates. For one thing, he would have realized the unreasonableness of such a notion. Different languages have different alphabets; different cultures use different calendars. It is unreasonable enough to think the universe is arranged according to numerical transcriptions of names, but to think that there are several equivalent transcriptions to accommodate cultural differences stretches the limits of credibility almost to infinity. Even if the universe were so unreasonably designed, how would we ever know which "reading" of a person's numbers is the "correct" one? Does the concept of "correct reading" even have meaning in this so-called discipline?

It is one thing to recognize that many things in the universe can be explained by reduction to mathematical formulae. The formulae can be tested and demonstrated to be accurate or not. It is quite another to claim that somehow the name you are given at birth was preordained to coincide with the date of your birth and to be coordinated with certain numbers so that certain special people (the numerologists!) could calculate from this data who you are, what you will be, what you need and feel, and what you should do. It is a long, long way from Plato's admonition to know geometry to those entering his Academy or from Galileo's assertion that Nature is written in the language of mathematics, to the notion that my name is a key to who I am pre-destined to be. It is a misrepresentation of history to cite mathematical mystics or scientists who have been enamored of mathematics, as fellow travelers. In any case, even if Pythagoras, Plato, Kepler, Galileo, and Einstein were all numerologists it would not make the theory of numerology one iota more plausible.

#### Occam's Razor

"Pluralitas non est ponenda sine neccesitate" or "plurality should not be posited without necessity." The words are those of the medieval English philosopher and Franciscan monk, William of Ockham (ca. 1285-1349). Like many Franciscans, William was a minimalist in this life, idealizing a life of poverty, and like St. Francis himself, battling with the Pope over the issue. William was excommunicated by Pope John XXII. He responded by writing a treatise demonstrating that Pope John was a heretic.

What is known as Occam's razor was a common principle in medieval philosophy and was not originated by William of Ockham but because of his frequent usage of the principle, his name has become indelibly attached to it. It is unlikely that William would appreciate what some of us have done in his name. For example, atheists often apply Occam's razor in arguing against the existence of God on the grounds that

God is an unnecessary hypothesis. We can explain everything without assuming the extra metaphysical baggage of a Divine Being.

William's use of the principle of unnecessary plurality occurs in debates over the medieval equivalent of psi. For example, in Book II of his Commentary on the Sentences of Peter Abelard, he is deep in thought about the question of "Whether a Higher Angel Knows Through Fewer Species than a Lower." Using the principle that "plurality should not be posited without necessity" he argues that the answer to the question is in the affirmative. He also cites Aristotle's notion that "the more perfect a nature is the fewer means it requires for its operation." This principle has been used by atheists to reject the God-the-Creator hypothesis in favor of natural evolution: if a Perfect God had created the Universe, both the Universe and its components would be much simpler. William would not have approved, I'm sure. Although, he did argue that natural theology is impossible. Natural theology uses reason alone to understand God, as contrasted with revealed theology which is founded upon scriptural revelations. According to William of Ockham, the idea of God is not established by evident experience or evident reasoning. All we know about God we know from revelation. The foundation of all theology, therefore, is faith. It should be noted that while others might apply the razor to eliminate the entire spiritual world, Ockham did not apply the principle of parsimony to the articles of faith. Had he done so, he might have become a Socinian like John Toland (Christianity not Mysterious, 1696) and pared down the Trinity to a Unity and the dual nature of Christ down to one.

William was somewhat of a minimalist in philosophy, advocating nominalism against the more popular view of realism. That is, he argued that universals have no existence outside of the mind; universals are just names we use to refer to groups of individuals and the properties of individuals. Realists claim that not only are there individual objects and our concepts of those objects, there are also universals. Ockham thought that this was one too many pluralities. We don't need universals to explain anything. To nominalists and realists there exist Socrates the individual and our concept of Socrates. To the realist there also exist such realities as the humanity of Socrates, the animality of Socrates, etc. That is, every quality which may be attributed to Socrates has a corresponding "reality", a "universal" or eidos, as Plato called such beings. William might be said to have been skeptical of this realm of plurality called the realm of universals. It is not needed for logic, epistemology or metaphysics, so why assume this unnecessary plurality? Plato and the realists could be right. Perhaps there is a realm of eidos, of universal realities which are eternal, immutable models for individual objects. But we don't need to posit such a realm in order to explain individuals, our concepts or our knowledge. Plato's Eidos (Forms) are excess and unnecessary metaphysical and epistemological baggage.

It might well be argued that Bishop George Berkeley applied Occam's razor to eliminate material substance as an unnecessary plurality. We need only minds and their ideas to explain everything. Berkeley was a bit selective in his use of the razor, however. Remember, he needed to posit God as the Mind who could hear the tree fall in the forest when nobody's around. Subjective Idealists might use the razor to get rid of God. All can be explained with just minds and their ideas. Of course this leads to solipsism, the view that I and my ideas alone exist, or at least they are all I know exist. Materialists, on the other hand, might be said to use the razor to eliminate minds altogether. We don't need to posit a plurality of minds as well as a plurality of brains.

Occam's razor is also called the principle of parsimony. These days it is usually interpreted to mean something like "the simpler the explanation, the better" or "don't multiply hypotheses unnecessarily." In any case, Occam's razor is a principle which is frequently used outside of ontology, e.g., by philosophers of science in an effort to establish criteria for choosing from among theories with equal explanatory power. When giving explanatory reasons for something, don't posit more than is necessary. Von Daniken could be right: maybe extraterrestrials did teach ancient people art and engineering, but we don't need to posit alien visitations in order to explain the feats of ancient people. Why posit pluralities unnecessarily? Or, as most would put it today, don't make any more assumptions than you have to. We can posit the ether to explain action at a distance, but we don't need ether to explain it, so why assume an ethereal ether?

Oliver W. Holmes and Jerome Frank might be said to have applied Occam's razor in arguing that there is no such thing as "the Law." There are only judicial decisions; individual judgments and the sum of them make up the law. To confuse matters, these eminent jurists called their view legal realism, instead of legal nominalism. So much for simplifying matters.

Because Occam's razor is sometimes called the principle of simplicity some simpleminded creationists have argued that Occam's razor can be used to support creationism over evolution. After all, having God create everything is much simpler than evolution, which is a very complex mechanism. But Occam's razor does not say that the more simpleminded a hypothesis, the better. If it did, Occam's would be dull razor for a dim populace indeed. Although, some have even found a use for Occam's razor to justify budget cuts, arguing that "what can be done with less is done in vain with more." This approach seems to apply Occam's razor to the principle itself, eliminating the word "assumptions." It also confuses matters by confusing "less" with "fewer." Occam was concerned with fewer assumptions, not less money.

The original principle seems to have been invoked within the context of a belief in the notion that perfection is simplicity itself. This seems to be a metaphysical bias which we share with the medievals and the ancient Greeks. For, like them, most of our disputes are not about this principle but about what counts as necessary. To the materialist, dualists multiply pluralities unnecessarily. To the dualist, positing a mind as well as a body, is necessary. To atheists, positing God and a supernatural realm is to posit pluralities unnecessarily. To the theist, positing God is necessary. An so on. To von Daniken, perhaps, the facts make it necessary to posit extraterrestrials. To others, these aliens are unnecessary pluralities. In the end, maybe Occam's razor says little more than that for atheists God is unnecessary but for theists that is not true. If so, the principle is not very useful. On the other hand, if Occam's razor means that when confronted with two explanations, an implausible one and a probable one, a rational person should select the probable one, then the principle seems unnecessary because so obvious. But if the principle is truly a minimalist principle, then it seems to imply the more reductionism the better. If so, then the principle of parsimony might better have been called Occam's Chainsaw, for its main use seems to be for clearcutting ontology.

#### Occult & Occultism

The occult are such things as alchemy, magic, astrology, and other "arts" of divination which use incantations or magic formulae in an attempt to gain hidden knowledge or power.

Occultism refers to the belief in hidden or mysterious powers that can be controlled by humans who have special knowledge of these powers.

#### Occult Statistics

Occult statistics are statistics used as the handmaiden of occult theorizing, in much the same way that philosophy was used by theology during medieval times, viz., to justify beliefs in supernatural beings and occult forces.

Parapsychologists, astrologers, theologians, and others who seek anomalies to guide them to transpersonal wisdom and insight into the true nature of the universe, are now able to do extremely complex statistical analyses of monumental masses of data on computers. When they find a statistically significant correlation between or among variables, they are extremely impressed and consider the discovery to be proof of the occult or the supernatural. To the occult statistician there is no such thing as a spurious correlation.

For example, William Dembski's *The Design Inference: Eliminating Chance through Small Probabilities* is said to "provide a mathematical foundation for the types of statistical inferences parapsychologists use to identify paranormal phenomena. In particular, the book shows how to deal with statistical experiments whose p-values are extremely small (like those that regularly come up in parapsychology experiments). This work is clearly relevant to Carl Jung's idea of synchronicity. [It] promises to put synchronicity on a solid scientific footing" (Rabi Gupta, personal correspondence).

Likewise, The Princeton Engineering Anomalies Research program led by Robert Jahn, Dean of the School of Engineering and Applied Science, claims that in their experiments where human operators try to use their minds to influence a variety of mechanical, optical, acoustical, and fluid devices, they have gotten results that can't be due to chance and "can only be attributed to the influence of the human operators."

Legions of parapsychologists, led by such generals as Charles Tart and Dean Radin, have also appealed to statistical anomalies as proof of ESP. Statistician Jessica Utts of the University of California at Davis gave her imprimatur to U.S. government studies of ESP and remote viewing. Many occultists have claimed that certain dreams must be clairvoyant and cannot be explained by coincidence because they defy the laws of probability.

It was not long ago that astrologers were claiming that Gauquelin had found the Holy Grail with his statistics showing the so-called "Mars effect." More recently, millionaire playboy Gunter Sachs published *Die Akte Astrologie*, which uses data analyzed by professors of statistics at the University of Munich to prove astrology is true.

Obviously, this list could go on and on, and could include the Bible Code and various proofs of the existence of God on the grounds of improbability that chance could explain the nature of the universe or some complex aspect of it such as the genetic code.

#### Skeptics Unimpressed By Occult Stats

Skeptics are unimpressed with arguments that assert improbabilities for what has already happened. Whatever has already happened is obviously not an impossible event. Accurately calculating the odds of either the genetic code or the universe occurring by "chance," i.e., by natural laws alone without the design of a divine being, is impossible. Analogies to a monkey typing up Hamlet by chance, or to a Mona Lisa being "created" by nature, are irrelevant and notably without impact on skeptics.

Skeptics are not very impressed by statistical anomalies generated by those in quest of occult forces. Sometimes skeptics have discovered that the statistics were generated by incompetent or fraudulent means. The history of ESP research is a paradigm of dishonesty and incompetence (Rawcliffe, Randi). Skeptics have noted many times while investigating the statistical claims of paranormal researchers that there are often significant problems with personal validation, confirmation bias, optional starting and stopping, the clustering illusion, the regressive fallacy, etc.

Sometimes the variables being correlated are ambiguous or vaguely defined, if defined at all, so that practically anything can count in support of the occult hypothesis. What is a "great" athlete or a "rebel"? Sometimes the methods of finding patterns are deceptive and inappropriate, e.g., finding hidden messages in texts. As John Ruscio notes, "If you look in a fantastic number of places, and count anything that you stumble upon as supportive evidence, you are guaranteed to discover meaning where none exists" (45).

Skeptics have noted that many times something seems to be statistically improbable when, in fact, it is not improbable at all. Some spurious correlations are due to lack of clarity regarding the variables; others are due to incorrect calculation of the odds. Both errors are common occurrences regarding so-called clairvoyant dreams.

Finally, skeptics are unimpressed with artificially evoked statistical anomalies because such anomalies are expected to occur with some frequency given the vast number of trials that are made.

Correlating just a couple dozen variables with one another will produce a matrix containing nearly 300 correlation coefficients. By convention, results that occur at a level expected by chance just 5 percent of the time are called "statistically significant." We can therefore expect about fifteen spuriously significant correlations within every matrix of 300 (Ruscio, 45).

Each of those spurious correlations is a temptation to see causal connections where there are none and to engage in post hoc theorizing to explain non-existent mysterious forces.

## Ontology

Ontology is a branch of metaphysics which is concerned with being, including theories of the nature and kinds of being. Monistic ontologies hold that there is only one being, such as Spinoza's theory that God or Nature is the only substance. Pluralistic ontologies hold that there is no unity to Being and that there are numerous kinds of being. Dualism is a kind of pluralistic ontology, maintaining that there are two fundamental kinds of being: mind and body.

## Optional Starting / Optional Stopping

Optional starting and stopping refers to a common practice among psi researchers. In many tests of psychic powers the subject is allowed to start or stop whenever he or she feels like it. For example, the subject may go through some warm-ups trying to psychically receive numbers or card suits being psychically transmitted by another person. The responses of the warm-ups are recorded, however, and if they look good (i.e., seem to be better than would be expected by chance) then the responses are counted in the experimental data. If not, then the data is discarded. Likewise, if the psychic has had a good run at guessing numbers of card suits and starts to have a bad run, he can call it quits.

This phenomenon seems to be related to another common factor in psi testing: optional keeping and optional disregarding of data. You get to keep all data favorable to your hypothesis and you get to disregard all unfavorable data. Psi researchers consider this practice to be justified since psychic powers may come and go.

Any reasonable test of psychic powers should have a protocol which specifies exactly when the experiment will begin and when it will end. Imagine letting a card player have a few practice rounds and if he's winning he gets to declare that those weren't practice rounds, but if he's losing he gets to declare that those really were practice rounds.

Optional starting and stopping should not be confused with displacement effects, a practice of counting an event as a "psychic hit" not only if one guesses the target card, but also if one guesses either the one before or after the target card, thereby significantly increasing one's odds of a "correct" guess.

## Oracles

### (Prophecies and Revelations)

An oracle is a shrine or temple sanctuary consecrated to the worship and consultation of a prophetic god. The person who transmits prophecies from a deity at such a shrine is also called an oracle, as is the prophecy or revelation itself.

Oracles are usually presented in the form of an enigmatic or ambiguous statement or allegory. "Socrates is the wisest of men." "A great king will achieve victory." Such statements can have several meanings, thus affording a greater chance of being interpreted in such a way as to make them accurate than if they were more clear and precise, such as "Socrates has seven toes" or "Cyrus will defeat the Persians at Salamis on Tuesday."

The belief in oracles can be traced to the desire to know the future. There are literally dozens of strange techniques humans have developed in an effort to divine events before they occur. Unfortunately, the only sure guide to the future is the past, and even that isn't always reliable.

## Orgone & Wilhelm Reich

Orgone is an alleged type of "Primordial Cosmic Energy" discovered by Wilhelm Reich in the late 1930s. Reich claimed that orgone energy is omnipresent and accounts for such things as the color of the sky, the failure of most political revolutions, and a good orgasm. In living beings, orgone is called bio-energy or Life Energy. Reich believed that orgone energy is "demonstrable visually, thermically, electroscopically and by means of Geiger-Mueller counters." However, only true believers in orgone energy (i.e., orgonomists practicing the science of orgonomy) have been able to find success with the demonstrations.

Reich claimed to have created a new science (orgonomy) and to have discovered other entities, such as bions, which to this day only orgonomists can detect. Bions are alleged vesicles of orgone energy which are neither living nor non-living, but transitional beings.

Reich died on November 3, 1957, in the Federal Penitentiary at Lewisburg, Pennsylvania, where he was sent for criminal contempt. The criminal charge was levied because Reich refused to obey an injunction against selling quack medical devices such as the Orgone Accumulator and orgone "shooters," devices which allegedly could collect and distribute orgone energy, thereby making possible the cure for just about any medical disorder except, perhaps, megalomania.

The Food and Drug Administration not only declared that there is no such thing as orgone energy, they had some of Reich's books burned--a sure-fire way to ignite interest in somebody. If the government burned his books, Reich must have been on to something BIG!!! Or so one theory goes. There is another theory which says that some government decisions look stupid because they are made by incompetent people.

Despite having no status in the scientific community, Reich's ideas have been passed on by a number of devoted followers led by Elsworth F. Baker, M.D., founder of The American College of Orgonomy, and Dr. James DeMeo of The Orgone Biophysical Research Laboratory, Inc., located in Ashland, Oregon. Baker's successors (he died in 1985) and DeMeo continue to defend both Reich the scientist and orgonomy. Reich saw himself as a persecuted genius and considered the critics who ridiculed him to be ignorant fools. DeMeo and Baker agreed.

## Ouija Board

A Ouija board is used in divination and spiritualism. The board usually has the letters of the alphabet inscribed on it, along with words such as 'yes,' 'no,' 'good-bye' and 'maybe.' A planchette (a slidable 3-legged device) or pointer of some sort is manipulated by those using the board. The users ask the board a question and together or one of them singly moves the pointer or the board until a letter is "selected" by the pointer. The selections "spell" out an answer to the question asked.

Some users believe that paranormal or supernatural forces are at work in spelling out Ouija board answers. Skeptics believe that those using the board either consciously or unconsciously select what is read. To

prove this, simply try it blindfolded for some time, having an innocent bystander take notes on what letters are selected. Usually, the result will be unintelligible non-sense.

The movement of the planchette is not due to paranormal forces but to unnoticeable movements by those controlling the pointer, known as the ideomotor effect. The same kind of unnoticeable movement is at work in dowsing.

The Ouija board was first introduced to the American public in 1890 as a parlor game sold in novelty shops.

E.C. Reiche, Elijah Bond, and Charles Kennard ... created an all new alphanumeric design. They spread the letters of the alphabet in twin arcs across the middle of the board. Below the letters were the numbers one to ten. In the corners were "YES" and "NO."

Kennard called the new board Ouija (pronounced 'wE-ja) after the Egyptian word for good luck. Ouija is not really Egyptian for good luck, but since the board reportedly told him it was during a session, the name stuck.\*

Kennard lost his company and it was taken over by his former foreman, William Fuld, in 1892.

One of William Fuld's first public relations gimmicks, as master of his new company, was to reinvent the history of the Ouija board. He said that he himself had invented the board and that the name Ouija was a fusion of the French word "oui" for yes, and the German "ja" for yes.\*

Although Ouija boards are usually sold in the novelty or game section of stores, many people swear that there is something occult about them. For example, Susy Smith in Confessions of a Psychic claims that using a Ouija board caused her to become mentally disturbed. In Thirty Years Among the Dead (1924), American psychiatrist Dr. Carl Wickland claims that using the Ouija board "resulted in such wild insanity that commitment to asylums was necessitated." Is this what happens when amateurs try to dabble in the occult? Maybe, if they are suggestible, not very skeptical and a bit disturbed to begin with. However, even very intelligent people who have not gone insane are impressed by Ouija board sessions. They find it difficult to explain the "communication" as the ideomotor effect reflecting unconscious thoughts. One reason they find such an explanation difficult to accept is that the "communications" are sometimes very vile and unpleasant. It is more psychologically pleasing to attribute vile pronouncements to evil spirits than to admit that one among you is harboring some vile thoughts. Also, some of the "communications" express fears rather than wishes, such as the fear of death, and such notions can have a very visible and significant effect on some people, especially the young.

Observing powerful messages and the powerful effect of messages on impressionable people can be impressive. Yet, as experiences with facilitated communication have shown, decent people often harbor indecent thoughts of which they are unaware. And the fact that a person takes a "communication" seriously enough to have it significantly interfere with the enjoyment of life might be a sufficient reason for avoiding the Ouija board as a "harmless bit of entertainment," but it is hardly a sufficient reason for concluding that the messages issue from anything but our own minds.

Ouspensky, Petyr Demianovich

(1878-1947)

Ouspensky was a mathematician and mystic who played the St. Paul to Guirdjeff's Christ, taking the occult and often unintelligible notions of the master and making them palatable, if no more comprehensible in works such as In Search of the Miraculous--Fragments of an Unknown Teaching and The Fourth Way---A Record of Talks and Answers to Questions based on the teaching of G. I. Gurdjieff.

Unlike St. Paul, however, Ouspensky eventually lost faith in his master. Perhaps as his answer to Gurdjieff's Institute for the Harmonious Development of Man, Ouspensky founded the Society for the Study of Normal Man and developed his own following. Ouspensky is likely to remain a favorite among New Agers since he wrote books with titles like The symbolism of the tarot : philosophy of occultism in pictures and numbers and Tertium Organum : the third canon of thought : a key to the enigmas of the world, an attempt to reconcile the mysticism of the east with the western rationalism.

Out-of-Body Experience (OBE)

An out-of-body experience (OBE) is a feeling of departing from one's physical body and observing both one's self and the world from outside of one's body. The experience is quite common in dreams, daydreams, and memories, where we quite often take the external perspective. Some people experience



an OBE while under the influence of an anesthetic or while semi-conscious due to trauma. Some people have an OBE while under the influence of drugs. Finally, some people experience an OBE when they are near death. (These are called near-death experiences (NDEs).

Susan Blackmore, a parapsychologist with heavy skeptical leanings, is considered one of the world's leading authorities on OBEs and NDEs. She had an OBE while attending Oxford during the early 1970s. By her own admission she "spent much of the time stoned, experimenting with different drugs" (Shermer). During her first year at Oxford she had an OBE while stoned on marijuana after several hours on the Ouija board. The experience also occurred during a period of her life when sleep deprivation was common for her. She describes herself as having been in "a fairly peculiar state of mind" when she had the OBE (Shermer).

In her OBE, Blackmore went down a tunnel of trees toward a light, floated on the ceiling and observed her body below, saw a silver cord connecting her floating "astral body", floated out of the building around Oxford and then over England, and finally across the Atlantic to New York. (Kay Redford Jamison, one of the world's leading authorities on bipolar disorder, a disease from which she suffers, describes a similar voyage to Jupiter while she was enjoying the manic phase of her mental illness.)

After hovering around New York, Blackmore floated back to her room in Oxford where she became very small and entered her body's toes. Then she grew very big, as big as a planet at first, and then she filled the solar system and finally she became as large as the universe.

Blackmore attributes her experience to peculiar brain processes such as might cause "neuronal disinhibition in the visual cortex," which is her explanation for hallucinations and NDEs. She did not consider investigating abnormal psychology, where she would find many similar cases of Alice-in-Wonderland voyagers. Instead, she says that she devoted her study to astral projection and theosophy, hoping to find an answer. I wonder, however, if her memory isn't failing her here. Or perhaps she meant to say that she continued her study of astral projection and theosophy. Her experience with the silver cord is right out of traditional occult literature on astral projection.

Blackmore's experience is typical in that like all OBEs hers requires us to believe that consciousness is a separate entity from the body (dualism) and can exist without the body and the body without it, at least for short periods of time. It also requires that the disembodied consciousness can 'see', 'hear', 'feel', and, I suppose, 'taste' and 'smell' as well. Or perhaps it is the case that the brain and the senses can operate over vast distances and perceive objects by some mysterious physiological power not yet discovered. Neither scenario seems plausible.

If OBEs were a common occurrence, one would expect that there would be minds out of their bodies everywhere. There are supposedly thousands of souls leaving their bodies every day and night. You'd think that there'd be a mix-up occasionally and one or two souls or astral bodies would come back to the wrong physical bodies, or at least get their "silver" cords tangled up. One would expect some minds to get lost and never find their way back to their bodies. There should be at least a few mindless bodies wandering or laying around, abandoned by their souls as unnecessary baggage. There should also be a few confused souls who don't know who they are because they're in the wrong bodies. Perhaps this is one of those topics that should not be scrutinized too closely.

Nevertheless, William Buhlman has dared to venture into the world of disembodied travelers. According to his promoters, Buhlman is "America's leading expert on the subject of out-of-body experiences." His book, *Adventures Beyond the Body*, and his OBE workshops justify these accolades, say his advocates. Buhlman, a certified hypnotherapist, promises that "we can use self-initiated out-of-body experiences to explore our spiritual identity and enhance our intellectual and physical lives." Astral travel, says Buhlman, can "expand your consciousness" and verify that you have a soul that has had past lives. Most importantly, OBEs can "enhance your daily life." Buhlman doesn't mention it, but it seems important to note that to have an OBE would be something meaningful to do while you are waiting to die.

## Pagans

"Pagan" is the term Christians use to designate all those who existed before, or exist now but are outside of, the Biblical religions of Judaism, Christianity and Islam. Jews after Christ, as well as all Muslims, are not pagans, but infidels, according to Christians. Jews before Christ are not really pagans, but they're not infidels either. But they were more like pagans than infidels. Infidels are destined to go to Hell. Good pagans such as Socrates, along with good Jews such as Moses, couldn't go to Heaven, but they shouldn't go to Hell, either. At some point in Christian mythology, "limbo" was invented to place these good souls who had not received Christ. Limbo has gone the way of St. Christopher, however, and has been declared by the Church not to exist.

As a child in Catholic schools I donated a nickel here and a dime there to a fund for the "pagan" babies. These were the non-Christian infants whom evangelical missionaries of the Church were in search of. No, they were not being sought for experimentation, mutilation, murder, organ transplants, dinner or sexual abuse. They were being sought to be baptized into the one, true, holy and apostolic Church.

The word 'pagan' is derived from the Latin word for country dweller. The pagans were the bumpkins who still followed the cults of Mithras, Venus, Apollo, Demeter, etc. They were the polytheists who had not yet received the truth about monotheism. Today, it is rare to hear Christians speak of members of major religions, such as Buddhism, as pagans, but the term is still used for those who belong to no religion or who belong to one of the New Age nature religions or anti-Christian cults.

## Palmistry

(Palmistry or Chiromancy)

Palmistry is the practice of telling fortunes from the lines, marks, and patterns on the hands, particularly the palms.

Palmistry was practiced in many ancient cultures, such as India, China and Egypt. The first book on the subject appeared in the 15th century. The term 'chiromancy' comes from the nineteenth century palmist who went by the name of Cheiro. (The Greek word for hand is cheir.)

Palmistry was used during the middle ages to detect witches. It was believed that certain spots on the hand indicated one had made a pact with the Devil. Palmistry was condemned by the Catholic Church but in the 17th century it was taught at several German universities (Pickover, 64). Britain outlawed palmistry in the 18th century. It is popular enough in America in the 20th century to deserve its own book in the Complete Idiot's Guide series.

According to Ann Fiery (The Book of Divination), if you are right handed, your left hand indicates inherited personality traits and your right hand indicates your individuality and fulfillment of potential. The palmist claims to be able to read the various lines on your hand. These lines are given names like the life line, the head line, the heart line, the Saturne line. The life line supposedly indicates physical vitality, the head line intellectual capacity, the heart line emotional nature, etc.

Some palmistry mimics metoposcopy or physiognomy. It claims that you can tell what a person is like by the shape of their hands. Creative people have fan-shaped hands and sensitive souls have narrow, pointy fingers and fleshy palms, etc. There is about as much scientific support for such notions as there is for personology or phrenology. All such forms of divination seem to be based on sympathetic magic and intuition, i.e., prejudice.

The authors of The Complete Idiot's Guide to Palmistry, Robin Giles and Lisa Lenard, claim that "palmistry works because your hand changes as you do." They claim to have a few anecdotes to back them up on this, but fail to produce any scientific support for the claim. They also think that cloning makes it much easier for us to understand how palmistry works. "Palmistry is possible because you are represented in your hand. No two hands are alike because you--and your cells--are unique." True, and they are as likely to discover whether I will marry a rich woman or find the job of my dreams by looking at my cells as by looking at my palms.

Although you can often tell a lot about a person by examining his or her hands, there is no scientific support for the claim that you tell such things as whether you will inherit money or find your true love from the lines or marks on your hands. I suspect that many of those who think they have found support for palmistry are guilty of confirmation bias and have found it in the form of anecdotes.

The desire for knowledge of the future seems to be at the root of palmistry and other forms of divining secret knowledge through paranormal revelations. Also, fortune tellers relieve us of the obligation to gather evidence and think about that evidence. Our palmists and graphologists, etc., also relieve us of the difficult task of evaluating the consequences of taking various actions. They absolve us of the responsibility of decision-making. They are great comforts, therefore, to the insecure, the lazy, and the incompetent. Of course, they can also be data points, i.e., they provide one more piece of data that a person can use to make a decision. Some writers even use divination such as the Tarot or the I Ching to give them ideas for characters or plots (Pickover, 40-41). They could do just as well by thumbing through the Bible, a newspaper, a poetry anthology or an Encyclopedia, I would think.

## Pantheism

Pantheism is the view that Nature and God are one, that the world is divine.

Pantheism is considered to be atheism by those who posit a transcendent and separate source of the world. Thus, many Christian theologians and philosophers consider Hinduism and Buddhism, as well as the philosophy of Spinoza, to be atheistic.

### Paradigm and Paradigm Shift

A paradigm is a model or exemplar. The paradigm case is the typical or archetypal case. A paradigm shift is the movement from one paradigm to another.

One notion of a paradigm is that used in law, where a paradigm is a model case to be distinguished from penumbral cases. A law might make it a crime to use a gun. A case where a robber uses a loaded .357 magnum would be a paradigm case; a case where a robber uses a squirt gun would be considered penumbral. A court would have to decide whether the law meant to include the use of squirt guns as a crime, but there would be no need for interpretation of the law to decide whether using a loaded .357 magnum was within the legislature's intent. Paradigm in this sense has no correlative paradigm shift.

A more common use of paradigm as model would be something like the paradigm of policing, which would include the basic assumptions, values, goals, beliefs, expectations, theories and knowledge that a community has about policing. Many models, like that of policing, have emerged over time in response to various changes in society and are not the result of a grand design or plan. A paradigm shift in policing might occur slowly and over many years or it might occur abruptly as the result of a conscious analysis and evaluation of the current paradigm. An individual or a group might list the inadequacies, dangers, etc. of the current paradigm in light of relevant changes in society and present a new model for policing. If the new model is accepted by the community then a paradigm shift occurs. The new paradigm would replace old assumptions, values, goals, beliefs, expectations, theories, etc. with ones of its own.

### Thomas Kuhn

T.S. Kuhn, in his *Structure of Scientific Revolutions* (1962), used the term 'paradigm' to refer to the conceptual frameworks and/or worldviews of various scientific communities. For Kuhn a scientific paradigm includes models like the planetary model of atoms, and theories, concepts, knowledge, assumptions, and values. For Kuhn such a notion as the scientific paradigm was essential to make his argument regarding a particular aspect of the history of science, viz., when one conceptual framework gives way to another during what he called a scientific revolution.

Kuhn believed that during periods of "normal science" scientists work within the same paradigm. Scientific communication and work proceeds relatively smoothly until anomalies occur or a new theory or model is proposed which requires understanding traditional scientific concepts in new ways, and which rejects old assumptions and replaces them with new ones.

A paradigm of a scientific revolution in Kuhn's sense would be the Copernican revolution. The old model of the earth at the center of God's creation was replaced with a model that put the earth as one of several planets orbiting our Sun. Eventually, circular orbits, which represented perfection and God's design for the heavens in the old worldview, would be reluctantly replaced by elliptical orbits. Galileo would find other "imperfections" in the heavens, such as craters on the moon.

For Kuhn, scientific revolutions occur during those periods where at least two paradigms co-exist, one traditional and at least one new. The paradigms are incommensurable, as are the concepts used to understand and explain basic facts and beliefs. The two groups live in different worlds. The movement from the old to a new paradigm he called a paradigm shift.

Whether Kuhn was right or wrong about the history of science--and he has plenty of critics--his notions of a paradigm and a paradigm shift have had enormous influence outside of the history of science. In many ways, how Kuhn is understood and applied is analogous to how Darwin's conception of natural selection has been misunderstood and applied outside of evolutionary biology. For a paradigm of this type of misapplication, see the *Skeptic's Dictionary* entry on neuro-linguistic programming.

### What's Your Paradigm?

Amazon.com lists more than 500 books with the word 'paradigm' in the title, most of which seem to use paradigm in the standard sense of model or exemplar, e.g., *Anti-Semitic Stereotypes : A Paradigm of Otherness in English Popular Culture, 1660-1830*.

One of the more common applications of the terms paradigm and paradigm shift is to mean "traditional way of thinking" vs. "new way of thinking." Some New Age thinkers seem to think that paradigms can be created by individuals or groups who consciously set out to create new paradigms. They seem to mean by 'paradigm' nothing more than "a set of personal beliefs," e.g., *Essays on Creating Sacred Relationships: The Next Step to a New Paradigm* by Sondra Ray and *Handbook for the New Paradigm from Benevolent [sic] Energies*. Many of the New Age Self-Help promoters base their approaches on the notion that one's current paradigm is holding them back and what they need to do is create a new paradigm (set of beliefs, priorities, assumptions, values, goals, etc.) for themselves that will allow them to break through, etc., e.g., *The Paradigm Conspiracy: How Our Systems of Government, Church, School, and Culture Violate Our Human Potential* by Denise Breton and Christopher Largent.

Others seem to identify the term paradigm with theory, e.g., *Lamarck's Signature: How Retrogenes Are Changing Darwin's Natural Selection Paradigm*, by Edward J. Steele et al.

#### Retroactive Clairvoyance

Some, like Joel Barker in his video "The Business of Paradigms," use paradigm and paradigm shift to explain how some people or companies fail and others succeed. The ones who succeed are those who can shift to a new paradigm; the ones who fail are those who remain hidebound and fixated on traditional ideas because they have proved successful in the past or because they can see no use for some new idea. The Swiss failed to patent or market the quartz watch, even though they invented it, because they couldn't shift paradigms. They couldn't shift paradigms because they couldn't see that there would be a market for another kind of watch besides the kind they'd been successfully making and selling for generations. The Japanese made all the money from the quartz watch because they didn't have an old paradigm that locked them into a way of thinking that precluded patenting and marketing quartz watches.

This model might be called retroactive clairvoyance because it sees always and only after the fact who failed to make a paradigm shift and who benefited by having foresight to take advantage of other people's creations. This model is useless for predicting what creations will prove profitable and useful. But it is excellent in hindsight. It infallibly sees that Xerox didn't do a paradigm shift and screwed up when it did not pursue ethernet or graphical user interface or the laser printer, and that IBM screwed up when it initially rejected the notion of the personal computer.

Barker has moved on and now claims to be able to recognize when paradigms will shift in the future and he will teach you to do so, too, in his new book *Paradigms: The Business of Discovering the Future*.

#### Relativism

Probably the most serious misapplication of Kuhn's conception is the notion that everything that makes up a paradigm is relative and subjective, and therefore purely personal with no connection or test in reality. Some of those who think that creationism and evolution are competing paradigms or theories make this mistake. It may be true that all theories and beliefs are "subjective" but this does not mean that they are all equally useful or probable, or even of the same type. The fact that red and all colors are "subjective" hasn't prevented the development of interior decorating, painting, clothing design, etc. Nobody hesitates to buy a red car on the grounds that red and all colors are purely subjective. Most of us can still tell the difference between red and blue even if we know that neither really exists except in our minds or in the subjective interaction of our senses with objects under certain conditions. And most of us know that there is no comparison and no competition between understanding red in terms of wavelength of light and understanding red as a symbol for love or passion or the belief that all things red are infused with divine love and worthy of veneration.

#### Paranormal

An event or perception is said to be paranormal if it involves forces or agencies that are beyond scientific explanation but which are nevertheless mysteriously experienced by those with psychic powers, such as extrasensory perception or psychokinesis.

Events are also said to be paranormal if they are perceived as being beyond scientific explanation, even if the perception is due to ignorance. For example, parapsychologist Charles Tart explains how he first got interested in the paranormal in the following story:

There was a time, years ago, when I was highly skeptical of any paranormal claims of any kind. One of the things that convinced me that there must be something to this is a strange experience that I personally went through. It was wartime. I was at Berkeley, California, and everybody was working overtime....the young lady who was my assistant at the time worked with me until very late this one night. She finally

went home; I went home. Then the very next day she came in, all excited....She reported that during this night she had suddenly sat bolt upright in her bed, convinced that something terrible had happened. "I had a terrible sense of foreboding," she said, but she did not know what had happened. "I immediately swung out of bed and went over to the window and looked outside to see if I could see anything that might have happened like an accident. I was just turning away from the window and suddenly the window shook violently. I couldn't understand that. I went back to bed, woke up the next morning and listened to the radio." A munitions ship at Port Chicago had exploded. It literally took Port Chicago off the map. It leveled the entire town and over 300 people were killed....She said she had sensed the moment when all these people were snuffed out in this mighty explosion. How would she have suddenly become terrified, jumped out of bed, gone to the window, and then - from 35 miles away, the shock wave had reached Berkeley and shook the window?

There is no need to perceive this event as paranormal, according to James Randi, who recorded this story. A shock wave travels at different speeds through the ground and through the air. The difference over 35 miles would be 8 seconds. Most likely the shaking earth woke up the young lady in a fright and 8 seconds later the window shook. She and Tart assumed that the explosion took place when the window shook, making her experience inexplicable by the known laws of physics. This explanation only makes sense, however, if one is ignorant of the known laws of physics.

### Parapsychology

Most sciences try to explain observable phenomena; parapsychology tries to observe unexplainable phenomena.

Parapsychology is the study of paranormal phenomena, such as ESP and psychokinesis.

Parapsychologists are unique in that they devote most of their research to trying to prove the existence of things that are believed to be inexplicable by known laws of nature. Most sciences try to explain observable phenomena; parapsychology tries to observe unexplainable phenomena.

Scientific methodology in this field dates from at least 1882 at the founding of the Society for Psychical Research in London. Its members sought to distinguish psychic phenomena from spiritism and to investigate mediums and their activities. The society studied automatic writing, levitation, and reports of ectoplasmic and poltergeist activity. Modern experiments in parapsychology have concentrated principally on extrasensory perception (ESP), psychokinesis (mental influence on physical objects) and astral projection (mind travel and perception without the body). Such experiments have been conducted at Duke University in the 1930s under Joseph Banks Rhine (1895-1980) whose work continues at the Rhine Research Center, in Britain at the Society for Psychical Research and in Russian research labs. Americans Charles Tart and Raymond Moody, among many others continue to expand upon Rhine's work. The CIA and the U.S. military have hired parapsychologists and studied alleged psychics such as Ingo Swann. A year-long study done by the United States Air Force Research Laboratories (the VERITAC study, named after the computer used) was unable to verify the existence of ESP. Other parapsychological research continues at many places, including Maimonides Hospital Dream Laboratory in Brooklyn, New York; the University of Nevada at Las Vegas; the Princeton Engineering Anomalies Research; and the University of Edinburgh, whose psychology department has the Koestler Chair of Parapsychology, and publishes the European Journal of Parapsychology. Parapsychologists have many other publications, as well.

Traditionally, research in this area has been characterized by incompetence in setting up properly controlled experiments and evaluating statistical data, deception and fraud. When properly controlled experiments are done, they have usually yielded negative results, i.e., have been unable to demonstrate a single clear case of psychic power or paranormal phenomena. Positive studies are generally explicable by chance (one expects by chance that there will be periodic unusual runs of "psychic hits." But negative result studies, such as the one done by Richard C. Sprinthall and Barry S. Lubetkin published in the Journal of Psychology (vol. 60, pp. 313-18) and which was carefully and properly designed, are universally rejected by true believers in psi. Researchers who claim to have found positive results usually systematically ignore or rationalize their own studies if they don't support their claims. Many, if not most, psi researchers allow optional starting and optional stopping. All psi researchers limit their research to investigating parlor tricks (guessing the number or suit of a playing card, or "guess what I am looking at") and parlor tricksters. Many are fascinated by numbers and experiment with another kind of parlor trick turned high-tech. Instead of having people use their thoughts to change traffic signals from red to green, they have them try to influence random number generators in computers. When the researchers get a bit of statistical strangeness they speculate it is due to paranormal powers.

On the other hand, when parapsychologists do claim to have proof of a real psychic, they can't get the psychic to duplicate the amazing results of their studies. For example, J.B. Rhine claimed that Hubert Pearce, who later became a Methodist minister, correctly identified 25 Zener cards in a row after having been promised \$100 for each card he could correctly identify. The only use to which Pearce ever put his

alleged powers was in another test done by Rhine and J.G. Pratt, another true believer. Not only did Rhine and Pratt not take precautions to make sure that Pearce did not cheat, they never had anyone independently test Pearce. As a result, much of the literature on this topic deals with integrity: skeptics proposing that cheating was possible and Rhine and Pratt taking offense that anyone would challenge their integrity or competence, much less the integrity of their subject, Mr. Pearce. There would not have been any controversy, however, if Pearce had been tested properly or by others who didn't have such a vested interest in the perpetuation of the notion that paranormal research may yield valuable results some day. There would not have been any controversy if Pearce had gone on to demonstrate publicly his psychic powers. Most likely, Pearce didn't publicly demonstrate his psychic powers because he didn't have any.

Also, Pearce was not an accomplished magician like Uri Geller, another star witness for the ESP defense. Geller has demonstrated his powers to the public: he can bend spoons and keys with his mind, which, as Randi has pointed out, is the hard way. Randi performs the same trick and demonstrates how it's done. To get a good picture of what passes for scientific research in parapsychology today, read either Randi's account of the studies done on Geller by Russel Targ and Harold Puthoff [ch. 7 of *Flim-Flam!*] or read Martin Gardner's account of their book *Mind-Reach* [ch. 30 of *Science Good Bad and Bogus*].

Recently, the work of Charles Honorton and his ganzfeld experiments have been put forth as examples of proper scientific studies whose integrity cannot be doubted. Maybe. But the data from these experiments illustrate another problem with much research in parapsychology: correlations don't establish causality. Finding a correlation which is not what would be predicted by chance does not establish a causal event. Furthermore, even if there is a causal event, the correlation itself isn't of much use in determining what that event consists of. What you think is cause may be the effect. Or, there may be some third, unknown, factor which is causing the effect observed. Or, the correlation may be due to chance, even if it is statistically unlikely in a certain sense. The apparent chance correlation may actually be statistically likely over the long run. So, the fact that a group of test subjects identifies correctly which of four pictures someone else has seen at a .36 rate when .25 is what chance predicts doesn't establish a causal event. Nor does it, of course, establish ESP as the cause, if there is a cause. The event may well be causal, but the real cause may be something quite ordinary, such as fraud, unintentional cues, or some tendency to bias in the subject matters selected by chance. If other researchers can duplicate the results with more and more rigorous tests, then it will become highly probable that causal events are being measured. Then, the problem will be to find the cause. Maybe it will turn out to be a psychic force hitherto undetected by physics, but this seems unlikely. From the standpoint of physics there seems to be a major problem with the assumption and alleged discovery by some parapsychologists that spatial distance is irrelevant to the exercise of ESP. Each of the four known forces in nature weakens with distance. Thus, as Einstein pointed out in a letter to Dr. Jan Ehrenwald, "This suggests...a very strong indication that a non-recognized source of systematic errors may have been involved [in these ESP experiments]" (Gardner, 1981, p. 153). The skeptic would rather believe that ESP doesn't exist than that there is some very strong and powerful force which is undetectable even though we're able to detect what must be a much weaker force, gravity, without any trouble at all.

One thing that most defenders of psi have in common is faith. This alone accounts for why they pursue and provide reams of empirical data to support their claims but disregard or trivialize all empirical evidence that indicates their claims are in error. Their faith is not an irrational fideism--belief without regard for and totally in spite of the evidence. Their faith is the kind of controlled faith that marks some religious belief. Evidence counts, but only if it supports your belief; otherwise it doesn't count. This selective thinking trivializes the concept of evidence and explains, in part, why so many of the empirical tests for psi are inadequately designed, controlled and administered. It explains too why so much rationalization and ad hoc hypothesizing goes on to explain away failures to confirm their psychic hypotheses.

Parapsychologists have an extremely broad understanding of what counts as good science. To many non-parapsychologists it appears that not only can one do sloppy or junk science, or invent harmful therapies, and get away with it in parapsychology; it seems to be the norm. Thus, it is an attractive field for a wide array of bumbling doctors with doctorates. This is a shame because its parent, psychology, is also a field with many competent scientific researchers who are contributing to a better understanding of human behavior and to the well-being of many patients.

#### Paraskevidekatriaphobia

Paraskevidekatriaphobia is a morbid, irrational fear of Friday the 13th. The term was coined by therapist Dr. Donald Dossey, whose specialty is treating people with irrational fears. He claims that when you can pronounce the word you are cured.

Paraskevidekatriaphobia is related to triskaidekaphobia, the fear of the number 13.

Superstition about Friday the 13th may well be the number one superstition in America today. The number 13 is considered especially auspicious, though it was considered a lucky number in ancient Egypt and

China. There were 13 people at the Last Supper. And several mass murderers have 13 letters in their names: Charles Manson, Jeffrey Dahmer, Theodore Bundy. Of course, millions of people who haven't committed any murders, such as Robert Carroll, have 13 letters in their names, too. As far as I know, nobody has studied how many dinner parties with 13 present went off uneventfully. Witches, perhaps to clearly oppose themselves to a Christian superstition, sometimes have groups of 13 known as covens.

Some think thirteen owes its bad reputation to Loki, the Norse god of evil, who started a riot when he crashed a banquet at Valhalla attended by 12 gods.

Some cities skip 13th Ave., but not the city I work in: Sacramento has an intersection where 13th Street crosses 13th Avenue. Some buildings skip from the 12th to the 14th floor, which, of course, means that the 14th floor is actually the 13th floor.

The ancient Egyptians considered the 13th stage of life to be death, i.e., the afterlife, which they thought was a good thing. The Death card in a Tarot deck is numbered 13 and represents transformation. Those cultures with lunar calendars and 13 months don't associate 13 with anything sinister.

Friday may be considered unlucky because Christ is thought to have been crucified on a Friday, for that was execution day among the Romans. Yet, Christians don't call it Bad Friday. Friday was also Hangman's Day in Britain. Some even think that Friday was the day God threw Adam and Eve out of Eden.

Friday is Frigga's Day. Frigga (Frigg) was an ancient Celtic (Norse) fertility and love goddess, equivalent to the Roman Venus who had been worshipped on the sixth day of the week. The Celts (Norse) worshipped Frigga (Frigg) on Friday and like the ancient Romans thought it a particularly good kind of day. Christians called Frigga a witch and Friday the witches' Sabbath; modern Wiccans are happy to oblige.

Is Friday the 13th a particularly unlucky day? It could be...if you believe it is. Some prophecies are self-fulfilling.

#### Paratrinket

A paratrinket is a trinket allegedly endowed with occult, paranormal, or supernatural powers, such as crystals and takionic beads.

#### Pareidolia

Pareidolia is a type of illusion or misperception involving a vague or obscure stimulus being perceived as something clear and distinct. For example, in the discolorations of a burnt tortilla one sees the face of Jesus Christ. Or one sees the image of Mother Theresa in a cinnamon bun or the face of a man in the moon.

Under ordinary circumstances, pareidolia provides a psychological explanation for many delusions based upon sense perception. For example, it explains many UFO sightings and hearing sinister messages on records played backwards. Pareidolia explains Elvis, Bigfoot, and Loch Ness Monster sightings. It explains numerous religious apparitions and visions. And it explains why some people see a face or a building in a photograph of the Cydonia region of Mars.

Under clinical circumstances, some psychologists encourage pareidolia as a means to understanding a patient. The most infamous example of this type of clinical procedure is the Rorschach ink blot test.

Astronomer Carl Sagan believes that the human tendency to see faces in tortillas, clouds, cinnamon buns, etc. is an evolutionary trait. He writes:

As soon as the infant can see, it recognizes faces, and we now know that this skill is hardwired in our brains. Those infants who a million years ago were unable to recognize a face smiled back less, were less likely to win the hearts of their parents, and less likely to prosper. These days, nearly every infant is quick to identify a human face, and to respond with a goony [sic] grin (Sagan, 45).

I think Sagan is right about the tendency to recognize faces, but I don't see any reason to think there is an evolutionary advantage to see faces in inanimate objects. It seems more likely that the mind is making associations with shapes, lines, shadows, etc., and that these associations are rooted in desires, interests, hopes, obsessions, etc. Most people recognize illusions for what they are, but some become fixated on the reality of their perception and turn an illusion into a delusion. A little bit of critical thinking, however, should convince most reasonable persons that a cinnamon bun that looks like mother Teresa or a burnt area on a tortilla that looks like Jesus are accidents and without significance. It is more likely that the Virgin

Mary one sees in the reflection of a mirror or on the floor of an apartment complex or in the clouds has been generated from one's own imagination than that a person who has been dead for 2,000 years should manifest herself in such a mundane and useless fashion.

### Past Life Regression

Past life regression is the alleged journeying into one's past lives while hypnotized. Some hypnotherapists claim to lead their patients to places in their minds where memories of past lives are stored. These therapists claim that past life regression is essential to healing and helping their patients. Some therapists claim that past life therapy can help even those who don't believe in past lives. Others have created institutes out of themselves in the search for their patients past lives.

While it is true that many patients recall past lives, it is highly improbable that their memories are accurate. The memories are from experiences in this life or they are imagined. Some memories are suggested by the hypnotherapist, but most are probably a mixture of this-life experiences and imagination (confabulation).

There are at least two attractive features of past life regression. Since therapists charge by the hour, the need to explore centuries instead of years, will greatly extend the length of time a patient will need to be "treated," thereby increasing the cost of therapy. Secondly, the therapist and patient can usually speculate wildly without much fear of being contradicted by the facts. However, this can backfire if anyone bothers to investigate the matter, as it did in the case of Bridey Murphy.

### Pathological Science

"Pathological science" is a term coined by Nobel-laureate in chemistry Irving Langmuir in a presentation he made at General Electric's Knolls Atomic Power Laboratory a few years before his death. He gave several examples, including Blondlot's N-rays, and stated that

These are cases where there is no dishonesty involved but where people are tricked into false results by a lack of understanding about what human beings can do to themselves in the way of being led astray by subjective effects, wishful thinking or threshold interactions. These are examples of pathological science. These are things that attracted a great deal of attention. Usually hundreds of papers have been published on them. Sometimes they have lasted for 15 or 20 years and then gradually have died away.... here are the characteristic rules....

The maximum effect that is observed is produced by a causative agent of barely detectable intensity.

Another characteristic thing about them all is that these observations are near the threshold of visibility of the eyes. Any other sense, I suppose, would work as well.

There are claims of great accuracy.

They are typically "Fantastic theories contrary to experience."

Criticisms are met by ad hoc excuses thought up on the spur of the moment.

The ratio of the supporters to the critics rises up somewhere near 50% and then falls gradually to oblivion. The critics couldn't reproduce the effects. Only the supporters could do that. In the end, nothing was salvaged.

A. Cromer, commenting on the above characteristics of pathological science, noted

- (1) Scientists themselves are often poor judges of the scientific process;
- (2) Scientific research is very difficult. Anything that can go wrong will go wrong;
- (3) Science isn't dependent on the honesty or wisdom of scientists.
- (4) Real discoveries of phenomena contrary to all previous scientific experience are very rare, while fraud, fakery, foolishness, and error resulting from overenthusiasm and delusion are all too common.

Do Langmuir's observations imply that scientists should shy away from controversial topics such as prions, cold fusion and zero-point energy? No. What follows is that any scientist doing any research must proceed with caution, tentativeness, a sense of the history of science and an awareness of the tendencies in human nature which can easily lead the wisest of men or women astray. What also seems to follow is that to show little or no interest in allowing oneself and others to try to prove one's fantastic theories to be wrong, while



immediately meeting every objection with ad hoc hypotheses, is a sign of pathological science if not pseudoscience.

#### Penile Plethysmograph (PPG)

The penile plethysmograph (PPG) is a machine for measuring changes in the circumference of the penis. A stretchable band with mercury in it is fitted around the subject's penis. The band is connected to a machine with a video screen and data recorder. Any changes in penis size, even those not felt by the subject, are recorded while the subject views sexually suggestive or pornographic pictures, slides, or movies, or listens to audio tapes with descriptions of such things as children being molested. Computer software is used to develop graphs showing "the degree of arousal to each stimulus." The machine costs about \$8,000 and was first developed in Czechoslovakia to prevent draft dodgers from claiming they were gay just to avoid military duty. Farrall Instruments Inc., of Grand Island, Nebraska, manufactures the device and in 1993 had sold most of the 400 units then in use in sex-offender treatment centers in some 40 states. Medical Monitoring Systems of New Jersey is also one of the leading PPG manufacturers. Another vendor of the PPG is Behavioral Technology Inc. in Salt Lake City. In addition to the United States, the device is being used in China, Hong Kong, Norway, Britain, Brazil and Spain.

The theory behind the device is described by Dr. Eugenia Gullick

The plethysmograph . . . directly measures the outside evidence of sexual arousal. We know-- it's established throughout the literature that when a man becomes sexually aroused--there is engorgement of the penis. It's a one-to-one relationship.

In a polygraph, galvanic skin responses are measured, and we have to make a leap of logic to think that galvanic skin response is related to anxiety, and therefore truthfulness. And it is that jump in logic that leads to a lack of reliability at times with that instrument . . . .

We know when the penis becomes engorged, we are measuring sexual arousal. So it's much more akin to . . . blood pressure measurement. (State of North Carolina v. Robert Earl Spence)

This much everyone seems to agree on: the device measures penile engorgement. Any male who has awakened with an erection knows, however, that penile engorgement is not always a measure of sexual arousal. On the other hand, most males would probably acknowledge that penile engorgement occurring while watching pornographic movies is due to sexual arousal. Why quibble? Let's grant that "when the penis becomes engorged, we are measuring sexual arousal." What utility could such a device possibly have?

Two uses have already been mentioned: to weed out false gays and in the treatment of sex-offenders. The latter is sometimes done in conjunction with aversion therapy, which involves subjecting patients to electric shocks or foul odors while being shown sexually suggestive pictures. The hope is that the treatment will dull the patient's interest in sexy materials. Psychologists use the PPG to measure the success of the therapy.

Submission to a PPG (as the test is called) has been made a condition of parole for certain sex offenders. The PPG has been used in child-custody cases (to determine that a father is or is not likely to abuse his child) and in sentencing decisions for sex offenders. It has even been given to children as young as 10 who had abused other children. The latter was done in Phoenix, Arizona, with no evidence either that the test was useful or that it would not be harmful when given to children. Officials in Old Town, Maine, had to pay nearly a million dollars to a policeman who was threatened with firing for refusing to submit to a PPG.

Researchers at the University of Georgia have used the PPG to test the claim that homophobic men are latent homosexuals. In their study of 64 exclusively heterosexual men (self-identified), 66 percent of the non-homophobic group showed no significant arousal while watching a male homosexual video, while only 20 percent of the homophobic men showed little or no evidence of arousal. This University study has not aroused much interest elsewhere, however.

Finally, there is an area where this device makes a valuable contribution: that of sorting out organic from psychogenic impotence. This is done by measuring changes in penile circumference during sleep, with increases expected during REM sleep. Men with psychogenic impotence still show erections, while those with an organic problem don't. It works. I once set up a lab in a psychiatry dept. at U. of Penn. to do this (Dave Bunnell, personal correspondence).

Scientifically, what are we to make of such a device? Well, the machine can measure response time to a stimulus and it can measure change in penile girth over time. Apparently, it is assumed that the more quickly aroused and the greater the engorgement the higher the "arousal level." Apparently, it is also assumed by many practitioners that any "arousal level" when viewing or listening to descriptions of naked

children or adults having sex with children is "deviant." Yet, studies done on the PPG have found that "many so called normal men who have not committed illegal sex acts show considerable arousal to stimuli depicting naked children or children involved in sexual activity." (e.g. Freund, et al, 1972, Behavior Therapy, #6) And, in one court case, Dr. Michael Tyson, a clinical and forensic psychologist specializing in the field of sexual criminal behavior, testified that "the vast majority of individuals who commit sexual offenses against children are not sexually aroused by stimulus material involving children." His expert adversary in that case, Dr. Gullick, claimed that "the plethysmograph has been extensively studied and recently shown to be ninety-five percent accurate in discriminating between individuals who had committed sexual offenses against children and a control group that was randomly drawn from the population." Yet, other experts have claimed that there are "studies in which the devices have failed to detect nearly one out of three known sex offenders tested."

It seems to be the case that the device has been the subject of many scientific studies and the results have been mixed, to put it kindly. The reliability and utility of the device have been argued in court and penile plethysmographic evidence has been declared inadmissible because of its "questionable reliability." The case in which Dr. Tyson testified was heard by the North Carolina Court of Appeals. That Appeals Court upheld a lower court's exclusion of testimony by Dr. Gullick because her testimony was based upon the use of the penile plethysmograph. The defendant in the case was accused of sexually molesting his 5-year old stepdaughter. He called Dr. Gullick to testify that his "arousal pattern" when tested on the plethysmograph indicated that he was not aroused by children. Presumably, the defense believed that this was strong evidence that he didn't molest the child. The trial court ruled that "Dr. Gullick would be permitted to testify as to any opinions which were not based on the plethysmograph." The Appeals Court agreed with the trial court that "the instrument was of questionable reliability; that the testimony was not relevant; and that even if relevant, its probative value was outweighed by its prejudicial effect."

We agree with the trial court that the evidence before it by no means established the reliability of the plethysmograph; there is a substantial difference of opinion within the scientific community regarding the plethysmograph's reliability to measure sexual deviancy....

In the present case, plethysmograph testing formed the basis for Dr. Gullick's opinion that defendant was not sexually aroused by children, thereby making it less likely that he committed the acts charged. In view of the lack of general acceptance of the plethysmograph's validity and utility and therefore, its reliability for forensic purposes in the scientific community in which it is employed, we hold that the trial court did not abuse its discretion in finding defendant's plethysmograph testing data insufficiently reliable to provide a basis for the opinion testimony which defendant sought to elicit from Dr. Gullick. (State of North Carolina v. Robert Earl Spencer)

Dr. Tyson testified in the Spencer case that it was "generally accepted in the mental health community by both proponents and opponents of the plethysmograph that the plethysmograph data does not give any evidence that is useful in determining whether an individual did or did not commit a specific act. He also noted that "there is substantial disagreement as to the extent to which the penile response is subject to voluntary control and as to whether the penile response as measured by the plethysmograph can then be generalized to anything else pertaining to sexual behavior." Putting it mildly, Dr. Tyson claims that the plethysmograph has very limited forensic utility. It seem clear that evidence based on the PPG has no business in the courtroom, either to exculpate or incriminate.

Nevertheless, there is a whole industry of therapists who treat sex offenders and think the PPG will assist them "in determining whether someone who has committed a sex crime has a pattern of deviant sexual interests." Therapists use the PPG to help them devise treatment programs and to measure the success of their treatment. All this is done without any concern, apparently, that there is no compelling evidence that sexual arousal or non-arousal from pictures or sounds significantly correlates with criminal deviant behavior. There is no compelling evidence that a person who gets aroused by pictures or sounds is significantly more likely to commit sex crimes than one who does not get aroused. On the other hand, there is no compelling evidence that a person who does not get aroused by pictures or sounds is significantly less likely to commit sex crimes than one who does get aroused.

Still, the PPG can provide some information which might prove useful to a sex-offender therapist. The computer software used with the PPG enables the tester to develop graphs that indicate whether the subject is more aroused by males than by females, by children than by adults, by coerced than by consensual sex, etc. The therapeutic controversy begins, however, as soon as the therapist tries to convert "arousal levels" to anything meaningful, such as claims that a sex-offender is "cured" or is "responding positively to treatment." This is in addition to the controversy already mentioned over using the PPG in conjunction with aversion therapy.

One glaring problem with the use of the PPG is the lack of standardized materials to use as stimuli for subjects, a factor which clearly biases the data. Therapists vary greatly in the kind of materials they use to arouse subjects. Some materials are rather tame, e.g., nude adults, children in underwear or bathing suits. Others use hardcore pornography, including depictions of rape and pedophilia. Furthermore, there is no standard of "deviancy" for arousal. Worse, if therapists can define certain arousal as deviant, they can then

suggest treatments for the deviancy as well as having the power to declare when the "deviant" is "cured." Convicted sex-offenders are in no position to protest either declarations that they have "deviant arousals" or treatments forced upon them in the name of curing them of the "disease" of "deviant arousal."

More objectionable than the questionable scientific validity of the device, however, are the moral and legal questions its use raises. Some of the materials would probably be illegal on the open market because they constitute child pornography. Much of the material is morally objectionable. Some of the uses of the device raise constitutional issues. For example, submission to the PPG test as a condition for employment, for enlistment into the armed forces, or for granting custody of children. Some penal institutions have made submission to the PPG a condition of parole, even though the device's usefulness as a predictor of behavior is unproven. The practice has been upheld by the Seventh Circuit Court of Appeals. Parole Boards have great latitude in establishing conditions for parole. These conditions do not have to meet the same rigorous standards as are required before something allegedly scientific can be admitted as evidence in a trial. Nor do the normal liberties and constitutional protections of citizenship automatically apply to one being paroled.

From a scientific, moral and legal point of view, what should matter is whether a person gives in to perverse desires and commits sex crimes. It is neither immoral nor a crime to get aroused. Furthermore, being aroused is not identical to having a desire. A man or woman may be aroused by the sight of animals copulating or be aroused by a film of a woman eating a banana and a man eating a fig in particularly provocative ways. Still, they may have no desire to engage in bestiality or have sex with a bowl of fruit. A heterosexual man or woman may be aroused by the sight of lesbians engaging in oral sex, but have no desire to have sex with lesbians or in the presence of lesbians. And, if Dr. Tyson is correct, apparently there are many "normal" men who are aroused by photos of naked children but have no desire to have sex with children. And there are many pedophiles who are not aroused by photos of naked children. The PPG measures arousal, not desire, though many sex-offender therapists seem to identify arousal with desire. These therapists, therefore, may be engaging in little more than wishful thinking when they think that because they witness a decrease in arousal they have evidence for a decrease in desire, which they correctly correlate with a decreased likelihood of acting on that desire. Decreased arousal may not be strong evidence for decreased tendency to engage in criminal sex acts. Strong arousal need not imply strong desire for what causes the arousal; and weak arousal need not imply weak desire. Furthermore, no test can determine whether a person will act on his feelings and desires. Nevertheless, many of those who treat sex offenders swear by the PPG even though there is no compelling evidence that PPG measurements validly indicate a tendency to commit or not commit sex crimes.

#### Pentagram (Pentacle, Pentangle)

A pentagram is a five-pointed figure used as a magical or occult symbol by the Pythagoreans, Masons, Gnostics, Cabalists, magicians, Wiccans, Satanists, etc. There is apparently something attractive about the figure's geometry and proportions. In many symbolizations, the top point represents either the human head or a non-human Spirit. To invert the figure is considered by some as a sign of relegating Spirit to the bottom of the metaphysical heap. Others take inversion to be Satanic and on par with alleged mockeries such as inverting the cross or saying the Mass backwards. Still others find nothing particularly diabolical about inversion and use the inverted pentagram without fear of accidentally invoking the forces of evil.

Some say the pentagram is mystical because 5 is mystical. It's a prime number, the sum of 2 and 3, as well as of 1 and 4. Christ had five wounds, they say, if you don't count those inflicted by the crown of thorns; and he distributed five loaves of bread to five thousand people. Most importantly, we have five fingers, toes and senses.

Some Christian watchdogs apparently think the pentagram is the devil's hoof print. They are especially on the lookout for inverted pentagrams as proof of Satanism, but any pentagram will suit most of these caretakers of decent symbology in their never-ending quest to identify evil. Of course, it can be bad for business if rumors are spread that one's company uses the pentagram or any other symbol deemed to be diabolical. Proctor and Gamble was once accused by Amway competitors of being run by devil worshippers who flaunted their satanic religion with a diabolical logo. The logo consisted of an old man's bearded face in the crescent moon, facing thirteen stars, all set within a circle. Some saw 666, the number of the Beast in Revelation (usually identified with Satan by the Christian watchdogs), lurking in the old man's beard and in the arrangement of the stars. Others saw a goat, surely a sign of the devil.

To the Wiccan, the five points of the pentagram represent Air, Fire, Water, Earth and Spirit. Wiccans usually put the symbol in a circle, which has traditionally represented the endless or eternity. The ancient Chinese believed there were five elements (wood, fire, earth, metal, and water), five planets, five seasons, five senses, as well as five basic colors, sounds and tastes. However, the number six seems to have been more enchanting to them than five, for the I Ching uses six as its base number. So does the Star of David, which has six points and is made by overlapping two equilateral triangles. The Star of David is a hexagram but is not used to cast a hex on you. That kind of hex comes from the German word for witch, Hexen, which is

related to the Old High German word *hagzissa*, a hag. Personally, if proportion and geometry are the basis for mystical figures, the hexagram seems much preferable to the pentagram.

Occultists of all sorts wear pentagram talismans to protect them from evil or to help them get occult knowledge and power. They even draw pentagrams on the ground and stand within them to better call upon occult powers. If the point is aimed north, they are not worshippers of Satan. However, if the point is aimed south, they are. So say the Christian watchdogs.

For some reason, the pentagram has become the symbol for a star, though no star in the sky looks like a pentagram, unless perhaps it is seen from inside the five corners of the earth when one is five sheets to the wind. Furthermore, some mystics claim that if one stares at a small pentangle long enough one will see that all triangles end in a circle with five sides.

## Personology

People with thin, soft, looser or porcelain-like skin tend to be more impressionable both emotionally and physically....Those with thin, fine hair are refined emotionally....A thick, full lower lip indicates spontaneous generosity to friends and strangers as well as talkativeness....A ski-slope upturned nose person will usually be...a poor money manager.  
--George Roman, personology expert

Personology is a New Age variation of the ancient pseudoscience of physiognomy, which holds that outward appearance, especially the face, is the key to a person's predominant temper and character. The theory of personology, like graphology, seems to be based on sympathetic magic and intuition.

Personology was developed in the 1930s by Edward Jones, a Los Angeles judge, according to Naomi Tickle, founder of the International Centre for Personology (not to be confused with the Personology Institute of San Diego nor the Institute for Advanced Studies in Personology and Psychopathology in Coral Gables, Florida). According to Ms. Tickle, the judge "became fascinated by the relationship between facial features and behavior patterns of the people who appeared before him in court." Then, like many naive people, he thought his personal observations were free of bias and constituted scientific data. Judge Jones even taught his "new science" to the public.

Judge Jones may have been very good at cold reading, but he did not do controlled experiments to minimize the effects of the self-deception and confirmation bias that hinder all of us from properly evaluating our experiences. He should have been especially concerned about the Forer effect, given the history of other similar attempts at divining character, such as astrology and phrenology.

Judge Jones made the same mistake that Franz-Joseph Gall, the creator of phrenology, made: he thought he observed a pattern and made no effort to scientifically test his thought. Gall thought he saw a pattern between bumps on the head and types of insanity and criminality. Jones thought he saw a pattern of facial similarities of people charged with similar crimes. Neither considered that once they came to believe in these notions, they would find it easy to confirm their beliefs.

According to Ms. Tickle, the "science" was done by Robert L. Whiteside, a newspaper editor, who "used 1068 subjects and found the accuracy to be better than 90%." Whiteside is the author of *Face Language* (New York, F. Fell Publishers; 1974). Whiteside became an advocate after watching Jones do a cold reading of his wife at a public lecture. Whiteside was amazed that Jones could know so much about his wife without knowing her. One searches in vain, however, for publications by Mr. Whiteside in scientific journals. Although Whiteside and his work have been universally ignored by the scientific community, the growth of personology has not been hindered.

Further "science" has been added by another Whiteside. According to Bill Whiteside, who says he was trained by Robert Whiteside, there is a scientific connection between genetics and behavior and genetics and physical appearance. Therefore, he concludes, albeit illogically, there must be a connection between behavior and physical appearance.

Over the years, [scientists] have conclusively proven that our genetic inheritance shows up in our structure and, therefore, so do our behavior patterns.

He might as well argue that since eye color is genetically determined, eye color is a key to understanding personality.

According to Bill Whiteside, There are 68 behavioral traits in Personology. A trained observer identifies each one with sight, measurement or touch. There are five trait areas: Physical, Automatic Expression, Action, Feeling and

Emotion, and Thinking. The placement of each trait into an area develops logically from its location and relationship to a corresponding area of the brain

This all sounds very scientific, but nothing we know about the brain supports these notions.

In short, personology is attractive because its proponents are amazed at how accurate it is. Their amazement is largely due to lack of understanding of such things as the Forer effect, cold reading, and confirmation bias. The belief in personology is strengthened by the fact that its advocates seek only confirmatory data for their belief. They not only ignore all the data from the neurosciences that contradict their beliefs, they do not systematically attempt to test them in ways that might prove them false.

#### Philadelphia Experiment

If we are to believe [Carl] Allen, our naval hierarchy abandoned sanity and historical precedent by conducting an experiment of enormous importance in broad daylight using a badly needed destroyer escort vessel . . . If someone were to write a book telling the real story, its title might be *The Philadelphia Hoax: Project Gullibility* (Robert A. Goerman)

The Philadelphia Experiment is an alleged United States Navy experiment (Project Rainbow) done on October 28, 1943. According to legend, the destroyer USS Eldridge was made invisible, dematerialized, and teleported from Philadelphia, Pennsylvania, to Norfolk, Virginia, and back again to the Philadelphia Naval Yard. The experiment allegedly had such terrible side-effects, such as making sailors invisible and eventually going mad, that the Navy quit exploring this exciting new technology.

The experiment was allegedly done by Dr. Franklin Reno as an application of Einstein's unified field theory. The experiment supposedly demonstrated a successful connection between gravity and electromagnetism: electromagnetic space-time warping.

The Navy denies that it ever did such a test. The denial is taken as proof by the conspiratorially minded that the experiment must have really occurred. The less gullible ask, Where did this story come from?

The story is a mixture of fact, fiction, speculation, and madness.

The facts are that the Navy does all kinds of experiments, many of them secret. Many of these experiments attempt to find military applications for the latest discoveries or theories in physics, such as Einstein's unified field theory. It seems to be a fact that the Navy was experimenting with "invisibility" in 1943, but not with making ships disappear. Edward Dudgeon, who says he was there on the U.S.S. Engstrom, claims that they hoped to make our ships "invisible to magnetic torpedoes by de-Gaussing them." Dudgeon described the procedure: to UFO investigator Jaques Vallee:

They sent the crew ashore and they wrapped the vessel in big cables, then they sent high voltages through these cables to scramble the ship's magnetic signature. This operation involved contract workers, and of course there were also merchant ships around, so civilian sailors could well have heard Navy personnel saying something like, "they're going to make us invisible," meaning undetectable by magnetic torpedoes....(Vallee)

The Engstrom and the Eldridge were harbored together and, according to Dudgeon, crew members from both ships had parties together on shore and "there was never any mention of anything unusual." Though they did witness some spectacular electric storms, he says. (St. Elmo's fire is common in the area.)

Marshall Barnes, who identifies himself as a "Special Civilian Investigator," claims Dudgeon's story is disinformation and that Vallee is a hoaxer out to cover up the government's real activities. Maybe so, but in March of 1999, sailors who'd served on the Eldridge reunited and told a Philadelphia Inquirer reporter that they "find the story amusing especially because the ship never docked in Philadelphia."\* Barnes also claims that he can prove that "optical invisibility" is possible through "the use of an intense electromagnetic field that would create a mirage effect of invisibility by refracting light."\* He claims he proved this to the cable network A&E for an Unexplained episode, but that they reneged on the deal. One would think they would have jumped at the chance to demonstrate something so wondrous.

#### Morris Jessup's Book

Another fact is that in 1955 an auto parts salesman and amateur astronomer named Morris K. Jessup published a book called *The Case for the UFO*. In his book, Jessup speculated--among other things--that anti-gravity and electromagnetism would be better than rocket fuel for propelling space vehicles. The following year, Carl Allen (a.k.a. Carlos Miguel Allende), a somewhat brilliant but very disturbed human being, started the hoax by writing letters to Jessup telling him of *The Philadelphia Experiment*. Allende

claims that he witnessed the disappearance of a ship while on board the SS Andrew Furuseth, a merchant ship. He also claims he saw some Eldridge crew members disappear into thin air during a fight. Allen sent an annotated copy of Jessup's book to the Office of Naval Research in Washington, D.C. Jessup was summoned to Washington and turned over the Allen letters. Later, the Varo Corporation, a firm which did research for the military, published the annotated version along with Allen's letters to Jessup. Jessup committed suicide in 1959. Allen continued sending strange annotations to relatives for many more years, as he drifted from place to place.

The speculations regarding the origin of Allen's story have run rampant. Some say that he was there and saw it all. Some say that Allen is an alien and channels information. Some claim that the Navy is covering up the experiment and their complicity with aliens. The simple truth is that Allen made it all up.

Allen's hoax has grown into a legend which has been spurred on by a number of books, some of them fictional, some non-fictional, and others fictional but claiming to be non-fictional. In 1965, Vincent H. Gaddis's *Invisible Horizons: true mysteries of the sea* was published. In addition to stories about various disappearing islands, aircraft, and ships, Gaddis presents the basics of the legend as created by Allen in his letters and published in the Varo edition of Jessup's work. In 1977, Charles Berlitz published *Without a Trace: New Information from the Triangle*, which included a chapter on the Philadelphia Experiment. Berlitz is a frequent source for stories on strange phenomena, such as Atlantis, the Bermuda Triangle, and Noah's Ark.

In the fictional category, *Thin Air* (1978) by George E. Burger and Neil R. Simpson stands out. It is about a Navy investigation of a cover-up of an experiment involving the USS Eldridge in 1943.

In 1979, *The Philadelphia Experiment: Project Invisibility* by William L. Moore and Charles Berlitz was published. This book is fiction but claims to be fact, and plagiarizes parts of *Thin Air*. In the Moore and Berlitz book, not only the ship but several crew members disappear into a new dimension, never to be seen again (unless, of course, you sail to Atlantis on Noah's Ark through the Bermuda Triangle where you will no doubt find these sailors holding a séance).

In 1984, a movie called "The Philadelphia Experiment" was produced. It was directed by Stewart Raffill and was based on a screenplay by William Gray and Michael Janover.

There have been other attempts to exploit the gullible with stories about this so-called experiment, but two stand out as more insane than the rest: *The Philadelphia Experiment*, and *Other UFO Conspiracies*, by Brad Steiger, with Alfred Bielek and Sherry-Hanson Steiger (1990); and *The Philadelphia Experiment Part 1- Crossroads of History*, presented by Alfred Bielek. The former is a book which rehashes the usual stories of CIA plots, government conspiracies, secret meetings with aliens, trips to Mars, visits from the Men in Black, etc. The latter is a video featuring a man who claims he was a physicist on the USS Eldridge in 1943 and was part of the team that conducted the experiment. Bielek claims he time-traveled in 1943 to 1983 during the experiment and lived to tell the story, only to be harassed by the U.S. government for his troubles.

The central claim of the Philadelphia Experiment may have a basis in fact, however. Edward Dudgeon describes the event.

I was in [a] bar that evening, we had two or three beers, and I was one of the two sailors who are said to have disappeared mysteriously...The fight started when some of the sailors bragged about the secret equipment [radar, sonar, special screws, a new compass, etc.] and were told to keep their mouths shut. Two of us were minors...The waitresses scooted us out the back door as soon as trouble began and later denied knowing anything about us. We were leaving at two in the morning. The Eldridge had already left at 11 p.m. Someone looking at the harbor that night might have noticed that the Eldridge wasn't there any more and it did appear in Norfolk. It was back in Philadelphia harbor the next morning, which seems like an impossible feat: if you look at the map you'll see that merchant ships would have taken two days to make the trip. They would have required pilots to go around the submarine nets, the mines and so on at the harbor entrances to the Atlantic. But the Navy used a special inland channel, the Chesapeake-Delaware Canal, that bypassed all that. We made the trip in about six hours" (Vallee).

Such is the mundane stuff that urban legends are made of.

## Philosopher's Stone

The philosopher's stone is the magical substance in alchemy which brings about the transmutation of metals, a cure for all ills and immortality. Unfortunately, like many wonderful things dreamed up by the alchemists, this substance exists only in the imagination.

## Phrenology (Cranioscopy)

Phrenology is the study of the structure of the skull to determine a person's character and mental capacity. This pseudoscience is based upon the false assumption that mental faculties are located in brain "organs" on the surface of the brain and can be detected by visible inspection of the skull. The Viennese physician Franz-Joseph Gall (1758-1828) claimed there are some 26 "organs" on the surface of the brain which affect the contour of the skull, including a "murder organ" present in murderers. Gall was an advocate of the "use it or lose it" school of thought. Brain organs which were used got bigger and those which were not used shrunk, causing the skull to rise and fall with organ development. These bumps and indentations on the skull, according to Gall, reflect specific areas of the brain which determine a person's emotional and intellectual functions. Gall called the study of these cranial hills and valleys "cranioscopy." Others, such as Johann Kaspar Spurzheim (1776-1832) who spread the word in America and George Combe (1788-1858) who founded the Edinburgh Phrenological Society, followed with even zanier and more specious divisions and designations of the brain and skull, such as "metaphysical spirit" and "wit." In 1815, Thomas Foster called the work of Gall and Spurzheim "phrenology" (phrenos is Greek for mind) and the name stuck.

Phrenology advanced the notion that the human brain is the seat of character, emotions, perception, intellect, etc., and that different parts of the brain are responsible for different mental functions. In this its advocates were correct. However, since at that time it was only possible to study the brains of the dead, phrenologists could only associate the different structures of organs in the brain with supposed mental functions which were in turn associated with the contour of the skull. Little was done to study the brains of persons known to have had neurological problems, which might have helped in the process of locating parts of the brain responsible for specific neurological functioning. Instead, mental faculty localization was arbitrarily selected. Gall's early work was with criminals and the insane, and his brain "organs" reflected this interest. Spurzheim got rid of such things as "theft organs" and "murder organs", and mapped out the brain with such areas as "benevolence" and "self-esteem."

Although phrenology has been thoroughly discredited and has been recognized as having no scientific merit, it still has its advocates. It remained popular, especially in the United States, throughout the 19th century and it gave rise to several other pseudoscientific characterologies, e.g., craniometry and anthropometry. Phrenology was praised by Ralph Waldo Emerson, Horace Mann and the Boston Medical Society when Spurzheim arrived in 1832 for The American Tour. The Fowler Brothers and Samuel Wells published the American Phrenological Journal and Life Illustrated which lasted from 1838 until 1911. In Edinburgh, Combe's Phrenological Journal was published from 1823 until 1847. Another indication of the popularity of phrenology in the 19th century is that Combe's The Constitution of Man sold more than 300,000 copies between 1828 and 1868.

Phrenology gave rise to the invention of the psychograph by Lavery and White, a machine which could do a phrenological reading complete with printout. It is said that this device netted its owners about \$200,000 at the 1934 Century of Progress Exposition in Chicago. Phrenological readings are not unlike astrological readings and many who have them done are satisfied that the results are uncannily accurate.

## Physiognomy

Physiognomy is the interpretation of outward appearance, especially the features of the face, to discover a person's predominant temper and character. Physiognomy has also been used as a kind of divination and is often associated with astrology. The faces depicted here are from Barthélemy Coclès Physiognomonica (1533) and show eyelashes of men who are proud, vainglorious and audacious.

Coclès, like others before and after him, tried to turn into a science what each of us does from time to time: judge a person by his or her facial characteristics. Physiognomists like Coclès are wont to say things such as "people with snub noses are vain, untruthful, unstable, unfaithful and seducers." The snub nosed of the world tend to snub their noses at such pseudoscientific drivel.

In the 18th and 19th centuries physiognomy was used by some of its proponents as a method of detecting criminal tendencies. Many bigots and racists still use physiognomy to judge character and personality. This is not to say that there are not certain physiognomic features associated with certain genetic disorders such as Down's syndrome or Williams Syndrome. The advocates of physiognomy, however, probably wouldn't know what a genetic disorder is.

## Pittdown Hoax

Pittdown was an archaeological site in England where in 1908 and 1912 fossil remains of human, ape and other mammals were found. In 1913 at a nearby site was found an ape's jaw with a canine tooth worn

down like a human's. The general community of British paleoanthropologists came to accept the idea that the fossil remains belonged to a single creature who had a human cranium and an ape's jaw. In 1953, Piltdown 'man' was exposed as a forgery. The skull was modern and the teeth on the ape's jaw had been filed down.

To those who are skeptical of science, such as Charles Fort and the Fortean, such episodes as Piltdown are taken to be proof that science is, more or less, bunk. To those who have a better understanding of the nature and limits of science, Piltdown is little more than a wrong turn down a series of roads which, despite such detours, eventually arrives at the right destination.

How had so many scientists been duped? Stephen Jay Gould offers several reasons, among them wishful thinking and cultural bias, which no doubt played a role in the lack of critical thinking among British paleoanthropologists. But, above all, the Piltdown forgery demonstrates the fallibility and human quality of scientific knowledge. It demonstrates, too, the way theories and facts are related in science. Theories are the filters through which facts are interpreted (Popper). Theories try to explain and make sense of facts. On the other hand, facts are used to test theories. Gould notes that today a human cranium with an ape's jaw is considered to be extremely implausible and far-fetched. But in the early part of this century, anthropologists were imbued with the cultural prejudice which considered man's big brain as his ticket to rule, the main evolutionary feature that made it possible for man to develop all his other unique features. Since there was a pre-conceived notion that man's brain must have developed to its human size before other changes occurred in human structure, a human cranium with an ape's jaw didn't arouse as much suspicion as it would today. Fossil discoveries since Piltdown clearly show a progression from small-brained but upright, hence non-simian hominids, to larger-brained upright humans. Scientists "modeled the facts" instead of modeling their theory to fit the facts, "another illustration," says Gould, "that information always reaches us through the strong filters of culture, hope, and expectation" (Gould 1982, p. 118). Once committed to a theory, we see what fits with the theory.

The main reason Piltdown was not spotted as a fraud much earlier was that scientists weren't allowed to see the evidence, which was kept securely locked in the British Museum. Instead of focusing their attention on examining the "facts" more closely with an eye to discovering the fraud, scientists weren't even allowed to examine the physical evidence at all! They had to deal with plaster molds and be satisfied with a quick look at the originals to justify the claim that the models were accurate.

Another reason some scientists were duped was probably because it was not in their nature to consider someone would be so malicious as to intentionally engage in such deception. In any case, one of the main fallouts of Piltdown has been a virtual industry of detectives trying to identify the hoaxer. The list of suspects includes:

Charles Dawson, an amateur archaeologist who brought in the first cranial fragments from Piltdown;  
Tielhard de Chardin, theologian and scientist who accompanied Dawson and Arthur Smith Woodward (Keeper of Geology at the British Museum [Natural History] in 1912) to Piltdown on expeditions where they discovered the mandible;

W.J. Sollas, a professor of geology at Oxford;

Grafton Elliot Smith, who wrote a paper on the find in 1913;

Arthur Conan Doyle, the creator of Sherlock Holmes; and

Martin A.C. Hinton, a curator of zoology at the time of the Piltdown hoax. A trunk with Hinton's initials on it was found in an attic of London's Natural History Museum. The trunk contained bones stained and carved in the same way as the Piltdown fossils.

The evidence in each case is circumstantial and not very strong. What is highly probable is that there will be more books speculating on the identity of the Piltdown hoaxer.

#### The Moral of Piltdown

The moral of Piltdown is that science is fallible, a human activity which does not always take the most direct route in fulfilling its aim of understanding nature. When an anomaly such as the discovery of a human cranium with an ape's jaw occurs one must either fit it into a new theory, re-examine the evidence for error in discovery or interpretation, or show that the so-called anomaly is not really an anomaly at all but in fact fits with current theory. Which route a scientist takes may be guided more by personal hopes and cultural prejudices than by some mythical objectivity characterized by the collection and accumulation of colorless, impersonal facts to be pigeonholed dogmatically into a General Theory of Objective Truth and Knowledge.

But to characterize scientists as arrogant buffoons making claims that often turn out to be false, and to make a caricature out of science because it is not infallible and does not arrive at absolutely certain claims, belies a grave misunderstanding of the nature of science. The buffoons are those who demand absolute certainty where none can be had; the buffoons are those who do not understand the value and beauty of probabilities in science. The arrogant ones are those who think that science is mere speculation



because scientists make errors, even egregious errors, or at times even commit fraud to push their prejudices. The arrogant ones are those who can't tell the difference between a testable and an untestable hypothesis and who think one speculation is as good as another. The buffoons are those who think that since both scientists and creationists or other pseudoscientists pose theories that each is doing essentially the same thing. However, all theories are not empirical, and of those that are empirical not all are equally speculative. Furthermore, those creationists who think that Piltdown demonstrates that scientists can't accurately date bones should remember that methods of dating such things have greatly improved since 1910.\*

Because of the public nature of science and the universal application of its methods, and because of the fact that the majority of scientists are not crusaders for their own untested or untestable prejudices, as many pseudoscientists are, whatever errors are made by scientists are likely to be discovered by other scientists. The discovery will be enough to get science back on track. The same can't be said for the history of quacks and pseudoscientists where errors do not get detected because their claims are not tested properly. And when critics identify errors, they are ignored by true believers.

(Note: Yet another book on the Piltdown hoax has been published since the Hinton trunk discovery. *Unraveling Piltdown: The Science Fraud of the Century and Its Solution* by John Evangelist Walsh (Random House, 1996) points the finger at Dawson once again.)

### Placebo Effect

The placebo effect is the measurable or observable effect on a person or group that has been given a placebo treatment.

A placebo is an inert substance, or "fake" surgery or therapy, used as a control in an experiment or given to a patient for its possible or probable beneficial effect. Why an inert substance, a so-called "sugar pill," or a fake surgery or therapy would be effective, is not completely known.

the psychological theory: it's all in your mind

Many believe the placebo effect is psychological, due to either a real effect caused by belief or to a subjective delusion. If I believe the pill will help, it will help. Or, my physical condition does not change but I feel like it has. For example, Irving Kirsch, a psychologist at the University of Connecticut, believes that the effectiveness of Prozac and similar drugs may be attributed almost entirely to the placebo effect. He and Guy Sapirstein analyzed 19 clinical trials of antidepressants and concluded that the expectation of improvement, not adjustments in brain chemistry, accounted for 75 percent of the drugs' effectiveness (Kirsch, 1998). "The critical factor," says Kirsch, "is our beliefs about what's going to happen to us. You don't have to rely on drugs to see profound transformation." In an earlier study, Sapirstein analyzed 39 studies, done between 1974 and 1995, of depressed patients treated with drugs, psychotherapy, or a combination of both. He found that 50 percent of the drug effect is due to the placebo response.

A person's beliefs and hopes about a treatment, combined with their suggestibility, may have a significant biochemical effect. We know that sensory experience and thoughts can effect neurochemistry and that the body's neurochemical system affects and is affected by other biochemical systems, including the hormonal and immune systems. Thus, there is probably a great deal of truth to the claim that a person's hopeful attitude and beliefs are very important to their physical well-being and recovery from injury or illness.

However, it may be that much of the placebo effect is not a matter of mind over molecules, but of mind over behavior. A part of the behavior of a "sick" person is learned. So is part of the behavior of a person in pain. In short, there is a certain amount of role-playing by ill or hurt people. Role-playing is not the same as faking, of course. We are not talking about malingering here. The behavior of sick or injured persons is socially and culturally based to some extent. The placebo effect may be a measurement of changed behavior affected by a belief in the treatment. The changed behavior includes a change in attitude, in what one says about how one feels, and how one acts. It may also affect one's body chemistry.

The psychological explanation seems to be the one most commonly believed. Perhaps this is why many people are dismayed when they are told that the effective drug they are taking is a placebo. This makes them think that their problem is "all in their mind" and that there is really nothing wrong with them. Yet, there are too many studies which have found objective improvements in health from placebos to support the notion that the placebo effect is entirely psychological.

Doctors in one study successfully eliminated warts by painting them with a brightly colored, inert dye and promising patients the warts would be gone when the color wore off. In a study of asthmatics, researchers found that they could produce dilation of the airways by simply telling people they were inhaling a bronchodilator, even when they weren't. Patients suffering pain after wisdom-tooth extraction got just as much relief from a fake application of ultrasound as from a real one, so long as both patient and therapist

thought the machine was on. Fifty-two percent of the colitis patients treated with placebo in 11 different trials reported feeling better -- and 50 percent of the inflamed intestines actually looked better when assessed with a sigmoidoscope ("The Placebo Prescription" by Margaret Talbot, New York Times Magazine, January 9, 2000).\*

Clearly, such effects are not purely psychological.

the nature-taking-its-course theory

Some believe that at least part of the placebo effect is due to an illness or injury taking its natural course. We often heal in time if we do nothing at all to treat an illness or injury. The placebo is sometimes mistakenly thought to be effective when, in fact, the body is spontaneously healing itself.

However, spontaneous healing and spontaneous remission of disease cannot explain all the healing or improvement that takes place because of placebos, or because of active medications or treatments, for that matter. People who are given no treatment at all often do not do as well as those given placebos or real medicine and treatment.

The Process-of-Treatment Theory

Another theory gaining popularity is that a process of treatment that involves showing attention, care, affection, etc., to the patient/subject, a process that is encouraging and hopeful, may itself trigger physical reactions in the body which promote healing. According to Dr. Walter A. Brown, a psychiatrist at Brown University,

there is certainly data that suggest that just being in the healing situation accomplishes something. Depressed patients who are merely put on a waiting list for treatment do not do as well as those given placebos. And -- this is very telling, I think -- when placebos are given for pain management, the course of pain relief follows what you would get with an active drug. The peak relief comes about an hour after it's administered, as it does with the real drug, and so on. If placebo analgesia was the equivalent of giving nothing, you'd expect a more random pattern ("The Placebo Prescription" by Margaret Talbot, New York Times Magazine, January 9, 2000).\*

Dr. Brown and others believe that the placebo effect is mainly or purely physical and due to physical changes which promote healing or feeling better.

The physical changes are obviously not caused by the inert substance itself, so what is the explanatory mechanism for the placebo effect? Some think it is the process of administering it. It is thought that the touching, the caring, the attention, and other interpersonal communication that is part of the controlled study process (or the therapeutic setting), along with the hopefulness and encouragement provided by the experimenter/healer, affect the mood of the subject, which in turn triggers physical changes such as release of endorphins. The process reduces stress by providing hope or reducing uncertainty about what treatment to take or what the outcome will be. The reduction in stress prevents or slows down further harmful physical changes from occurring.

The process-of-treatment hypothesis would explain how inert homeopathic remedies and the questionable therapies of many "alternative" health practitioners are often effective or thought to be effective. It would also explain why pills or procedures used by traditional medicine work until they are shown to be worthless.

Forty years ago, a young Seattle cardiologist named Leonard Cobb conducted a unique trial of a procedure then commonly used for angina, in which doctors made small incisions in the chest and tied knots in two arteries to try to increase blood flow to the heart. It was a popular technique -- 90 percent of patients reported that it helped -- but when Cobb compared it with placebo surgery in which he made incisions but did not tie off the arteries, the sham operations proved just as successful. The procedure, known as internal mammary ligation, was soon abandoned ("The Placebo Prescription" by Margaret Talbot, New York Times Magazine, January 9, 2000).\*

Whether the placebo effect is mainly psychological, or misunderstood spontaneous healing, or due to a process characterized by showing care and attention, or due to some combination of all three may not be known with complete confidence. But the powerful effect of the placebo is not in doubt.

Placebo Effectiveness

H. K. Beecher evaluated over two dozen studies and calculated that about one-third of those in the studies improved due to the placebo effect ("The Powerful Placebo," 1955). Other studies calculate the placebo effect as being even greater than Beecher claimed. For example, studies have shown that placebos are

effective in 50 or 60 percent of subjects with certain conditions, e.g., "pain, depression, some heart ailments, gastric ulcers and other stomach complaints."\* And, as effective as the new psychotropic drugs seem to be in the treatment of various brain disorders, some researchers maintain that there is not adequate evidence from studies to prove that the new drugs are more effective than placebos.

Placebos have even been shown to cause unpleasant side-effects. There are even reports of people becoming addicted to placebos.

### The Ethical Dilemma

The power of the placebo effect has led to an ethical dilemma. One should not deceive other people, but one should relieve the pain and suffering of one's patients. Should one use deception to benefit one's patients? Is it unethical for a doctor to knowingly prescribe a placebo without informing the patient? If informing the patient reduces the effectiveness of the placebo, is some sort of deception warranted in order to benefit the patient? Some doctors think it is justified to use a placebo in those types of cases where a strong placebo effect has been shown and where distress is an aggravating factor.\* Others think it is always wrong to deceive the patient and that informed consent requires that the patient be told that a treatment is a placebo treatment. Others, especially "alternative" medicine practitioners, don't even want to know whether a treatment is a placebo or not. Their attitude is that as long as the treatment is effective, who cares if it a placebo?

### Are Placebos Dangerous?

While skeptics may reject faith, prayer and "alternative" medical practices such as bioharmonics, chiropractic and homeopathy, such practices may not be without their salutary effects. Clearly, they can't cure cancer or repair a punctured lung, but they might prolong life by giving hope and relieving distress, and by interacting with the patient in a caring, attentive way. However, to those who say "what difference does it make why something works, as long as it works" I reply that it is likely that there is something which works even better, something for the other two-thirds or one-half of humanity who, for whatever reason, cannot be cured or helped by placebos. Furthermore, placebos may not always be beneficial or harmless. In addition to adverse side-effects, mentioned above, John Dodes notes that

Patients can become dependent on nonscientific practitioners who employ placebo therapies. Such patients may be led to believe they're suffering from imagined "reactive" hypoglycemia, nonexistent allergies and yeast infections, dental filling amalgam "toxicity," or that they're under the power of Qi or extraterrestrials. And patients can be led to believe that diseases are only amenable to a specific type of treatment from a specific practitioner (The Mysterious Placebo by John E. Dodes, Skeptical Inquirer, Jan/Feb 1997).

In other words, the placebo can be an open-door to quackery.

Finally, the hope given by many "alternative" practitioners is a false hope. It is true that the caring, humane treatment of a dying person may prolong the person's life and may improve the quality of whatever life is left for the patient. But to give parents hope that their little girl with the brain tumor "might" respond to antineoplaston treatment, survive and grow up to be a healthy teenager and adult, when it is known that the likelihood of the scenario playing out is about zero, seems cruel and inhumane. The constant attention and treatment might help the child live and suffer longer, and the parents might be forever grateful for the extra time they had with their beloved child, but in the long run such treatment amounts to abuse of the defenseless.

On the other hand, if an adult, who is dying of something like pancreatic cancer and has been given no hope of recovery by traditional medical practitioners, should desire to be treated with antineoplastons in a clinical setting where hope and care are more abundant than success or knowledge, it would seem cruel and inhumane to deny him. We have no obligation to provide such treatment, but if it is available and he can afford it, do we really have any business in interfering? We may think such a man is foolish and is only wasting his money because he is desperate. We may think that those who provide such questionable treatments are quacks and are cruelly filling people with false hope. We may think that it is nothing but the placebo effect that is at work in the patient's support of continuing the treatment. But until it can be shown beyond any reasonable doubt that the treatment is fraudulent, potentially harmful or completely and utterly worthless, do we have a right to prevent it from being provided?

On Mondays, Wednesdays and Fridays, I say "yes." On Tuesdays, Thursdays and Saturdays, I say "no." On Sundays, I say "I don't know."

### Plant Perception

(a.k.a. primary perception or the Backster effect)

Plants are living things with cellulose cell walls, lacking nervous or sensory organs. Animals do not have cellulose cell walls but do have nervous or sensory organs.

It would never occur to a plant or animal physiologist to test plants for consciousness or ESP because their knowledge would be sufficient to rule out the possibility of plants having feelings or perceptions on the order of human feeling or perception. In layman's terms, plants don't have brains or anything similar to brains.

However, a person completely ignorant of plant and animal science has not only tested plants for perception and feeling, he claims that he has scientific proof that plants experience a wide range of emotions and thoughts. He also claims that plants can read human minds. His name is Cleve Backster and he published his research in 1968 in the *International Journal of Parapsychology* ("Evidence of a Primary Perception in Plant Life," 10, 1968).

Backster's claims were refuted by Horowitz, Lewis, and Gasteiger (1975) and Kmetz (1977). Kmetz summarized the case against Backster in an article for the *Skeptical Inquirer* in 1978. Backster had not used proper controls in doing his study. When controls were used, no detection of plant reaction to thoughts or threats could be found. These researchers found that the cause of the polygraph contours could have been due to a number of factors, including static electricity, movement in the room, changes in humidity, etc.

Nevertheless, Backster has become the darling of several occult, parapsychological and pseudoscientific notions. His work has been cited in defense of dowsing,\* various forms of "energy" healing,\* remote viewing,\* and the Silva mind control program (now known as the Silva method). In 1995, Backster was invited to address the Silva International Convention in Laredo, Texas. Nearly thirty years after his original "discovery," he is still telling the same story. It is a very revealing story and worth repeating. It shows his curious nature, as well as his apparent ignorance of the dangers of confirmation bias and self-deception. Backster clearly does not understand why scientists use controls in causal studies.

#### The "Lab" & The Eureka! Experience

Backster tells us that it was on February 2, 1966, in his "lab" in New York City that he did his first plant experiment. His "lab" was not a science lab. In fact, it wasn't much of a lab at all in the beginning. It was just a place where he conducted training in the use of the polygraph. There was a plant in the room. He recalls the following:

For whatever reason, it occurred to me that it would be interesting to see how long it took the water to get from the root area of this plant, all the way up this long trunk and out and down to the leaves.

After doing a saturation watering of the plant, I thought, "Well gee whiz, I've got a lot of polygraph equipment around; let me hook the galvanic skin response section of the polygraph onto the leaf.

The galvanic skin response (GSR) section of the polygraph measures the resistance of the skin to a small electrical current. Defenders of the polygraph think that galvanic skin responses are related to anxiety, and therefore to truthfulness. The theory is that when a person lies they are anxious and the amount of sweat increases slightly but measurably. As sweat increases the resistance to electrical current decreases. Clearly, Backster is a very curious individual. A less inquisitive person would probably not care how long it would take water to get from the root to the leaves in an office plant. Not only did Backster care but he put his polygraph equipment to use as a measuring device. He reasoned as follows:

I felt that as the contaminated water came up the trunk and down into the leaf that the leaf becoming more saturated and a better conductor it would give me the rising time of the water....I would be able to get that on the polygraph chart tracing.

Why would the polygraph indicate this? Because, he says, he was using a "whetstone bridge circuit that is designed to measure resistance changes." Presumably, resistance changes would be picked up by the polygraph as the water reached the leaf. He predicted that the resistance would slowly drop and the tracings on his polygraph paper would rise as the water reached the leaf. Instead, the opposite happened, which, he says, "amazed me a little bit."

Apparently, he moved the electrodes and saw that the contour of the polygraph chart was "the contour of a human being tested, reacting when you are asking a question that could get them in trouble." Backster claims that he then gave up his interest in measuring how long it takes water to get from the roots to the leaves of his plant. He says he believed that the plant was trying "to show me people-like reactions." He claims his next thought was: "What can I do that will be a threat to the well-being of the plant, similar to

the fact that a relevant question regarding a crime could be a threat to a person taking a polygraph test if they're lying?" This truly is amazing. The contour of the graph triggered in him an immediate identification of the plant with one of his subjects. Until that moment, apparently, Backster had never suspected that the plants in his office were just like people and would respond similarly. Why he thought of threatening the plant, isn't quite clear. I doubt that he threatened his human subjects. It also is not quite clear why the response to a threat to one's well-being would result in the same kind of response as being caught in a lie. At least Backster seems not to have considered seriously the notion that the plant might try to deceive him.

Backster says he tried for 13 minutes and 55 seconds to get a reaction out of the plant by doing such things as dipping a leaf in warm coffee, but he got no response. A less devoted inquisitor might have given up and gone home at this point, but not Backster because he reasoned that the plant seemed like it was bored. Then, he had his Eureka! experience: "I know what I am going to do: I am going to burn that plant leaf, that very leaf that's attached to the polygraph." Now, why he would burn the leaf isn't clear, since burning it would (a) eliminate its moisture, making measurement of galvanic response impossible, and (b) it might damage his equipment attached to the leaf. Anyway, he tells us that there was a problem with carrying out his plan: he didn't have any matches. He claims, however, that while standing there some five feet from the plant the polygraph "went into a wild agitation." Rather than conclude that maybe the water finally got to the leaf or some other natural event was causing the polygraph needle movements, Backster became convinced that the plant was reading his mind and was reacting to his intent to burn it. This is indeed an interesting inference to make at this point. He gives no indication that he even considered that there might be other possible explanations for the movement of his polygraph. This may strike some readers as a good thing, that a gifted mind immediately grasps the truth. But actually this is a bad thing because your intuition could be wrong. What is very curious is that after more than thirty years of experiments, there is still no evidence that Backster and his many supporters see the importance of using controls in their studies of alleged plant perception.

Anyway, to return to the original experiment: Backster admits that he committed a bit of petty larceny in the name of science: he went to another office, went into a secretary's desk drawer and retrieved some matches. When he got back to his experiment, he lit a match, but careful and observant scientist that he was, he realized that the machine was so agitated he wouldn't be able to measure any additional agitation. So, he left the room and when he returned "the thing just evened right out again, which really rounded it out and gave me a very, very high quality observation." What he meant by "a very, very high quality observation" is not clear. Backster's true genius is exhibited in his final remark on the remarkable experiment:

Now when my partner in the polygraph school we were running at the time came in, he was able to do the same thing also, as long as he intended to burn the plant leaf. If he pretended to burn the plant leaf, it wouldn't react.

It could tell the difference between pretending you are going to, and you are actually doing it, which is quite interesting in itself from a plant psychology standpoint -- not industrial plants that I am talking about.

Plant psychology? I think Backster invented it that night. Had he just a smattering of understanding regarding the importance of using controls for studies which try to establish causality, he might have proceeded differently. The first step is to clearly define what you are testing and what each step in the procedure consists of. Backster and his partner don't have a clear notion of the difference between intending to burn the plant and pretending to be intending to burn the plant. Next, it might have occurred to them that there might be a better way to measure electrical current in plants than using a polygraph. They might have consulted with some experts and set up an experiment with proper equipment. Once they clarified what they were testing and how they would test it, they might have done twenty runs with the secretary doing the intending or pretending, them not knowing which, and them collecting the polygraph data. They would tell a third party which runs indicated pretending and which runs indicated intending. The third party would compare their claims with the secretary's data. That third party would also make sure that the polygraphers wouldn't be able to see what the secretary was doing during the experiment, lest they be influenced by something in her behavior. Then, just to be sure that it wasn't some movement the secretary made when she intended to burn the plant that caused the polygraph reaction, she should be made to make exactly the same movements when she intended and when she pretended to burn the plant. He should have done several trials with several different plants. And he probably should not have watered his plant just before doing the experiment. He should have known that moisture or humidity changes would affect the GSR readings. The fact is that Backster has never done anything like a controlled experiment and is no closer today than he was in 1966 to understanding why his polygraph made the contours it did when it was attached to his plant. Backster's admirers can truthfully say that his experiment has been repeated thousands of times around the world. Unfortunately, repeatability justifies claiming an outcome is probably true only if the original experiment was done properly.

Sowing and Reaping

Backster's claims have been publicized and supported by several people with qualifications and knowledge equal to his own: journalist Peter Tompkins and gardener Christopher O. Bird authored *The Secret Life of Plants* published in 1989, a presentation of the work of Backster and other "scientists" which allegedly proves that plants perceive telepathically and experience emotions such as fear and love. Bird is the author of *Modern Vegetable Gardening* and Tompkins has several "secrets" books: *Secrets of the Great Pyramid* (1997), *The Secret Life of Nature: Living in Harmony With the Hidden World of Nature Spirits from Fairies to Quarks* (1997) and *Secrets of the Soil: New Solutions for Restoring Our Planet* (1998).

Another supporter and expositor of Backster's work is Robert B. Stone, Ph.D. and member of Mensa, author of *The Secret Life of Your Cells* published in 1994. Stone is also the author of the Silva Method (Jose Silva's mind control and self-healing program) and the Silva Method: *Unlocking the Genius Within*. Stone and Silva authored one book together: *You the Healer*. However, if one searches the literature of science, one searches in vain for support for the notion that plants are telepathic and feel emotions.

Despite the lack of scientific support for the notion of plant perception, the idea is accepted by many as not only true but as having been verified by numerous scientific studies! In fact, not only is the support for Backster's claims disproportionate to the evidence, the power of plants to understand human thought by "reading" our "bioenergetic fields" is known among parapsychologists as the Backster effect.\*

Typical of the testimonials in defense of Backster's claims are the following. Notice how they echo the claim that Backster's experiment has been duplicated many times by many different people. Notice, too, that like good storytellers these advocates embellish the tale with some interesting exaggerations. None of these testimonials, however, mentions the critical studies that both failed to verify Backster's claims and also explained why his studies were flawed.

Cleve Backster used a polygraph (lie-detector) to test plants, attaching electrodes to the leaves. By recording electrical impulses he found the plants to be extremely sensitive to his thoughts, particularly thoughts that threatened their well-being. Backster also observed a reaction in a plant when even the smallest cells were killed near it. He noted that they have a kind of memory, reacting to someone who earlier had done harm to another plant nearby: in a line-up of anonymous people the plant could pick out the one who had performed the act (John Van Mater, theosophist).\*

Cleve Backster was also famous, notorious in fact, and had been since about 1968 when he first claimed that plants have primary perceptions which can sense human thoughts and respond to them. This was the same as saying that PLANTS have sentient consciousness, are telepathic, and can process non-physical information. This, of course, absolutely shocked, angered and horrified scientists of all kinds, and Backster was pilloried in the media -- much to the enjoyment of hard-core parapsychologists who, back then, had nothing good to say about him.\* To help correct this dismal rejection of Backster, it wasn't until the late 1980s that neurobiologists discovered and confirmed that plants do possess "primary perceptions" because they have "rudimentary neural nets."\* [This claim from Ingo Swann is pure codswallop. Neurobiologists do not study plants and you will search in vain through the annals of neurobiological literature for verification of the Backster effect.]

....map dowsing has just as simple an explanation as on-site dowsing. Map dowsing seems to be related to what is sometimes called the "Backster Effect." Backster is a lie detector specialist and what he did was to attach a galvanic skin response device to the top leaf of a plant. This device measures the electrical resistance of the skin. He then watered the plant, fully expecting to measure how long it would take for the water to reach the leaf and change its resistance. Instead the lie detector immediately indicated, what would be a happy effect in humans. This puzzled him so he decided to traumatize the plant by burning, a leaf. The plant showed a fear response on the lie detector as soon as he had this thought. Backster's experiments have been duplicated thousands of times by many persons using many variations and have been well publicized on TV and in many books (Walt Woods, map dowser).\*

Backster's work in the late '60s and early '70s was an important impetus for the best selling *The Secret Life of Plants* by Peter Tompkins and Christopher Bird. In the '80s, his work was chronicled by Robert Stone in *The Secret Life of Your Cells*. His research journey started with the 1966 almost accidental rediscovery that plants are sentient and respond to the spontaneous emotions and strongly expressed intentions of relevant humans. (J. Chandra Bose\* of India had demonstrated a similar principle in the early part of the 20th century.) Using an instrument to measure galvanic skin responses (GSR), a part of his polygraph or lie detector stock-in-trade, Backster attempted to determine whether it would measure the moment of rehydration of a plant whose roots were freshly watered. It did not but to his surprise, the GSR meter registered his threat to burn the plant leaf when he spontaneously thought of the idea....

Over the last thirty years literally hundreds of experiments have proved the existence of this biocommunication known as the "Backster Effect." My own personal participation in one of these experiments left me without a doubt that a culture of yogurt in a shielded cage showed extraordinary

reactions to feeling that were stirred up in me and two female colleagues as we discussed controversial gender and power issues. Interestingly, the yogurt did not react to periods of intellectual discussion about the same issues; it only became agitated when our comments were charged with emotion (Paul Von Ward, MPA and M.S., researcher and writer in the fields of "consciousness and frontier science").\*

In 1969 Marcel [Joseph Vogel] gave a course in creativity for engineers at IBM. It was at this time that he read an article in Argosy magazine entitled "Do Plants Have Emotions?" about the work of polygraph expert Cleve Backster into the responsiveness of plants to human interaction. Despite initial rejection of the concept of human-plant communication, he decided to explore these strange claims.

He was able to duplicate the Backster effect of using plants as transducers for bio-energetic fields that the human mind releases, demonstrating that plants respond to thought. He used split leaf philodendrons connected to a Wheatstone Bridge that would compare a known resistance to an unknown resistance. He learned that when he released his breath slowly there was virtually no response from the plant. When he pulsed his breath through the nostrils, as he held a thought in mind, the plant would respond dramatically. It was also found that these fields, linked to the action of breath and thought, do not have a significant time domain to them. The responsiveness of the plants to thought was also the same whether eight inches away, eight feet, or eight thousand miles! Based on the results of the experiments the inverse square law does not apply to thought. This was the beginning of Marcel's transformation from being a purely rational scientist to becoming a spiritual or mystical scientist.

Basically it was found that plants respond more to the thought of being cut, burned, or torn than to the actual act. He discovered that if he tore a leaf from one plant a second plant would respond, but only if he was paying attention to it. The plants seemed to be mirroring his own mental responses. He concluded that the plants were acting like batteries, storing the energy of his thoughts and intentions. He said of these experiments: "I learned that there is energy connected with thought. Thought can be pulsed and the energy connected with it becomes coherent and has a laser-like power." (Rumi Da, purveyor of fine crystals).\*

In the seventies, a best-selling book called *The Secret Life of Plants* presented scientific research from around the world that explored plant intelligence. The chapter which made the biggest impression on me described a retired policeman in New York City, Cleve Backster, who trained people how to use lie detectors. As a lark, he hooked up his plants to a polygraph so he could monitor their responses.

One day, Backster approached his *Dracaena Massangeana* with a lighted match and acted as if he were going to burn it. Not only did the plant go wild on the graph but every other plant in the place did, too. He could hardly believe it. Continuing to experiment, he discovered that the plants responded to his thoughts even when he was miles away. One day, on the New Jersey Turnpike, he decided to let them know, through thought, that he was on his way home. When he arrived, he found that the plants had responded excitedly on the graph at the exact time he was communicating to them. Proximity was not a factor in their ability to sense him!

Everyone can develop this skill and ability. We all have it within us. All we have to do is acknowledge the possibility of it being true and then proceed with an open mind and heart (Judith Handlesman, spiritual gardener and vegetarian).\*

Clearly, Backster has his followers and they think he has done fundamental and extraordinary work in science. Why hasn't he been awarded his Nobel Prize? Why does nearly the entire scientific community ignore him? The answer should be obvious. Nevertheless, Backster continues his work at the Backster Research Center in San Diego, California, where he claims to be able to demonstrate that his plants respond to his loving thoughts and even obey his thought commands.\*

Ingo by jingo!

One of Backster's greatest admirers and defenders is remote viewing promoter Ingo Swann ("Remote Viewing - The Real Story"). Swann is the one quoted above who falsely claims that Backster's work was vindicated in the 1980s by neurobiologists when it was discovered that plants have neural networks. In 1971, according to Swann, Backster invited him to his plant lab and polygraph school. There Ingo claims he, too, made the polygraph needle hooked up to the plant "go haywire" when he thought of burning the plant with a match. He was able to repeat the event several times and then he couldn't get a response. Swann recalls the event and comes up with what he and Backster think must be the logical conclusion. Of course, neither one of them thinks they could be mistaken or deceived. It does not occur to either of them that they had better set up some controls.

"What does THAT mean," I asked. "You tell me." Then a very eerie thought occurred to me, so astonishing that it caused goosebumps. "Do you mean," I asked, "that it has LEARNED that I'm not serious about really burning its leaf? So that it now knows it need not be alarmed."

Backster smiled. "YOU said it, I didn't. Try another kind of harmful thought." So I thought of putting acid in the plant's pot. Bingo! But the same "learning curve" soon repeated itself. Now I already understood in my own "reality" that plants are sentient and telepathic, as all plant lovers know who talk to their plants. But that plants could LEARN to recognize between true and artificial human intent came as a thunderbolt! Among all this astonishment I came across the concept of the "learning curve" which ultimately was to play THE feature role in the development of remote viewing.

But Backster was moving on. "Do you think you could influence some kind of metal or chemical?" "I don't know how to influence anything. But I could try." So for several weeks I went to the Times Square lab to try to zap metals and chemicals -- and the march of what I was unknowingly being sucked into moved into October, 1971.\*

This kind of amateur approach to experiment and naive reinforcement of speculations as if they were facts established by incontrovertible evidence is typical of Backster and his supporters. A knowledgeable scientist would never be taken in by such rudimentary reasoning and speculation. But a scientifically ignorant person could easily be duped by these experiments.

the Backster effect and primitive religion

Jim Cranford is another defender of Backster, whom he sees as providing proof that animistic religions truly did involve communicating with vegetation.

Although similar experiments [to Backster's] have been repeated thousands of times, all over the world, for more than 15 years, we have failed to grasp the implications. Part of the problem is that Backster is not a "scientist" and those guys don't like to admit that anyone else knows anything. That's pride and arrogance at its worst, but not so unusual in the laboratory. Even the rest of us find it hard to believe that the "primitives" were actually communicating with their plants through rituals and sacrifice. We simply refuse to believe that there could be any "intelligence" around here but us, while we live in a world smarter than us at every turn. It is obvious that our collective view of primitive religion is in need of some revision.\*

At least Cranford recognizes that Backster is not a scientist. "Those guys" would require controls when they do causal studies.

Backster and Theosophy

Another advocate of Backster's ideas is theosophist John Van Mater, Jr., who thinks that Backster's work supports the notion that

...there is a life force, a cosmic energy surrounding living things, shared by all kingdoms including the human....Nature is a great brotherhood of beings, a symbiosis on many levels, most of it beyond our detection and ordinary understanding. The vegetable kingdom is an essential layer of the living planet's vitality or prana, helping to provide in its metabolism a breathing, intelligent organ that produces and regulates the atmosphere as well as transfers energy into the biosphere. Plants are also a link in the chain of beings, in which each kingdom or level needs the others in order to function and evolve. (See "Our Intelligent Companions, the Plants," John Van Mater, Jr., Sunrise magazine, April/May 1987 published by Theosophical University Press.)

Thus, Backster's shoddy science is brought in to support metaphysical notions to go along with his support for dowsing, energy healing, telepathy, remote viewing and who knows what else.

Scientific Support?

Although mainstream science has shunned Backster's claims about telepathic plants and their "primary perception," Earthpulse.com, a New Age UFO/Environmental site that sells "frontier science" books, allegedly found a botanist named Richard M. Klein from the University of Vermont to provide a blurb for *The Secret Life of Plants*.

If I can't 'get inside a plant' or 'feel emanations' from a plant and don't know anyone else who can, that doesn't detract one whit from the possibility that some people can and do....

Truer words were never spoke. However, a search of the University of Vermont's web site failed to find any member of the botany department or any other other department named Richard M. Klein. Maybe Mr. Klein has been abducted by aliens. Or perhaps he is working with Mr. Backster on how to properly conduct a double-blind controlled study. After all, Backster may have finally found a proper use for the polygraph.



\*Note 1: It is interesting that John Kmetz had a different reading of the media. Kmetz writes: "It is unfortunate that the popular press has taken Backster's experiments and presented the results to the public in such a way that many people now believe plants can do something that, in fact, they cannot. The press, for the most part, never mentions that articles on the Backster effect are based on observations of only seven plants. Perhaps they need to be reminded, again, that they are making exaggerated claims from an experiment that no one, including Backster, by his own refusal to do so, has been able to replicate."

\*Note 2: Sir Jagadis Chundra Bose was a Bengali scientist and admirer of the French vitalist Henri Bergson

### Pleiadians

The Pleiadians are alien beings from the star cluster in the constellation Taurus known as The Pleiades. Barbara Marciniak claims that the Pleiadians chose her to be their messenger. She reveals this in her channeled book, *Bringers of the Dawn*. According to Marciniak the message is: "If you can clear people of their personal information, they can go cosmic."

The real message? Over 280,000 copies in print at \$10.95 and another book, *Earth*, which sold 80,000 copies at \$12.95 in its first eight weeks of publication.

The message was not lost on Lia Shapiro, a.k.a. Lia Light, who claims the Pleiadians are also using her as a channel. Her book from the aliens on how to *Accelerate Your Evolution* will be available soon.

### Poltergeists

A ghost is the alleged spirit of a dead person. Ghosts are often depicted as haunting places, especially houses where murders have occurred. Why some murder victims would stick around for eternity to haunt a place, while others seem to evaporate is one of the great mysteries of existence better left to literary types to ponder. Most philosophers consider the concept of ghosts to be on par with that of fairies.

A poltergeist (literally, a noisy spirit) is a noisy ghost. Poltergeists make their presence known by rapping sounds and are considered by some to be the first "rap" artists. These are the ghosts who like to cause disturbances by doing such naughty things as throwing furniture or pots and pans around.

Most nations have a love of ghost stories, but the English seem to be especially fond of their ghosts.

### Polygraph ("Lie Detector")

"I don't know anything about lie detectors other than they scare the hell out of people."  
--Richard Nixon

A polygraph is an instrument that simultaneously records changes in physiological processes such as heartbeat, blood pressure, and respiration. The polygraph is used as a "lie detector" by police departments, the FBI, the CIA, the KGB, the KKK, federal and state governments, and numerous private agencies. The underlying theory of the polygraph is that when people lie they also get measurably nervous about lying. The heartbeat increases, blood pressure goes up, breathing rhythms change, perspiration increases, etc. A baseline for these physiological characteristics is established by asking the subject questions whose answers the investigator knows. Deviation from the baseline for truthfulness is taken as sign of lying.

There are three basic approaches to the polygraph test:

The Control Question Test (CCT). This test compares the physiological response to relevant questions about the crime with the response to questions relating to possible prior misdeeds. "This test is often used to determine whether certain criminal suspects should be prosecuted or classified as uninvolved in the crime" (APA).

The Directed Lie Test (DLT). This test tries to detect lying by comparing physiological responses when the subject is told to deliberately lie and to responses when they tell the truth.

The Guilty Knowledge Test (GKT). This test compares physiological responses to multiple-choice type questions about the crime, one choice of which contains information only the crime investigators and the criminal would know about.

Psychologists do not think either the CCT or the DLT is scientifically sound, but a majority surveyed by the American Psychological Association think that the Guilty Knowledge Test is based on sound scientific theory and consider it "a promising forensic tool." However, they "would not advocate its admissibility [in court] in the absence of additional research with real-life criminal cases." One major problem with this test is that it has no controls. Also, unless the investigators have several pieces of insider information to use in their questioning, they run the risk of making a hasty conclusion based on just one or two "deviant" responses. There may be many reasons why a subject would respond differently to the "insider" choice than he or she does to the other choices for a particular question. Furthermore, not responding differently to the "insider" choices for several questions should not be taken as proof the subject is innocent. He or she may be a sociopath, a psychopath, a simply a good liar.

Is there any evidence that the polygraph is really able to detect lies? Well, the machine measures changes in blood pressure, breath rate and respiration rate. When a person lies it is assumed that these physiological changes occur in such a way that a trained expert can detect whether or not the person is lying. Is there a scientific formula or law which establishes a regular correlation between such physiological changes and lying? No. Is there any scientific evidence that polygraph experts can detect lies using their machine at a significantly better rate than non-experts using other methods? No. There are no machines and no experts that can detect with a high degree of accuracy when people, selected randomly, are lying and when they are telling the truth.

Some people, such as Senator Oren Hatch, don't trust the polygraph machine, even if used by an expert like Paul Minor who trained FBI agents in their use. Anita Hill passed a polygraph test administered by Minor who declared she was telling the truth about Clarence Thomas. Hatch declared that someone with a delusional disorder could pass the test if the liar really thought she was telling the truth. Hatch may be right, but the ability of sociopaths and the deluded to pass a polygraph test is not the reason such machines cannot accurately detect lies with accuracy any greater than other methods of lie detection.

The reason the polygraph is not a lie detector is because what it measures--changes in heartbeat, blood pressure, and respiration--can be caused by many things. Nervousness, anger, sadness, embarrassment and fear can all be causal factors in altering one's heart rate, blood pressure or respiration rate. Having to go to the bathroom can also be causative. There are also a number of medical conditions such as colds, headaches, constipation, or neurological and muscular problems which can cause the physiological changes measured by the polygraph. The claim that an expert can tell when the changes are due to a lie and when they are due to other factors has never been proven. Even if the device measures nervousness, one cannot be sure that the cause of the nervousness is fear of being caught in a lie. Some people may fear that the machine will indicate they are lying when they are telling the truth and that they will be falsely accused of lying.

In California and many other states, the results of polygraph tests are inadmissible as evidence in a court of law. This may be because polygraph tests are known to be unreliable, or it may be because what little benefit may be derived from using the polygraph is far outweighed by the potential for significant abuse by the police. The test can easily be used to invade a person's privacy or to issue a high-tech browbeating of suspects. Skeptics consider evidence from polygraphs no more reliable than testimony evoked under hypnosis, which is also not allowed in a court of law in California and many other states.

In 1998, the U.S. Supreme Court argued that Military Rule of Evidence 707, which makes polygraph evidence inadmissible in court-martial proceedings, does not unconstitutionally abridge the right of accused members of the military to present a defense (United States, Petitioner v. Edward G. Scheffer).

The American Civil Liberties Union strongly supported the passage of the Employee Polygraph Protection Act of 1988 (EPPA) which outlaws the use of the polygraph "for the purpose of rendering a diagnostic opinion regarding the honesty or dishonesty of an individual." Actually, the EPPA doesn't really outlaw the polygraph across the board. Federal, state and local governments can still use the polygraph. The federal government can give polygraph tests to government contractors involved in national security projects. In the private sector, security and pharmaceutical firms can still use the polygraph on current or prospective employees. Furthermore, any employer can administer polygraph tests

...in connection with an ongoing investigation of an economic loss or injury to his/her business on these conditions: The employee under suspicion must have had access to the property, and the employer must state in writing the basis for a reasonable suspicion that the employee was guilty (ACLU).

The ACLU supported the EPPA not only because of the lack of evidence for the accuracy of the polygraph, but because of abuses related with its administration, including, but not limited to, the invasion of privacy.

For example, in order to establish "normal" physiological reactions of the person being tested, "lie detector" examiners ask questions that purposely embarrass, frighten and humiliate workers. An ACLU lawsuit in 1987 revealed that state employees in North Carolina were routinely asked to answer such questions as "When was the last time you unintentionally exposed yourself after drinking?" and "Who was

the last child that got you sexy?" Polygraphs have been used by unscrupulous employers to harass union organizers and whistle-blowers, to coerce employees into "confessing" infractions they did not commit, and to falsely implicate fellow employees (ACLU).

Why would so many government and law enforcement agencies, and so many private sector employers, want to use the polygraph if the scientific community is not generally convinced of their validity? Is it just wishful thinking? Do the users of the polygraph want to believe there is a quick and dirty test to determine who's lying and who's not, so they blind themselves to the lack of evidence? Perhaps, but there are other factors as well, such as the esoteric technology factor. The polygraph machine looks like a sophisticated, space-age device of modern technology. It can be administered correctly only by experts trained in its arcane ways. Non-experts are at the mercy of the high-tech, specially trained wizards who alone can deliver the prize: a decision as to who is lying and who is not.

Another reason for the polygraph's popularity is the pragmatic fallacy factor: it works! Case after case can be used to exemplify that the polygraph works. There are the cases of those who failed the test and whose lying was corroborated by other evidence. There are the cases of those who, seeing they are failing the test, suddenly confess. What is the evidence that the rate of correct identification of lying corroborated by extrinsic evidence is greater than the rate of identification of lying by non-technological means? There isn't any. The proofs are anecdotal or based on fallacious reasoning such as thinking that a correlation proves a causal connection.

On the other hand, it is possible that one of the main reasons so many government, law enforcement and private sector employers want to use polygraphs is because they think the test will frighten away liars and cheats who are seeking jobs, or it will frighten confessions out of those accused of wrongdoing. In other words, the users of the machine don't really believe it can detect lies, but they know that the people they administer it to think the machine can catch them in a lie. So, the result is the same as if the test really worked: they don't hire the liar/cheat and they catch the dishonest employee.

## Ponzi Schemes

### Pyramid Schemes, Chain Letters and Ponzi Schemes

A pyramid scheme is a fraudulent system of making money which requires an endless stream of recruits for success. Recruits (a) give money to recruiters and (b) enlist fresh recruits to give them money.

A pyramid scheme is called a pyramid scheme because of the shape of a pyramid: a three dimensional triangle. If a pyramid were started by a human being at the top with just 10 people beneath him, and 100 beneath them, and 1000 beneath them, etc., the pyramid would involve everyone on earth in just ten layers of people with one con man on top. The human pyramid would be about 60 feet high and the bottom layer would have more than 4.5 billion people!

A diagram might help see this:

1  
10  
100  
1,000  
10,000  
100,000  
1,000,000  
10,000,000  
100,000,000  
1,000,000,000  
10,000,000,000

Thus, in very short order, 10 recruiting 10 and so on would reach 10 billion, well in excess of the earth's population. If the entire population of earth were 5 billion and we all got involved in a pyramid scheme, the bottom layer would consist of about 90 percent of the planet, i.e., about 4.5 billion people. Thus, for 500 million people to be WINNERS, 4.5 billion must be LOSERS.

In a straightforward pyramid scheme, a recruit is asked to give a sum of money, say \$100, to a recruiter. The new recruit then enlists, say, 10 more recruits, to give up \$100 each. In the simplest example, the recruiter keeps all the money he gets from his recruits. In our example, each recruit gives up \$100 in exchange for \$900 (\$100 from each of his 10 recruits minus the \$100 he gave his own recruiter). In order for no one to lose money, the recruiting must go on forever. On a planet with a limited number of people, even if the planet is as large as Earth and has almost 6 billion potential recruits, one runs out of new recruits rather quickly.

Thus, the result of all these schemes is inevitable: at best, a few people walk away with a lot of money, while most recruits lose whatever money they put into the scheme. In fact, the only way anybody can make money through a pyramid scheme or chain letter is if other people are defrauded into giving money upon a promise of getting something in return when it will be impossible for them to get anything at all in return. That is to say, in plain English, these schemes always constitute fraud. They use deception to get money. That is why they are illegal. They are not illegal because they involve recruiting people to recruit other people to recruit other people. That is perfectly legal and is done to some degree in many legitimate businesses. They are not illegal because they involve giving money to people. It is perfectly legal to give money to people. They are illegal because they involve deceiving people in order to get money from them: that is the legal meaning of fraud.

In actual fact, however, no pyramid scheme will ever work this way because the scheme will never get the number of recruits we've been speculating about. All pyramid schemes will begin to die when the later recruits don't sign on in numbers large enough to pay off the earlier recruits. There will always be enough people who will smell the scheme out. There will always be too many people who will say "if it sounds too good to be true that's probably because it is." There may even be a good number of people who will realize that though one person recruiting ten doesn't sound like much, it quickly adds up to unrealistic and improbable numbers. Also, all it takes is one person to stop the whole thing, either by adamantly persuading recruiters of their indecency, or by reporting them to the police.

### Greed and Wishful Thinking

Pyramid schemes are popular because people are greedy and greed can do wonders to a person's thinking. For a person desiring to make a lot of money from a small investment in a short amount of time, wishful thinking often takes over where critical thinking should step in. Wishes become facts. Skeptics become idiots for not getting on board. Desires become reality. Asking questions seems rude and unfriendly. Scam artists know how greed works and all it takes is one con man to get the thing started.

With the odds so stacked against a person, why would one gamble on a pyramid scheme? Greed is only part of the answer. Most pyramid people don't envision themselves anywhere near the bottom layer of the pyramid. Even the most greedy person on the planet would probably see that if one is near the bottom layer of recruits it will be very hard to get new recruits. They have to see themselves near the top in order to envision the immense wealth from minimal effort that is going to come their way.

Furthermore, if I hope to get people involved in a pyramid scheme, the first thing I must do is convince them they are not getting involved in a pyramid scheme. They may know they are illegal. Or they may realize that pyramid schemes are a losing proposition for at least 90 percent of those who get involved. So, I tell them they are joining a club. I give the club a nice name such as The Friendly Investors Club (FIC). I reassure them that the FIC is approved by the IRS and run by a CPA with a Ph.D. who is not an ASS. If I'm really good, my recruits will believe me and the police officers, secretaries, teachers, ministers, etc. whom I recruit. These well-respected, intelligent, honest people will pass on this line to others. If I am really, really good, I will have convinced my recruits not only that they are getting into a legitimate and lucrative Club, but that any earnings are tax-free. I would indicate to recruits that as long as their take in the scheme is less than \$10,000, it wouldn't be taxable because gifts aren't taxable until they exceed \$10,000. I would convince the recruits that, for legal purposes, they would be giving money away and others would be giving money to them.

### Even The Police Like Pyramid Schemes

In 1995-96, at least 67 employees of the Sacramento Police Department, including 45 officers, were investigated for their alleged involvement in a pyramid scheme (Sacramento Bee 10/28/95, 11/1/95 and 11/15 & 16/96). The scheme was similar to five others that had been operating in southern California, also involving police officers and support staff. The main suspect in the Sacramento scheme was a police captain's wife. The chief of police said that he would try to fire at least seven officers and discipline 60 other police department employees. Nine officers were placed on administrative leave and relieved of their guns and badges. According to a prosecutor, the scheme involved more than 200 people. However, only three of the accused faced criminal misdemeanor charges. Reportedly, some in the scheme made tens of thousands of dollars. The minimum amount lost by those who were on the bottom of the pyramid was \$500.

The police pyramid schemes are called "investment clubs" and have attractive names such as "The Friendship Investment Club" and "A Gift Network." They're sold to investors with the assurance that they are perfectly legal, approved by the IRS or a CPA, and that they definitely are not a pyramid scheme.

The Sacramento scheme was called The Freedom Club or something like that. And it was hyped by a police officer as being legal because it required people to sign a waiver claiming that they were making an unconditional gift to the Freedom Club. A local news reporter, Mike Boyd, asked an IRS agent if this waiver

meant the Freedom Club wasn't a pyramid scheme. The IRS agent said that since the people who were signing the waiver expected to get back money for the money they were allegedly making a gift of, the money wasn't really a gift. An attorney, also interviewed by Boyd, agreed that just signing a paper saying you're making an unconditional gift didn't make it so if your intention was not to make an unconditional gift. (Receiving gifts, of course, is legal, and tax free if under \$10,000.) The cops and their recruits for the Freedom Club put in at least \$500 each and expected something like \$4,000 in return for their phony gifts, according to Boyd. The Bee reported that sources told them that some Police Department personnel got more than \$10,000 out of the scheme. The WINNERS in the scheme got their money from "gifts" to the Freedom Club from those who later joined the Club. Such schemes continue, if the participants are not caught, until there are not enough new recruits to pay off the old ones. That is, they would continue until there were a good number of people who had "given" away \$500 and got nothing in return because the scheme folded. The scheme would have to fold eventually, because there can't be an endless stream of recruits.

The Sacramento Police Pyramid scheme involved what we might call "pyramid pods". An organizer (Numero Uno) would start the pod by getting six others to join as organizers. Presumably, the six would be ranked depending on when they were recruited. The organizers pay nothing to join the pod but together they must recruit enough people into the pod to buy eight spots at the bottom of their pyramid. Each spot costs \$500. Numero Uno pockets the \$4,000. The pod splits into two pods of seven people (or spots) each, with a new Numero Uno in each pod (and a new number 2, 3, 4, 5, 6 and 7). Each pyramid pod recruits more people at \$500 for each of eight spots in the pyramid. The two new Numero Unos take their \$4,000 each and the two pods split into 4 pods and those 4 into 16, ad infinitum. To make even more money, some joined more than one pod.

How many in this scheme told the new recruits that 6.7% of those who join will get a 700% return on their investment (\$3,500 on a \$500 investment) as long as 93.3% get nothing? How many advised their recruits to "get in early"?

To have police involved adds a special dimension to this pyramid scheme because (a) officers have ranks and can use their rank for recruiting leverage over those beneath them; (b) officers and ex-officers have positions of authority and trust which will influence potential recruits, especially young people; and (c) police personnel are supposed to enforce the law; when the law enforcers become lawbreakers and encourage others to break the law for monetary gain, respect for law and law officers diminishes.

#### Chain Letters

In the money chain letter, the recruiter sends the new recruits a letter with a list of names on it, including the recruiter's name at the bottom of the list. The recruits are asked to send money to the person whose name is at the top of the list and to add his or her name to the bottom. Money is made solely by getting new recruits to join the chain, adding their names to the list and recruiting others to do the same. In theory, eventually each recruit's name will be at the top of millions of lists and receive millions of dollars. In practice, most people will receive nothing. Anyone can break the chain, thus depriving all those on the list of any possible "earnings." But, even if no one broke the chain, 95% of those who sent money out will get nothing in return.

If pyramid schemes are a bad investment, how about chain letters? The principle is basically the same, except that with chain letters, you don't have to deceive yourself as much as with pyramid schemes. You probably know up front that the scheme depends on duping friends into giving money to strangers in exchange for the promise of riches coming to you later on from other strangers. You get a letter with a list of names on it. You are told to send money to the name at the top, delete that name and add your name to the bottom, and recruit 5 or 10 people to do the same by sending them the letter with your name at the bottom.

#### Ponzi Schemes

A Ponzi scheme, named after Charles Ponzi who defrauded people in the 1920s using the method, involves getting people to invest in something for a guaranteed rate of return and using the money of later investors to pay off the earlier ones. Who will make money from such a scheme? Those who start it and those who get in early. Does anyone really make money from these schemes. They must, or they would have died off long ago. How? If I start the scheme, I just skim off the top and pay off enough people to make it look like it's working, even if that means buying in again at the bottom. I might even be stupid enough to think that I can keep the scheme going when the recruiting has dried up. I can try to get money quickly by some other scheme. For example, I can take a big chunk of money and go to Las Vegas and hope to hit it big. This happened to a fellow I played Little League Baseball with long before we both grew up. He took his investors' money to the craps table where he "invested" their funds. Unfortunately, his "investments" didn't pay off and he went to prison.

I don't know how many people lost money "investing" in my Little League buddy's scheme, but it could not have been as bad as what happened in Romania in 1993 or what happened in Albania in 1997.\* In both cases, thousands of people with little opportunity for investment of capital were swindled by pyramid scheme operators. Romania's newspapers claimed that millions of Romanians lost their life savings in a scheme called Caritas. Reports from Albania claim that hundreds of thousands of Albanians "have invested their life savings or money they earned working abroad" in one of several outlawed pyramid schemes. "The schemes offered very high interest rates, with the first investors paid from later investors' deposits. They eventually failed when no new investors came in" ("Investment-scam protest turns violent in Albania," by Merita Dhimgjoka, Sacramento Bee, Feb. 6, 1977). Any such scheme is doomed to fail because there cannot be an endless line of "investors." Only greed and self-deception are endless.

## Positivism

### Logical Positivism (a.k.a. Logical Empiricism)

Logical positivism is a philosophical attitude which holds, among other things, that metaphysics, more or less, is bunk. According to the positivists' "verifiability principle," a statement is meaningful if and only if it can be proved true or false, at least in principle, by means of experience. Metaphysical statements cannot be proved by means of experience. Therefore, metaphysical statements are meaningless.

Critics of logical positivism have pointed out that since the verifiability principle itself cannot be proved true or false by means of experience, it is therefore meaningless.

## Post Hoc Fallacy

The post hoc ergo propter hoc (after this therefore because of this) fallacy is based upon the mistaken notion that simply because one thing happens after another, the first event was a cause of the second event. Post hoc reasoning is the basis for many superstitions and erroneous beliefs.

Many events follow sequential patterns without being causally related. For example, you have a cold, so you drink fluids and two weeks later your cold goes away. You have a headache so you stand on your head and six hours later your headache goes away. You put acne medication on a pimple and three weeks later the pimple goes away. You perform some task exceptionally well after forgetting to bathe, so the next time you have to perform the same task you don't bathe. A solar eclipse occurs so you beat your drums to make the gods spit back the sun. The sun returns, proving to you the efficacy of your action.

You use your dowsing stick and then you find water. You imagine heads coming up on a coin toss and heads comes up. You rub your lucky charm and what you wish for comes true. You lose your lucky charm and you strike out six times. You have a "vision" that a body is going to be found near water or in a field and later a body is found near water or in a field. You have a dream that Aunt Daisy's cow dies and the cow dies.

To establish the probability of a causal connection between two events, controls must be established to rule out other factors such as chance or some unknown causal factor. For example, Quadro Corporation makes and sells for \$955 the QRS 250G "Detector" that is supposed to find drugs, arms, golf balls and almost anything else. To test the device in a controlled study would be quite easy, but using it and finding some drugs or some golf balls would not count as proof. Testimonials from the corporation president would not count as proof. Anecdotes from law enforcement officers who tried it and swear by it, don't count as proof. A controlled study, comparing success rates with true Detectors and fake ones, would count. Testing the device over a rigged field with buried drugs or golf balls placed there by an independent researcher would count.

Sequences don't establish a probability of causality any more than correlations do. Co-incidences happen. Occurring after an event is not sufficient to establish that the prior event caused the later one.

## Pragmatic Fallacy

The pragmatic fallacy is committed when one argues that something is true because of the practical benefits of believing that it is true. In fact, the utility of a belief is independent of its truth-value.

The pragmatic fallacy is common in "alternative" health claims and is often based upon post hoc reasoning. For example, one has a sore back, wears the new magnetic or takionic belt, finds relief soon

afterwards, and declares that the magic belt caused the pain to go away. How does one know this? Because it works!

There is a common retort to the skeptic who points out that customer satisfaction is irrelevant to whether the device, medicine, or therapy in question really is a significant causal factor in some outcome. Who cares why it works, as long as it works? You can argue about the theory as to why it works, but you can't argue about the customer satisfaction. They really feel better after using the product. That's all that matters.

It isn't all that matters. Testimonials are not a substitute for scientific studies, which are done to make sure that we are not deceiving ourselves about what appears to be true. It is especially necessary to do controlled studies of alleged pain relievers to avoid self-deception due to the placebo effect, post hoc reasoning or the regressive fallacy. We may not want to question too deeply the felt relief, but we must question the cause of that relief.

For example, back pain comes and goes; it has its peaks and valleys. Relief is usually sought when the pain is at its worst. The pain in most cases would begin to lessen after it has peaked. This often occurs soon after one has tried out some new pill, therapy, or device. One assumes that since the pain relief came after the use of the new treatment that it was the treatment which caused the pain to lessen. However, unless the treatment has been scientifically tested so that its causal efficacy is already known, the assumption is questionable.

It is easy to understand why someone with "terminal" cancer who seeks out an "alternative" treatment and finds the cancer goes into remission soon afterwards would attribute miraculous causal efficacy to the "alternative" treatment. However, if the "alternative" treatment is not really the cause of the remission, then others who seek the treatment will be filled with false hope. Of course, those patients who try the same treatment but who die anyway are not around to tell their story. Their surviving loved ones may even claim that the only reason the treatment did not work was because the patient came to it too late. The only way to know for sure whether the treatment has causal efficacy is to study its application under controlled conditions. Testimonials regarding how well the treatment works may be heartfelt, but they can be dangerously misleading.

#### Prana

Prana is the all-pervading vital energy of the universe, according to Hinduism. It is the Indian version of ch'i.

#### Precognition

Precognition is psychic knowledge of something in advance of its occurrence.

#### Princeton Engineering Anomalies Research (PEAR)

The Princeton Engineering Anomalies Research (PEAR) is the brainchild of Robert G. Jahn who, in 1979 when he was Dean of the School of Engineering and Applied Science at Princeton University, claimed he wanted "to pursue rigorous scientific study of the interaction of human consciousness with sensitive physical devices, systems, and processes common to contemporary engineering practice." In short, he really wanted to be a parapsychologist and test psychokinesis. Not so unbelievably, he has found several others at Princeton who also were tired of humdrum work in the humanities, social sciences, engineering and physics, and have joined the quest to prove that the mind alone can alter matter.

Jahn, six of his buddies, and PEAR even have a patent (US5830064) on a "Apparatus and method for distinguishing events which collectively exceed chance expectations and thereby controlling an output." This patent is based upon their experiments where human operators try to use their minds to influence a variety of mechanical, optical, acoustical, and fluid devices. In short, the PEAR people are doing what many drivers do when they try to use their thoughts to make a red light turn green.

PEAR claims to have gotten results that can't be due to chance and "can only be attributed to the influence of the human operators" (emphasis added). This is an extraordinary claim, especially coming from such scholars at such a distinguished institution. I would think it would be impossible to rule out all of the following explanations for such statistics not likely due to chance:

#### Fraud

Errors In Calibration  
Unconscious Cheating  
Errors In Calculation  
Software Errors  
Self-Deception  
Chance

Of course, they could be hedging here. After all, fraud, unconscious cheating, errors in calculation, software errors and self-deception could be considered as influence of human operators.

The PEAR people are so convinced of the breakthrough nature of their work that they have incorporated as Mindsong Inc. They claim their corporation "is developing a range of breakthrough products and research tools based on a provocative new technology -- proprietary microelectronics which are responsive to the inner states of living systems." One of their breakthrough products is some software for \$55.95 "that allows you to influence, with your mind, which of two images will be displayed on your computer screen." They also sell a device for \$425 that lets you do your own testing of mental influence of randomized outputs. They are also working on a kind of biofeedback device. Yawn.

Prophecy

Oracles (Prophecies and Revelations)

An oracle is a shrine or temple sanctuary consecrated to the worship and consultation of a prophetic god. The person who transmits prophecies from a deity at such a shrine is also called an oracle, as is the prophecy or revelation itself.

Oracles are usually presented in the form of an enigmatic or ambiguous statement or allegory. "Socrates is the wisest of men." "A great king will achieve victory." Such statements can have several meanings, thus affording a greater chance of being interpreted in such a way as to make them accurate than if they were more clear and precise, such as "Socrates has seven toes" or "Cyrus will defeat the Persians at Salamis on Tuesday."

The belief in oracles can be traced to the desire to know the future. There are literally dozens of strange techniques humans have developed in an effort to divine events before they occur. Unfortunately, the only sure guide to the future is the past, and even that isn't always reliable.

Protocols of the Elders of Zion

"The only statement I care to make about the Protocols is that they fit in with what is going on. They are sixteen years old, and they have fitted the world situation up to this time. They fit it now." --Henry Ford, 2-17-21, whose newspaper, the Dearborn Independent, cited the Protocols as evidence of an alleged Jewish threat until at least 1927

"To what extent the whole existence of this people is based on a continuous lie is shown incomparably by the Protocols of the Wise Men of Zion...." --Adolph Hitler, Mein Kampf

The Protocols of the Elders of Zion is a forgery made in Russia for the Okhrana (secret police), which blames the Jews for the country's ills. It was first privately printed in 1897 and was made public in 1905. It is copied from a nineteenth century novel (Biarritz, 1868) and claims that a secret Jewish cabal is plotting to take over the world.

The basic story was composed by a German novelist and anti-Semite named Hermann Goedsche who used the pseudonym of Sir John Retcliffe. Goedsche stole the main story from another writer, Maurice Joly, whose "Dialogues in Hell Between Machiavelli and Montesquieu" (1864) involved a Hellish plot aimed at opposing Napoleon III. Goedsche's original contribution consists mainly of introducing Jews to do the plotting to take over the world.

The Russians used big chunks of a Russian translation of Goedsche's novel, published it separately as the Protocols, and claimed they were authentic. Their purpose was political: to strengthen the czar Nicholas II's position by exposing his opponents as allies with those who were part of a massive conspiracy to take over the world. Thus, the Protocols are a forgery of a plagiarized fiction.

The Protocols were exposed as a forgery in 1921 by Philip Grave, a correspondent for the London Times; by Herman Bernstein in The Truth About "The Protocols of Zion": A Complete Exposure, reprinted with introduction by Norman Cohn (Ktav Publishing House, New York, 1971); and Lucien Wolf in The Jewish



Bogey and the Forged Protocols of the Learned Elders of Zion (London : Press Committee of the Jewish Board of Deputies,1920).

The Protocols were published in a Michigan newspaper owned by Henry Ford. Even after they were exposed as a forgery, Ford's paper continued to cite the document. Adolf Hitler later used the Protocols to help justify his attempt to exterminate Jews during World War II.

The Protocols hoax continues to fool people and is still cited by certain individuals and groups as the cause of all their woes.

### Pseudohistory

Pseudohistory is purported history which...

treats myths, legends, sagas and similar literature as literal truth  
is uncritical and unskeptical in its reading of ancient historians, taking their claims at face value and ignoring empirical or logical evidence contrary to the claims of the ancients  
is on a mission, not a quest, seeking to support some contemporary political or religious agenda rather than find out the truth, the whole truth and nothing but the truth about the past  
often denies that there is such a thing as historical truth, clinging to the extreme skeptical notion that only what is absolutely certain can be called 'true' and nothing is absolutely certain, so nothing is true  
often maintains that history is nothing but mythmaking and that different histories are not to be compared on such traditional academic standards as accuracy, empirical probability, logical consistency, relevancy, completeness, fairness, honesty, etc., but on moral or political grounds  
is selective in its use of ancient documents, citing favorably those that fit with its agenda, and ignoring or interpreting away those documents which don't fit  
considers the possibility of something being true as sufficient to believe it is true if it fits with one's agenda  
often maintains that there is a conspiracy to suppress its claims because of racism, atheism or ethnocentrism, or because of opposition to its political or religious agenda

Examples of pseudohistory include Afrocentrism, creationism, holocaust revisionism and the catastrophism of Immanuel Velikovsky.

Pseudohistory should be distinguished from the ancient texts it is based on. The sagas, legends, myths and histories which have been passed on orally or in written documents by ancient peoples are sometimes called pseudohistory. Some of it is pseudohistory, some of it is flawed history and some of it isn't history at all.

Pseudohistory should also be distinguished from historical fiction and fantasy. Books such as Terence Flanagan's *The Year of the French*, *The Tenants of Time* and *The End of the Hunt* are not pseudohistories but works of fiction in a historical setting. Despite the fact that historical fiction is often historically accurate, it is not history. Anyone who cites a work of historical fiction as if it were a history text is a practicing pseudohistorian. I suppose one should also refer to writers such as the Abbe Jean Terrason (1670-175?) as pseudohistorians. These are writers of historical fiction who intentionally falsify and invent ancient history, as Terrason did in his *Sethos*, a History or Biography, based on Unpublished Memoirs of Ancient Egypt. This technique of claiming to find an ancient document and publishing it in order to express one's own ideas is still used, e.g., *The Celestine Prophecy*. A variation on this theme is to claim that one is channeling a book from some ancient being, e.g, *The Urantia Book* and *Bringers of the Dawn*.

### Pseudohistory At The Movies

Films seem to present a special challenge for some people; for, they argue endlessly about the duty of film makers to be historically accurate. Is Oliver Stone's JFK fiction, fantasy, myth, pseudohistory or what? The film invents fictional characters and events to enhance the story and Stone's personal views, some of which are improbable or known to be false. Unless a film claims to be a documentary, it is fiction or fantasy no matter how accurate or realistic it is. Film makers have no more duty to be historians than do novelists. Anyone who would cite films such as JFK or Michael Collins as if they were historical documents is a pseudohistorian. Rather than demand that film makers be responsible historians or citizens, we should demand that film goers be critical thinkers. Being "based on a true story" is not a sufficient condition for being non-fiction. Likewise, the X-Files and similar television programs, which may be realistic and or even claim to be based on a true story, are not non-fiction. To site such fantasy programs as evidence for claims about supernatural or paranormal events is to engage in the type of pseudoresearch practiced by pseudohistorians.

## Pseudoscience

A pseudoscience is set of ideas based on theories put forth as scientific when they are not scientific. A theory is scientific if and only if it explains a range of empirical phenomena and can be empirically tested in some meaningful way. Scientific testing usually involves deducing empirical predictions from the theory. To be meaningful, such predictions must, at least in theory, be possible to be false. This quality of scientific theories was called falsifiability by Karl Popper. A pseudoscientific theory claims to be scientific, i.e., be falsifiable, but either the theory is not really falsifiable or it has been falsified but its adherents refuse to accept that the theory has been refuted.

Pseudoscientists claim to base their theories on empirical evidence, and they may even use some scientific methods, though often their understanding of a controlled experiment is inadequate. Many pseudoscientists relish being able to point out the consistency of their theories with known facts or with predicted consequences, but they do not recognize that such consistency is not proof of anything. It is a necessary condition but not a sufficient condition that a good scientific theory be consistent with the facts. A theory which is contradicted by empirical facts is obviously not a very good scientific theory, but it does not follow from that fact that a theory which is consistent with the facts is therefore a good theory. For example, "the truth of the hypothesis that plague is due to evil spirits is not established by the correctness of the deduction that you can avoid the disease by keeping out of the reach of the evil spirits." 1

Several characteristics of pseudoscientists and pseudoscience seem to stand out:

1. The tendency to propose theories which are put forth as scientific, but which cannot be empirically tested in any meaningful way; that is, the theory is consistent with every conceivable empirical event and no deduced prediction from it could ever falsify it. Or, the theory is couched in terms of non-empirical entities. E.g., L. Ron Hubbard's engram theory.
2. The dogmatic refusal to give up an idea in the face of overwhelming evidence that the idea is false, and the use of ad hoc hypotheses to try to explain away contrary evidence. E.g., Parapsychology.
3. The selective use of data: the tendency to attend only to confirming instances and to ignore disconfirming instances. E.g., Biorhythms, Dowsing, Parapsychology.
4. The use of personal anecdotes as evidence. E.g., Biorhythms, Dianetics, Graphology, Parapsychology.
5. The lack of concern over the absence of evidence in support of one's theory. E.g., Dianetics, Velikovsky.
6. The use of myths or ancient mysteries to support theories which are then used to explain the myths or mysteries. E.g., Creationism, Velikovsky, Von Daniken.
7. Gullibility, especially about paranormal, supernatural or extraterrestrial claims. E.g., Creationism, Parapsychology. 2

## PSI

PSI (pronounced sigh) is a term commonly used by parapsychologists to refer to both ESP and psychokinesis taken together. The term was coined by R.H. Thouless and B.P. Weisner in their 1942 article "The Present Position of Experimental Research into Telepathy and Related Phenomena," (Proceedings of the Society for Psychical Research, 47, part 166, pp. 1-19).

The James Randi Educational Foundation offers a prize of \$1,000,000 to anyone who can prove he or she has a psychic ability.

## PSI-missing

PSI-missing is an ad hoc hypothesis invented by parapsychologists to explain away failures to demonstrate ESP. The tests usually involve trying to use ESP to identify various targets, such as Zener cards, pictures, etc. which are hidden from direct view of the subject. The failure to do better than would be expected by chance is explained away as due to unconscious direction to avoid the target.

## PSI-Tronics Super-Sensor Dowsing Rod

### Quadro QRS 250G "Detector"

"If it works, I think it could be a real good tool and deterrent in our school system," said one high-school principal. Gastonia Gazette, April 6, 1995

The Quadro QRS 250G (the Quadro Tracker) is a plastic box with an antenna which was sold by Quadro Corp of Harleyville, South Carolina, as a detector of just about anything: drugs, weapons, golf balls, even

lost coon dogs. Wade Quattlebaum's invention sold for about \$1,000 each. Some schools and government agencies spent as much as \$8,000 for the device which turns out to be good only at detecting suckers who can be easily parted with other people's money (i.e., our taxpayer dollars). Sandia Labs of Albuquerque, New Mexico, took one apart and discovered that there is nothing inside. It probably costs about \$2 to make. For their trouble, Sandia labs was threatened with a lawsuit by Quadro. Quadro did not threaten to sue the FBI, however, when its tests determined that the Quadro Tracker was incapable of detecting anything. According to the FBI, the device was little more than a piece of plastic. Quadro may have had nothing in their Tracker but they certainly had chutzpah in their marketing: the FBI was one of their target markets.

On January 19, 1996, the FBI Economic Crimes unit seized the merchandise and records of the Quadro Corporation and arrested its officers. In April, 1996, a federal judge issued a permanent injunction against Quadro Corp, which was convicted of engaging in a mail and wire scheme to defraud customers, under statutes 18 U.S.C. 1341 and 1343. In court it was pointed out that the Quadro Detector had been carefully examined and that no "inductors, conductors, or oscillators" were found, though Quadro advertised those as the working parts of its "secret technology." Quadro claimed that theirs were not "ordinary" inductors, conductors, or oscillators. Theirs are of an advanced sort not yet known to "regular science."

The FBI sent out a bulletin to their branches warning that "A device marketed to law enforcement agencies nationwide, the Quadro Tracker...is a fraud. All agencies should immediately cease using the device...." Even so, several law enforcement officers, as well as several school principals, still swear by their QRS 250G Detectors.

How could such smart people be so easily deceived? Perhaps it was the technical sounding literature sent out by Quadro Corp. Quadro claimed that the device uses "tuned frequency chips" to hone in on its target:

The frequency chip is oscillated by static electricity produced by the body [of the user] inhaling and exhaling gases into and out of the lung cavity. This static electricity is propagated on the surface of the body to the tracker which utilizes the charge to oscillate the chip....[A]ll matter contains exact molecular frequencies. When a magnetic field is created by a contained electrically charged body moving through space at a perpendicular angle moving to its direction, and that field is brought into alignment with another exact field, resonating at the identical frequency modulation, then both objects attract, just as two bodies are attracted toward each other in a gravitational field.

Most purchasing agents would be ignorant of electrical engineering and would not know that the above gobbledygook is gibberish.

Perhaps potential buyers were impressed by the names of the people who endorsed the device:

William Koopman, Val-Comm Inc., Albuquerque, NM  
Steve Lassiter, Drug Task Force, Albuquerque, NM  
Larry DeWees, Principal, Farmington High School, NM  
Clifford Weber, School Supt., Bloomfield, NM  
Nancy Radford, Vice-Principal, Bloomfield H.S., NM  
Troy Daniels, Resource Officer, Bloomfield H.S., NM  
Ralph Navarre, Principal, Mesa Alta H.S., Bloomfield, NM  
Capt. Ben Boozer, Dept. of Corrections, Crozier, VA  
Raymond Gomes, Inspector General, Richmond, VA  
Sgt. Marilyn Chambers, National Guard, Richmond, VA  
Jim Morrison, National Guard, Richmond, VA  
Brian Clements, Dir.of Security, Galena Park, Houston TX  
Lt. Bill Munk, Police Department, Austin, TX  
Don Plybon, US Customs, Charleston, SC  
Cpl. Billie Johnson, North Charleston PD, SC  
Bruce Parent, FL Dept. of Trans., West Palm Beach, FL  
Pip Reaver, Adlerhorst Training School, Riverside, CA  
Pete Blauvelt, Nat. Alliance for Safe Schools, Lanham, MD  
Michael Ferdinand, Interquest Group, Inc., Houston, TX

Any intelligent investigator should know that testimonials are not scientific evidence. Such testimony should be considered worthless when considering the purchase of allegedly high-tech commercial products.

James Randi, in one of his Hotline reports, noted that he had heard from Interquest Group, Inc., Vice President Michael Ferdinand. Interquest, says Randi, is "a reputable and well-known company which train dogs for use in contraband detection." Their endorsement of the Quadro Detector quoted them as saying

"Using the Quadro as a stand-alone unit certainly locates the drugs..."

and

"Since I discovered the Quadro unit, I have introduced it into my K-9 teams with great effect. In fact, I am now helping schools to acquire their own units..."

Randi continues:

But after Interquest personnel attended the mandatory training session in Harleyville, S.C., and had the device examined by Southwest Research Institute (SRI) in San Antonio, Texas, the tune changed. Says Ferdinand now:

We, too, fell victims to the hustle of the 'Quadro Tracker'.... we now recognize that the entire training mission was staged.... based upon the conclusions of [the SRI] report and our inability to achieve any form of consistent results with the product, we disassociated our company from the Quadro Corporation. At present, we remain some \$10,000 in the hole as a result of our encounter with the Quadro Corporation as well as sustaining a certain degree of damage to our otherwise flawless reputation....

The SRI lab report stated in its conclusion that:

the tracker is not functional and the operating principle suggested by the manufacturer is scientifically highly questionable at the very least. Both analyses support the suspicion that the tracker is a fake device.

SRI tested the two "Training Samples" sold to Interquest with the Quadro, and found nothing inside but "epoxied scrambled dead ants."

One of the other people listed in the Quadro list of testimonials denies he ever said what they say he did. Corporal Billy Johnson, a K-9 officer with the North Charleston police department, was quoted by Quadro as saying, "There is no doubt that the Quadro Tracker can do everything the dogs can do, and from a much greater distance." Corporal Johnson told Randi that he never said any such thing and that his department did not purchase the Quadro Detector.

Randi also heard from the boss of Don Plybon, the U.S. Customs agent listed as endorsing the Quadro toy. Writes Randi:

Quadro had published a quotation from Plybon in which he related an account of a "positive for gunpowder alert" that the stick gave him when pointed at a Russian plane at Charleston, SC, airport. The customs agent, said the Quadro ad, decided that "the plane was loaded with used guns." But when they then unloaded the cargo and searched the plane, they found nothing. So, says the ad, they "checked the grease on the ramp" and decided that the Quadro couldn't be wrong, that there must have been "something in the grease" that made it "alert." What really happened? Gee, could it be that the customs agent made a boo-boo, because he was naive enough to think that the thing actually worked? Why else would his boss call me and forbid me to write to agent Plybon any more? And where does he get the colossal nerve to forbid me to do anything? I made my opinion quite clear to him, I assure you. When the boss has to call me to tell me to stop challenging his employee, I begin to wonder... In any case, Quadro has been warned to stop using agent Plybon's name in the advertising they can no longer send out.

Quadro may be closed down but there are others waiting in the wings to surpass even Quadro's wildest claims. For example, there is the Super-Sensor Dowsing Rod which can be ordered from Psi-Tronics Visions. Here is what Psi-Tronics says you can do with their device:

You can dowse the past, present or future. Future events are subject to the laws of probability and free will so it doesn't always work for the lottery. But in other uses you are limited only by your imagination. Locate underground water, pipes, minerals, oil, etc. Locate fish and game animals, or missing persons. I know people who use it to predict the stock market, marketing trends, business opportunities, and to isolate production problems. I know mechanics who dowse to determine mechanical problems in cars, and other machinery and maintenance workers who use dowsing to find underground water lines, leaks, and electrical problems. Professional health workers, chiropractors, dieticians, and people who diagnose illness use dowsing to check their findings. Holistic healers and herbalists use it to prescribe vitamins. In the home, use it to find lost articles and to make decisions. Dowse the telephone book to find a number or the yellow pages to determine who will serve you the best. Check up on your kids to see if they are all right. Check to see if the weather will be good, and what clothes you should wear.

I wonder how many public agencies will spend taxpayer money on this magical dowser? Before spending our money, I would hope they would consider that you will generally find what you are looking for if you already know what you are looking for. Also, if the dowsing stick is more well-balanced than the dowser, the slightest movement will tip it one way or the other. This fact has not prevented another high-tech dowsing stick to enter the market with even more outlandish claims than Psi-Tronics. DielectroKinetic Laboratories promotes their product with appropriate jargon and gobbledegook, and has found advocates

from novelist Tom Clancy to former FBI agents and current L.A. cops for its LifeGuard, a dowsing stick that allegedly can detect a single human heartbeat at 500 meters.

## Psychic

"When confidential information leaks out of an organization, people suspect a spy, not a psychic." --John Allen Paulos, *Innumeracy*

As an adjective, psychic refers to forces or agencies of a paranormal nature. As a noun, psychic refers to a medium or a person who has paranormal powers.

James Randi, who has tested many people who think they have psychic abilities, has found that when he has tested the alleged paranormal powers of psychics (1) they had never before tested their powers under controlled conditions, and (2) those who don't offer preposterous rationalizations for their inability to perform seem genuinely baffled at their failure. Often, psychics are not frauds; they genuinely believe in their powers. But they've never tested their powers in any meaningful way. Randi offers \$1,000,000 to anyone who can demonstrate psychic powers. The Australian Skeptics will throw in an additional \$100,000 (Australian) for the psychic and \$20,000 for anyone "who nominates a person who successfully completes the Australian Skeptics Challenge." B. Premanand of the Indian Skeptic will throw in another 100,000 rupees.

To believe in the ability of a person to channel spirits, to "hear" or "feel" the voices or presence of the dead, to "see" the past, the future or what is presently in another's mind, to make contact with a realm of reality that transcends natural laws is something nobody can do without contradiction. No psychic ever warns us of impending disasters. They tell us after the fact. If they really knew that an assassination or terrorist bombing was going to take place, they'd tell us. Psychics don't predict their own deaths or diseases. They go to the dentist like the rest of us. They're as surprised and disturbed as the rest of us when they have to call a plumber or an electrician to fix some defect at home. Their planes are delayed without their being able to anticipate the delays. If they want to know something about Abraham Lincoln, they go to the library; they don't try to talk to Abe's spirit. In short, psychics live by the known laws of nature except when they are playing the psychic game with people. Psychics aren't overly worried about other psychics reading their minds and revealing their innermost secrets to the world.

The improbability of there being a paranormal realm is argued in many of the entries listed below. If it is improbable that the paranormal is real, then it is improbable that psychics are tapping into the paranormal realm. Why then are psychics so popular with young and old, stupid and intelligent, ignorant and wise alike? I am going to go out on a limb and say that most believe because they think there is adequate supportive evidence for both the existence of the paranormal and for the abilities of some people to tap into the paranormal. Here I will only take up the claim that there is good evidence for psychic power.

The strongest kind of evidence for psychic power comes from witnessing an alleged psychic perform. They seem to know things about us that nobody but us should know. They seem to be able to tell us things about ourselves and our departed loved ones that only we should know. But a careful examination of what they do when they perform reveals that while there is often more than meets the eye it has nothing to do with the paranormal. It has to do with cold reading, the Forer effect, and a bit of deception, self-deception, or both. The success of numerous hoaxes by fraudulent psychics testifies to the difficulty of seeing through the performance. Psychologist Ray Hyman, who worked as a "psychic" to help pay his way through college, claims that the most common method used by psychics is "cold reading" and offers the following Guide to Cold Reading:

You must act with confidence. You don't need to be arrogant. In fact, you will probably benefit by pretending to be humble. James van Praagh and John Edward repeatedly warn their marks that they aren't always accurate, that they don't know how their power works, that they misinterpret things, etc. But they never give any sign that they are not really communicating with the dead. You must do your research. You have to be up on the latest statistics (e.g., most plane crashes are in April; most planes have something red on their tails). You have to know what people in general are like from polls and surveys. Also, you must pick up in casual conversation before a performance any information that might be useful later, like talking to a cameraman in the afternoon and then during the evening performance you are "contacted" by his dead father, whom he told you all about that afternoon. You must convince the mark that he or she will be the reason for success or failure. This is actually true because it is the mark who will provide all the vital information that seems so shocking and revealing. It is human nature to find meaning, so this is not a difficult chore. The mark will bring significance to much of what you throw at him or her. If you bring up "June" and get no response, you make the mark feel like they're not remembering properly. If you say "8, the 8th month, 8-years, August" and somebody bites by saying "Dad died in August" and the mark thinks it was you who told her that fact rather than the other way around. When you say "I see a watch, a bracelet, something on the wrist" and the mark says "I put my

necklace in mom's casket." You say "Right. She thanks you for it, too." Everybody thinks you knew she put a necklace in the casket and they will forget that you were fishing for some jewelry on the wrist.

Be observant. Does the person have expensive jewelry on but worn out clothes? Is she wearing a pin with the letter 'K' on it. (You better know that 'Kevin' is a good guess here. But it doesn't matter, really. Since, when the mark tells you the name of the person, she'll think you are the one who told her the name!)

Use flattery and pretend you know more than you do.

The list goes on, but you get the idea. What looks like psychic power is little more than a game of twenty-questions, or a fishing expedition, with the mark providing all the relevant details and connecting all the dots, while the "psychic" appears to be getting messages from beyond. Of course, sometimes the "psychic" is simply an observant, thoughtful person, who says things appropriate for the age and gender of the subject. For example, one of my students--right out of high school, tall, handsome, strong and athletic--was told by a "psychic" to stay away from the sex or he'd be having a baby. The student became an immediate convert. He'd already gotten a girl pregnant and had a daughter. Good advice became proof of psychic power in this young man's mind. She also told him other things "nobody could have known," such as that he had once thrown up all over himself and crapped in his pants. He apparently had done this as a young man and didn't realize that she was describing a nearly universal situation for babies.

The deception can be more dramatic than cold reading, of course. According to Lamar Keene, a "reformed psychic," some people seek psychic advice from many psychics who exchange information on their marks. Some psychics do what is called a "warm reading," i.e., they have done research on you and that's why they know things they shouldn't know.

It has also been argued that if psychic power existed, to use it would be "a gross and unethical violation of privacy" and "professions that involve deception would be worthless" (Radford). There wouldn't be any need for undercover work or spies. Every child molester would be identified immediately. No double agent could ever get away with it. Psychics would be on demand for high paying jobs in banks, businesses and government. "Most psychics would be very, very rich...." (Radford) and since psychics are such altruistic persons, giving up their time to help others talk to the deceased or figure out what to do with their lives, they would be winning lotteries right and left and giving part of their winnings to help the needy. We wouldn't need trials of accused persons: psychics could tell us who is guilty and who is not. Of course, the operative word here is if. If psychic power existed the world would be very different.

"Psychics" who are honest about their deception call themselves mentalists. Yet, it is the "psychics," not the mentalists, who are the darlings of the mass media. As I see it, so-called psychics can be explained in one of three ways: (1) they truly are psychic; (2) they are frauds, taking advantage of people's gullibility and weaknesses; or (3) they're deluded and self-deceived. Of the three options, the least probable is option number one. Thus, it seem to me that when the mass media promote so-called "psychics" for their entertainment or news value, they are either promoting fraud or encouraging delusions. Perhaps the media think that because most parties in the psychic game are consenting adults, that makes it ok.

## Psychic Detectives

Psychic detectives (PDs) are alleged psychics who offer to help law enforcement agencies solve crimes.

In their book, *The Blue Sense: Psychic Detectives and Crime*, Arthur Lyons and Marcello Truzzi list the following as possible explanations for how psychic detectives "assist" cops in the detection of crime:

They use psychic powers.

They guess correctly. (Even you and I can have a 50% hit rate if we guess "dead" or "alive" about a missing person.)

Their errors and misses are misperceived as truths and hits.

Coincidences are taken for hits.

The information provided by the PD was garnered from another source, often from an unwitting law enforcement agent.

The PDs supporters use selective thinking, remembering what was accurate and forgetting what was not. The media publishes stories about psychic successes, while generally ignoring stories about psychic failures and frauds. Reputations are thereby created and enhanced from trivial or paltry evidence of psychic powers.

What seems like an accurate perception is due to its vagueness and the latitude given in counting events as hits. E.g., "I see water near the body;" or "I see trees." Some PDs are very skilful in their use of vagueness and ambiguity and provide "the verbal equivalent of a Rorschach test." (Piet Hein Hoebens--one of Truzzi's collaborators in a "Psychic Sleuths" project.)

PDs use the shotgun approach to providing information, i.e., they provide a large quantity of information, some of which is bound to fit the case. "Shotgunning" relies on confirmation bias and cold reading, the

Forer effect and Barnum-type statements: the cop tunes in to the info that is correct and ignores what isn't and unknowingly gives cues to the psychic as he or she fires salvo after salvo.

The events predicted by PDs are commonplace events which are predicted by thousands of psychics every year. (A missing person will be either dead or alive; if dead probably buried; if buried probably in a remote place such as the woods. Shallow graves are likely to be pretty common, too. How many killers take the time to dig a deep grave? Yet, predicting that a body will be found in a shallow grave in a wooded area is taken by some to be truly astounding if it turns out to be the case.) In other words, some PDs' "visions" are bound to be "correct" often enough for the credulous to be duped.

Wishful thinking accounts for the reputation of some PDs. Some cops want to believe in extraordinary powers and therefore give more credence than they should to the PD. (E.g., one cop considered psychic Noreen Reiner's drawing of a circle to be a correct clue in a crime because the person arrested drove a cement mixer. Another cop considered Dorothy Allison's clues in a case to be on the money even though she predicted a missing person was dead who was not dead but was living in a religious cult community. The cop admitted he was baffled by Allison's error about the person being dead but which way was he dead? asked the cop, "Biologically? Clinically? Dead tired?" How about spiritually dead; that would be my guess.)

Some psychic successes are merely self-fulfilling prophecies. Clients find ways to retrofit facts with the vague and ambiguous pronouncements of the psychic.

Over time, reports of psychic achievements get exaggerated and distorted; vague claims become specific; errors become replaced with correct predictions; events that never happened become "facts." Often, the PD herself or himself is the source of this historical reconstructionism.

Memories are molded to fit one's beliefs in what psi-critic D.H. Rawcliffe calls retrospective falsification.

PDs also use their intelligence, reason inductively and deductively, play hunches, examine evidence, make careful observations, listen attentively, consider alternatives, follow their intuition, etc., just like "real" cops do.

In some cases, the PDs have more experience with certain types of crimes than the cops they work with.

Communal reinforcement often plays a large role in the reputation of psychic detectives. The PDs influence the media and the cops, and the cops influence each other and influence the media, ad nauseam, until what starts out as lies, frauds, guesses, trivial information, unsound reasoning, etc., snowballs into a grand case of belief in the Psychic Detective.

Most of the evidence in favor of the psychic detective being really psychic comes from the psychic himself or herself.

Another reason for the successes of some psychic detectives is that they commit fraud.

Their "predictions" are made after an event, but claimed to have been made before it. (e.g., Tamara Rand's faked prediction of the assassination attempt on Ronald Reagan.)

Some psychics use accomplices to accomplish their frauds and deceptions.

Some cops use psychics to cover up their real sources of information; the cop may want to protect an informant or perhaps the cop got the information illegally. Some cops use psychics, or even pretend they themselves are psychic, to psyche out superstitious criminals.

Some psychics bribe informants, including police officers, for information they pass off as acquired by psychic means.

The authors document each one of the above explanations with numerous case studies and copious references. One would think that after that impressive litany of explanations and proofs, the authors' consideration of "real" psychics would be mere tokenism. Yet, these same authors divide the world of psychics into psychics and pseudo-psychics. Pseudo-psychics are divided into authentic (those who are not aware that they are using tricks or ordinary means of perception, information gathering, reasoning, etc.) and unauthentic (the outright frauds). To support their notion that at least some of the PDs may truly be psychic, Lyons and Truzzi note that

Some people have an unusually acute sense of vision, hearing, or smell, what psychologists call hyperesthesia. A recent example was a New Jersey doctor [Arthur G. Lintgen] who was able to examine an unlabeled classical recording and ascertain the music and sometimes even the conductor just by looking at the grooves.

The authors take such an ability as evidence of some extraordinary power, but Dr. Lintgen had a different explanation:

The trick is to examine the physical construction of the recording and look at the relative playing time of each one of the movements or separations on the recording (Seckel).

Dr. Lintgen also used other quite ordinary inductive and deductive powers to identify such arcane bits of information as the nationality of the orchestra.

### Pseudo-Psychics

Lyons and Truzzi suggest that after all the frauds are eliminated there will still be some true psychics. For example, just because James Randi showed that Uri Geller didn't really bend spoons with his mind doesn't prove all psychics are frauds. After all, "there's more than one way to bend a spoon." This is true. It is always possible that one of the PDs is truly psychic. And Yeti might be out there, and the Loch Ness monster, and the little green aliens with large almond eyes, and flying pigs and horses and reindeer, witches on brooms, talking horses, fairies and pookas, children with clairvoyant anuses, ad infinitum ad nauseam. But what are the probabilities? What is the most reasonable belief when fraud and self-delusion are common, not rare, among so-called psychics? What is most reasonable to believe when the frauds and incompetents are not exposed by the media? when ad hoc hypotheses and deception is normal not abnormal? and when those caught in blatant lies and delusions are not scorned but defended?

### Authoritarians and The Occult

Why do cops, soldiers and other authoritarians find the occult so attractive? Is there something about the occult that is especially alluring to people who like to wear uniforms; carry guns, phallic clubs and "shields;" legally play the bully and the protector? Or is it the case that the occult is no more and no less attractive to authoritarians than to any other personality type? If so, is it possible that the authoritarian is attracted to the occult for different reasons than non-authoritarians?

It might seem obvious that the occult and paranormal would be of interest to "warriors:" any potential weapon is of interest to warriors and their supporters. The Dream Warriors long for the day they can use ESP instead of radar and use psychics to guide missiles and control the thoughts of adversaries or locate hostages. That's why the U.S. government, the Chinese, the Russians, the Japanese, the Bulgarians, etc., have been supporting psi research: it's just an extension of offensive and defensive weaponry. Politicians and generals use psychics for the same reason they use spies and bombs: as a tool in the never-ending war against enemies. Cops use psychics for the same reason they use informants and polygraphs: as a tool in the never-ending war against enemies. Of course, this mind war and its mind games would have to include disinformation, leaking out stories of successful psi weapons so that your enemy will waste time and money pursuing non-sense or be stupid enough to be fooled into confessing or revealing secrets.

It might also seem obvious that since the occult is seen as a source of extraordinary powers, an authoritarian would naturally pursue such things. The more power and powers the better. After all, your enemies (and they are many) might have such powers. Such people do tend to divide the world into good and bad, goats and sheep, friends and enemies, patriots and traitors, us and the assholes. It may be that such people think of themselves as extraordinary, put here for a purpose such as keeping the world, the country, the state, the county, the city, the neighborhood, the shop, the school, the family, etc., as tidy and orderly and predictable as they themselves are. That is, maybe people who think of themselves as special find it only appropriate that they should have or be able to use special powers.

### Psychic Photography

Thoughtography (a.k.a. Psychic Photography)

Thoughtography is the use of the mind to transfer one's thoughts onto photographic film.

Thoughtography was made popular by psychiatrist Dr. Jule Eisenbud. He wrote a book about Chicago bellhop Ted Serios who claimed he could make images appear on Polaroid film just by thinking of an image. Since the publication of Jule Eisenbud's *The World of Ted Serios: 'Thoughtographic' Studies of an Extraordinary Mind* others have claimed to be able to perform this feat.

James Randi, magician and debunker of all things paranormal, claims that psychic photography is actually trickery done using a handheld optical device (Randi 1982, 222ff.; 1995, 233).



For an explanation as to how a Freudian psychiatrist (presumably a well-educated man) could be deceived by such trickery (assuming he was deceived), see the following: communal reinforcement, confirmation bias, control study, the post hoc fallacy, selective thinking, self-deception, subjective validation, and wishful thinking.

Of course, it is possible that Mr. Serios does have powers that would, as James Randi put it, require rewriting all the laws of physics. The odds and the evidence seem against it, however.

### Psychic "Surgery"

Psychic "surgery" is a type of non-surgery performed by a non-medical healer. The healer fakes an incision by running a finger along the patient's body, apparently going through the skin without using any surgical instruments. The healer pretends to dig his hands into the patient's innards and pretends to pull out 'tumors'. Using trickery, the healer squirts animal blood from a hand held balloon while discarding items such as chicken livers and hearts. The patient then goes home to die, if he or she was really dying, or to live if there was nothing seriously wrong in the first place.

Psychic "surgery" is big business around the world, but especially in the Philippines and Brazil, where "healers" like Alex Orbito and Laurence Cacteng ply their trade. Tony Agpaoa put psychic "surgery" on the map in Manila, where there are now several hundred practicing psychic "surgeons", many working out of hotels. In 1967, Agpaoa was indicted for fraud in the United States. He jumped bail and went home, forfeiting a \$25,000 bond.\*

Apparently, some people find solace in psychic "surgeons" and other faith healers because the healers are thought to be divine agents. The practice is not restricted to third-world countries. Chris Cole practices psychic "surgery" in Sydney, Australia. One of the more popular psychic "surgeons" outside of the Philippines is Stephen Turoff, who runs the Danbury Healing Clinic in Chelmsford, England. Turoff, a follower of Sai Baba, also performs therapeutic touch at no extra charge. Turoff also takes his show on the road. A Dutch group called Inner Journey reports on a weekend with Turoff where at least four people out of about 250 wrote two weeks after their visit to say they were healed.

Turoff has been performing for a quarter of a century and is popular enough to warrant a biographer, Grant Solomon. In 1998, Solomon published Stephen Turoff - Psychic Surgeon: The Story of an Extraordinary Healer. A revised edition appeared in 1999 with the extraordinary and remarkable revised title of Stephen Turoff, Psychic Surgeon: The Extraordinary Story of a Remarkable Healer. According to Natural Healing, Turoff is "a 16-stone, six-and-a-half foot, middle-aged, Jewish-Christian former carpenter from Brick Lane in London's East End whom many believe to be an instrument of God." To others, Turoff is just another pious fraud.

The popularity of psychic "surgery" seems to be growing, despite the debunking work of people like James Randi. Psychic dentistry is also available for those who prefer dentistry without anesthesia or dental drills performed by a faith healer.

### Psychoanalysis & Sigmund Freud

"Over the past thirty-five years repeated reviews of the literature have failed to show any solid evidence that psychoanalytic therapy is superior to placebo therapy" (Hines, 133).

"I am actually not at all a man of science, not an observer, not an experimenter, not a thinker. I am by temperament nothing but a conquistador-an adventurer, if you want it translated-with all the curiosity, daring, and tenacity characteristic of a man of this sort" (Sigmund Freud, letter to Wilhelm Fliess, Feb. 1, 1900).

"By the 1950' and '60s, the master's warning had been drowned in a tumult of excited voices. Psychoanalyst and psychiatrists could cure even schizophrenia, the most feared mental disease of all, they claimed, and they could do it simply by talking with their patients" (Dolnick, 12).

Psychoanalysis is the granddaddy of all pseudoscientific psychotherapies, second only to Scientology as the champion purveyor of false and misleading claims about the mind, mental health and mental illness. For example, in psychoanalysis schizophrenia and depression are not neurochemical disorders, but narcissistic disorders. Autism and other brain disorders are not brain chemistry problems but mothering problems. These illnesses do not require pharmacological treatment. They require only "talk" therapy. Similar positions are taken for anorexia nervosa and Tourette's syndrome. (Hines, p. 136) What is the evidence for the psychoanalytic view of these mental illnesses and their proper treatment? There is none.

Freud thought he understood the nature of schizophrenia. It is not a brain disorder, but a disturbance in the unconscious caused by unresolved feelings of homosexuality. However, he maintained that psychoanalysis would not work with schizophrenics because such patients ignore their therapist's insights and are resistant to treatment (Dolnick, 40). Later psychoanalysts would claim, with equal certainty and equally lacking scientific evidence, that schizophrenia is caused by smothering mothering. In 1948, Frieda Fromm-Reichmann, for example, gave birth to the term "schizophrenogenic mother," the mother whose bad mothering causes her child to become schizophrenic (Dolnick, 94). Other analysts before her had supported the notion with anecdotes and intuitions, and over the next twenty years many more would follow her misguided lead.

Would you treat a broken leg or diabetes with "talk" therapy or by interpreting the patient's dreams? Of course not. Imagine the reaction if a diabetic were told that her illness was due to "masturbatory conflict" or "displaced eroticism." One might as well tell the patient she is possessed by demons, as give her a psychoanalytic explanation of her physical disease or disorder. Exorcism of demons by the shaman or priest, exorcism of childhood experiences by the psychoanalyst: what's the difference? So why would anyone still maintain that neurochemical or other physical disorders are caused by repressed or sublimated traumatic or sexual (or both) childhood experiences? Probably for the same reasons that theologians don't give up their elaborate systems of thought in the face of overwhelming evidence that their systems of belief are little more than vast metaphysical cobwebs. They get a lot of institutional reinforcement for their socially created roles and ideas, most of which are not capable of being subjected to empirical testing. If their notions can't be tested, they can't be disproved. What can't be disproved, and also has the backing of a powerful institution or establishment, can go on for centuries as being respectable and valid, regardless of its fundamental emptiness, falsity or capacity for harm.

The most fundamental concept of psychoanalysis is the notion of the unconscious mind as a reservoir for repressed memories of traumatic events which continuously influence conscious thought and behavior. The scientific evidence for this notion of unconscious repression is lacking, as is any evidence that conscious thought or behavior is influenced by repressed memories. (For those who did not read that last sentence too carefully, let me note that I am denying neither the existence of unconscious thoughts nor implicit memories.)

Related to these questionable assumptions of psychoanalysis are two equally questionable methods of investigating the alleged memories hidden in the unconscious: free association and the interpretation of dreams. Neither method is capable of scientific formulation or empirical testing. Both are metaphysical blank checks to speculate at will without any check in reality.

Scientific research into how memory works does not support the psychoanalytic concept of the unconscious mind repressing sexual and traumatic memories of either childhood or adulthood. There is, however, ample evidence that there is a type of memory of which we are not consciously aware, yet which is remembered. Scientists refer to this type of memory as implicit memory. There is ample evidence that to have memories requires extensive development of the frontal lobes, which infants and young children lack. Also, memories must be encoded to be lasting. If encoding is absent, amnesia will follow, as in the case of many of our dreams. If encoding is weak, fragmented and implicit memories may be all that remain of the original experience. Thus, the likelihood of infant memories of abuse, or of anything else for that matter, is near zero. Implicit memories of abuse do occur, but not under the conditions which are assumed to be the basis for repression. Implicit memories of abuse occur when a person is rendered unconscious during the attack and cannot encode the experience very deeply. For example, a rape victim could not remember being raped. The attack took place on a brick pathway. The words 'brick' and 'path' kept popping into her mind, but she did not connect them to the rape. She became very upset when taken back to the scene of the rape, though she didn't remember what had happened there (Schacter, 232). It is unlikely that hypnosis, free association, or any other therapeutic method will help the victim remember what happened to her. She has no explicit memory because she was unable to deeply encode the trauma due to the viciousness of the attack which caused her to lose consciousness. The best a psychoanalyst or other repressed-memory therapist can do is to create a false memory in this victim, abusing her one more time.

Essentially connected to the psychoanalytic view of repression is the assumption that parental treatment of children, especially mothering, is the source of many, if not most, adult problems ranging from personality disorders to emotional problems to mental illnesses. There is little question that if children are treated cruelly throughout childhood, their lives as adults will be profoundly influenced by such treatment. It is a big conceptual leap from this fact to the notion that all sexual experiences in childhood will cause problems in later life, or that all problems in later life, including sexual problems, are due to childhood experiences. The evidence for these notions is lacking.

In many ways, psychoanalytic therapy is based on a search for what probably does not exist (repressed childhood memories), an assumption that is probably false (that childhood experiences caused the patient's problem) and a therapeutic theory that has nearly no probability of being correct (that bringing repressed memories to consciousness is essential to the cure). Of course, this is just the foundation of an elaborate set of scientifically sounding concepts which pretend to explain the deep mysteries of

consciousness and behavior. But if the foundation is illusory, what possibly could be the future of this illusion?

There are some good things, however, which have resulted from the method of psychoanalysis developed by Sigmund Freud (1856-1939) a century ago in Vienna. Freud should be considered one of our greatest benefactors if only because he pioneered the desire to understand those whose behavior and thoughts cross the boundaries of convention set by civilization and cultures. That it is no longer fashionable to condemn and ridicule those with behavioral or thought disorders is due in no small part to the tolerance promoted by psychoanalysis. Furthermore, whatever intolerance, ignorance, hypocrisy and prudishness remains regarding the understanding of our sexual natures and behaviors cannot be blamed on Freud. Psychoanalysts do Freud no honor by blindly adhering to the doctrines of their master in this or any other area. Finally, as psychiatrist Anthony Storr put it: "Freud's technique of listening to distressed people over long periods rather than giving them orders or advice has formed the foundation of most modern forms of psychotherapy, with benefits to both patients and practitioners" (Storr, 120).

## Psychokinesis

(Telekinesis)

Telekinesis is the movement of objects by scientifically inexplicable means, as by the exercise of an occult power. Psychokinesis is the production of motion in physical objects by the exercise of psychic or mental powers. Uri Geller claims he can bend spoons and stop watches using only his thoughts to control the external objects. Others claim to be able to make pencils roll across a table by a mere act of will. The variety of parlor tricks used to demonstrate psychokinetic powers is endless.

## Psychology

Psychology is the science of mental processes and behavior.

...commonplace conclusions are almost always a characteristic of social research pretending to be science.  
--Neil Postman

One waits in vain for psychologists to state the limit of their knowledge. --Noam Chomsky

One view of psychology sees the discipline much the way Postman characterizes it: psychologists are capable of saying with a straight face, and no doubt thinking that they are contributing greatly to scientific knowledge, things like: "Depression is almost always a factor in the estimated 30,000 suicides in the United States each year." Or, "In two new major studies of depression, researchers have discovered that stressful events--death, divorce or other emotional crisis--may cause otherwise healthy people to develop symptoms of depression as early as a week later." These two "major" studies "Tracked the time between stressful events and depressive episodes and found that 60 percent of the first-time depressions were linked to a stressful event." "In those patients considered to be otherwise healthy, more than a quarter became depressed within a week of the event, and the majority reacted by four weeks on average" (National Institute of Mental Health, cited in "Everyday life may cause depression," by Trisha Gura, Chicago Tribune, printed in the Sacramento Bee, July 31, 1994, p. A8). To many people, it is not news that people get depressed when a loved one dies or when they go through a divorce. This seems to be a matter of "commonsense" and no scientific study is needed to verify it.

Another view of psychologists is that they are trained at accredited institutions of higher learning, and must be well-versed in statistics and the logic of scientific experimental methods. Much of the research done by psychologists is as rigorous as that done by anyone in any of the sciences. In fact, it is probably very disconcerting to many young psych majors to discover that they are expected to think logically, understand the manipulation of variables and concepts such as  $p = 0.05$ , the necessity of control groups, the placebo effect, standards of deviation, etc. Many of them no doubt got their idea of psychology from the mass media. They think Dr. Joyce Brothers, Dr. Ruth, Shere Hite and the hosts of author/social workers or parapsychologists making the talk show circuit are the "real" psychologists. Or they think of speculative philosophers like Freud or Jung as their archetype of The Psychologist. It must be very disappointing to many would-be shrinks to discover that their teachers expect them to think like scientists rather than philosophers or creative writers.

It must be even more disheartening for research psychologists than for their students to see their field dominated in the public eye by incompetents and frauds. The public is treated to a continuous feast of wild-eyed and dangerous New Age therapies, illogical alien abduction therapists, incompetent and fraudulent parapsychologists, inept facilitated communication advocates, overzealous repressed memory & child abuse therapists, bogus self-esteem studies, etc.

Why doesn't the mass media pay more attention to the psychologists who are conducting properly controlled studies? Where is the hype spreading the news that there is no evidence that highly religious people are more altruistic and honest than less religious people? [R. F. Paloutzian's Invitation to the Psychology of Religion (Scott Foresman; 1983) or "Faith Without Works," in the Journal of Applied Social Psychology, (1975)]. Where is the mass media spreading the word about studies which have shown that the full moon does not stimulate people to commit crimes or that blind people have especially acute hearing? Who gets all the attention when a competent research psychologist challenges some commonsense notion about childhood memory or testimony put forth as truth by some New Age therapist testifying in a court of law?

Finally, it must be shocking for many young students, contemplating a career of helping people and the human race through psychology, to discover that most academic psychologists don't think psi exists and that most standard psych textbooks do not consider parapsychology worthy of even an honorable mention. According to Wagner and Monnet, in a 1979 study of 1,100 college professors in the United States, only 34% of psychologists surveyed believe that ESP is either an established fact or a likely possibility. The comparable figures for other disciplines are: natural scientists (55%), social scientists [excluding psychologists] (66%) and for academics in the arts, humanities, and education (77%). However, less encouraging was the report that 34% of the psychologists surveyed believe psi is an impossibility. Only 2% of the other respondents maintained this logically untenable position ("Attitudes of College Professors toward Extra-sensory perception," Zetetic Scholar, 5, 7-17).

### Psychometry

Psychometry is an alleged psychic power which enables one to divine facts by handling objects. Psychometry is demonstrated much like the power to read palms, crystal balls, tea leaves, auras or astrological charts. All are related to cold reading and selective thinking.

Geraldine Smith, a Toronto psychic, is typical of those claiming to possess psychometric powers. Give her a bracelet and she can tell all kinds of things about the owner just by handling the object. She says she can see auras from the object which tell her about auras of the wearer of the object which tell her about the character, personality, trials and tribulations of the bracelet owner. So she says, but when tested under conditions where the subject was coached in cold reading techniques and advised not to give away any specific information in answering the psychic's questions, Mrs. Smith failed miserably.

Most psychic detectives claim to have psychometric powers.

### Psychotherapies, New Age

"It is possible that the most important decision in the history of therapy was the idea that it should be paid for by the hour." – Jay Haley

"To society's loss, there is an alarming laxity within the mental health professions when it comes to monitoring, commenting on, and educating the public about what is good therapy, what is negligent behavior by trained professionals, and what is or borders on quackery." –Singer and Lalich, "Crazy" Therapies

A psychotherapy is a treatment technique for mental and emotional disorders. There are many types of psychotherapy. Some have been empirically tested and are known to be very effective, such as cognitive therapy. Many New Age therapies, however, are little more than a mixture of metaphysics, religion and pseudoscientific "insights". There may be reasonable disagreements over what constitutes successful therapy, but successful therapy should not require one to believe in God, reincarnation, alien abductions, possession by entities, inner children, Primal Pains, channeling, miracles, or any other metaphysical, religious or pseudoscientific notion.

For in-depth descriptions of some of the latest New Age therapies one should read "Crazy" Therapies by Margaret Thaler Singer and Janja Lalich, or view Ofra Bikel's "Divided Memories," first aired on Frontline on April 4, 1994, and available on video tape for \$133.50 (\$155 abroad) from:

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Bikel's documentary of therapists allows the practitioners to confidently display their arrogance and incompetence. The therapists are oblivious to the fact that they are being used to demonstrate the monstrosity of their pseudoscientific and self-deceptive work. Therapist after therapist talks freely about how uninterested they are in the truth and how indifferent they are to the families they help destroy. They are uniform in their dismissal of critics as being "in denial". Patient after patient is paraded forth by the therapists as evidence of their good work, yet none of the patients seem better for the therapy and many seem hopelessly ill.

Trying to find a meaningful common thread in the therapies is not too difficult, but its meaningfulness does not enhance the position of those who think these therapies are scientific. One common thread is the belief that a person having problems is not likely to be responsible for those problems. Another thread is the belief that the cause of a problem is some traumatic past event, such as being stabbed in the stomach in a previous lifetime or being sexually abused as a child, the latter being the repressed memory therapists' one-size-fits-all explanation of emotional disorder. Childhood sexual abuse is not only the cause of most problems, according to these therapists, it is the cause around which their lives revolve. The repressed memory therapists are not bothered that most of their patients do not remember being abused. Repressed memory therapy will help them recall the trauma. Several therapists claim to have been abused themselves; one discovers her abuse while treating a patient who is remembering her abuse. That a therapist would inject his or her problems into treatment and consider the beliefs about a past life of a patient to be relevant to the patient's illness makes these New Age therapies look more like cults than science.

Another common thread is the belief that the patient must discover the cause of his or her problem to be helped. This "insight" approach to psychotherapy is very old, but has never been scientifically tested or validated. Nor does there seem to be any clear idea as to what it means to be helped by psychotherapy. The only common thread regarding cure seems to be that the patient believes she knows what caused her problems. Believing you know who or what harmed you in the past is the cure. The quality of the patient's life, the interaction of the patient in significant social settings--such as with one's family, friends, and co-workers--is irrelevant. Having the patient trust the therapist is all-important. To gain this trust one of the common tactics of the therapists is to turn the patient against the patient's family. This is done by leading the patient to believe that the cause of the patient's problems is a family member or several family members. The family cannot help the patient because the family is the cause of the patient's problems. One or more family members abused the patient and is now either a liar or in denial; the other family members are deluded or in conspiracy to protect the evil family member. Of course, this demand that the therapist be trusted by the patient has its corollary: the patient puts all her faith in the therapist in return. The patient has been persecuted; the therapist is her savior.

#### Lack of Interest In Truth or Accuracy

The most appalling thread holding these therapies together is the profound lack of interest in truth or accuracy. Neither patient nor therapist is to be concerned with facts or tangible evidence that the "believed cause" actually happened. In fact, whether the "believed cause" is the real cause is irrelevant to the therapy. The patient creates his truth and it is as real to the patient as facts are to the skeptic. That's all that matters. We all live in a delusion, proclaims one therapist. So, it is of no concern to him that his patient's "believed cause" is pure delusion. Any first-year psychology student recognizes the projection in that claim. The viewer, however, needs no training to see that this therapist is clearly deluded when he claims that he did not induce his patient's bizarre tale of ritual abuse by her satanic cult parents and grandparents. His total lack of interest in corroborating evidence to his patient's story, his lack of concern for the family he was helping to destroy, his disingenuous claims about needing to accept on faith everything his patient tells him, his apparent obliviousness to the absurdity and cruelty of inducing his patient to file a \$20 million lawsuit against her family, his deluded claim that he can tell in the first session with a patient whether or not she has been abused as a child, all add up to the self-labeled therapeutic package: delusion.

The overwhelming impression left by Bikel's documentary is that there are a number of New Age therapists who are mixing metaphysics, religion and quackery. They have no interest in facts or truth, and, because they are pseudoscientific, have no way of testing whether they are valid or not.

Singer and Lalich's "Crazy" Therapies documents the wide range of pseudoscientific therapies popular among New Age therapists. The authors attribute part of the popularity of bizarre therapies to the rise in irrationality and the demand for such items on talk shows and the book circuit. Some therapists, like Sondra Ray, an advocate of "rebirthing therapy", consider themselves to be spiritual guides, not scientists. They are proud of their lack of scientific support. Some claim that mental illness is caused by possession by spirit entities which must be placated. Others use past-life regression to find the cause of the problem. Some treat alien abduction claims as non-delusional. There are several cathartic therapies that involve primal screaming, rebirthing, or reparenting. None of these therapies has any scientific validity. Others, such as facilitated communication and Eye Movement Desensitization and Reprocessing (EMDR) appear scientific but at the expense of good sense and good science. None of these therapies have been proven

effective by independent scientific studies, nor are they generally accepted as effective in the scientific community. Their support comes mainly from the "insight" and observations of their founders, and patient response, which is analyzed and evaluated by the therapists themselves. Most of the innovative therapists reviewed by Singer and Lalich seem uninterested in scientifically testing their theories, though most seem attached to technical jargon.

It is difficult to select the most egregious New Age therapy, but Neural Organization Technique (NOT) developed by chiropractor Carl Ferreri, is hard to top. Ferreri decided, without the slightest hint of scientific evidence, that all mental and physical problems are due to misaligned skulls. Other chiropractors are deluded for thinking that it is the spine which is misaligned and needs adjustments. Ferreri believes that as you breathe, the bones in your skull move, causing misalignments that can be corrected by manipulation. This theory was put into practice without the slightest proof that cranial bones move or that there is any sense to the notion of "standard alignment" of the cranial bones. Ferreri was not stopped by logic, however, but by lawsuits and criminal charges.

#### Long List of "Crazy" Therapies

The list of "crazy" therapies is too long to reproduce here, but Singer and Lalich describe the following:

Leonard Orr developed energy breathing and rebirthing theory. According to Orr, if you learn how to breathe energy well, you can breathe away diseases and physical or emotional pain.

Marguerite Sechehaye and John Rosen practice the theory of regression and reparenting. The therapist becomes the patient's surrogate parent to make up for the terrible job her real parents did.

Jacqui Shiff's theory is that the patient must wear diapers, suck his thumb and drink from a baby bottle to be cured.

Sondra Ray and Bob Mandel believe that your problems are due to the way you were born. They will help "rebirth" you, properly this time.

John Fuller, Bruce Goldberg, Brian Weiss, Edith Fiore, Richard Boylan, David Jacobs, Budd Hopkins and John Mack use hypnosis to discover the patient's past or future lives as an alien abductee, in an effort to "help" them.

John Bradshaw's theory is that you have an "inner child" you must nurture and be good to, if you are to be healthy.

Arthur Janov practices Primal Therapy. According to Janov, the patient must rid herself of Primal Pain which can be eradicated only by learning the Proper Way to Scream and Capitalize.

Daniel Casriel's New Identity Process (NIP) involves screaming which allegedly unblocks what's blocked. Casriel's scream is a better kind of scream than Janov's.

Nolan Saltzman practices Bio Scream Psychotherapy. His screaming is better than Casriel's or Janov's because it has more Love in it.

Finally, there is hypnotherapy. Hypnotherapy is extremely popular and is practiced by thousands of therapists who got their training in a weekend seminar or a short course. Singer and Lalich note that

There are no licensing requirements, no prerequisites for training, and no professional organization to which those who hypnotize others are accountable. You can be a real estate agent, a graphic artist, an English teacher, or a hairdresser and also call yourself a hypnotherapist by hanging a certificate on your wall that states you took as few as eighteen hours of courses in hypnosis. (p. 53)

This lack of oversight leads to all sorts of abuses and malpractice.

#### Priming

Many hypnotherapists seem unaware that they are priming their patients. The dangers of this practice are stated by Martin Orne: "The cues as to what is expected may be unwittingly communicated before or during the hypnotic procedure, either by the hypnotist or by someone else, for example, a previous subject, a story, a movie, a stage show, etc. Further, the nature of these cues may be quite obscure to the hypnotist, to the subject, and even to the trained observer." (p. 96) Yet, many hypnotherapists seem oblivious to the dangers and pitfalls of using hypnosis in a therapeutic session.

Many New Age therapists seem oblivious to facts with which any competent therapist should be concerned. For example, all these therapists develop theories which exclude the possibility that a patient might either have a physical problem or a character flaw. No patient is physically ill. No mental disorder is biochemical. No patient is responsible for his or her problems. It is always someone else or something else which has the faults. Patients apparently never lie, manipulate, deceive, cheat, distort, rationalize, err, etc. If a patient has a "fault," it is that he or she is not completely trusting of the therapist. Patients have "mental diseases", "emotional problems", or "syndromes", not character flaws. It would be an astounding fact to discover that emotionally disturbed or mentally troubled persons are completely without flaws in their moral character. Yet, these advocates of "crazy" therapies seem to treat all patients as if they were innocent children, incapable of the slightest peccadillo.

Most of the therapists discussed by Bikel, Singer and Lalich seem oblivious or indifferent to their role in priming and prompting their patients. They condition their patients, prompt them, and in some cases, clearly plant notions in their patient's minds. They give their patients books to read or videos to watch, not to help the patient understand a problem but to prime the patient for belief in some crazy therapy. They plant notions during hypnosis, group sessions, etc., and then these planted notions are "recovered" and offered as validation of their therapeutic techniques and theories. Rather than provide real therapy, these "crazy" therapists indoctrinate patients into their own worldviews. This is surreal pseudoscience at its worst.

### Pyramidiocy

Pyramidiocy is characterized by having an outlandish, farfetched theory about the origin, nature or purpose of the Egyptian pyramids. The theories of pyramidiots are barely supported by slender threads of evidence. They serve little purpose except to stand as bad examples of speculative thought and fanciful imagination.

Some pyramidiots, such as Erich von Däniken and Zecharia Sitchin, claim that the ancient Egyptians were too backwards to have constructed the pyramids without the help of extraterrestrials. Edgar Cayce claimed that beings from Atlantis helped the Egyptians build the pyramids by showing them how to levitate stones. Charles Berlitz claimed that Atlantis lay beneath the Bermuda Triangle and had a pyramid the same size as the Great Pyramid at Giza.\* Pyramidiots think Atlantis is the link between the pyramids of Egypt and the pyramids of Mexico. They are not dissuaded by the fact that the one was primarily funerary while the other was primarily used for ceremonies, including some which involved human sacrifice. Arguments demonstrating that the ancient Egyptians or Mexicans were intelligent and resourceful enough to build pyramids are to no avail.

Other pyramidiots ascribe super technological or paranormal powers to the ancient Egyptians. Traditional explanations in terms of religion, tombs for pharaohs and their families, belief in immortality, slave labor or paid workers, slipways, canals, etc. are rejected by pyramidiots in favor of theories claiming that the pyramids were power stations or water pumps.

Some pyramidiots claim that the pyramids were built according to some sort of mystical numerology to contain coded messages. Some believe that the Great Pyramid at Giza is at the center of the world. Some think the pyramids are a map of the heavens. Mystical mathematical notions about the pyramids abound. Some believe only God could have designed such a numerical mystery. Still others have believed that razor blades could be kept perpetually sharp by being placed under a pyramid of the same proportions as the Great Pyramid at Giza (by focusing cosmic energy and realigning crystals in steel!). That almost anything in the universe can be found to have interesting mathematical proportions or be related to several interesting mathematical formulae is of little interest to pyramidiots.

Some pyramidiots think pyramids have healing power and are foci of spiritual energy. That there is no evidence for such beliefs seems to cheer rather than dishearten pyramidiots.

### Pyramid Schemes

#### Pyramid Schemes, Chain Letters and Ponzi Schemes

A pyramid scheme is a fraudulent system of making money which requires an endless stream of recruits for success. Recruits (a) give money to recruiters and (b) enlist fresh recruits to give them money.

A pyramid scheme is called a pyramid scheme because of the shape of a pyramid: a three dimensional triangle. If a pyramid were started by a human being at the top with just 10 people beneath him, and 100 beneath them, and 1000 beneath them, etc., the pyramid would involve everyone on earth in just ten

layers of people with one con man on top. The human pyramid would be about 60 feet high and the bottom layer would have more than 4.5 billion people!

A diagram might help see this:

1  
10  
100  
1,000  
10,000  
100,000  
1,000,000  
10,000,000  
100,000,000  
1,000,000,000  
10,000,000,000

Thus, in very short order, 10 recruiting 10 and so on would reach 10 billion, well in excess of the earth's population. If the entire population of earth were 5 billion and we all got involved in a pyramid scheme, the bottom layer would consist of about 90 percent of the planet, i.e., about 4.5 billion people. Thus, for 500 million people to be WINNERS, 4.5 billion must be LOSERS.

In a straightforward pyramid scheme, a recruit is asked to give a sum of money, say \$100, to a recruiter. The new recruit then enlists, say, 10 more recruits, to give up \$100 each. In the simplest example, the recruiter keeps all the money he gets from his recruits. In our example, each recruit gives up \$100 in exchange for \$900 (\$100 from each of his 10 recruits minus the \$100 he gave his own recruiter). In order for no one to lose money, the recruiting must go on forever. On a planet with a limited number of people, even if the planet is as large as Earth and has almost 6 billion potential recruits, one runs out of new recruits rather quickly.

Thus, the result of all these schemes is inevitable: at best, a few people walk away with a lot of money, while most recruits lose whatever money they put into the scheme. In fact, the only way anybody can make money through a pyramid scheme or chain letter is if other people are defrauded into giving money upon a promise of getting something in return when it will be impossible for them to get anything at all in return. That is to say, in plain English, these schemes always constitute fraud. They use deception to get money. That is why they are illegal. They are not illegal because they involve recruiting people to recruit other people to recruit other people. That is perfectly legal and is done to some degree in many legitimate businesses. They are not illegal because they involve giving money to people. It is perfectly legal to give money to people. They are illegal because they involve deceiving people in order to get money from them: that is the legal meaning of fraud.

In actual fact, however, no pyramid scheme will ever work this way because the scheme will never get the number of recruits we've been speculating about. All pyramid schemes will begin to die when the later recruits don't sign on in numbers large enough to pay off the earlier recruits. There will always be enough people who will smell the scheme out. There will always be too many people who will say "if it sounds too good to be true that's probably because it is." There may even be a good number of people who will realize that though one person recruiting ten doesn't sound like much, it quickly adds up to unrealistic and improbable numbers. Also, all it takes is one person to stop the whole thing, either by adamantly persuading recruiters of their indecency, or by reporting them to the police.

### Greed and Wishful Thinking

Pyramid schemes are popular because people are greedy and greed can do wonders to a person's thinking. For a person desiring to make a lot of money from a small investment in a short amount of time, wishful thinking often takes over where critical thinking should step in. Wishes become facts. Skeptics become idiots for not getting on board. Desires become reality. Asking questions seems rude and unfriendly. Scam artists know how greed works and all it takes is one con man to get the thing started.

With the odds so stacked against a person, why would one gamble on a pyramid scheme? Greed is only part of the answer. Most pyramid people don't envision themselves anywhere near the bottom layer of the pyramid. Even the most greedy person on the planet would probably see that if one is near the bottom layer of recruits it will be very hard to get new recruits. They have to see themselves near the top in order to envision the immense wealth from minimal effort that is going to come their way.

Furthermore, if I hope to get people involved in a pyramid scheme, the first thing I must do is convince them they are not getting involved in a pyramid scheme. They may know they are illegal. Or they may realize that pyramid schemes are a losing proposition for at least 90 percent of those who get involved. So, I tell them they are joining a club. I give the club a nice name such as The Friendly Investors Club (FIC). I reassure them that the FIC is approved by the IRS and run by a CPA with a Ph.D. who is not an ASS. If I'm



really good, my recruits will believe me and the police officers, secretaries, teachers, ministers, etc. whom I recruit. These well-respected, intelligent, honest people will pass on this line to others. If I am really, really good, I will have convinced my recruits not only that they are getting into a legitimate and lucrative Club, but that any earnings are tax-free. I would indicate to recruits that as long as their take in the scheme is less than \$10,000, it wouldn't be taxable because gifts aren't taxable until they exceed \$10,000. I would convince the recruits that, for legal purposes, they would be giving money away and others would be giving money to them.

#### Even The Police Like Pyramid Schemes

In 1995-96, at least 67 employees of the Sacramento Police Department, including 45 officers, were investigated for their alleged involvement in a pyramid scheme (Sacramento Bee 10/28/95, 11/1/95 and 11/15 & 16/96). The scheme was similar to five others that had been operating in southern California, also involving police officers and support staff. The main suspect in the Sacramento scheme was a police captain's wife. The chief of police said that he would try to fire at least seven officers and discipline 60 other police department employees. Nine officers were placed on administrative leave and relieved of their guns and badges. According to a prosecutor, the scheme involved more than 200 people. However, only three of the accused faced criminal misdemeanor charges. Reportedly, some in the scheme made tens of thousands of dollars. The minimum amount lost by those who were on the bottom of the pyramid was \$500.

The police pyramid schemes are called "investment clubs" and have attractive names such as "The Friendship Investment Club" and "A Gift Network." They're sold to investors with the assurance that they are perfectly legal, approved by the IRS or a CPA, and that they definitely are not a pyramid scheme.

The Sacramento scheme was called The Freedom Club or something like that. And it was hyped by a police officer as being legal because it required people to sign a waiver claiming that they were making an unconditional gift to the Freedom Club. A local news reporter, Mike Boyd, asked an IRS agent if this waiver meant the Freedom Club wasn't a pyramid scheme. The IRS agent said that since the people who were signing the waiver expected to get back money for the money they were allegedly making a gift of, the money wasn't really a gift. An attorney, also interviewed by Boyd, agreed that just signing a paper saying you're making an unconditional gift didn't make it so if your intention was not to make an unconditional gift. (Receiving gifts, of course, is legal, and tax free if under \$10,000.) The cops and their recruits for the Freedom Club put in at least \$500 each and expected something like \$4,000 in return for their phony gifts, according to Boyd. The Bee reported that sources told them that some Police Department personnel got more than \$10,000 out of the scheme. The WINNERS in the scheme got their money from "gifts" to the Freedom Club from those who later joined the Club. Such schemes continue, if the participants are not caught, until there are not enough new recruits to pay off the old ones. That is, they would continue until there were a good number of people who had "given" away \$500 and got nothing in return because the scheme folded. The scheme would have to fold eventually, because there can't be an endless stream of recruits.

The Sacramento Police Pyramid scheme involved what we might call "pyramid pods". An organizer (Numero Uno) would start the pod by getting six others to join as organizers. Presumably, the six would be ranked depending on when they were recruited. The organizers pay nothing to join the pod but together they must recruit enough people into the pod to buy eight spots at the bottom of their pyramid. Each spot costs \$500. Numero Uno pockets the \$4,000. The pod splits into two pods of seven people (or spots) each, with a new Numero Uno in each pod (and a new number 2, 3, 4, 5, 6 and 7). Each pyramid pod recruits more people at \$500 for each of eight spots in the pyramid. The two new Numero Unos take their \$4,000 each and the two pods split into 4 pods and those 4 into 16, ad infinitum. To make even more money, some joined more than one pod.

How many in this scheme told the new recruits that 6.7% of those who join will get a 700% return on their investment (\$3,500 on a \$500 investment) as long as 93.3% get nothing? How many advised their recruits to "get in early"?

To have police involved adds a special dimension to this pyramid scheme because (a) officers have ranks and can use their rank for recruiting leverage over those beneath them; (b) officers and ex-officers have positions of authority and trust which will influence potential recruits, especially young people; and (c) police personnel are supposed to enforce the law; when the law enforcers become lawbreakers and encourage others to break the law for monetary gain, respect for law and law officers diminishes.

#### Chain Letters

In the money chain letter, the recruiter sends the new recruits a letter with a list of names on it, including the recruiter's name at the bottom of the list. The recruits are asked to send money to the person whose name is at the top of the list and to add his or her name to the bottom. Money is made solely by getting

new recruits to join the chain, adding their names to the list and recruiting others to do the same. In theory, eventually each recruit's name will be at the top of millions of lists and receive millions of dollars. In practice, most people will receive nothing. Anyone can break the chain, thus depriving all those on the list of any possible "earnings." But, even if no one broke the chain, 95% of those who sent money out will get nothing in return.

If pyramid schemes are a bad investment, how about chain letters? The principle is basically the same, except that with chain letters, you don't have to deceive yourself as much as with pyramid schemes. You probably know up front that the scheme depends on duping friends into giving money to strangers in exchange for the promise of riches coming to you later on from other strangers. You get a letter with a list of names on it. You are told to send money to the name at the top, delete that name and add your name to the bottom, and recruit 5 or 10 people to do the same by sending them the letter with your name at the bottom.

### Ponzi Schemes

A Ponzi scheme, named after Charles Ponzi who defrauded people in the 1920s using the method, involves getting people to invest in something for a guaranteed rate of return and using the money of later investors to pay off the earlier ones. Who will make money from such a scheme? Those who start it and those who get in early. Does anyone really make money from these schemes. They must, or they would have died off long ago. How? If I start the scheme, I just skim off the top and pay off enough people to make it look like it's working, even if that means buying in again at the bottom. I might even be stupid enough to think that I can keep the scheme going when the recruiting has dried up. I can try to get money quickly by some other scheme. For example, I can take a big chunk of money and go to Las Vegas and hope to hit it big. This happened to a fellow I played Little League Baseball with long before we both grew up. He took his investors' money to the craps table where he "invested" their funds. Unfortunately, his "investments" didn't pay off and he went to prison.

I don't know how many people lost money "investing" in my Little League buddy's scheme, but it could not have been as bad as what happened in Romania in 1993 or what happened in Albania in 1997.\* In both cases, thousands of people with little opportunity for investment of capital were swindled by pyramid scheme operators. Romania's newspapers claimed that millions of Romanians lost their life savings in a scheme called Caritas. Reports from Albania claim that hundreds of thousands of Albanians "have invested their life savings or money they earned working abroad" in one of several outlawed pyramid schemes. "The schemes offered very high interest rates, with the first investors paid from later investors' deposits. They eventually failed when no new investors came in" ("Investment-scam protest turns violent in Albania," by Merita Dhimgjoka, Sacramento Bee, Feb. 6, 1977). Any such scheme is doomed to fail because there cannot be an endless line of "investors." Only greed and self-deception are endless.

### Quadro QRS 250G "Detector"

"If it works, I think it could be a real good tool and deterrent in our school system," said one high-school principal. Gastonia Gazette, April 6, 1995

The Quadro QRS 250G (the Quadro Tracker) is a plastic box with an antenna which was sold by Quadro Corp of Harleyville, South Carolina, as a detector of just about anything: drugs, weapons, golf balls, even lost coon dogs. Wade Quattlebaum's invention sold for about \$1,000 each. Some schools and government agencies spent as much as \$8,000 for the device which turns out to be good only at detecting suckers who can be easily parted with other people's money (i.e., our taxpayer dollars). Sandia Labs of Albuquerque, New Mexico, took one apart and discovered that there is nothing inside. It probably costs about \$2 to make. For their trouble, Sandia labs was threatened with a lawsuit by Quadro. Quadro did not threaten to sue the FBI, however, when its tests determined that the Quadro Tracker was incapable of detecting anything. According to the FBI, the device was little more than a piece of plastic. Quadro may have had nothing in their Tracker but they certainly had chutzpah in their marketing: the FBI was one of their target markets.

On January 19, 1996, the FBI Economic Crimes unit seized the merchandise and records of the Quadro Corporation and arrested its officers. In April, 1996, a federal judge issued a permanent injunction against Quadro Corp, which was convicted of engaging in a mail and wire scheme to defraud customers, under statutes 18 U.S.C. 1341 and 1343. In court it was pointed out that the Quadro Detector had been carefully examined and that no "inductors, conductors, or oscillators" were found, though Quadro advertised those as the working parts of its "secret technology." Quadro claimed that theirs were not "ordinary" inductors, conductors, or oscillators. Theirs are of an advanced sort not yet known to "regular science."

The FBI sent out a bulletin to their branches warning that "A device marketed to law enforcement agencies nationwide, the Quadro Tracker...is a fraud. All agencies should immediately cease using the device...."

Even so, several law enforcement officers, as well as several school principals, still swear by their QRS 250G Detectors.

How could such smart people be so easily deceived? Perhaps it was the technical sounding literature sent out by Quadro Corp. Quadro claimed that the device uses "tuned frequency chips" to hone in on its target:

The frequency chip is oscillated by static electricity produced by the body [of the user] inhaling and exhaling gases into and out of the lung cavity. This static electricity is propagated on the surface of the body to the tracker which utilizes the charge to oscillate the chip....[A]ll matter contains exact molecular frequencies. When a magnetic field is created by a contained electrically charged body moving through space at a perpendicular angle moving to its direction, and that field is brought into alignment with another exact field, resonating at the identical frequency modulation, then both objects attract, just as two bodies are attracted toward each other in a gravitational field.

Most purchasing agents would be ignorant of electrical engineering and would not know that the above gobbledygook is gibberish.

Perhaps potential buyers were impressed by the names of the people who endorsed the device:

William Koopman, Val-Comm Inc., Albuquerque, NM  
Steve Lassiter, Drug Task Force, Albuquerque, NM  
Larry DeWees, Principal, Farmington High School, NM  
Clifford Weber, School Supt., Bloomfield, NM  
Nancy Radford, Vice-Principal, Bloomfield H.S., NM  
Troy Daniels, Resource Officer, Bloomfield H.S., NM  
Ralph Navarre, Principal, Mesa Alta H.S., Bloomfield, NM  
Capt. Ben Boozer, Dept. of Corrections, Crozier, VA  
Raymond Gomes, Inspector General, Richmond, VA  
Sgt. Marilyn Chambers, National Guard, Richmond, VA  
Jim Morrison, National Guard, Richmond, VA  
Brian Clements, Dir.of Security, Galena Park, Houston TX  
Lt. Bill Munk, Police Department, Austin, TX  
Don Plybon, US Customs, Charleston, SC  
Cpl. Billie Johnson, North Charleston PD, SC  
Bruce Parent, FL Dept. of Trans., West Palm Beach, FL  
Pip Reaver, Adlerhorst Training School, Riverside, CA  
Pete Blauvelt, Nat. Alliance for Safe Schools, Lanham, MD  
Michael Ferdinand, Interquest Group, Inc., Houston, TX

Any intelligent investigator should know that testimonials are not scientific evidence. Such testimony should be considered worthless when considering the purchase of allegedly high-tech commercial products.

James Randi, in one of his Hotline reports, noted that he had heard from Interquest Group, Inc., Vice President Michael Ferdinand. Interquest, says Randi, is "a reputable and well-known company which train dogs for use in contraband detection." Their endorsement of the Quadro Detector quoted them as saying

"Using the Quadro as a stand-alone unit certainly locates the drugs..."

and

"Since I discovered the Quadro unit, I have introduced it into my K-9 teams with great effect. In fact, I am now helping schools to acquire their own units..."

Randi continues:

But after Interquest personnel attended the mandatory training session in Harleyville, S.C., and had the device examined by Southwest Research Institute (SRI) in San Antonio, Texas, the tune changed. Says Ferdinand now:

We, too, fell victims to the hustle of the 'Quadro Tracker'.... we now recognize that the entire training mission was staged.... based upon the conclusions of [the SRI] report and our inability to achieve any form of consistent results with the product, we disassociated our company from the Quadro Corporation. At present, we remain some \$10,000 in the hole as a result of our encounter with the Quadro Corporation as well as sustaining a certain degree of damage to our otherwise flawless reputation....

The SRI lab report stated in its conclusion that:

the tracker is not functional and the operating principle suggested by the manufacturer is scientifically highly questionable at the very least. Both analyses support the suspicion that the tracker is a fake device.

SRI tested the two "Training Samples" sold to Interquest with the Quadro, and found nothing inside but "epoxied scrambled dead ants."

One of the other people listed in the Quadro list of testimonials denies he ever said what they say he did. Corporal Billy Johnson, a K-9 officer with the North Charleston police department, was quoted by Quadro as saying, "There is no doubt that the Quadro Tracker can do everything the dogs can do, and from a much greater distance." Corporal Johnson told Randi that he never said any such thing and that his department did not purchase the Quadro Detector.

Randi also heard from the boss of Don Plybon, the U.S. Customs agent listed as endorsing the Quadro toy. Writes Randi:

Quadro had published a quotation from Plybon in which he related an account of a "positive for gunpowder alert" that the stick gave him when pointed at a Russian plane at Charleston, SC, airport. The customs agent, said the Quadro ad, decided that "the plane was loaded with used guns." But when they then unloaded the cargo and searched the plane, they found nothing. So, says the ad, they "checked the grease on the ramp" and decided that the Quadro couldn't be wrong, that there must have been "something in the grease" that made it "alert." What really happened? Gee, could it be that the customs agent made a boo-boo, because he was naive enough to think that the thing actually worked? Why else would his boss call me and forbid me to write to agent Plybon any more? And where does he get the colossal nerve to forbid me to do anything? I made my opinion quite clear to him, I assure you. When the boss has to call me to tell me to stop challenging his employee, I begin to wonder... In any case, Quadro has been warned to stop using agent Plybon's name in the advertising they can no longer send out.

Quadro may be closed down but there are others waiting in the wings to surpass even Quadro's wildest claims. For example, there is the Super-Sensor Dowsing Rod which can be ordered from Psi-Tronics Visions. Here is what Psi-Tronics says you can do with their device:

You can dowse the past, present or future. Future events are subject to the laws of probability and free will so it doesn't always work for the lottery. But in other uses you are limited only by your imagination. Locate underground water, pipes, minerals, oil, etc. Locate fish and game animals, or missing persons. I know people who use it to predict the stock market, marketing trends, business opportunities, and to isolate production problems. I know mechanics who dowse to determine mechanical problems in cars, and other machinery and maintenance workers who use dowsing to find underground water lines, leaks, and electrical problems. Professional health workers, chiropractors, dieticians, and people who diagnose illness use dowsing to check their findings. Holistic healers and herbalists use it to prescribe vitamins. In the home, use it to find lost articles and to make decisions. Dowse the telephone book to find a number or the yellow pages to determine who will serve you the best. Check up on your kids to see if they are all right. Check to see if the weather will be good, and what clothes you should wear.

I wonder how many public agencies will spend taxpayer money on this magical dowser? Before spending our money, I would hope they would consider that you will generally find what you are looking for if you already know what you are looking for. Also, if the dowsing stick is more well-balanced than the dowser, the slightest movement will tip it one way or the other. This fact has not prevented another high-tech dowsing stick to enter the market with even more outlandish claims than Psi-Tronics. DielectroKinetic Laboratories promotes their product with appropriate jargon and gobbledegook, and has found advocates from novelist Tom Clancy to former FBI agents and current L.A. cops for its LifeGuard, a dowsing stick that allegedly can detect a single human heartbeat at 500 meters.

#### Raélians (Raelians)

The Raélians are UFO-cult members who follow Claude Vorilhon, a Frenchman and former motor sport journalist and race-car driver who calls himself Raël. He claims that on December 13, 1973, he was in a volcano near Clermont-Ferrand, France, when he saw a UFO "7 meters in diameter made of a very shiny silver metal and moving in a total silence." He says a radiant being emerged and entrusted him with a message revealing the true origin of mankind. They told him that henceforth he would be known as Raël, which means "messenger."

His followers consider him to be "the prophet of the third millennium." Like all good religious leaders, Raël expects his followers to support him. A 10% tithe is the norm.

He explains his mission in his book, *The True Face of God*. According to Taras Grescoe of Salon.com, Vorilhon claims that

he was taken to the planet of the Elohim in a flying saucer in 1975, where he was introduced to noted earthlings such as Jesus, Buddha, Joseph Smith and Confucius. The Elohim, small human-shaped beings with pale green skin and almond eyes, were apparently the original inspiration for the Judeo-Christian God. They informed Vorilhon that he was the final prophet -- sent to relay a message of peace and sensual meditation to humankind under his new name of Raël -- before the Elohim would return to Jerusalem in 2025.

Raël claims that the Elohim have taught him that the human race was created from the DNA of aliens some 25,000 years ago. (In fact, all life on earth was created in alien laboratories.) Among other things, Raël has also learned that cloning is the way to immortality and there is no God or soul. According to Raël, our alien creators want us to be beautiful and sexy and enjoy a sensuous life, free from the restrictions of traditional Judeo-Christian morality.

According to Grescoe, "Raël's success seems to derive from providing a structured environment for decadent behavior: He offers a no-guilt playground for hedonism and sexual experimentation." Fortunately, the Raélians are big on using condoms. They won't spread as much disease that way. However, using condoms won't suffice to deplete their numbers, Raël believes, since he has formed a cloning company called Clonaid which promises to

provide assistance to would be parents willing to have a child cloned from one of them. This service offers a fantastic opportunity to parents with fertility problems or homosexual couples to have a child cloned from one of them.

Scientists say that there is no possibility of Clonaid actually working in the near future and dismiss its goals as pure fantasy (Cohen). However, Clonaid should be a reminder of what might happen in the distant future if controls on genetic engineering are not developed to prevent religious fanatics and lunatics from gaining more control of the planet than they already have.

The Raëlian headquarters are in Montreal but the cult is international and claims to have some 50,000 members in 85 countries. They have an "Evidence Page" on their Web site where they offer proof of their prophet's claims, thus relieving us of the burden of having to believe on pure faith. Unfortunately, the evidence provided is likely to satisfy only those eager for delusion and self-deception. For example, the historical evidence is of the type Velikovsky, von Daniken and other mytho-historians have provided: they take ancient legends, stories, and religious texts, and fit them into their preconceived theory. The Raélians also consider UFO sightings as proof of their messenger's claims.

Their attempt at "scientific" evidence will have some appeal to the scientifically illiterate and the logically-challenged. The scientific evidence is nothing more than speculation and assumption in juxtaposition to facts. Their evidence consists of claiming that we are about to create life in our laboratories and our creations will probably think we are gods. Therefore, it is reasonable to conclude that we were created in laboratories and think of our creators as gods. The rest of the "scientific" evidence consists of a list of scientific accomplishments which, I suppose, are imagined to have to have occurred elsewhere before the living things on our planet could have been created in the lab. All of which begs the question as to whether this occurred elsewhere 25,000 years ago.

Apparently, the Raélians are not bothered by the rather absurd image of a race of superior beings working for thousands of years in a laboratory to create all our insects, fungi, bacteria, viruses, etc., not to mention all their lovelies that have gone extinct. Why would any beings do such a thing? And why would they wait 25,000 years to reveal their handiwork to a French race car driver who spots their UFO in a volcano? And then tell him that the message is to clone ourselves so we can be immortal. Then again, is this story any stranger than the ones in the Bible?

The kicker in their argument is their proof that evolution could not have occurred. They claim scientists have discovered that genes have a DNA repair mechanism (p53) which prevents mutation, an important process in evolution. Species couldn't have diversified if this mechanism were present. p53 was at first thought to be an oncogene but is now thought to be anti-oncogenic. It is of little interest to the Raélians, I suppose, that p53 itself mutates. And it is pure speculation on their part that the entire genetic code of all species always consists of genes which prevent mutation from occurring. Even if they're right, however, it wouldn't follow that Vorilhon's preposterous UFO tale is true. Just ask the so-called creation scientists, the Scientologists, the Urantians, the followers of Barbara Marciniak or UFO Billy, the remaining members of Heaven's Gate, or the surviving members of other UFO religions.

Anyway, if the Raélians are right, I am looking forward to asking the Elohim why they created the mosquito. In the meantime, I may take up Raël's offer of \$2,000 to anyone who starts a new religion.

Rama

(a.k.a. Frederick Lenz 1950-1998)

Zen Master Rama was Frederick P. Lenz, Ph.D. (in English) and businessman (Advanced Systems, Inc.). Thousands of people paid as much as \$5,000 per seminar to be enlightened by this self-proclaimed guru, psychic and miracle worker. Here is what one of his followers said he learned from his master: "Spiritually advanced people work with computers because it makes a lot of money. The more money you make, the better you meditate" (Clark and Gallo, 102).

Rama used a variety of so-called mind-control techniques to seduce his disciples. He had his subjects stare at him for long hours until they would hallucinate and "see" Lenz begin to glow or change shapes. Lenz told his followers that having these "visions" mean they were psychic.

Rama seduced many of his female followers by telling them that he only has sex with women who have a rare sort of karma. He also told women that having sex with him would elevate them to a higher plane of consciousness. It is hard for a skeptic to believe that such a line would work with any woman, but apparently it does.

Rama took religious freedom and tantric gullibility to new heights in his book *Surfing the Himalayas: A Spiritual Adventure* (1997). There he tells us of his adventures "snowboarding through Tantric myetiolem" and offers such bits of wisdom as

Ultimately, thinking is a very inefficient method of processing data...

And,

The relational way of doing things is to move your mind to a fourth condition, a condition of heightened awareness. In a condition of heightened awareness, you elevate your conscious mind above the stream of extraneous data -- out of dimensional time and space, so to speak -- and you meld your mind instead with the pure intelligent consciousness of the universe.

Bob Frankenberg, Chairman and CEO of Novell, claims the book "entertains and enlightens" and calls it "a wonderful contrast of Eastern spirituality and Western pragmatism." Phil Jackson, coach of the Chicago Bulls, said the book "Brings levity and humor to a subject often relegated to a mundane, boring prospect." The book became a best-seller. Within a year Rama published another cult classic: *Snowboarding to Nirvana*.

Unfortunately, all his Tantric wisdom couldn't save Rama. The day before taxes were due in 1998, he drowned in Conscience Bay near his exclusive residence in the exclusive Old Field section of Setauket on Long Island, New York. Rumor has it that he was stoned when he fell off the dock. An unidentified woman described by police as "incoherent" was found to be in Lenz's house at the time his body was recovered by police divers. Lenz was 48 at the time of his death. Cult expert Joe Szimbart claims that Lenz was suffering from liver cancer and committed suicide by overdosing on Phenobarbital (*Skeptical Inquirer*, July/August 1998).

Ramtha

(a.k.a. J.Z. Knight)

Ramtha is a 35,000 year-old warrior-spirit who appeared in the kitchen of a Tacoma, Washington, woman in 1977. J.Z. Knight claims that she is Ramtha's channel. The pretty blonde pretends to go into a trance and speaks medieval or Elizabethan English in a guttural, husky voice. Ms. Knight has thousands of followers and has made millions of dollars performing as Ramtha at seminars (\$1,000 a crack) and at her Ramtha School of Enlightenment, and from the sales of tapes, books and accessories [Clark and Gallo]. She must have hypnotic powers, as otherwise normal people think her command that they spend hours blindfolded in a cold and muddy, doorless maze, is rational and will somehow help them realize self-fulfillment. These people are in the dark in more than one way as they seek the 'void at the center.'

J.Z. Knight used to be "spiritually restless," but not anymore. She's been enlightened by Ramtha from Atlantis via Lemuria. He first appeared to her, she says, while she was in business school having extraordinary experiences with UFOs. It seems as if she read L. Ron Hubbard while in school, as well as Edgar Cayce. The Great One invades her body and speaks through her mouth whenever Ms. Knight is scheduled to put on a performance. She must have a great rapport with her spirit companion, since he shows up whenever she needs him. It is not clear why Ramtha chose Ms. Knight, but it is very clear why J.Z. chose Ramtha: fame and fortune, or simple delusion.

Knight claims to believe that she's lived many lives. If so, one wonders what she needs Ramtha for: she's been there, done that, herself, in past lives. She ought to be able to speak for herself after so many

reincarnations! But as Knight says, we only use 10% of our brain. Perhaps that accounts for her need for Ramtha to show the way. The claim that we only use 10% of our brain is a rather common one among New Agers but what is it based on? Is it based on the fundamental neurological fact that if every neuron in one's brain fired at once, the result would be disastrous? Actually, I'm not sure I know what it means to say that we only use 10% of our brain, but if it means that only a small fraction of the brain's neurons are firing during any given perception, conception, dream, etc., then that is absolutely correct and absolutely trivial. In any case, she should be glad that only a fraction of the brain's cells are at work at any given moment: it will keep her from having seizures or from going crazy.

Knight also claims that spirit or consciousness can "design thoughts" which can be "absorbed" by the brain and constructed "holographically". These thoughts can affect your life. If this means what I think it means, then Ms. Knight has taken the notion of proving the obvious to new heights: she has discovered that one's thoughts can affect one's life! On another level, however, she is passing on some traditional pap about the soul and the body. The soul "wears" the body like a suit of clothes; therefore, since two bodies can wear the same suit of clothes, so two souls can wear the same body. Yes. And so could three or four or four hundred, for that matter. Lucky for most of us that our spirits are possessive and selfish and don't let other spirits in to wear our bodies. Otherwise, we might have to start a school or a cult or be forced to read Edgar Cayce while wearing a pyramid hat.

Knight not only has rewritten the book on neurology, she has also rewritten the book on archaeology and history. The world was not at all like the scholars of the world say it was 35,000 years ago. We were not primitive hunters and gatherers who liked to paint in caves. No, there were very advanced civilizations around then. It doesn't matter that there is no evidence for this, because Knight has rewritten the book of evidence as well. Evidence is what appears to you, even in visions and hallucinations and delusions. I suppose evidence could also be anything you felt like making up. So, when you are told that Ramtha came first from Lemuria in the Pacific ocean, do not seek out scholars to help you understand that ancient civilization because the scholars of the world do not believe Lemuria existed except as a fantasy. When you are told that the Lemurians were a great civilization from the time of the dinosaurs, do not expect to be burdened with evidence. There isn't any evidence. The only mammals around at the time of the dinosaurs were primitive and non-hominid, very much like lemurs. Maybe the Lemurians were really lemurs. No, because the Lemurians came from "beyond the North star", which explains why all humans ever since have looked to the sky with longing.

But as cool as Lemuria was, it could not compare with its counterpart in the Atlantic ocean. Knight's story of Ramtha in Atlantis is too bizarre to retell. Only L. Ron Hubbard could really appreciate the depth of the story, anyway. Let's just say that Ramtha was a warrior who appeared to Edgar Cayce and leave it at that. Her story is appealing to those who are not comfortable in today's world. The past must have been better. It must have been safer then, and people must have been more noble. This message is especially appealing to people who feel that the modern world is an ill-fitting suit of clothes. Nobody listens to you, no one cares about you, but God loves you and you love God, and when you hear voices, that's a good thing. You were poor but now you're rich, were weak but now are strong. You are amazing, Grace!

Ramtha, like Christ, ascended into heaven, after his many conquests, including the conquest of himself. He said he'd be back and he kept his promise by coming to Knight in 1977 while she was in her pyramid power phase. She put a toy pyramid on her head and lo and behold if that wasn't a signal for Ramtha to return to the land of the living dead!

And he looked at me and he said: "Beloved woman, I am Ramtha the Enlightened One, and I have come to help you over the ditch" And, well, what would you do? I didn't understand because I am a simple person so I looked to see if the floor was still underneath the chair. And he said: "It is called the ditch of limitation", and he said: "And I am here, and we are going to do a grand work together."

So, the first rule of the wise is: beware the ditch of limitation! Apparently Knight's husband-to-be fell in the ditch because he was there at the time but was so busy lining up pyramids with a compass that he didn't see Ramtha. He did feel his magnetic charm, however; for, according to Knight (and who wouldn't believe her??), the compass needle was spinning around madly. So I take it that the pyramids never got lined up properly that day. Furthermore, the pyramid man (a dentist, by the way) saw "ionization" in the kitchen air. (From her description of the scene, he may have been passing out the nitrous oxide or peyote, as well.)

Ramtha then became Knight's personal tutor for two years, teaching her everything from theology to quantum mechanics. Maybe that is why she seems so smart. But it doesn't explain why a being from a civilization so advanced as Atlantis would be fascinated by her gas stove. Anyway, he taught her to have out-of-body experiences. The experience was so extraordinary she had to dig very deep for a metaphor to try to convey the bliss she felt: "I felt like .... like a fish in the ocean."

Her big break came when her son, Brandy, developed "an allergic reaction to life." He had to have a few shots but he was allergic to the allergy shots. Fortunately, "the Ram" (as Knight calls her spirit invader) came to the rescue and taught her therapeutic touch. She healed Brandy with prayer and her touch "in

less than a minute," greatly reducing her medical bills. She had performed a miracle and now nothing would stop her from entering the public arena.

The kicker in all this, and perhaps the reason J.Z. Knight is so successful in getting followers and students, is that Ramtha turns out to be a feminist who recognizes that if he appeared in his own masculine body he would just perpetuate the myth that God is male and further contribute to the eternal abuse of women.

That's what he said. So women have been abused by men, and herded by men through religion to perform according to those religious doctrines, and in fact, women were despised by Jehovah. So, he said: "It is important that when the teachings come through, they come through the body of a woman."

This feminization of God must be pleasing to many people, who are tired of masculine divinities. Even those of us men who don't believe in gods will probably agree that J.Z. is a lot prettier than J.C. Yet, her message is no more appealing than that of any other religion. She claims that Ramtha will help people master their humanity and "open our minds to new frontiers of potential." Unsurprisingly, there has been some opposition to Ramtha's little cult of about 3,000 followers. They're just trying to find the God within, though I wonder if they realize that you don't get past the door without the price of admission.

One would think that it doesn't take a rocket scientist to figure out that the likelihood of a 35,000-year-old Cro-Magnon ghost suddenly appearing in a Tacoma kitchen to a homemaker to reveal profundities about centers and voids, self-love and guilt-free living, or love and peace, is close to zero. Yet, the will to believe is so strong in many people that even such an obvious absurdity seems reasonable. Plus, for many followers, believing in Ramtha "works." As one follower put it, "I watched great changes come over people around me--people who lacked hope came alive again." The fact is that many people's lives are so void of meaning and significance that even the ridiculous--if it offers meaning and direction--appears reasonable, if not profound. Their lives are made better, at least for a while, by their newfound beliefs.

One might say, then, that it would be good to leave the Ramthas of the world alone. After all, they're helping people, even if they are frauds. As long as they're not hurting anyone, let them be. Even if they are hurting people, the victims are adults who freely choose to be exploited and abused. Don't we have the right to be victims if we so choose?!

Sometimes. But sometimes those adults bring their children. Sometimes those adults are not as free as the rest of us. Sometimes a Ramtha takes more than your money. No one should ever forget the reverend Jim Jones and the mass suicide in 1978 of more than 900 cultists in Jonestown, Guyana. Not that Ms. Knight is a threat to her followers' lives, only to their dignity.

### Randi Psychic Challenge

James Randi, a.k.a. The Amazing Randi, magician and author of numerous works skeptical of paranormal, supernatural and occult claims, has had for many years a standing offer of \$10,000 to anyone who can prove he or she has psychic powers. Recently, he has solicited pledges and the prize is now \$1,000,000 offered through the James Randi Educational Foundation. The only caveat is that the psychic must agree to be tested according to Randi's guidelines. His rules are little more than what any reasonable scientist would require. If you are a mental spoon bender, you can't use your own spoons. If you are going to see auras, you will have to do so under controlled conditions. If you are going to do some remote viewing, you will not be given credit for coming close in some vague way. If you are going to demonstrate your dowsing powers, be prepared to be tested under controlled conditions. If you are going to do psychic surgery, expect to have cameras watching your every move.

For more information on the James Randi Challenge write to

JREF  
201 S.E. 12th St (E. Davie Blvd)  
Fort Lauderdale, FL 33316-1815  
U.S.A.

After collecting the million, successful psychics should contact B. Premanand of the Indian Skeptic, who will pay 100,000 rupees (ca. \$2,300) "to any person or persons who will demonstrate any psychic, supernatural or paranormal ability of any kind under satisfactory observing conditions."

### Reflexology

Reflexology is the massaging of feet to diagnose and cure disease. Reflexology is based on the unsubstantiated belief that each part of each foot is a mirror site for a part of the body. The big toe, for



example, mirrors the head and is considered a "reflex area" for the head. As iridology maps the body with irises, reflexology maps the body with the feet, the right foot corresponding to the right side of the body and the left foot corresponding to the left side of the body. Because the whole body is represented in the feet, reflexologists consider themselves to be "holistic" health practitioners, not foot doctors. Allegedly, the ancient Chinese and Egyptians practiced reflexology and it is still very popular in Holland.

Practitioners of reflexology claim that they can cure a variety of aches and pains by massaging the correct reflex point on the foot. It is said by those who practice it that reflexology can cure migraine headaches and relieve sinus problems. It can restore harmony to hormonal imbalances and cure breathing disorders and digestive problems. If you have a back problem, a massage on the right spot on the right foot (which might be the left foot in some cases) can alleviate your suffering. If you suffer from circulatory problems or have a lot of tension and stress, reflexology promises relief.

There are many variations of reflexology and many names for these variations, including Zone Therapy, Vacuflex, and Vita Flex. Some chiropractors are also reflexologists, although there is no necessary connection between the two.

Reflexology is often combined with other therapies and practices, such as acupuncture, shiatsu, yoga, tai chi, etc., and it often involves the hands and other body parts or zones, not just the feet. reflexology in many of its manifestations seems to be a variation of acupuncture, with its notion that there are correspondences between special pressure points and the flow of chi to bodily organs. Polarity therapy, a variant of reflexology, replaces the yin/yang opposition with the positive/negative energy charges of the sides of the body ( the right side is positively charged); massage allegedly restores the proper balance of energy. In polarity therapy, the foot is the site of just one of many key massage points.

Is there any scientific evidence for the claim that each part of the body has a corresponding double in the feet? No. Is there evidence that a good massage of the feet, neck, hands, back, etc., can make you feel better. Yes. Is there any evidence of chi, yin, yang, separate bioelectrical charges or energies for the sides of the body, etc., are key factors in your health? No. Why do so many people believe in such things? They want to believe in them, so they accept uncritically anecdotes of miraculous cures. They've seen firsthand that they work, but they fail to explore the possibility of the placebo effect, misdiagnosis, spontaneous healing, patient expectation, etc., and engage in post hoc reasoning.

#### Regressive Fallacy

The regressive fallacy is the failure to take into account natural and inevitable fluctuations of things when ascribing causes to them [Gilovich, p. 26]. Things like stock market prices, golf scores, and chronic back pain inevitably fluctuate. Periods of low prices, low scores, and little or no pain are eventually followed by periods of higher prices and scores, and greater pain. To ignore these natural fluctuations and tendencies often leads to self-deception regarding their causes and to post hoc reasoning.

For example, a professional golfer with chronic back pain or arthritis might try a copper bracelet on his wrist or magnetic insoles in his shoes. He is likely to try such gizmos when he is not playing or feeling well. He notices that his scores are improving and his pain is diminishing or gone. He concludes that the copper bracelet or the magnetic insole is the cause. It never dawns on him that the scores and the pain are probably improving due to natural and expected fluctuations. Nor does it occur to him that he could check a record of all his golf scores before he used the gizmo and see if the same kind of pattern has occurred frequently in the past. If he takes his average score as a base, most likely he would find that after a very low score he tended to shoot not a lower score but a higher score in the direction of his average. Likewise, he would find that after a very high score, he did not tend to shoot a higher score but rather would shoot a lower score in the direction of his average.

This tendency to move toward the average away from extremes was called "regression" by Sir Francis Galton in a study of the average heights of sons of very tall and very short parents. (The study was published in 1885 and was called "Regression Toward Mediocrity in Hereditary Stature.") He found that sons of very tall or very short parents tended to be tall or short, respectively, but not as tall or as short as their parents.

The professional golfer could check his scores because records are kept of each game played. Professional golfers frequently are featured in testimonials for some gizmo guaranteed to improve your golf score. Who has ever heard one of them refer to a proper study done on golf scores (one which doesn't use optional starting and stopping) which demonstrates that the improvement, if any, is not due to natural fluctuation and regression?

Many people are led to believe in the causal effectiveness of worthless remedies because of the regressive fallacy. The intensity and duration of pain from arthritis, chronic back ache, gout, etc., naturally fluctuates. A remedy such as a chiropractic spinal manipulation or a magnetic belt is likely to be sought when one is

at an extreme in the fluctuation. Such an extreme is naturally going to be followed by a diminishing of pain. It is easy to deceive ourselves into thinking that the remedy we sought caused our reduction in pain. It is because of the ease with which we can deceive ourselves about causality in such matters, that scientists do controlled experiments to test causal claims.

Even if a quack remedy does not work, it is often not blamed for its ineffectiveness. For example, when comedian Pat Paulsen sought "alternative" medical treatment for cancer in Tijuana, his daughter did not criticize the treatment as useless when her father died. Paulsen had reportedly had some good days while on the "alternative" treatments, which would have been expected by natural fluctuation. His daughter claimed that the treatment worked, but had failed in her father's case because they had sought the treatment too late. When he was diagnosed with brain and colon cancer, his wife Noma was quoted in press reports as saying that the doctor in Tijuana "is confident it can be cured. The doctors here say it can't. We like the ones over there a lot better." An official press release on his death claimed he died from pneumonia, not cancer. A family spokesman was quoted as saying: "His cancer was under control after undergoing alternative treatment in Mexico. He succumbed at 2pm on Thursday after complications brought on by pneumonia and kidney failure after recent non-cancer related surgery." His wife did not think the alternative therapy was worthless. She said: "We want to thank our team of doctors in Mexico who treated my husband humanely and with respect, and who were with him 24 hours a day trying to save his life."\*

Reich, Wilhelm

Orgone & Wilhelm Reich

Orgone is an alleged type of "Primordial Cosmic Energy" discovered by Wilhelm Reich in the late 1930s. Reich claimed that orgone energy is omnipresent and accounts for such things as the color of the sky, the failure of most political revolutions, and a good orgasm. In living beings, orgone is called bio-energy or Life Energy. Reich believed that orgone energy is "demonstrable visually, thermically, electroscopically and by means of Geiger-Mueller counters." However, only true believers in orgone energy (i.e., organomists practicing the science of organomy) have been able to find success with the demonstrations.

Reich claimed to have created a new science (organomy) and to have discovered other entities, such as bions, which to this day only organomists can detect. Bions are alleged vesicles of orgone energy which are neither living nor non-living, but transitional beings.

Reich died on November 3, 1957, in the Federal Penitentiary at Lewisburg, Pennsylvania, where he was sent for criminal contempt. The criminal charge was levied because Reich refused to obey an injunction against selling quack medical devices such as the Orgone Accumulator and orgone "shooters," devices which allegedly could collect and distribute orgone energy, thereby making possible the cure for just about any medical disorder except, perhaps, megalomania.

The Food and Drug Administration not only declared that there is no such thing as orgone energy, they had some of Reich's books burned--a sure-fire way to ignite interest in somebody. If the government burned his books, Reich must have been on to something BIG!!! Or so one theory goes. There is another theory which says that some government decisions look stupid because they are made by incompetent people.

Despite having no status in the scientific community, Reich's ideas have been passed on by a number of devoted followers led by Elsworth F. Baker, M.D., founder of The American College of Organomy, and Dr. James DeMeo of The Orgone Biophysical Research Laboratory, Inc., located in Ashland, Oregon. Baker's successors (he died in 1985) and DeMeo continue to defend both Reich the scientist and organomy. Reich saw himself as a persecuted genius and considered the critics who ridiculed him to be ignorant fools. DeMeo and Baker agreed.

Reiki

Reiki (pronounced ray-key) is a form of healing through manipulation of ki, the Japanese version of chi. Rei means spirit in Japanese, so reiki literally means spirit life force and may be understood as "spirit led by the life force."

Like their counterparts in traditional Chinese medicine who use acupuncture, as well as their counterparts in the West who use therapeutic touch (TT), the practitioners of reiki believe that health and disease are a matter of the life force being disrupted. Each believes that the universe is full of energy which cannot be detected by any scientific instruments but which can be felt and manipulated by special people who learn the tricks of the trade. Reiki healers differ from acupuncturists in that they do not try to unblock a person's ki but to channel the ki of the universe so that the person heals. The reiki master claims to be able to draw

upon the energy of the universe and actually increase his or her own energy while performing a healing. Reiki healers claim to channel reiki into "diseased" individuals for "rebalancing." If the healing fails it is because the patient is resisting the healing energy.

Reiki is very popular among New Age spiritualists. It comes complete with "attunements," "harmonies," and "balances," plus it uses Sanskrit symbols. Reiki healers pay up to \$10,000 to their masters to become masters themselves. The process involves going through several levels of attunement and learning which symbols to use, when to call up the universal life force, how to heal an emotional or spiritual illness, and how to heal someone who isn't present.

Reiki was popularized by Mikao Usui (1802-1883) who founded a religious movement in Japan in the late 19th century after hallucinating and hearing voices giving him "the keys to healing." He had fasted and meditated for several weeks before his revelations.

Larry Arnold and Sandra Nevins claim in *The Reiki Handbook* (1992) that reiki is useful for treating brain damage, cancer, diabetes and venereal diseases.

Places which teach reiki, such as Loving Touch Centers, are also likely to offer courses in aromatherapy, numerology, palmistry, reflexology, tarot, astrology, aura analysis, the cabala, crystal therapy, graphology, etc.

## Reincarnation

Reincarnation is the belief that when one dies, one's body decomposes, but one is reborn in another body. It is the belief that one has lived before and will live again in another body after death. The bodies one passes in and out of need not be human. One may have been a Doberman in a past life, and one may be a mite or a carrot in a future life. Some tribes avoid eating certain animals because they believe that the souls of their ancestors dwell in those animals. A man could even become his own daughter by dying before she is born and then entering her body at birth.

The belief in past lives used to be mainly a belief in Eastern religions such as Hinduism and Buddhism, but now is a central tenet of such theories as dianetics and channeling. In those ancient Eastern religions, reincarnation was not considered a good thing, but a bad thing. To achieve the state of ultimate bliss (nirvana) is to escape from the wheel of rebirth. In most, if not all, ancient religions with a belief in reincarnation, the soul entering a body is seen as a metaphysical demotion, a sullyng and impure rite of passage. In New Age religions, however, being born again seems to be a kind of perverse goal. Prepare yourself in this life for who or what you want to come back as in the next life. Belief in past lives also opens the door for New Age therapies such as past life regression therapy which seeks the causes of today's problems in the experiences of previous lives.

L. Ron Hubbard, author of *Dianetics* and the founder of Scientology, introduced his own version of reincarnation into his new religion. According to Hubbard, past lives need auditing to get at the root of one's "troubles." He also claims that "Dianetics gave impetus to Bridey Murphy" and that some scientologists have been dogs and other animals in previous lives ("A Note on Past Lives" in *The Rediscovery of the Human Soul*). According to Hubbard, "It has only been in Scientology that the mechanics of death have been thoroughly understood." What happens in death is this: the Thetan (spirit) finds itself without a body (which has died) and then it goes looking for a new body. Thetans "will hang around people. They will see a woman who is pregnant and follow her down the street." Then, the Thetan will slip into the newborn "usually...two or three minutes after the delivery of a child from the mother. A Thetan usually picks it up about the time the baby takes its first gasp." How Hubbard knows this is never revealed.

J.Z. Knight claims that in 1977 the spirit of a Cro-magnon warrior who once lived in Atlantis took over her body in order to pass on bits of wisdom he'd picked up over the centuries. Ms. Knight seems to be carrying on the work of Jane Roberts and Robert Butts, who in 1972 hit the market with *Seth Speaks*. Knight, Roberts and Butts are all indebted to Edgar Cayce who claimed to be in touch with many of his past lives. One would think that channeling might muck things up a bit. After all, if various spirits from the past can enter any body at any time without destroying the present person, it is possible that when one remembers a past life it is actually someone else's life one is remembering.

From a philosophical point of view, reincarnation poses some interesting problems. What is it that is reincarnated? Presumably, it is the soul that is reincarnated, but what is the soul? A disembodied set of consciousnesses?

Reincarnation does seem to offer an explanation for some strange phenomena such as the ability of some people to regress to a past life under hypnosis. Also, we might explain child prodigies by claiming that unlike most cases of reincarnation where the soul has to more or less start from scratch, the child prodigy

somehow gets a soul with great carryover from a previous life, giving it a decided advantage over the rest of us. Reincarnation could explain why bad things happen to good people and why good things happen to bad people: they are being rewarded or punished for actions in past lives (karma). One could explain déjà vu experiences by claiming that they are memories of past lives. Dreams could be interpreted as a kind of soul travel and soul memory. However, past life regression and déjà vu experiences are best explained as the recalling of events from this life, not some past life. Dreams and child prodigies are best explained in terms of brain structures and processes. And since bad things also happen to bad people and good things also happen to good people, one might well suppose that there is no rhyme or reason why anything happens to anybody.

Finally, since there is no way to tell the difference between a baby with a soul which will go to heaven or hell, and one with a soul which has been around before in other bodies, and one with no soul at all, it follows that the idea of a soul adds nothing to our concept of a human being. Applying Occam's razor, both the idea of reincarnation and the idea of an immortal soul which will go to heaven or hell are equally unnecessary.

### Remote Viewing

Remote viewing is the alleged psychic ability to perceive places, persons and actions that are not within the range of the senses. Remote viewing might well be called Psychic Dowsing. Instead of a twig or other device, one uses psychic power alone to dows the entire galaxy, if need be, for whatever one wants: oil, mountains on Jupiter, a lost child, a buried body, a hostage site thousands of miles away, inside the Pentagon or the Kremlin, etc.

Ingo Swann and Harold Sherman claim to have done remote viewing of Mercury and Jupiter. Dr. Russell Targ and Dr. Harold Puthoff studied Swann and Sherman, and reported that their remote viewing compared favorably to the findings of the Mariner 10 and Pioneer 10 research spacecrafts. Isaac Asimov, however, did a similar comparison and found that 46% of the observation claims of the astral travelers were wrong. Also, only one out of 65 claims made by the remote viewers was a fact that either was not obvious or not obtainable from reference books [James Randi].

Targ and Puthoff were not put off by the fact that Swann claimed he saw a 30,000 ft. mountain range on Jupiter on his astral voyage when there is no such thing. It is hard to imagine why anyone would have faith in such claims. If I told you that I had been to your home town and had seen a 30,000 ft. high mountain there, and you knew there was no such mountain, would you think I had really visited your town even if I correctly pointed out that there is a river nearby and it sometimes floods? Swann, in a lovely ad hoc hypothesis, now claims that astral travel is so fast that he probably wasn't seeing Jupiter but another planet in another solar system! There really is a big mountain out there on some planet in some solar system in some galaxy.

The CIA and the U.S. Army thought enough of remote viewing to spend millions of taxpayers' dollars on such research in a program referred to as "Stargate." The program involved using psychics for such operations as trying to locate Gadhafi of Libya (so our Air Force could drop bombs on him) and the locating of a missing airplane in Africa. The mass media, ever watchful of wasteful government programs, did not exhibit much skepticism regarding remote viewing. Typical is the reporting in the Sacramento area. TV news anchors Alan Frio and Beth Ruyak led their nightly Channel 10 program on November 28, 1995, with a story on "exciting new evidence" that remote viewing really works. The same story had appeared that morning in the Sacramento Bee in an Associated Press article about "Stargate" by Richard Cole. "A particularly talented viewer accurately drew windmills when the sender was at a windmill farm at Altamont Pass," Cole wrote. The "talented viewer" was Joe McMoneagle, a former army psychic spy. Cole based his claim on the testimony of Dr. Jessica Utts, a statistics professor at the University of California, Davis, who was hired by the government to do an assessment of "psychic functioning." Channel 10 interviewed Dr. Utts, who confirmed that there is good reason to believe that Joe McMoneagle does indeed have psychic powers.

McMoneagle was in the army for 16 years, apparently serving some or most of that time as a psychic spy. He claims he helped locate the U.S. hostages taken by Iran during Jimmy Carter's presidency. Now a civilian psychic consultant, McMoneagle has turned his talents to more significant feats, as Dr. Utts demonstrated. She held up a drawing allegedly done by McMoneagle and declared that it was done by remote viewing. Another scientific researcher had gone to the Altamont pass, known for its miles of funny looking windmills on acres of rolling hills. McMoneagle tried to use his psychic powers to "see" what the researcher at Altamont was seeing and then draw what he was seeing. The sum total of the evidence for the value of psychic spying consisted of only one drawing and Dr. Utts's word that it looks like the Altamont pass. I will testify that in fact the drawing did have a strong resemblance to the Altamont pass. It also had a strong resemblance to ships on a stormy sea and to debris in a cloudy, stormy sky.

McMoneagle was just one of the psychics studied by Targ and Puthoff at the Stanford Research Institute (aka SRI International) from 1973 through 1989 and by another outfit with the unassuming name of Science Applications International Corp., which did its research from 1992 through 1994. Utts and Dr. Ray Hyman, a psychologist at the University of Oregon and a skeptic, issued separate reports on these studies. Utts concluded that "psychic functioning has been well established." Hyman disagreed. In his AP article, Cole wrote that Utts and Ray Hyman stated that "the research was faulty in some respects. The government often used only one 'judge' to determine how close the psychics had come to the right answer. That should have been duplicated by other judges." I would assume that Hyman, if not Utts, would have required a bit more of these studies than that they have more judges.

As a public service, I notified both Channel 10 and Dr. Utts of James Randi's challenge: \$1,000,000 to anyone who can prove he or she has psychic powers. I don't think a heartfelt testimonial from Dr. Utts or Mr. McMoneagle will qualify. As far as I know, the Randi money is still unclaimed.

However, in a startling new development CIA spokesman Mark Mansfield said: "The CIA is reviewing available programs regarding parapsychological phenomena, mostly remote viewing, to determine their usefulness to the intelligence community." He also notes that the Stargate program was found to be "unpromising" in the 1970s and was turned over to the Defense Department. At one time as many as sixteen psychics worked for the government and the Defense Intelligence Agency made them available to other government departments. One of the psychics, David Morehouse, was recruited when he took a bullet in the head in Jordan and started having visions and vivid nightmares. He's written a book about it (Psychic Warrior) and it is sure to be better received by true believers than Mansfield's disclaimer.

We may not sleep better tonight, knowing that we no longer have psychics working for the Defense Department and the CIA. But we can be comforted by the fact that we still enjoy an eager scientific and academic community ready and willing to investigate anything for the sake of knowledge and national security, and a vigilant press corps keeping an eye on things.

#### Repressed Memory

A repressed memory is the memory of a traumatic event retained in the unconscious mind, where it is said to affect conscious thought, desire, and action even though there is no conscious memory of the alleged traumatic episode.

Most people consciously repress unpleasant experiences. Many psychologists believe that unconscious repression of traumatic experiences such as sexual abuse or rape is a defense mechanism which backfires. The unpleasant experience is forgotten but not forgiven. It lurks beneath consciousness and allegedly causes a myriad of psychological and physical problems from bulimia to insomnia to suicide.

The theory of unconsciously repressing the memory of traumatic experiences is controversial. There is little scientific evidence to support either the notion that typically traumatic experiences are unconsciously repressed or that unconscious memories of traumatic events are significant causal factors in physical or mental illness. Most people do not forget traumatic experiences unless they are rendered unconscious at the time of the experience. No one has identified a single case where a specific traumatic experience in childhood was repressed and the repressed memory of the event, rather than the event itself, caused a specific psychiatric or physical disorder in adulthood.

The strength of the scientific evidence for repression depends on exactly how the term is defined. When defined narrowly as intentional suppression of an experience, there is little reason to doubt that it exists. But when we talk about a repression mechanism that operates unconsciously and defensively to block out traumatic experiences, the picture becomes considerably murkier.

Evidence concerning memory for real-life traumas in children and adults indicates that these events--such as the Chowchilla kidnappings, the sniper killing at an elementary school, or the collapse of skywalks at a Kansas City hotel--are generally well remembered....complete amnesia for these terrifying episodes is virtually nonexistent (Schacter, 1996, 256).

Psychologist Lenore Terr, a defender of repressed memory therapy, argues that repression occurs for repeated or multiple traumas, such as a repeatedly abused child. Schacter notes that "hundreds of studies have shown that repetition of information leads to improved memory, not loss of memory, for that information." He also notes that people who have experienced repeated traumas in war, even children, generally remember their experiences. A person who suffers a great trauma often finds that she cannot get the event out of her mind or dreams (Sacks). Terr's theory is that the child becomes practiced at repression to banish the awful events from awareness, and that forgetting might aid in the child's survival. Her dissociative theory, however, is based on speculation rather than scientific evidence.

Most psychologists accept as fact that it is quite common to consciously repress unpleasant experiences, even sexual abuse, and to spontaneously remember such events long afterward. Most of the controversy centers around recovered memories during repressed memory therapy (RMT). Critics of RMT maintain that many therapists are not helping patients recover repressed memories, but are suggesting and planting false memories of alien abduction, sexual abuse, and satanic rituals.

## Repressed Memory Therapy

(a.k.a. Trauma-Search Therapy)

Repressed memory therapy (RMT) is a type of psychotherapy which assumes that problems such as bulimia, depression, sexual inhibition, insomnia, excessive anxiety, etc., are due to unconsciously repressed memories of childhood sexual abuse. RMT assumes that a healthy psychological state can only be restored by recovering and facing these repressed memories of sexual abuse.

## How Widespread Is Childhood Sexual Abuse?

The U.S. Bureau of Justice Statistics reports that a survey done of female state prison inmates in 1996-97 found that some 36 percent said they had been sexually or physically abused at age 17 or younger. The terms 'sexual abuse' and 'physical abuse' were not clearly defined; however, one-third reported they had been raped before incarceration. By comparison, 16 studies of child abuse in the general population found that from 12 percent to 17 percent reported they had been "abused" as children.

## What do the scientists and professional organizations say?

There is little scientific evidence supporting the notions that (a) childhood sexual abuse almost always causes psychological problems in adults; or that (b) memories of childhood sexual abuse are unconsciously repressed; or that (c) recovering repressed memories of abuse leads to significant improvement in one's psychological health and stability. The Royal College of Psychiatrists in Britain has officially banned its members from using therapies designed to recover repressed memories of child abuse. The British Psychological Society, on the other hand, does not ban its members from such therapy, but in a 1995 report urged them to "avoid drawing premature conclusions about memories recovered during therapy." The report noted that a patient's recovered memory may be metaphorical or emanate from dreams or fantasies. The report also denied that there is any evidence suggesting that therapists are widely creating false memories of abuse in their patients.

In the U.S.A., The American Psychological Association's Working Group on the Investigation of Memories of Childhood Abuse also issued a report in 1995. The report notes that recovered memory is rare. It also states that "there is a consensus among memory researchers and clinicians that most people who were sexually abused as children remember all or part of what happened to them although they may not fully understand or disclose it....At this point," according to the APA, "it is impossible, without other corroborative evidence, to distinguish a true memory from a false one." Thus, says the APA report, a "competent psychotherapist is likely to acknowledge that current knowledge does not allow the definite conclusion that a memory is real or false without other corroborating evidence." Yet, many RMT therapists consider it unnecessary to attempt to find corroborative evidence for the abuse their patients remember while in therapy.

## What Do The Rmt Advocates Say?

Many of the more prominent RMT advocates use a check list approach to diagnose repressed memories of childhood sexual abuse as the cause of a patient's problems, despite the fact that "there is no single set of symptoms which automatically indicates that a person was a victim of childhood abuse" (APA report). Yet, works on child abuse promoting such a notion have been very popular among therapists and talk show hosts featuring Ellen Bass, Laura Davis, Wendy Maltz, Beverly Holman, Beverly Engel, Mary Jane Williams and E. Sue Blume. Through communal reinforcement many empirically unsupported notions, including the claim that about half of all women have been sexually abused, get treated as a 'fact' by many people. Dr. Carol Tavris writes

In what can only be called an incestuous arrangement, the authors of these books all rely on one another's work as supporting evidence for their own; they all endorse and recommend one another's books to their readers. If one of them comes up with a concocted statistic--such as "more than half of all women are survivors of childhood sexual trauma"--the numbers are traded like baseball cards, reprinted in every book and eventually enshrined as fact. Thus the cycle of misinformation, faulty statistics and invalidated assertions maintains itself (Tavris).

One significant difference between this group of experts and, say, a group of physicists is that the child abuse experts have achieved their status as authorities not by scientific training but by either (a) experience [they were victims of child abuse or they treat victims of child abuse in their capacity as social workers], or (b) they wrote a book on child abuse. The child abuse experts aren't trained in scientific research, which, notes Tavris, "is not a comment on their ability to write or to do therapy, but which does seem to be one reason for their scientific illiteracy."

Here are a few of the unproved, unscientifically researched notions that are being bandied about by these child abuse experts: (1) If you doubt that you were abused as a child or think that it might be your imagination, this is a sign of "post-incest syndrome" [Blume]. (2) If you can't remember any specific instances of being abused, but still have a feeling that something abusive happened to you, "it probably did" [Bass and Davis]. (3) When a person can't remember his or her childhood or has very fuzzy memories "incest must always be considered a possibility" [Maltz and Holman]. And, (4) "If you have any suspicion at all, if you have any memory, no matter how vague, it probably really happened. It is far more likely that you are blocking the memories, denying it happened" [Engel].

### RMT Techniques

Before discussing the methods and techniques of RMT, it should be noted that very few recovered memories of childhood sexual abuse first occur spontaneously. When they do, they are usually more likely to be corroborated by evidence than those evoked in RMT therapy. In fact, in some cases, corroborative evidence serves as the retrieval cue for the repressed memory. RMT, however, seems to be able to produce recovered memories of sexual abuse in most of its clients. To those practicing RMT, this is proof of its power and effectiveness. To skeptical critics this is warning sign: the memories are confabulations suggested by prodding, suggestive therapy.

RMT uses a variety of methods--including hypnosis, visualization, group therapy, and trance writing--to assist the patient in 'remembering' the traumatic event. Hypnosis is risky because it is easy to lead and encourage the patient by suggestive or leading questions. Trance writing has never been proven to have any therapeutic value (Schacter, 1996, 271). Group therapy, on the other hand, can become communal reinforcement of delusions, if the therapist is not careful. People in the group can encourage others to share bizarre tales without fear of ridicule. The group might not originate the repressed memory, but they might facilitate the birth and nourish the growth of horrendous fantasies.

Using guided imagery or visualization in therapy can also be dangerous. Sherri Hines describes how her therapist used this method to help her retrieve a memory of being abused by her father:

My father would give me a bath and he used to draw on the mirror, draw on the steam, and he would draw cartoon characters. And that was the seed for a memory; we would start with that.

And [my therapist] would tell me, 'You're in the bathtub. Your dad is there. He's drawing in the mirror. What is he drawing?' Then he'd say, 'OK, now your father's coming over toward you in the bathtub. He's reaching out to touch you. Where is he touching you?' And that's how the memories were created (Hallinan, 1997).

Hines came to believe she was molested by her father and became so depressed she attempted suicide. She is now out of therapy and believes the memories were false and created in therapy.

The case of Diana Halbrook also brings into question the reliability of RMT methods. In a trance writing session, Halbrook had written that her father had molested her. This was shocking news to her! She went into group therapy and heard bizarre tales of satanic ritual sacrifices. Soon the same kinds of bizarre events appeared in her trance writings, including the recovered memory that she'd killed a baby.

Because Diana Halbrook's ritual abuse memories seems so outlandish, her doubts about the reality of these and her other recovered recollections continued to grow. But these doubts met resistance from the people in her support group and her therapist. "I continually questioned the memories, doubted them, but when I questioned the therapist, he would yell at me, tell me I wasn't giving my 'little girl within' the benefit of the doubt. Tell me that I was in denial. I didn't know what to believe. But I trusted him" (Schacter, 1996, 269).

Halbrook got out of the therapy, characterized by Daniel Schacter as "toxic," and no longer believes the outlandish memories. Schacter comments that "the most reasonable interpretation is that the events [recovered in therapy] do not have any basis in reality."

Each of these various methods described above has been very successful in getting patients to "remember" many things of which they were unaware before therapy. The "memories" include not just memories of being sexually abused as children, but of some very bizarre things, such as being abducted by aliens for sexual experimentation or breeding, being forced to participate in satanic rituals, or being traumatized in a past life.

Psychologist Joseph de Rivera claims that in RMT "rather than help the patient separate truth from fantasy, the therapist encourages the patient to 'remember' more about the alleged trauma. And when the patient has an image--a dream or a feeling that something may have happened--the therapist is encouraged, praises the patient's efforts and assures him or her that it really did happen." This kind of therapy, he says, "confuses the differences between real and fantasized abuse and encourages destruction of families" (de Rivera, 1993).

The False Memory Syndrome Foundation claims to have hundreds of such cases on file. Several cases have gone to court and therapists have been found liable for the harm caused by planting false memories. Despite the claims of hundreds of successful expeditions to recover lost memories by RMT therapists, some judges will not accept memories recovered in therapy as evidence. Judge William J. Groff of New Jersey wrote in case he heard in 1995 that

...the phenomenon of memory repression, and the process of therapy used in these cases to recover the memories, have not gained acceptance in the field of psychology, and are not scientifically reliable (quoted in Schacter, 1996, 267).

It is true that another New Jersey judge, Linda Dalianas, did allow such testimony in a later case but she also stated that

...[t]he Court will not allow expert evidence regarding either the process or the plausibility of 'recovering' an allegedly repressed memory, because the experts have not offered any data either supporting or refuting any theory of how or whether a 'lost' memory might be recovered (Schacter, 1996, 267).

In California, where a recovered memory not only was allowed but served as the basis for a murder conviction, the case was eventually overturned because of failure to reveal to the jury that the source of nearly every detail remembered about the murder could have been readily accessible newspaper accounts. It was also revealed that the person who claimed she had had a spontaneous flashback of the crime, lied about that, as well as about having recovered some, if not all, of her memories during hypnotherapy.

#### Are RMT Therapists Creating False Memories of Abuse?

"The Memory Wars" is the apt title of Daniel Schacter's chapter on repressed memory in his 1996 book *Searching for Memory*. To enter the controversy over repressed memory and the psychotherapies used to "recover" memories of childhood sexual abuse is to enter a war zone. On the one side--The Recovered Memory side--are those who maintain that patients with certain kinds of physical and mental disorders have repressed memories of childhood sexual abuse which must be recovered during therapy. The other side--The False Memory side--maintain that the memories recovered in therapy are not recollections of actual childhood sexual abuse but are constructed memories built out of materials suggested to the patient or implanted by the therapist during therapy.

On the recovered memory side are Lenore Terr, Laura Brown, Kenneth Pope, Laura Davis and Ellen Bass among others. On the False Memory side are Elizabeth Loftus, Carol Tavris, Richard Ofshe and the False Memory Syndrome Foundation, among others. Opponents in this war are not seen as colleagues in quest of the same truth, but as demons, villains or frauds. Schacter seems to tiptoe on glass as he presents what is known, not known, guessed at, etc., in this area. His conclusions seem pretty weak, if not contradictory, given the evidence he presents (272).

First, there is no conclusive scientific evidence from controlled research that false memories of sexual abuse can be created--nor will such evidence ever exist, because of ethical considerations. Second, there is likewise no definitive scientific evidence showing that therapy per se or specific suggestive techniques are alone responsible for the creation of inaccurate memories. Third, several separate strands, when considered together, support the conclusion that some therapists have helped to create illusory recollections of sexual abuse....

On the other hand, Schacter presents strong evidence from controlled research that memories can be created, and he makes a strong argument that repression, the conceptual basis for RMT, has little scientific support. This concept has widespread acceptance in the psychological and psychiatric communities--as does the related theory of dissociation--but scientific studies demonstrating such mechanisms are lacking. Those in the RMT movement begin with the assumption that the demonstration of any of a number of symptoms is evidence of childhood sexual abuse. Many of the symptoms would not necessarily indicate any deep psychological problems, much less a traumatic source. Many could be symptomatic of a number of disorders having no basis in sexual trauma. Therapists who assume their patients have been sexually molested, and assume that any memories they have, no matter how fantastic or delusional, are either accurate memories of abuse or symbolic of abuse, do not need to plant memories in their patients to find



that they've been abused. The therapists have determined a priori that whatever mental artifacts they uncover will lead the way to childhood sexual abuse as the cause of their patient's problems.

Studies by Marcia Johnson et al. have shown that the ability to distinguish memory from imagination depends on the recall of source information (Schacter, 1996, 116). Thus recovered memories of abuse might be very vivid and accurate in many details, but incorrect about the source of the memory. For example, in the case of Diana Halbrook it is very probable that the source of her satanic ritual memories is to be found in her group therapy.

### Memories of Abuse as Symbolic

One thing the RMT group has accomplished in these Memory Wars is to divert attention from the questionable mechanism of repression and their predetermined, unscientific methods of interpreting symbolic meanings of recollections, to the issue of whether or not the RMT therapists are planting memories in their patients. This was not intentional, but the result of a number of lawsuits against RMT therapists by former patients, all of whom recanted the memories of childhood abuse uncovered in therapy and blamed their therapists for ruining their lives by planting false memories of abuse in their minds. But the issue over whether or not a particular memory has or has not been planted by a particular therapist is mainly of importance because the alleged memories are of horrible things and they are very disruptive and destructive of peoples' lives. If therapists were planting all kinds of good memories in patients' minds helping them enjoy more satisfying lives and relationships, it is doubtful that there would be such an uproar.

Some of the memories recovered in RMT are extraordinarily bizarre, so bizarre that one would think that a reasonable person could hardly take them at face value. But RMT therapists are not put off by bizarre "recollections." They either take them at face value (as John Mack does of his alien abduction patients and others do when interrogating children). Or they take them as "artifacts" of the mind, which therapists must analyze as if they were archaeologists who must infer the real truth from the artifacts. Or they take fantastic memories as symbolic of real experiences.

Laura Brown, for example, a Seattle psychologist in the forefront of RMT says that fantastic memories are "perhaps coded or symbolic versions of what really happened." What really happened, she's sure, was sexual abuse in childhood. "Who knows what pedophiles have done that gets reported out later as satanic rituals and cannibalistic orgies?" asks Dr. Brown (Hallinan, 1997).

In the past, Brown has criticized the False Memory Syndrome Foundation for being unscientific, but her emphasis on the symbolic nature of fantastic memories has little scientific credibility itself. Where is the scientific evidence that a fantastic memory can be distinguished from a delusion? How do we distinguish memories of real cannibalism from symbolic memories? We usually know what a crucifix or a swastika symbolizes, but what does eating an infant symbolize? Symbols might be ambiguous. How can we be sure that a memory is a symbol of child abuse and not of adult abuse by co-workers, or by other children who tormented the patient years ago, or by the therapist him- or herself? How can we be sure it is not a symbol of self-abuse? How can we be sure it is a symbol of any kind of abuse at all? What would distinguish a symbol of abuse from a symbol of fear of abuse? For that matter, what would distinguish a symbolic representation of fear of being abused from one representing fear of abusing someone else in the present, or a regret of having abused someone else in the past? The dangers and imminent probabilities of misinterpretation of symbolic memories should be obvious, especially when it is not always that clear that a memory really is a symbolic expression at all.

Are we to accept without question the notion that any memory, true or false, reflects some truth, objective or subjective, which only the trained therapist can determine? That seems to be the view of some RMT advocates. If so, we are being asked to accept mysticism instead of science. How could one possibly disprove the claim that a memory which is incredible on its face is a symbolic message? Can anyone imagine any empirical test for this notion? If the issue were simply whether or not a memory is accurate, there would be some hope of establishing in some cases that the probability is that the memory is true or that it is false. But if the issue is whether a memory has a meaning, that point will probably soon be granted, since we don't like to think of ourselves as doing anything without there being some reason for it.

How do we determine the real reason for a confabulation? Don't therapists and those of us who interpret memories or dreams become storytellers ourselves? As storytellers, isn't it reasonable to assume that our stories may not be literally true, but are symbolic and must be interpreted by another storyteller, ad infinitum? Perhaps "repression" is not to be taken literally, but symbolically. Perhaps each therapist must develop a subjective truth for concepts such as "repression" and "therapy." If this is so, then therapy is a dangerous weapon to be feared by everybody rather than a blessing to be sought by those with psychological problems. History is replete with examples of what happens when any group of authorities do not have to answer to empirical evidence but are free to define truth as they see fit. None of the examples has a happy ending. Why should it be otherwise with therapy?

## Retroactive Clairvoyance

Retroactive clairvoyance is the ability to use hindsight to predict what happened after it has happened.

Advocates of the prophetic abilities of Nostradamus are experts at retroactive clairvoyance, as are those who defend the notion that the Bible contains a prophetic code.

## Retrocognition

Retrocognition is a type of clairvoyance involving knowledge of something after its occurrence through psychic means.

My sister related an apparent case of retrocognition to me. She was watching television when a report came on about a woman (Susan Smith of Union, South Carolina) who claimed that her two young children had been kidnapped by a black man who carjacked her in some small town in the south. She claimed the black man drove out near a lake and let her out of the car and drove off with the two children. My sister said she immediately sensed that the children were dead and that they were in the lake. About a week later, the world was told that the woman herself had driven her car to the lake and with the children alive and strapped into the back seat, she put the car in drive and watched as the car sunk into the lake with her sons, drowning them.

It is a sad commentary on our times, but false reports of crimes are not uncommon and mothers killing their children are not uncommon. They are probably more common than black carjackers kidnapping little boys. In any case, the suspicious feelings which my sister had concerning the mother/murderer were probably shared by many people who saw the broadcast. It is evident that the police in the small southern town were skeptical too, not because they are clairvoyant but because they know a little bit about human nature and human behavior. If one was suspicious of the mother's story, the fact that she said she was driven to a lake leaves little to the imagination to fill in the blanks.

I'll admit that I've had similar feelings myself. About a year ago an alleged rape victim was interviewed on television. I had a feeling she was lying while I watched the broadcast. It turned out that she had been lying. Other people I talked to had seen the news broadcast, too, and also weren't convinced that her story was true. Were we clairvoyant? I don't think so. We all make judgments about people's stories. Sometimes we're right and sometimes we're not. We tend to forget the times we're not. If we didn't, we wouldn't find the occasional correct "feeling" to be so surprising.

## Retrospective Falsification

D.H. Rawcliffe coined this term to refer to a situation in which a story of the extraordinary is told, then retold with embellishments and remodelled with favorable points being emphasized while unfavorable ones are dropped; the distorted version becomes part of memory, fixating conviction in a remarkable tale.

The term is also used in psychology to describe the process used by the paranoid as he recalls selective incidents from the past, reshaping them to fit his present needs

## Reverse Speech

"The implications are mind boggling because reverse speech opens up the Truth. " --David John Oates (Stone Adjective or Stow Nods-of-aid.)

The truth is a lie told backwards.--Llorrac Trebor

Reverse speech is a form of communication arising from the unconscious mind, according to David John Oates. The unconscious mind, says Oates, is a seat of deep truths, inexorable honesty and hidden meanings. Oates, who credits himself with the discovery of reverse speech, says that the unconscious mind sends out backwards messages to the conscious mind every 10 to 15 seconds. The conscious mind then reverses the reverse message and directs us to speak in forward speech. To grasp the real meaning of our speech we must tape it and play it backwards.

Oates claims that reverse speech is a form of human communication that is automatically generated by the human brain. It occurs every time we speak and is imbedded backwards into the sounds of our speech. This previously undiscovered function of the mind is the mind's own independent [sic] voice speaking from the deepest regions of consciousness ... forward speech is from the left brain and Reverse Speech is from the right brain.

Mr. Oates claims to have made many discoveries, including that children learn to speak backwards before they learn to speak forwards. He believes that what most of the world has taken to be babbling is actually deep thought from the unconscious minds of infants

Oates is an Australian who calls himself Reverse Speech Enterprises. He started on his road to discovery by dropping a tape recorder in the toilet while shaving. He "fixed" the recorder, but henceforth the recorder would only play in reverse. However, this electronic incompetence was not without its rewards. He was ready, he says, when teenagers asked him about backwards Satanic messages in rock music. He could play tapes for them and search for the hidden messages. The rest, as they say, is history. Oates not only found Satanic messages in rock music, he found that if one listens very carefully, one can hear reverse messages in every bit of communication that uses words. For twelve years he labored at uncovering the secret of reverse speech. Now he is ready to share his discoveries with the rest of the world--for a price.

Mr. Oates has immigrated to Bonsall, California, where he offers to train anyone to be a reverse speech analyst for a mere \$4,500, plus a few hundred more for a Reversing Machine™, several tapes, and a study guide which must be purchased separately.

Mr. Oates sells tapes for about \$10 each with examples of reverse speech from O.J. Simpson, rock music stars, celebrities, and politicians. He also sells books with catchy titles like Beyond Backward Masking: Reverse Speech and the Voice of the Inner Mind (which, in reverse, sounds something like Dante Rentifor: anchovy tulip server by Stone Adjective). This book has an appendix on UFOs, as well.

Oates claims that "reverse speech is the voice of truth" and "If a lie is spoken forwards, the truth may be spoken backwards. It can be used as a truth detector. It will reveal the truth if a lie is spoken and it will reveal extra facts if they are left out, for example, the name of an accomplice in crime or the location of evidence." This claim is reminiscent of certain advocates of neurolinguistic programming who claim they can tell when a person is lying by that person's eye movements. At least with Oates we can avoid detection by speaking only in palindromes.

He also claims 95% of our thoughts are "are below consciousness" and reverse speech can describe unconscious subjects such as personality patterns and behavioral agenda, it can reveal hidden memory and experiences, and it can also describe the state of the physical body. At the deepest levels of human consciousness, Reverse Speech also describes the state of the human soul and our relationship with God.

He also claims most reverse speech is metaphorical and is communicated in pictures or parables, "similar to dreams."

Furthermore, reverse speech analysis...can be used as a therapeutic tool for psycho analysis [sic]. Its metaphors will give a detailed map of the mind and often pinpoint precise reasons and cause [sic] for problems experienced. Used in conjunction with hypnosis it can be used as an extremely powerful and permanent [sic] form of behavioral change.

Employers can use it for employee selection, lawyers for deposition analysis, reporters for politicians [sic] speeches. Its applications are endless.

As with his other claims, Oates provides no support for these notions. However, there is considerable evidence against him.

Some of his claims are empirical and can be checked against what neuroscientists and physiologists have discovered in their study of the brain and speech development. For example, his notion about reverse speech occurring in the right brain is not supported by empirical study. In any case, if the right brain were a source of reverse speech functioning, as Mr. Oates claims, one would expect to see brain activity in the right brain just prior to the activity in the left brain when speech occurs. Where is the evidence that this happens? And where is the evidence for his claims about infants and speech, claims which contradict everything that is known about the development of the human brain and speech in children? To believe Mr. Oates is to reject science or, at the very least, it is to reveal one's ignorance about some fundamental neurological and physiological facts.

One must also wonder what evolutionary value reverse speech would have. It is estimated that it was about 100,000 years ago that humans developed spoken language. One has no difficulty in seeing the utility of speech to the survival of the species. But what possible utility could there be in reverse speech? It is difficult to imagine something so useless taking up a good portion of the history of the evolving brain.

Furthermore, if there is a reverse speech, there must be a reverse speech grammar. What is it and how is it known?

Some of Oates' claims are quasi-empirical. For example, his beliefs about the unconscious mind seem to have an empirical grounding in the fact that a person's behavior can be affected by memories of which the person is unconscious. There is substantial evidence of implicit memory in the neuroscientific literature. But the claim that 95% of our thoughts are below the level of consciousness--which implies that most of our memories are implicit memories--seems non-falsifiable. How would one test such a claim? The claim that the unconscious mind contains data which reveal hidden truths about a person's behavior and personality, as well as one's physical and spiritual health, is highly questionable. It seems to be based on wishful thinking rather than scientific evidence.

Nevertheless, Mr. Oates gives some specific examples of how his theory works. For example, he claims that when Bill Clinton says "I try to articulate my position as clearly as possible" he really means "She's a fun girl to kiss." How does Oates know this? He "knows" this because that is how it sounds to him in reverse, or that is what the metaphors mean. We cannot prove him wrong. If it does not sound like that to us or if we don't grasp the metaphors, it is because the messages "are very quick and fast and are often hidden in the high tones of speech. For this reason speech reversals are very easily missed by most researchers." Furthermore, he says the untutored are not familiar with the language of metaphor. (He has two books that can help us here.) These are not ad hoc hypotheses, according to Oates. Furthermore, once he has told you that the reverse speech you are about to hear is "She's a fun girl to kiss", you are likely to "hear" that, regardless of how garbled the message sounds. Call it the power of suggestion or pareidolia for the ears. Call it anything but worth investigating much further. If Mr. Oates went on Larry King or Oprah and claimed that their speech revealed that they were actually child molesters, Oates would have no audience and people would recognize him for what he is. Yet, he will be taken seriously when he says that Patsy Ramsey's forward speech "We feel that there are at least two people on the face of the earth that know who did this [i.e., murdered her daughter] and that is the killer and someone else that person may have confided in" is actually reverse speech for "I'm that person. Seen that rape." (On December 26, 1997, Oates had his first daytime TV appearance on the Geraldo show discussing the Ramsey case.) Oates is taken seriously because he is an entertaining novelty feeding the lust for trash gossip which passes as news and information in our society.

The academic world has so far ignored his great discoveries, though he claims that he has the support of some academics who fear to speak out. Mr. Oates bemoans his fate: "Have we not yet learned from the lessons of history? Many of our great discoveries have come from outside of mainstream [sic]. Einstein, for example, was a high school-drop out." (Actually, Einstein was kicked out of high school and eventually finished his schooling in Zurich, including a Ph.D. from the University of Zurich.) His proposals to test his theory have been rejected by universities not because the university establishment is closed-minded, but because Oates' theories belie a profound ignorance of fundamental matters in neuroscience and physiology. Furthermore, a good chunk of his theory is untestable metaphysics, psychobabble and gobbledygook.

Mr. Oates resembles a person who is modeling himself after Bandler and others in the neurolinguistic programming movement. They have found that self-confidence and the ability to understand is so diminished in so many people that the more unintelligible a person's communication is the more likely it becomes that that communication can be trademarked and profitably marketed as a gateway to the secret of life.

## Rods

Rods are insects caught in the act of flying by a video camera. Some hoaxers or very imaginative people have been maintaining that rods are actually some sort of unknown life form of alien origin. But, according to Doug Yanega of the Entomology Department at the University of California at Riverside and a member of the Straight Dope Science Advisory Board, rods are a videographic artifact based on the frame capture rate of the videocam versus the wingbeat frequency of the insects. Essentially what you see is several wingbeat cycles of the insect on each frame of the video, creating the illusion of a "rod" with bulges along its length. The blurred body of the insect as it moves forward forms the "rod," and the oscillation of the wings up and down form the bulges. Anyone with a video camera can duplicate the effect, if you shoot enough footage of flying insects from the right distance.\*

Rods seem to be a favorite topic of UFO and cryptozoology buffs. One of the more outspoken defenders of rods as aliens is Jose Escamilla, host of the RoswellRods.com web site. Jose has even brought his story and films to The Learning Channel. Some hilarious photographs of "rods" are posted on the Internet at the Escamilla site. My favorite is "the swallow chases a rod" which looks just like a bird going after an insect.

## Rolfing

"Rolfing's foundation is simple: Most humans are significantly out of alignment with gravity, although we function better when we are lined up with the gravitation field." [Rolf Institute]

Rolfing is a kind of deep massage developed by Ida P. Rolf (1896-1979), a biochemist and physical therapist. She authored several books on the relationship of form and structure in the human body, including *Rolfing: The Integration of Human Structures* (New York: Harper and Row, 1977). Her dissertation was on the chemistry of unsaturated phosphatides and was published by The Waverly Press in 1922.

Dr. Rolf claimed she found a correlation between muscular tension and pent up emotions. Rolfing is the name given to Dr. Rolf's method of massage, which transcends chiropractic in that it is based on the notion that emotional as well as physical health depend upon being properly aligned. In rolfing, alignment must be of much more than just the spine. To be healthy, according to rolfers, you must align your head, ankles, hips, thorax, pelvis, knees, shoulders, ears, etc., in just the right way or else the evils of gravity will be felt. By being properly aligned, gravity enhances personal energy leading to a healthy body and emotional state.

There is a Rolfer in my hometown who advertises that Rolfing brings "a sense of integration and well being." The ad even quotes an M.D. who says: "Rolfing works. Not only can it dramatically change people's bodies. It can transform their lives as well." Rolfing, according to the advertisement, has "evolved into a gentle deep muscle balancing process that structurally aligns your body." (The word "gentle" is boldfaced in the ad.) He also claims that after ten sessions there are long term results, which include "Physical and Emotional Flexibility" and "A Sense of Integration and Well Being."

Has this claim of the muscular/emotional connection been demonstrated by any scientific studies? No, but the proof is that it works! There are tons of anecdotes and testimonials verifying Rolfing.

Some Rolfers claim that Rolfing is a 'scientifically validated system of body restructuring and movement education.' They claim that there is scientific proof that each of us has life-long patterns of tension and that realigning releases this tension, so that "overall personal functioning tends to improve." The expression 'tends to improve' may sound like weaseling to you, but apparently it is crystal clear and scientific enough for Rolfers.

It takes one to two years to complete the Rolfing training at a cost of between \$10,000 and \$12,000. The Rolfing training can only be taken from the official Rolf Institute in Boulder Colorado. Although there is another outfit in Boulder called The Guild for Structural Integration which is dedicated to Ida Rolf and seems to be Rolfing in everything but the name. Another school of structural integration is Hellerwork, which will not only align and integrate your body parts, it will do the same for your mind and soul.

## Rorschach Ink Blot Test

The Rorschach ink blot test is a psychological projective test of personality in which a subject's interpretations of ten standard abstract designs are analyzed as a measure of emotional and intellectual functioning and integration. The test is named after Hermann Rorschach (1884-1922) who developed the ink blots, although he did not use them for personality analysis.

The test is considered "projective" because the patient is supposed to project his or her real personality into the ink blot via the interpretation. The ink blots are purportedly ambiguous, structureless entities which are to be given a clear structure by the interpreter. Those who believe in the efficacy of such tests think that they are a way of getting into the deepest recesses of the patient's psyche or subconscious mind. Those who give such tests believe themselves to be experts at interpreting their patients' interpretations.

What evidence is there that an interpretation of an ink blot (or a picture drawing or sample of handwriting-- other items used in projective testing) issues from a part of the self that reveals true feelings, rather than, say, creative expression? What justification is there for assuming that any given interpretation of an ink blot does not issue from a part of the self bent on deceiving others? or on deceiving oneself for that matter? Even if the interpretations issued from a part of the self which expresses desires, it is a long jump from having desires to having committed actions. For example, an interpretation may unambiguously express the desire to have sex with the therapist, but that does not imply either that the patient has had sex with the therapist or that the patient, if given the opportunity, would agree to have sex with the therapist.

Rorschach testing is inherently problematic. For one thing, to be truly projective the ink blots must be considered ambiguous and without structure by the therapist. Hence, the therapist must not make reference to the ink blot in interpreting the patient's responses or else the therapist's projection would

have to be taken into account by an independent party. Then the third person would have to be interpreted by a fourth ad infinitum. Thus, the therapist must interpret the patient's interpretation without reference to what is being interpreted. Clearly, the ink blot becomes superfluous. You might as well have the patient interpret spots on the wall or stains on the floor. In other words, the interpretation must be examined as if it were a story or dream with no particular reference in reality. Even so, ultimately the therapist must make a judgment about the interpretation, i.e., interpret the interpretation. But again, who is to interpret the therapist's interpretation? Another therapist? Then, who will interpret his? etc.

To avoid this logical problem of having a standard for a standard for a standard, etc., the experts invented standardized interpretations of interpretations. Both form and content are standardized. For example, a patient who attends only to a small part of the blot is "indicative of obsessive personality;" while one who sees figures which are half-human and half-animal indicates that he is alienated, perhaps on the brink of schizophrenic withdrawal from people (Dawes, 148). If there were no standardized interpretations of the interpretations, then the same interpretations by patients could be given equally valid but different interpretations by therapists. What empirical tests have been done to demonstrate that any given interpretation of an ink blot is indicative of any past behavior or predictive of any future behavior? In short, interpreting the ink blot test is about as scientific as interpreting dreams.

To have any hope of making the ink blot test appear to be scientifically valid, it was essential that it be turned into a non-projective test. The blots can't be considered completely formless, but must be given a standard response against which the interpretations of patients are to be compared as either good or bad responses. This is what John E. Exner did. The Exner System uses ink blots as a standardized test. On its face, the concept seems preposterous. Imagine admitting people into med school on the basis of such a standardized test! Or screening candidates for the police academy! ("I didn't get in because I failed the ink blot test.")

The Rorschach enthusiast should recognize that ink blots or dreams or drawings or handwriting may be no different in structure than spoken words or gestures. Each is capable of many interpretations, some true, some false, some meaningful, some meaningless. It is an unprovable assumption that dreams or ink blot interpretations issue from a source deep in the subconscious which wants to reveal the "real" self. The mind is a labyrinth and it is a pipe dream to think that the ink blot is Ariadne's thread which will lead the therapist to the center of the patient.

## Roswell

On or around Independence Day, 1947, during a severe thunderstorm near Roswell, New Mexico, an Air Force experiment using high altitude balloons blew apart and fell to the earth. This minor event in the history of reconnaissance turned out to be the Big Bang of UFOlogy. UFO enthusiasts have come to see that 4th of July as the day an alien spaceship crashed on earth. Some UFOlogists claim that aliens were taken away by the U.S. Air Force and other government co-conspirators for an interrogation or an autopsy. Some claim that all our modern technology was learned by analyzing and copying the technology of the aliens.

The actual crash site was on the Foster ranch 75 miles north of Roswell, a small town doing a big business feeding the insatiable appetite of UFO enthusiasts. Roswell now houses two UFO museums and hosts an annual alien festival. Shops cater to this curious tourist trade, much as Inverness caters to the Loch Ness crowd. This seems a bit unfair to Corona, New Mexico, since it is actually the closest town to the "crash site". Roswell is the nearest military base, however, and that is where the remains of the alien craft and its occupants were allegedly taken. Why the aliens were not taken to a superior medical facility remains a mystery.

William "Mac" Brazel (rhymes with dazzle), foreman of the Foster Ranch, along with a 7-year old girl, Dee Proctor, found the most famous debris in modern history. They had never seen anything like it before. Millions now agree: the stuff was strange. Actually, it was pretty mundane stuff, including a reinforcing tape whose flower-like design was taken to be alien hieroglyphics. Worse, the Air Force was not consistent in describing the debris. The Air Force has even had the audacity to claim that perhaps ardent UFOlogists have had a little trouble with their source memory. Perhaps what people are recalling as a single event was actually several events which occurred in different years (such as weather balloon and nuclear explosion detection balloon tests, airplane crashes with burned bodies, dumping of featureless dummies from airplanes, etc.). The likelihood that Roswell is a reconstruction involving many events over many years is supported by the fact that Roswell was ignored by UFOlogists until Charles Berlitz and William Moore published a book on the subject in 1980, more than thirty years after the event. This is the same Berlitz who popularized the myth of Atlantis and the urban legend regarding The Philadelphia Experiment. Berlitz is essentially an unreliable source who has made a career out of finding other unreliable sources to support his theories.

To the UFO buff, however, the suggestion that they have erred is ludicrous. Yet, they trust Berlitz and others with fantastic stories based on 30-year-old memories. And that the government made errors and was inconsistent is taken as sufficient evidence that there is a massive conspiracy by the government and mass media. They are trying to conceal the truth from the general public that the aliens have landed. Some even believe that the U.S. government has signed a treaty with the aliens. If so, let's hope the U.S. government is more faithful with the aliens than it was with the Native Americans.

Skeptics agree that something crashed near Roswell in 1947, but not an alien craft. Skeptical explanations have varied from weather balloons to secret aircraft to espionage devices. Current conventional wisdom among skeptics is that what was found on the Brazel ranch was part of Project Mogul, a top secret project testing giant, high-flying balloons to detect Soviet nuclear explosions.

The amount of energy expended on Roswell could probably support several alien galaxies for a million eons. It is enough to make a person believe in cranial cold fusion. To UFOers, Roswell is the resurrection, the proof of their faith. They have witnesses, they have inexplicable debris, and they have eyewitness accounts of the little creatures. They have proof after proof of government and media conspiracy and cover-up. They have an entertainment industry that tries to pass off itself as part of the news media, especially the Fox (Alien) Network. This industry consists of radio and TV talk show hosts, publishers and television producers of UFO "specials" on the Discovery Channel and A&E. This industry does little to provide useful information and a great deal to feed UFO enthusiasts hungry for "proof" of their confabulations and government cover-ups. They even have an inept forgery of a filmed alien autopsy which was shown to more than 10 million people in August 1995 on the Fox (Alien) Network. They've got Marketing Mecca.

To skeptics, Roswell is a classic example of what D.H. Rawcliffe called retrospective falsification. A story of the extraordinary is told, then retold with embellishments and remodeled with favorable points being emphasized while unfavorable ones are dropped. False witnesses put in their two cents. In the case of Roswell, we also have a few unreliable characters who add their delusions, such as Whitley Strieber, Budd Hopkins and John Mack (see the alien abduction entry). There is also Robert Spencer Carr, the high school graduate who liked to be called "Professor Carr". Carr is a hero in the UFO literature, but his stories of flying saucers and alien creatures were all delusions. His son has written: "I am so very sorry that my father's pathological prevarication has turned out to be the foundation on which such a monstrous mountain of falsehoods has been heaped." It was that mountain of falsehoods that became part of the UFO memory, fixating conviction in a remarkable tale. It happened at Fatima (during a time when the only aliens thought to be visiting our planet were messengers from God) and it happened at Roswell. One might think, however, that unlike the belief in our Lady of Fatima and other beliefs in apparitions from the supernatural world, Roswell might be settled some day since it involves testable hypotheses and refutable claims. Don't count on it. UFO enthusiasts are every bit as devoted to their belief system as religious fanatics are to theirs. Evidence and rational argument are of little concern to those who consider science fiction to be a wiser guide than science, logic and reasonable probability.

## Runes

Runes are the characters of ancient alphabets: Teutonic (24 letters), Anglo-Saxon (32 letters), and Scandinavian (16 letters). Runic characters are similar to Latin letters, except that they tend to have few curves and consist mostly of straight lines, suitable for carving with knives. Runic letters were used for over one thousand years. For most people, the runic alphabet died out sometime between the 13th and 16th centuries. But for those special New Age people with one foot in the world of secrets and the other in the world of mysteries, runes are used as a form of divination.\*

The Norse used Runic characters mostly for practical purposes, such as marking graves, identifying property, or for defacing other's graves and property with graffiti, such as at Maes Howe in Orkney. New Agers ignore these uses and prefer to side with superstitious 12th century Norsemen and women who thought they could see the future in alphabetic characters on wood or stone. Somehow, the image of Viking warriors, worshippers of Thor and Odin, kneeling down to cast runes to decide whether or not to invade Ireland, seems incongruous.

The word 'rune' derives from the Old Norse and Old English run which means "mystery." The real mystery is why anyone would think that writing the letters of an alphabet on little pieces of wood or stone, putting them in a bag, and then drawing them out and throwing them or laying them down in certain ways, would answer their questions, give them direction for the present, guide them to see the future or help them make good decisions. Runes may have gotten their reputation for being tools of divination when Christian Church leaders claimed they were used to cast magic spells or communicate with the devil. Many New Agers seem to like Tolkein, so the fact that his Hobbits used a kind of runes in their writing may have enhanced the association of runic letters with magic and mystery.

It is said that rune reading is useful for gaining spiritual insight. No doubt, it is as good as any other method. Dr. Martin D. Rayner, a professor of physiology at the University of Hawaii School of Medicine, claims that by gazing at the runes one can tap into the subconscious and find great knowledge about oneself.

How can the random selection of marked stones tell you anything about yourself? Perhaps these Rune Interpretations are simply so evocative that each contains some point, which can be accepted as relevant to some part of what is happening at the limits of consciousness any day, any time, to anyone. That is the easiest possibility to accept from a strictly scientific standpoint. [The Runes Explained]

The good doctor is giving new meaning not only to his life but to science as well. Nevertheless, he says he has found rune reading to be "transformational" and leading to "breakthroughs", which are common goals of New Agers.

How is it that random alphabetic stone selection can be so useful? Easy. Anything can be a source of transformation and breakthrough if you decide to let it be. Runes, tarot cards, the I Ching, enneagrams, Myers-Briggs...anything can be used to stimulate self-reflection and self-analysis. Anything can be used to justify coming to a decision about an unresolved matter. Coming to a decision brings relief, reduces anxiety, and may well seem like a breakthrough and transformation. But using something like rune stones to help make your decision relieves you of responsibility for it. The choice was made for you by the stones and your subconscious mind, so you are off the hook if anything goes wrong. Furthermore, since there is no standard interpretation of any of this stuff, you can always change your initial interpretation to fit new facts or desires.

When you are the oracle yourself, it is always a win-win situation.

Note: Tacitus, in Ch. X of his Germania, describes a form of divination used by Germanic tribes:

"To divination and casting of lots, they pay attention beyond any other people. Their method of casting lots is a simple one: they cut a branch from a fruit-bearing tree and divide it into small pieces which they mark with certain distinctive signs and scatter at random onto a white cloth. Then, the priest of the community if the lots are consulted publicly, or the father of the family if it is done privately, after invoking the gods and with eyes raised to heaven, picks up three pieces, one at a time, and interprets them according to the signs previously marked upon them."

Though the signs are not described as letters of the runic alphabet, some New Agers have interpreted this passage as evidence both of the existence of runes in the first century and their use in divination. Neither seems justified from this passage alone.

There is evidence that the Norse used runes for divination before the 12th or 13th centuries, however.

Sai Baba

Sai Baba is Satyanarayana Raju, an Indian guru born in 1926 who goes by the name of Bhagavan Sri Sathya Sai Baba. He is believed to be divine by himself and his followers, who allegedly number in the several millions. He claims to have paranormal powers and to be able to work miracles. Two of his favorite "miracles" are to make ashes materialize for poor people and to make jewelry materialize for rich people.

The film "Guru Busters" (Equinox) demonstrated that these alleged miracles are little more than a magician's parlor tricks. My favorite line from that film came from an Indian physicist who had been given a ring allegedly materialized by Sai Baba. The physicist said that he had a doctorate from Harvard and could not possibly be fooled by a magician. How many times have we heard brilliant, though deluded, people issue a similar declaration! The film depicts a group called the Indian Science and Rationalists' Association [ISRA] as they travel throughout India debunking and exposing as frauds local fakirs, godmen and godwomen. The ISRA debunkers are to India what James Randi is to America and Canada. They utilize scientific and rational principles to expose the magical art of illusion used by Hindu mystics in performing feats of levitation and other alleged miracles.

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## Saint

A saint is a former human being, now dead, whose spirit is said to dwell in heaven with God. Such spirits are identified by their having belonged to heroically virtuous or holy people when attached to their bodies on earth. (The word 'saint' derives from 'sanctus', the Latin word for holy.)

Some spirits are officially recognized as saints by Christian ecclesiastical authority in a process known as canonization. Different ecclesiastical authorities used different criteria and hence have different canons (catalogues) of saints.

In the beginning, keeping a canon of saints might have been more for recruitment purposes and for mythologizing Christianity. The modern idea of saints seems clearly related to the practice of currying favor from subordinates close to the boss. Saints are venerated not worshipped, that is, they are admired and sought as intercessors because of their special place in the hierarchy. Saints are in the inner circle, so to speak, and because of their status a word from them to the boss might be sufficient to get a wish granted.

Why saints would intercede for the living seems inexplicable to the logical mind. One, they have nothing to gain by acting as anybody's intercessor. They are already in glory and their glory does not depend on others reaching glory and there is no reason they should prefer the glory of one person over another. Earthly beings might grant favors only to those who ask, but supernatural beings would have no reason for favoring only those who curry favor from them. Two, there is no reason why God would be more accessible to the prayers of a saint than to those of a holy person on earth. Why use a middleman when you can go directly to the source? Three, if God would not listen to an unholy and unworthy person who wants a favor, why would God listen to a saint's plea for such a person? The unworthy shouldn't get a hearing from the boss or his underlings. Were it not for their supposed utility here on earth, saints would be superfluous to humans.

That sainthood is primarily valued for its intercessory value is clearly indicated by the fact that the primary method of identifying who will be canonized is by the performing of miracles. To even be considered for canonization you must not only have led an exemplary holy life, you must perform a miracle that shows you are answering the prayers of those who pray exclusively to you. Such miracles are identified by a theological board and require some sort of connection to an allegedly miraculous cure. For example, Katherine Drexel, an heiress from Philadelphia who became a nun, was considered for canonization because several cures have been attributed to her intercession. Drexel's spirit is being credited with being instrumental in the "cure" of the temporary deafness of young girl. Drexel was approved as a saint by Pope John Paul II in March, 2000. Edith Stein, who was recently canonized, allegedly interceded to save the life of a young girl who had swallowed an obviously non-lethal dose of Tylenol.

Of course, adding new names to the canon of saints and popularizing their alleged miraculous interventions shouldn't hurt with recruitment and mythologizing the Church, either. Pope John Paul II has added nearly 300 names to the canon of saints since he took over the head of the Roman Catholic Church in 1978. Some of the new saints are controversial cult figures, such as "Padre Pio," an alleged stigmatic.

## Santa Claus

Santa Claus is one of the most famous IFOs (identified flying objects) in history. Unlike Bigfoot, the gargantuan hirsute benevolent one has had more sightings than all UFO and Virgin Mary sightings combined. The innocent and pure witnesses to the jolly one decked out in sartorial crimson flailing away at his flying reindeer are legion. Who can mistrust a child, much less billions of children? Surely these witnesses are reliable. There is no proof that they are suffering from any mental derangement. They have no motive for lying. The only plausible explanation for these sightings is that they are genuine. There is no reason to think that all these witnesses are confabulating. If there is nothing to this belief, then why do so many people believe it? There is no way this could be an example of communal reinforcement of a false idea or delusion. This must be a genuine vision.

Cynical skeptics are wont to note that the belief in the winter gift giver requires acceptance of the hypothesis that in a single evening the infrequent flyer visits all the homes in America and the homes of Americans everywhere else on Earth. Even if the speedy one spent a single second at each home and took no time to travel between homes, it would take him several years to complete his rounds. Obviously, a miracle happens every Christmas! That is the only logical explanation. What else could it be?

## Sasquatch

Bigfoot [a.k.a. Abominable Snowman of the Himalayas, Mapinguari (the Amazon), Sasquatch, Yowie (Australia) and Yeti (Asia)]

"There is a Yeti in the back of everyone's mind; only the blessed are not haunted by it."--an old Sherpa

Bigfoot is an apelike creature reportedly sighted hundreds of times in the U.S. (most often in the Pacific Northwest) and around the world since the mid-19th century. The creature is variously described as standing 7-10 ft (2-3 m) tall and weighing over 500 lb (227 kg), with footprints 17 in. (43 cm) long. The creature goes by many names, but in northern California it is known as "Bigfoot." The creature is big business along a stretch of US-101 in southern Humboldt County known as the Redwood Highway. Numerous shops line the roadway, each with its own gaping Bigfoot chainsaw-carved out of majestic redwood.

Most scientists discount the existence of such a creature because the evidence supporting belief in the survival of a prehistoric bipedal apelike creature of such dimensions is scant. The evidence consists mainly of testimony from Bigfoot enthusiasts, footprints of questionable origin, and pictures that could easily have been of apes or humans in ape suits. There are no bones, no scat, no artifacts, no dead bodies, no mothers with babies, no adolescents, no explanation for how a species likely to be communal has never been seen in family or group activity, no evidence that any individual, much less a community of such creatures, dwells anywhere near all the "sightings," etc. In short, the evidence points more towards hoaxing and delusion than real discovery. The Bigfoot legend seems to be primarily a function of enthusiastic fans of the paranormal, aided greatly by the mass media's enthusiastic catering to such enthusiasm. Yet, some believers dismiss all such criticism and claim that Bigfoot exists in another dimension and travels by astral projection. No wonder the creature is so hard to locate!

Besides the testimonials of enthusiastic fans, footprints and film provide the bulk of the evidence provided by proponents of Bigfoot. Of the few footprints available for examination in plaster casts, there is such great disparity in shape and configuration that the evidence "suggests many independent pranksters" (Dennett, 1996).

Probably the most well-known evidence for belief in Bigfoot's existence is the film shot by Bigfoot hunters Roger Patterson and Bob Gimlin on Oct 20, 1967, at Bluff Creek in northern California. The film depicts a walking apelike creature with pendulous breasts. Its height is estimated at between 6' 6" and 7' 4"; its weight at nearly one ton. Over thirty years have passed, yet no cryptozoologist has returned to the site and found any further evidence of the creature.

A group of Bigfoot enthusiasts calling themselves the North American Science Institute claim that they spent over \$100,000 to prove the film is of a genuine Bigfoot. However, according to veteran Hollywood director John Landis, "that famous piece of film of Bigfoot walking in the woods that was touted as the real thing was just a suit made by John Chambers" who helped create the ape suits in Planet of the Apes (1968). Howard Berger, of Hollywood's KNB Effects Group, also has claimed that it was common knowledge within the film industry that Chambers was responsible for a hoax that turned Bigfoot into a worldwide cult. According to Bobbie Short, Chambers denied these allegations in an interview and claims that Landis started the rumor about Chambers making the suit. According to Mark Chorvinsky, Chambers was involved in another Bigfoot hoax (the so-called "Burbank Bigfoot") but apparently Short did not ask him about that incident nor did he interview Landis for his version of the story. Believers in Bigfoot, such as Short and Loren Coleman, reject the hoax theory and maintain that the film is not of a man in an ape suit but is footage of a genuine Bigfoot.

According to David J. Daegling and Daniel O. Schmitt, "it is not possible to evaluate the identity of the film subject with any confidence." Their argument centers on uncertainties in subject and camera positions, and the reproducibility of the compliant gait by humans matching the speed and stride of the film subject.

Bigfoot is also the name of a fine Barleywine brewed by Sierra Nevada of Chico, California. (It is called a wine because it has an alcohol content of 8% and can't legally be called a beer in California.)

## Satan

Satan is the adversary of God. Thus, Satan is evil personified.

Many followers of the Bible consider Satan to be a real being, a spirit created by God. Satan and the other spirits who followed him rebelled against God. They were cast out from Heaven by their Creator. Theologians might speculate as to why the Almighty did not annihilate the "fallen angels," as He is said to have done to his other creations when they failed to be righteous (save Noah and his family, of course). Satan was allowed to set up his own kingdom in Hell and to send out devils to prowl the earth for converts. The demonic world seems to have been allowed to exist for one purpose only: to tempt humans to turn away from God. Why God would allow Satan to do this is explained in the Book of Job. When Job asks why

God let Satan torment him the answer is blunt and final: Hath thou an arm like the Lord? The story of Job is interpreted in many different ways by theologians but my interpretation is that nobody knows why God lets Satan live and torment us. God is God and can do whatever He wants. Ours is not to question why, ours is but to do or die.

Satan, being a spirit, is neither male nor female. However, like his Creator, Satan is usually referred to as a masculine being. Many believe that Satan, or the Devil as he is often called, can "possess" human beings. Possession is bodily invasion by the devil. The Catholic Church still performs exorcisms on those considered to be possessed. Jesus is said to have cast out demons, i.e., performed exorcisms, and the Church considers itself to have been given this same power by Jesus. Throughout the centuries, many pious religious people have considered those with certain mental or physical illnesses to be possessed by Satan.

More frequent than outright possession, however, has been the accusation of being in consort with the devil. Satan is believed to have many powers, among them the power to manifest himself in human or animal form. The consorting has been recorded as often being purely physical and mostly sexual. For most of the history of Christianity there are reports of Satan having sex with humans, either as an incubus (male devil) or succubus (female devil). Witches and sorcerers were thought by many to be the offspring of such unions. They are considered especially pernicious because they inherit some of the devil's powers.

According to Carl Sagan, accounts of diabolical intercourse are common cultural phenomena:

Parallels to incubi include Arabian dhinn, Greek satyrs, Hindu bhuts, Samoan hotua poro, Celtic dusii... (Sagan, 124).

However, as a child being instructed in the ways of Satan by Dominican sisters, stories of nuns being raped by incubi in a priest's clothing were assuredly not told. The Devil was there to tempt us to sin, pure and simple. He was not there to have sex with us or engage in reproductive experimentation or breed a race of witches and magi. To be sure, his main temptations would be sexual. There was no doubt that He spent a lot of time using girls to tempt boys into impure thoughts and deeds. He would invade our minds continuously during adolescence, planting desires for sexual experiences too evil to be mentioned much less performed. I suppose, to be fair, the girls should have been taught to be wary of boys trying to get them to yield to sexual temptation and that we would use every trick in the devil's arsenal to get them to go "all the way." But the girls were taught that they were the temptresses and were therefore the ones who needed to keep from harming the boys with their female charms. We were taught to pray constantly, implore the intercession of the saints and the Holy Mother of God, that they might give us protection against the snares of Satan. It must have occurred to many observers that the fear of Satan seems very much like fear of our own sexuality.

#### Innocent Angels

For all the instruction we were given on the Evil One, I don't remember ever being taught about Pope Innocent VIII and his persecution of witches and heretics. The Pope proclaimed in a Bull that "evil angels," i.e., devils, were having sex with many human men and women. He was not the first to have made this claim. Others before him, such as Thomas Aquinas, had explored this territory in great detail. Thomas reminds us that since the devil is not human, he can't produce human seed. So, he must transform himself into a woman, seduce a man, keep the seed, transform into a male, seduce a woman and transfer the seed. Something of the devil is captured by the seed along the way, so the offspring are not normal. Apparently it took Satan a long time to figure out that if he wanted to control the world, the best way to do it would be to breed with humans. Invading our bodies would be more efficient and effective than trying to invade our minds. But the Pope and many other pious men had a plan to exterminate the diabolical offspring: they would torture and burn them all! They would fight fire with fire! The Devil would not outdo them. In fact, the sadistic and monstrous behavior of the holy and pious inquisitors is almost enough to make a skeptic believe in Satan. The inquisitors were nothing short of diabolical.

One of the more interesting aspects of satanology is the recurring theme of humans making a pact with the devil. The Faust legend is the most well known of these: in exchange for one's soul, Satan will bestow one with wealth or power for a specified time. In most versions of the story, Faust tricks the devil and avoids payment. In the original, the devil mutilates and kills Faust at the end of the contract. His brains are splattered on the walls of his room, his eyes and teeth lay on the floor and his corpse rests outside on a dunghill (Smith, 269).

Today, there are still those who believe Satan is a real being, but we hear few stories of incubi and succubi any more. The closest thing we have to such stories are alien abduction accounts and star children. Fortunately, for today's alien abduction victims with similar tales of sexual experimentation--the devil being replaced with aliens from outer space--there is no Church to persecute, torture or exterminate them. Instead, there is a ready and growing market for their stories and a mass media more than willing to pander to that market. Unfortunately, the offspring of the inquisitors are still with us. The only thing they seem to have in common--besides their love of torturing and killing others--is a love of uniforms: military,

police, judicial or clerical. But this is a pretty weak link, since there are many who love uniforms who do not engage in torture or murder. The uniform for the sadistic inquisitors of all ages seems to be little more than camouflage or a convenient excuse to present to the world.

It is interesting, though, that most of these murderers and torturers feel some need to at least appear as if they are doing good while they commit their horrors. What drives the terrorist or ethnic cleanser today to their abominations, or the witch hunters to their destruction of families, seems to be the same forces that drove the pious enforcers of the Inquisitions. Their behavior is almost enough to make a skeptic think that maybe Satan does exist--in the souls of these good people fighting for their noble causes.

From a philosophical perspective, the universal belief in evil demons is based on the need for an explanation of the enormous quantity of moral and physical evil pervading human existence for our entire history. I suppose, too, that devils in some way serve to excuse our own evil actions and mitigate our sense of responsibility for the harm we do. Psychologically, demons may well be a projection of ourselves, the worst part of our nature or the most feared part of our own nature. From a literary perspective, demons must exist. If they didn't, we'd have to invent them. They seem essential to so much of our storytelling. More essential, perhaps, than their goodly counterparts.

### The Waning of Satan's Power

As the power of the Christian Church has waned, so too has the power of Satan. It is no accident that Satan reached the peak of his career at the same time the Church did, during the thirteenth century. During the Middle Ages, the Devil was said to have built Hadrian's wall between Scotland and England, moved huge stones to construct megalithic stone circles and dolmens, build bridges such as that at Saint-Cloud and the Pont de Valentre at Cahors, for the price of the soul of the first one who crossed the bridge, etc. Satan could perform magic, but it must be remembered that the Christian religion is basically a religion of magic, of sacraments which protect one from Satan and which change bread and wine into Christ, of miracles which contravene the natural order for good or ill, of resurrection from the dead and of the promise of eternal life. Satan represents the obverse of that order: black magic, pacts with the devil, wonders done contravening the natural order, the promise of eternal youth and wondrous powers. The Satanic Order was the creation of the Church, necessary to establish its own power over the world. Heretics, witches and sorcerers were a threat to the world dominion of the Church. They had to be eradicated. As the enemies of the Church grew more numerous and more powerful, so did the reign of terror grow and so did the power of the Church get established more and more firmly.

As the power of Christianity waned as the dominant social and political force in western culture, so too did the power of Satan. By the eighteenth century, in Europe at least, witch and heretic burnings had all but ceased. Today, most of us in the Christian world would consider it primitive and barbaric to suggest that anyone be hounded or killed for communing with Satan. Even those who are allegedly doing evil in the name of Satan are usually pursued for the evil they do, not for their alleged association with the devil. It is likely that most police officers, if they had to deal with crimes committed by Satan worshippers, would view the criminals as deluded rather than as really communing with otherworldly beings.

If the rise of modern science had anything to do with the fall of the Christian Church from its position of supreme influence in western culture, then modern science can take partial credit for the exorcism of Satan from western consciousness. Of course, the Devil is not dead yet but he gets his power from God, and as God's power wanes so does Satan's. Someday, perhaps, both God and Satan will become impotent strangers to the human imagination. But don't count on it. Many theists today believe that the evils of today's world, and they are many as we all know, are due to the rise of Satan and the decrease of religious influence. If they had their way, we would all be praying more and working against the snares of the devil. Others, such as myself, however, think we have more to fear from these pious people than we do from the Devil or his admirers. Some might even go so far as to identify these pious advocates of constitutional amendments for prayer in schools as devils in disguise. I don't think so, though when you have God's children murdering people at abortion clinics, there really doesn't seem to be much need for Satan. In fact, if Satan and his crew returned to earth they'd find that all the good jobs for devils have been taken by the pious of the earth.

Finally, there are the modern day satanists who find solace and power in occult magick, but especially in anything anti-Christian. They draw their inspiration from the great works of imagination in art, literature and policy created primarily by pious Christians in their zealous wars against their enemies, but also created by pre-Christian cults such as the Egyptian cult of Set or by non-Christian occultists such as Aleister Crowley and Anton LaVey. Today's satanists have been blamed by pious Christians for ritual murders of children, mutilation and sacrificial killings of animals, writing backwards messages on musical recordings instructing people to kill, sending subliminal or secret messages through diabolical symbols on pizza boxes or soap wrappers, causing the general decay of morals and civilization as we know it, etc. The satanists deny it. The evidence is not very strong that the satanists are either as evil or as powerful as their enemies say they are. There is strong evidence for the strength and wickedness of the pious. Witness their witchhunts in recent years against child care workers and parents and relatives of children. The

evidence is strong that the pious have frequently and unjustly accused many of satanic ritual abuse of children. And they have been aided in the witchhunt by devoted therapists and pious police and prosecutors.

### Satanic Ritual Abuse

Satanic ritual abuse (SRA) is the name given to the allegedly systematic abuse of children by satanists.

Since the mid 1970s, there have been widespread allegations of the existence of a well-organized intergenerational satanic cult whose members sexually molest, torture and murder children across the United States. In the 1980s there was a panic regarding SRA, which was largely triggered by a fictional book called "Michelle Remembers"(1980). The book was published as fact but has subsequently been shown to be a hoax by at least three independent investigators. No hard evidence of Satanic Ritual Abuse in North America has been found. Nevertheless, the allegations were widely publicized on radio and television talk shows.

A four-year study in the early 1990s found the allegations of satanic ritual abuse to be without merit. The study was conducted by University of California at Davis psychology professors Gail S. Goodman and Phillip R. Shaver, in conjunction with Jianjian Qin of UC Davis and Bette I. Bottoms of the University of Illinois at Chicago. Their study was supported by the National Center on Child Abuse and Neglect. The researchers investigated more than 12,000 accusations and surveyed more than 11,000 psychiatric, social service and law enforcement personnel. The researchers could find no unequivocal evidence for a single case of satanic cult ritual abuse.

Another study by Kenneth V. Lanning, a Supervisory Special Agent at the FBI Academy, published in 1992 came to the same conclusion: there is no good evidence of a single case of SRA. Lanning has investigated SRA since 1981.

If there are thousands of baseless accusations, how do they originate? Most of them are said to originate with children. Since there is a widespread belief that children wouldn't make up stories of eating other children or being forced to have sex with giraffes after flying in an airplane while they were supposed to be in day care, the stories are often taken at face value by naive prosecutors, therapists, police officers and parents. Yet, the researchers found that children are unlikely to invent stories of satanic ritual abuse on their own. So, where do the stories come from? They probably come from the therapists, the district attorneys, police and parents. There is ample evidence that therapists and law enforcement personnel encourage and reward children for accepting the suggestions of bizarre abusive behavior. They also discourage truth by refusing to accept no for an answer, forcing children to undergo interrogations until the interrogator gets what he or she is after.

A summary of the Goodman et al. study may be obtained for free by calling the National Center on Child Abuse and Neglect at 1-800-394-3366. The complete report is available for \$28.

### Scallion, Gordon-Michael

#### Gordon-Michael Scallion (GMS)

Gordon-Michael Scallion claims to have the "gift of prophecy" like Nostradamus and Edgar Cayce. Like Cayce, Atlantis has visited him, and like Nostradamus and Cayce, his head is filled with visions of disasters and apocalypses. In fact, Scallion's head is filled with many of the same visions Cayce claimed to have had. Coincidence? Not likely. He has predicted earthquakes in California and hurricanes in Florida. His doomsday prophecies are very popular with Art Bell, on whose radio show Scallion has been featured several times. His predictions are so wild that his followers seem not to care that his accuracy is on par with Jean Dixon's. Skeptics might think Scallion is a plagiarist; true believers might think he, Cayce, Dixon, Nostradamus, etc., tapped into the Akashic record.

Scallion is actually a prophetic industry that he calls The Matrix Institute. One of his more popular items for sale is a map of the future Earth as seen by GMS (as he is known by those in the know). On this map--which he claims will be the true map of the world by at least the year 2,002--California is nothing but a few islands in the Pacific and Denver is where the ocean front property sits. (This is a revision of an earlier prophecy that proved false.) Eventually, says GMS, the United States will restructure itself as thirteen colonies, proving that what goes around comes around.

Scallion claims to have first noticed his gift in 1979 while hospitalized. It was then that he started hearing voices and having cataclysmic visions. Soon after he was healed, he started to believe that he also was given the gift of healing along with the gift of hallucination. He became another Edgar Cayce, doing

readings and healings, and giving lectures to all who would listen. Soon he founded his own newsletter, the Earth Changes Report (6 issues/\$36 year), to keep track of all his apocalyptic dreams and hallucinations, which began arriving at a furious rate. The visions now began appearing on his computer screen. And since you can subscribe to the on-line version of Earth Changes, Scallion's visions can appear on your screen should you so desire.

Those of you living in Palm Springs should know that according to Scallion you were hit with 9.0 earthquake sometime between 1995 and 1997. Sonoma Country (north of San Francisco) was hit by an 8.5 quake during that period, as well. If you didn't feel it, that may be because they didn't occur as predicted by GMS. Nor did the volcanic ash arrive that was supposed to cover the whole planet.

His recent poor track record was predictable, however, since he predicted that California would be in the Pacific Ocean by May of 1993 and Denver was supposed to be on the Pacific coast by 1998. Also, one-fourth of Alaska is supposed to be gone by now.

No wonder scientists are not rushing to verify his latest vision: El Niño is fueled by underground volcanoes.

### Scapulimancy

Scapulimancy is a decision procedure used by the Naskapi Indians whereby the shoulder of a caribou is held over hot coals causing cracks in the bone which are then used to direct a hunting party.

What is interesting about such decision procedures as this and reading crystal balls, entrails, livers, palms, ouiji boards, biorhythms or astrological charts, polygraphs, "scientific jury selection," the "blue sense", "etc., is that they "work!" A decision is always made after using them. It may not be the right decision or the best decision, but it is a decision nonetheless.

The fact that a decision is made is a relief, a comfort; it is satisfying to remove uncertainty and indecision. Occult and questionable decision procedures are likely to be especially attractive in situations where logic and rational thinking appear useless, such as in deciding whether or not to marry someone or where to go hunting when it doesn't seem that there is any game anywhere or where to invest in the stock market.

Irrational decision procedures can seem quite rational to their users not only because they "work" in the sense of arriving at a decision but they "work" in the sense of arriving at an acceptable or demonstrably satisfactory outcome, i.e., you're happy with your wife (or glad you didn't get married); the hunters find some game; your stock portfolio isn't much worse than anyone else's, maybe even a little better, etc.

In some cases, irrational decision procedures maybe better than none at all. The trick is to know when this is the case.

### Science

Science is first and foremost a set of logical and empirical methods which provide for the systematic observation of empirical phenomena in order to understand them. We think we understand empirical phenomena when we have a satisfactory theory which explains how the phenomena work, what regular patterns they follow, or why they appear to us as they do. Scientific explanations are in terms of natural phenomena rather than supernatural phenomena, although science itself requires neither the acceptance nor the rejection of the supernatural.

Science is also the organized body of knowledge about the empirical world which issues from the application of the abovementioned set of logical and empirical methods.

Science consists of several specific sciences, such as biology, physics, chemistry, geology, and astronomy, which are defined by the type and range of empirical phenomena they investigate.

Finally, science is also the application of scientific knowledge, as in the altering of rice with daffodil and bacteria genes to boost the vitamin A content of rice.

the logical and empirical methods of science

There is no single scientific method. Some of the methods of science involve logic, e.g., drawing inferences or deductions from hypotheses, or thinking out the logical implications of causal relationships in terms of necessary or sufficient conditions. Some of the methods are empirical, such as making observations, designing controlled experiments, or designing instruments to use in collecting data.

Scientific methods are impersonal. Thus, whatever one scientist is able to do qua scientist, any other scientist should be able to duplicate. When a person claims to measure or observe something by some purely subjective method, which others cannot duplicate, that person is not doing science. When scientists cannot duplicate the work of another scientist that is a clear sign that the scientist has erred either in design, methodology, observation, calculation, or calibration.

### Scientific Facts and Theories

Science does not assume it knows the truth about the empirical world a priori. Science assumes it must discover its knowledge. Those who claim to know empirical truth a priori (such as so-called scientific creationists) cannot be talking about scientific knowledge. Science presupposes a regular order to nature and assumes there are underlying principles according to which natural phenomena work. It assumes that these principles or laws are relatively constant. But it does not assume that it can know a priori what these principles are or what the actual order of any set of empirical phenomena is.

A scientific theory is a unified set of principles, knowledge, and methods for explaining the behavior of some specified range of empirical phenomena. Scientific theories attempt to understand the world of observation and sense experience. They attempt to explain how the natural world works.

A scientific theory must have some logical consequences we can test against empirical facts by making predictions based on the theory. The exact nature of the relationship of a scientific theory making predictions and being tested is something about which philosophers widely disagree, however (Kourany).

It is true that some scientific theories, when they are first developed and proposed, are often little more than guesses based on limited information. On the other hand, mature and well developed scientific theories systematically organize knowledge and allow us to explain and predict wide ranges of empirical events. In either case, however, one characteristic must be present for the theory to be scientific. The distinguishing feature of scientific theories is that they are "capable of being tested by experience" (Popper, 40).

To be able to test a theory by experience means to be able to predict certain observable or measurable consequences from the theory. For example, from a theory about how physical bodies move in relation to one another, one predicts that a pendulum ought to follow a certain pattern of behavior. One then sets up a pendulum and tests the hypothesis that pendulums behave in the way predicted by the theory. If they do, then the theory is confirmed. If pendulums do not behave in the way predicted by the theory, then the theory is falsified. (This assumes that the predicted behavior for the pendulum was correctly deduced from your theory and that your experiment was conducted properly.)

The fact that a theory passed an empirical test does not prove the theory, however. The greater the number of severe tests a theory has passed, the greater its degree of confirmation and the more reasonable it is to accept it. However, to confirm is not the same as to prove logically or mathematically. No scientific theory can be proved with absolute certainty.

Furthermore, the more tests which can be made of the theory, the greater its empirical content (Popper, 112, 267). A theory from which very few empirical predictions can be made will be difficult to test and generally will not be very useful. A useful theory is rich, i.e., many empirical predictions can be generated from it, each one serving as another test of the theory. However, even if a theory is very rich and even if it passes many severe tests, it is always possible that it will fail the next test. It could even fail the same test it has passed many times in the past. Karl Popper calls this characteristic of scientific theories, "falsifiability."

A necessary consequence of scientific claims being falsifiable is that they are also fallible. For example, Einstein's special theory of relativity is accepted as "correct" in the sense that "its necessary inclusion in calculations leads to excellent agreement with experiments" (Friedlander, 1972, 41). This does not mean the theory is infallibly certain. Scientific facts, like scientific theories, are not infallible certainties, either. Facts involve not only easily testable perceptual elements; they also involve interpretation.

Noted paleoanthropologist and science writer Stephen Jay Gould reminds us that in science 'fact' can only mean "confirmed to such a degree that it would be perverse to withhold provisional assent" (Gould, 1983, 254). However, facts and theories are different things, notes Gould, "not rungs in a hierarchy of increasing certainty. Facts are the world's data. Theories are structures of ideas that explain and interpret facts." In Popper's words: "Theories are nets cast to catch what we call 'the world': to rationalize, to explain, and to master it. We endeavor to make the mesh ever finer and finer."

To the uninformed public, facts contrast with theories. Non-scientists commonly use the term 'theory' to refer to a speculation or guess based on limited information or knowledge. However, when we refer to a scientific theory, we are not referring to a speculation or guess, but to a systematic explanation of some range of empirical phenomena. Nevertheless, scientific theories vary in degree of certainty from the highly

improbable to the highly probable. That is, there are varying degrees of evidence and support for different theories, i.e., some are more reasonable to accept than others.

There are, of course, many more facts than theories, and once something has been established as a scientific fact (e.g., that the earth goes around the sun) it is not likely to be replaced by a "better" fact in the future. Whereas, the history of science clearly shows that scientific theories do not remain forever unchanged. The history of science is, among other things, the history of theorizing, testing, arguing, refining, rejecting, replacing, more theorizing, more testing, etc. It is the history of theories working well for awhile, anomalies occurring (i.e., new facts being discovered which do not fit with established theories), and new theories being proposed and eventually replacing the old ones partially or completely.

We should remember that science, as Jacob Bronowski put it, "is a very human form of knowledge....Every judgment in science stands on the edge of error.... Science is a tribute to what we can know although we are fallible" (Bronowski, 374). "One aim of the physical sciences," he said, "has been to give an exact picture of the material world. One achievement of physics in the twentieth century has been to prove that aim is unattainable" (353).

### Scientific Knowledge

Scientific knowledge is human knowledge and scientists are human beings. They are not gods, and science is not infallible. Yet, the general public often thinks of scientific claims as absolutely certain truths. They think that if something is not certain, it is not scientific and if it is not scientific, then any other non-scientific view is its equal. This misconception seems to be, at least in part, behind the general lack of understanding about the nature of scientific theories.

Another common misconception is that since scientific theories are based on human perception, they are necessarily relative and therefore do not really tell us anything about the real world. Science, according to certain "postmodernists" cannot claim to give us a true picture of what the empirical world is really like; it can only tell us how it appears to scientists. There is no such thing as scientific truth. All scientific theories are mere fictions. However, just because there is no one, true, final, godlike way to view reality, does not mean that every viewpoint is as good as every other. Just because science can only give us a human perspective, does not mean that there is no such thing as scientific truth. When the first atomic bomb went off as some scientists had predicted it would, another bit of truth about the empirical world was revealed. Bit by bit we are discovering what is true and what is false by empirically testing scientific theories. To claim that those theories which make it possible to explore space are "just relative" and "represent just one perspective" of reality, is to profoundly misunderstand the nature of science and scientific knowledge.

### Science As A Candle In The Dark

Science is, as Carl Sagan put it, a candle in the dark. It shines a light on the world around us and allows us to see beyond our superstitions and fears, beyond our ignorance and delusions, and beyond the magical thinking of our ancestors, who rightfully fought for their survival by fearing and trying to master occult and supernatural powers.

Jacob Bronowski put it all in perspective in one scene from his televised version of the Ascent of Man. I'm referring to the episode on "Knowledge and Certainty" where he went to Auschwitz, walked into a pond where the ashes were dumped, bent down and scooped up a handful of muck.

It is said that science will dehumanize people and turn them into numbers. That is false, tragically false. Look for yourself. This is the concentration camp and crematorium at Auschwitz. This is where people were turned into numbers. Into this pond were flushed the ashes of some four million people. And that was not done by gas. It was done by ignorance. When people believe that they have absolute knowledge, with no test in reality, this is how they behave. This is what men do when they aspire to the knowledge of gods (374).

The trick is to know how to develop tests in reality that avoid confirmation bias, wishful thinking, self-deception, selective thinking, subjective validation, being seduced by communal reinforcement or persuaded by ad hoc hypotheses and post hoc reasoning, as well as having a healthy skepticism and an ability to apply Occam's razor when needed.

See related entries on alternative science, naturalism, pseudoscience, and those listed in the Logic/Perception & Science/Philosophy Topical Index and those listed in Junk Science and Pseudoscience.

*This material is adapted from my Becoming a Critical Thinker, ch. 9, "Science and Pseudoscience." I am aware that 'science' can also refer to any systematic body of knowledge about some object of study and that mathematics and even theology are sometimes referred to as sciences. This entry is obviously not an*



attempt to define every possible use of the term 'science.' In some quarters, the science I am concerned with here is called natural science. I do not intend to issue any debate as to what is and what is not a 'real' science by this entry, nor do I intend to get into any "borderline" issues as to whether some discipline or activity is or is not science.</i>

## Scientism

Scientism, in the strong sense, is the self-annihilating view that only scientific claims are meaningful, which is not a scientific claim and hence, if true, not meaningful. Thus, scientism is either false or meaningless.

In the weak sense, scientism is the view that the methods of the natural sciences should be applied to any subject matter.

## Scientology

"Hubbard reveals a deep-seated hatred of women....When Hubbard's Mama's are not getting kicked in the stomach by their husbands or having affairs with lovers, they are preoccupied with AA [attempted abortion]--usually by means of knitting needles" (Gardner, 267).

In 1950, Lafayette Ronald Hubbard published *Dianetics: The Modern Science of Mental Health*. [Published by The American Saint Hill Organization, Los Angeles. All page references are to this hard back edition.] The book is the "bible" for Scientology, which calls itself a science, a Church and a religion. Hubbard tells the reader that dianetics "...contains a therapeutic technique with which can be treated all inorganic mental ills and all organic psycho-somatic ills, with assurance of complete cure...." He claims that he has discovered the "single source of mental derangement" (Hubbard, 6). However, in a disclaimer on the frontispiece of the book, we are told that "Scientology and its sub-study, Dianetics, as practiced by the Church...does not wish to accept individuals who desire treatment of physical illness or insanity but refers these to qualified specialists of other organizations who deal in these matters." The disclaimer seems clearly to have been a protective mechanism against lawsuits for practicing medicine without a license; for, the author repeatedly insists that dianetics can cure just about anything which ails you. He also repeatedly insists that dianetics is a science. Yet, just about anyone familiar with scientific texts will be able to tell from the first few pages of *Dianetics* that the text is no scientific work and the author no scientist. *Dianetics* is a classic example of a pseudoscience.

On page 5 of *Dianetics*, Hubbard asserts that a science of mind must find "a single source of all insanities, psychoses, neuroses, compulsions, repressions and social derangements." Such a science, he claims, must provide "Invariant scientific evidence as to the basic nature and functional background of the human mind." And, this science, he says, must understand the "cause and cure of all psycho-somatic ills...." Yet, he also claims that it would be unreasonable to expect a science of mind to be able to find a single source of all insanities, since some are caused by "malformed, deleted or pathologically injured brains or nervous systems" and some are caused by doctors. Undaunted by this apparent contradiction, he goes on to say that this science of mind "would have to rank, in experimental precision, with physics and chemistry." He then tells us that dianetics is "...an organized science of thought built on definite axioms: statements of natural laws on the order of those of the physical sciences" (Hubbard, 6).

There are broad hints that this so-called science of the mind isn't a science at all in the claim that dianetics is built on "definite axioms" and in his a priori notion that a science of mind must find a single source of mental and psychosomatic ills. Sciences aren't built on axioms and they don't claim a priori knowledge of the number of causal mechanisms which must exist for any phenomena. A real science is built on tentative proposals to account for observed phenomena. Scientific knowledge of causes, including how many kinds there are, is a matter of discovery not stipulation. Also, scientists generally respect logic and would have difficulty saying with a straight face that this new science must show that there is a single source of all insanities except for those insanities that are caused by other sources.

There is other evidence that dianetics is not a science. For example, his theory of mind shares little in common with modern neurophysiology and what is known about the brain and how it works. According to Hubbard, the mind has three parts. "The analytical mind is that portion of the mind which perceives and retains experience data to compose and resolve problems and direct the organism along the four dynamics. It thinks in differences and similarities. The reactive mind is that portion of the mind which files and retains physical pain and painful emotion and seeks to direct the organism solely on a stimulus-response basis. It thinks only in identities. The somatic mind is that mind, which, directed by the analytical or reactive mind, places solutions into effect on the physical level" (Hubbard, 39).

According to Hubbard, the single source of insanity and psychosomatic ills is the engram. Engrams are to be found in one's "engram bank," i.e., in the reactive mind." The "reactive mind," he says, "can give a man arthritis, bursitis, asthma, allergies, sinusitis, coronary trouble, high blood pressure, and so on down the whole catalogue of psycho-somatic ills, adding a few more which were never specifically classified as psycho-somatic, such as the common cold" (Hubbard, 51). One searches in vain for evidence of these claims. We are simply told: "These are scientific facts. They compare invariably with observed experience" (Hubbard, 52).

An engram is defined as "a definite and permanent trace left by a stimulus on the protoplasm of a tissue. It is considered as a unit group of stimuli impinged solely on the cellular being" (Hubbard, 60 note). We are told that engrams are only recorded during periods of physical or emotional suffering. During those periods the "analytical mind" shuts off and the reactive mind is turned on. The analytical mind has all kinds of wonderful features, including being incapable of error. It has, we are told, standard memory banks, in contrast to the reactive bank. These standard memory banks are recording all possible perceptions and, he says, they are perfect, recording exactly what is seen or heard, etc.

What is the evidence that engrams exist and that they are "hard-wired" into cells during physically or emotionally painful experiences? Hubbard doesn't say that he's done any laboratory studies, but he says that

in dianetics, on the level of laboratory observation, we discover much to our astonishment that cells are evidently sentient in some currently inexplicable way. Unless we postulate a human soul entering the sperm and ovum at conception, there are things which no other postulate will embrace than that these cells are in some way sentient (Hubbard, 71).

This explanation is not on the "level of laboratory observation" but is a false dilemma and begs the question. Furthermore, the theory of souls entering zygotes has at least one advantage over Hubbard's own theory: it is not deceptive and is clearly metaphysical. Hubbard tries to clothe his metaphysical claims in scientific garb.

The cells as thought units evidently have an influence, as cells, upon the body as a thought unit and an organism. We do not have to untangle this structural problem to resolve our functional postulates. The cells evidently retain engrams of painful events. After all, they are the things which get injured....

The reactive mind may very well be the combined cellular intelligence. One need not assume that it is, but it is a handy structural theory in the lack of any real work done in this field of structure. The reactive engram bank may be material stored in the cells themselves. It does not matter whether this is credible or incredible just now....

The scientific fact, observed and tested, is that the organism, in the presence of physical pain, lets the analyzer get knocked out of circuit so that there is a limited quantity or no quantity at all of personal awareness as a unit organism (Hubbard, 71).

Hubbard asserts that these are scientific facts based on observations and tests, but the fact is there hasn't been any real work done in this field. The following illustration is typical of the kind of "evidence" provided by Hubbard for his theory of engrams.

A woman is knocked down by a blow. She is rendered "unconscious." She is kicked and told she is a faker, that she is no good, that she is always changing her mind. A chair is overturned in the process. A faucet is running in the kitchen. A car is passing in the street outside. The engram contains a running record of all these perceptions: sight, sound, tactile, taste, smell, organic sensation, kinetic sense, joint position, thirst record, etc. The engram would consist of the whole statement made to her when she was "unconscious": the voice tones and emotion in the voice, the sound and feel of the original and later blows, the tactile of the floor, the feel and sound of the chair overturning, the organic sensation of the blow, perhaps the taste of blood in her mouth or any other taste present there, the smell of the person attacking her and the smells in the room, the sound of the passing car's motor and tires, etc" (Hubbard, 60).

How this example relates to insanity or psycho-somatic ills is explained by Hubbard this way:

The engram this woman has received contains a neurotic positive suggestion....She has been told that she is a faker, that she is no good, and that she is always changing her mind. When the engram is restimulated in one of the great many ways possible [such as hearing a car passing by while the faucet is running and a chair falls over], she has a feeling' that she is no good, a faker, and she will change her mind (Hubbard, 66).

There is no possible way to empirically test such claims. A "science" that consists of nothing but such claims is not a science, but a pseudoscience.

Hubbard claims that enormous data has been collected and not a single exception to his theory has been found (Hubbard, 68). We are to take his word on this, apparently, for all the "data" he presents are in the form of anecdotes or made-up examples like the one presented above.

Another indication that dianetics is not a science, and that its founder hasn't a clue as to how science functions, is given in claims such as the following: "Several theories could be postulated as to why the human mind evolved as it did, but these are theories, and dianetics is not concerned with structure" (Hubbard, 69). This is his way of saying that it doesn't concern him that engrams can't be observed, that even though they are defined as permanent changes in cells, they can't be detected as physical structures. It also doesn't bother him that the cure of all illnesses requires that these "permanent" engrams be "erased" from the reactive bank. He claims that they aren't really erased but simply transferred to the standard bank. How this physically or structurally occurs is apparently irrelevant. He simply asserts that it happens this way, without argument and without proof. He simply repeats that this is a scientific fact, as if saying it makes it so.

Another "scientific fact," according to Hubbard, is that the most harmful engrams occur in the womb. The womb turns out to be a terrible place. It is "wet, uncomfortable and unprotected" (Hubbard, 130).

Mama sneezes, baby gets knocked "unconscious." Mama runs lightly and blithely into a table and baby gets its head stove in. Mama has constipation and baby, in the anxious effort, gets squashed. Papa becomes passionate and baby has the sensation of being put into a running washing machine. Mama gets hysterical, baby gets an engram. Papa hits Mama, baby gets an engram. Junior bounces on Mama's lap, baby gets an engram. And so it goes (Hubbard, 130).

We are told that people can have "more than two hundred" prenatal engrams and that engrams "received as a zygote are potentially the most aberrative, being wholly reactive. Those received as an embryo are intensely aberrative. Those received as the foetus are enough to send people to institutions all by themselves" (Hubbard, 130-131). What is the evidence for these claims? How could one test a zygote to see if it records engrams? "All these things are scientific facts, tested and rechecked and tested again," he says (Hubbard, 133). But you must take L. Ron Hubbard's word for it. Scientists generally do not expect others to take their word for such dramatic claims.

Furthermore, to get cured of an illness you need a dianetic therapist, called an auditor. Who is qualified to be an auditor? "Any person who is intelligent and possessed of average persistency and who is willing to read this book [Dianetics] thoroughly should be able to become a dianetic auditor" (Hubbard, 173). The auditor must use "dianetic reverie" to effect a cure. The goal of dianetic therapy is to bring about a "release" or a "clear." The former has had major stress and anxiety removed by dianetics; the latter has neither active nor potential psycho-somatic illness or aberration (Hubbard, 170). The "purpose of therapy and its sole target is the removal of the content of the reactive engram bank. In a release, the majority of emotional stress is deleted from this bank. In a clear, the entire content is removed" (Hubbard, 174). The 'reverie' used to achieve these wonders is described as an intensified use of some special faculty of the brain which everyone possesses but which "by some strange oversight, Man has never before discovered" (Hubbard, 167). Hubbard has discovered what none before him has seen and yet his description of this 'reverie' is of a man sitting down and telling another man his troubles (Hubbard, 168). In a glorious non sequitur, he announces that auditing "falls utterly outside all existing legislation," unlike psychoanalysis, psychology and hypnotism which "may in some way injure individuals or society" (Hubbard, 168-169). It is not clear, however, why telling others one's troubles is a monumental discovery. Nor is it clear why auditors couldn't injure individuals or society, especially since Hubbard advises them: "Don't evaluate data....don't question the validity of data. Keep your reservations to yourself" (Hubbard, 300). This does not sound like a scientist giving sound advice to his followers. This sounds like a guru giving advice to his disciples.

What Hubbard touts as a science of mind lacks one key element that is expected of a science: empirical testing of claims. The key elements of Hubbard's so-called science don't seem testable, yet he repeatedly claims that he is asserting only scientific facts and data from many experiments. It isn't even clear what such "data" would look like. Most of his data is in the form of anecdotes and speculations such as the one about a patient who believes she was raped by her father at age nine. "Large numbers of insane patients claim this," says Hubbard, who goes on to claim that the patient was actually 'raped' when she was "nine days beyond conception....The pressure and upset of coitus is very uncomfortable to the child and normally can be expected to give the child an engram which will have as its contents the sexual act and everything that was said" (Hubbard, 144). Such speculation is appropriate in fiction, but not in science.

## Scrying

Scrying is a type of divination. To scry or descry is to spy out or discover by the eye objects at a distance. In occult literature, the term is used to describe the act of gazing at a shiny stone or mirror or into a crystal ball (anything which reflects will do), to see things past and future. (When a crystal is used, scrying is

known as catoptromancy or crystallo-mancy.) Occultists claim that if one concentrates hard enough while gazing, one can conjure up the dead. This is possible because, we are told, scrying clears out the consciousness and makes it possible for a direct line to the other world. I am told that if one rubs a crystal ball with mugwort under the light of a full moon, its capacity for igniting psychic powers magnifies. However, as far as I know, there have been no controlled studies to test this, or any other, hypothesis regarding scrying.

### Séance

A séance is a spiritualist meeting to receive communications from the dead. Usually, the group is led by a medium in a very dark room (to make deception easier) who, often with an assistant, produces noises and voices, and moves things about the room, insisting these are caused by spirits of the dead.

### Selective Thinking

Selective thinking is the process whereby one selects out favorable evidence for remembrance and focus, while ignoring unfavorable evidence for a hypothesis. This kind of thinking is the basis for most beliefs in the psychic powers of so-called mind readers. It is also the basis for many, if not most, occult and pseudoscientific beliefs.

James Randi gives the following example of selective thinking. Peter Hurkos was astonishing people with his ability to recite intimate details about their homes and their lives. Two of the persons who had their minds read by Hurkos and who were amazed at his accuracy were invited by Randi to watch a tape of the mind readings. It was "discovered by actual count that this so-called psychic had, on the average, been correct in one out of fourteen of his statements.... Selective thinking had led them to dismiss all the apparent misses and the obviously wrong guesses and remember only the "hits." They were believers who needed this man to be the genuine article, and in spite of the results of this experiment they are still devoted fans of this charlatan" (Flim-Flam!, 7).

It should be noted that selective thinking works independently of wishful thinking and should not be confused with biased thinking, whereby one seriously considers data contrary to one's belief, but one is much more critical of such data than one is of supportive data.

### Self-Deception

Ninety-four percent of university professors think they are better at their jobs than their colleagues.

Twenty-five percent of college students believe they are in the top 1% in terms of their ability to get along with others.

Seventy percent of college students think they are above average in leadership ability. Only two percent think they are below average.

--Thomas Gilovich *How We Know What Isn't So*

Eighty-five percent of medical students think it is improper for politicians to accept gifts from lobbyists. Only 46 percent think it's improper for physicians to accept gifts from drug companies.

--Dr. Ashley Wazana *JAMA* Vol. 283 No. 3, January 19, 2000

People tend to hold overly favorable views of their abilities in many social and intellectual domains. [Kruger & Dunning] suggest that this overestimation occurs, in part, because people who are unskilled in these domains suffer a dual burden: Not only do these people reach erroneous conclusions and make unfortunate choices, but their incompetence robs them of the metacognitive ability to realize it.

--"Unskilled and Unaware of It: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments," by Justin Kruger and David Dunning Department of Psychology Cornell University, *Journal of Personality and Social Psychology* December 1999 Vol. 77, No. 6, 1121-1134.

Self-deception is the process or fact of misleading ourselves to accept as true or valid what is false or invalid. Self-deception, in short, is a way we justify false beliefs to ourselves.

When philosophers and psychologists discuss self-deception, they usually focus on unconscious motivations and intentions. They also usually consider self-deception as a bad thing, something to guard against. To explain how self-deception works, they focus on self-interest, prejudice, desire, insecurity, and

other psychological factors unconsciously affecting in a negative way the will to believe. A common example would be that of a parent who believes his child is telling the truth even though the objective evidence strongly supports the claim that the child is lying. The parent, it is said, deceives him or herself into believing the child because the parent desires that the child tell the truth. A belief so motivated is usually considered more flawed than one due to lack of ability to evaluate evidence properly. The former is considered to be a kind of moral flaw, a kind of dishonesty, and irrational. The latter is considered to be a matter of fate: some people are just not gifted enough to make proper inferences from the data of perception and experience.

However, it is possible that the parent in the above example believes the child because he or she has intimate and extensive experience with the child but not with the child's accusers. The parent may be unaffected by unconscious desires and be reasoning on the basis of what he or she knows about the child but does not know about the others involved. The parent may have very good reasons for trusting the child and not trusting the accusers. In short, an apparent act of self-deception may be explicable in purely cognitive terms without any reference to unconscious motivations or irrationality. The self-deception may be neither a moral nor an intellectual flaw. It may be the inevitable existential outcome of a basically honest and intelligent person who has extremely good knowledge of his or her child, knows that things are not always as they appear to be, has little or no knowledge of the child's accusers, and thus has not sufficient reason for doubting the child. It may be the case that an independent party could examine the situation and agree that the evidence is overwhelming that the child is lying, but if he or she were wrong we would say that he or she was mistaken, not self-deceived. We consider the parent to be self-deceived because we assume that he or she is not simply mistaken, but is being irrational. How can we be sure?

A more interesting case would be one where (1) a parent has good reason to believe that his or her child is likely to tell the truth in any given situation, (2) the objective evidence points to innocence, (3) the parent has no reason to especially trust the child's accusers, but (4) the parent believes the child's accusers anyway. Such a case is so defined as to be practically impossible to explain without assuming some sort of unconscious and irrational motivation (or brain disorder) on the part of the parent. However, if cognitive incompetence is allowed as an explanation for apparently irrational beliefs, then appeals to unconscious psychological mechanisms are not necessary even in this case.

Fortunately, it is not necessary to know whether self-deception is due to unconscious motivations or not, in order to know that there are certain situations where self-deception is so common that we must systematically take steps to avoid it. Such is the case with belief in paranormal or occult phenomena such as ESP, prophetic dreams, dowsing, therapeutic touch, facilitated communication and a host of other topics taken up in the Skeptic's Dictionary.

In *How We Know What Isn't So*, Thomas Gilovich describes the details of many studies which make it clear that we must be on guard against the tendencies to

misperceive random data and see patterns where there are none  
misinterpret incomplete or unrepresentative data and give extra attention to confirmatory data while drawing conclusions without attending to or seeking out disconfirmatory data  
make biased evaluations of ambiguous or inconsistent data, tending to be uncritical of supportive data and very critical of unsupportive data.

It is because of these tendencies that scientists require clearly defined, controlled, double-blind, randomized, repeatable, publicly presented studies. Otherwise, we run a great risk of deceiving ourselves and believing things that are not true. It is also because of these tendencies that in trying to establish beliefs non-scientists ought to try to imitate science whenever possible. In fact, scientists must keep reminding themselves of these tendencies and guard against pathological science.

Many people believe, however, that as long as they guard themselves against wishful thinking they are unlikely to deceive themselves. Actually, if one believes that all one must be on guard against is wishful thinking, then one may be more rather than less liable to self-deception. For example, many intelligent people have invested in numerous fraudulent products that promised to save money, the environment, the world, etc., not because they were guilty of wishful thinking but because they weren't. Since they were not guilty of wishful thinking, they felt assured that they were correct in defending their product. They could easily see the flaws in critical comments. They were adept at finding every weakness in opponents. They were sometimes brilliant in defense of their useless devices. Their errors were cognitive, not emotional. They misinterpreted data. They gave full attention to confirmatory data, but were unaware of or oblivious to disconfirmatory data. They sometimes were not aware that the way in which they were selecting data made it impossible for contrary data to have a chance to occur. They were adept at interpreting data favorably when either the goal or the data itself was ambiguous or vague. They were sometimes brilliant in arguing away inconsistent data with ad hoc hypotheses. Yet, had they taken the time to design a clear test with proper controls, they could have saved themselves a great deal of money and embarrassment. The defenders of the DKL LifeGuard and the many defenders of perpetual motion machines and free energy devices are not necessarily driven by the desire to believe in their magical devices. They may simply be the victims of quite ordinary cognitive obstacles to critical thinking. Likewise for all those nurses who

believe in therapeutic touch and those defenders of facilitated communication, ESP, astrology, biorhythms, crystal power, dowsing, and a host of other notions that seem to have been clearly refuted by the scientific evidence.

In short, self-deception is not necessarily a weakness of will, but may be a matter of cognitive ignorance, laziness, or incompetence. In fact, self-deception may not always be a flaw and may even be beneficial at times. If we were too brutally honest and objective about our own abilities and about life in general, we might become debilitatingly depressed.

#### Shark Cartilage as a Cancer Cure

Powdered shark cartilage has been touted as a cancer cure, especially by William Lane, Ph.D., whose company produces the stuff under the name of BeneFin. Lane has written two books, both with the false claim that sharks don't get cancer in their title. Sharks do get cancer, even cancer of their cartilage.

Dr. Lane is an example of why alternative medicine is usually either useless or harmful. He took a little bit of knowledge, generalized from it, started a company to produce the miracle cure, wrote books and misleading promotional pieces supporting his company's research and product, got a major news show to do a shoddy, uncritical story which suggested that maybe there was something to the miracle cure, and responded to criticism with the claim that his critics were conspiring to stifle him because his research was somehow a threat to traditional medical practitioners.

There are no scientific studies done by independent researchers with proper controls which have substantiated the claim that shark cartilage is a useful treatment for cancer. In at least one such study, the treatment was found ineffective. Other studies are underway and their results should be available soon.

Lane got his inspiration from the work of real scientists who injected bovine and shark cartilage into the bloodstreams of rabbits and mice with cancer. The stuff greatly inhibited angiogenesis, the growth of blood vessels which supply nutrients to the cancerous cells. However, not all cancers rely on angiogenesis. Most researchers doubt that cartilage taken orally will result in significant quantities making it to the site of a tumor. They believe that it is a protein in cartilage that affects angiogenesis and that the protein would be digested rather than absorbed into the bloodstream where it might find its way to a tumor. Injecting shark cartilage directly into the human bloodstream might result in an unfavorable immune system response.

The best that can be said for taking orally shark cartilage pills or powder is that it is an unproven cancer cure.

#### Shotgunning

Shotgunning is a coldreading trick used by pseudo-psychics and false mediums. To convince one's mark that one is truly in touch with the other world, one provides a large quantity of information, some of which is bound to seem appropriate. Shotgunning relies on selective thinking.

#### Shroud of Turin

"All empirical evidence and logical reasoning concerning the Shroud of Turin will lead any objective, rational person to the firm conclusion that the Shroud is an artifact created by an artist in the fourteenth-century." --Steven D. Schafersman

The shroud of Turin is a woven cloth about 14 feet long and 3.5 feet wide which has an image of a man on it. Actually, it has two images, one frontal and one rear, with the heads meeting in the middle. One anonymous critic notes that if the shroud were really wrapped over a body there should be a space where the two heads meet. This critic also thinks the head is 5% too large for its body, the nose is disproportionate and the arms are too long. Nevertheless, the image is believed by many to be a negative image of the crucified Christ and the shroud is believed to be his burial shroud. Most skeptics think the image is a painting and a pious hoax. The shroud is kept in the cathedral of St. John the Baptist in Turin, Italy.

Apparently, the first historical mention of the shroud as the "shroud of Turin" is in the late 16th century when the shroud was brought to the cathedral in that city, though it allegedly was discovered in Turkey during one of the so-called "Holy" Crusades in the so-called "Middle" Ages. In 1988, the Vatican allowed the shroud to be dated by three independent sources--Oxford University, the University of Arizona, and the Swiss Federal Institute of Technology--and each of them dated the cloth as originating in medieval times,

around 1350. The shroud allegedly was in a fire during the early part of the 16th century and, according to believers in the shroud's authenticity, that is what accounts for the carbon dating of the shroud as being no more than 650 years old. To non-believers, this sounds like an ad hoc hypothesis.

It may interest skeptics to know that many people of faith believe that there is scientific evidence which supports their belief in the shroud's authenticity. Of course, the evidence is limited almost exclusively to pointing out facts that would be true if the shroud were authentic. For example, it is claimed to be the negative image of a crucifixion victim. It is claimed to be the image of a man brutally beaten in a way which corresponds to the way Jesus is depicted as having been treated in the Bible. It is also claimed that the image is not a painting but a miraculously transposed image. Skeptics disagree and argue that the shroud is a painting and a forgery.

#### The Relic Trade

Skeptics believe that the shroud of Turin is just another religious relic invented to beef up the pilgrimage business or impress infidels. (Another equally famous painting, also claimed to have miraculously appeared on a cloth, cropped up in Mexico in the 16th century, "Our Lady of Guadalupe.") The case for the forged shroud is made most forcefully by Joe Nickell in his *Inquest On The Shroud Of Turin*, which was written in collaboration with a panel of scientific and technical experts. The author claims that historical, iconographic, pathological, physical, and chemical evidence points to inauthenticity. The shroud is a 14th century painting, not a two-thousand year-old cloth with Christ's image.

Another scholar to declare the shroud a fake is Walter McCrone, a microchemist. He presents his case in *Judgment Day for the Shroud of Turin* (March 1999). His thesis is that "a male model was daubed with paint and wrapped in the sheet to create the shadowy figure of Christ." The model was covered in red ochre, "a pigment found in earth and widely used in Italy during the Middle Ages, and pressed his forehead, cheekbones and other parts of his head and body on to the linen to create the image that exists today. Vermilion paint, made from mercuric sulphide, was then splashed onto the image's wrists, feet and body to represent blood." For his work, McCrone was awarded the American Chemical Society's Award in Analytical Chemistry.

#### The Evidence For Authenticity

The shroud, however, has many defenders who believe they have demonstrated that the cloth is not a forgery, dates from the time of Christ, is of miraculous origin, etc.

It is claimed that there is type AB blood on the shroud. However, no blood has been identified on the shroud of Turin. Dried, aged blood is black. The stains on the shroud are red. Forensic tests on the red stuff have identified it as red ochre and vermilion tempera paint. In any case, if there were AB blood on the shroud, not only could it be the blood of a person wrapped in the shroud, it could also be the blood of the creator of the shroud or of anyone who handled the shroud. But, the evidence is that there isn't any blood on the shroud.

It is claimed that the cloth has some pollen and images on it that are of plants found only in the Dead Sea region of Israel. Avinoam Danin, a botanist from Hebrew University of Jerusalem claims he has identified pollen from the tumbleweed *Gundelia tournefortii* and a bean caper on the shroud. He claims this combination is found only around Jerusalem. Some believers think the crown of thorns was made of this type of tumbleweed. However, Danin did not examine the shroud itself. His sample of pollens originated with Max Frei who tape-lifted pollen samples from the shroud. Frei's pollens have been controversial from the beginning. Frei, who once pronounced the forged "Hitler Diaries" to be genuine, probably introduced the pollens himself or was duped and innocently picked up pollens another pious fraud had introduced (Nickell, Shafersman).

Danin and his colleague Uri Baruch also claim that they found impressions of flowers on the shroud and that those flowers could only come from Israel. However, the floral images they see are hidden in mottled stains much the way the image of Jesus is hidden in a tortilla or the image of Mary is hidden in the bark of a tree. The first to see flowers in the stains was a psychiatrist, who was probably an expert at seeing personality traits in inkblots (Nickell, 1994)

Danin notes that another relic believed to be the burial face cloth of Jesus (the Sudarium of Oviedo in Spain) contains the same two types of pollen grains as the Shroud and also is stained with type AB blood. Since the Sudarium is believed to have existed before the 8th century, according to Danin, there is "clear evidence that the shroud originated before the eighth century." The cloth is believed to have been in a chest of relics from at least the time of the Moorish invasion of Spain. It is said to have been in the chest when it was opened in 1075. But, since there is no blood on the shroud of Turin and there is no good reason to accept Danin's assumption that the pollens were on the Shroud from its origin, this argument is spurious.

In any case, the fact that pollens found near the Dead Sea or Jerusalem were on the shroud means little. Even if the pollens weren't introduced by some pious fraud, they could have been carried to the shroud by anyone who handled it. In short, the pollens could have originated in Jerusalem at any time before or after the appearance of the shroud in Italy. This is not a very strong piece of evidence.

Moreover, that there are two cloths believed to have been wrapped around the dead body of Jesus does not strengthen the claim that the shroud is authentic, but weakens it. How many more cloths are there that we don't know about? Were they mass produced like pieces of the true cross, straw from Christ's manger, chunks of Noah's ark? That cloths in Spain and Italy have identical pollens and blood stains is a bit less than "clear evidence" that they originated at the same time, especially since there is clear evidence that the claim that they have identical pollens and blood stains is not true. But, even if it were true, it would be of little value in establishing that either of these cloths touched the body of Jesus.

### Unraveling The Weave

The weave of the cloth is said to be typical of the weave wealthy Jews would have had in the time of Jesus. The weave of the wealthy Jew doesn't seem consistent with the kind of people Jesus supposedly hung out with. However, as one reader, Hal Nelson, pointed out, "The linen cloth was supplied by Joseph of Arimathea, described in Matthew 27 as a "rich man" as well as a disciple. (The weave of Turin is herring bone; the weave of Oviedo is taffeta, proving, I suppose, that Jesus had disciples of all types, even AB.)

The image is of a man about six feet tall. The size and weave of the cloth have convinced one researcher/believer that the cloth may have been used as a tablecloth for the Last Supper. It could have been used for a lot of other things as well, I suppose.

To the believer, however, it is not the scientific proof of the shroud's authenticity that gives the shroud its special significance. It is the faith in the miraculous origin of the image that defines their belief. The miracle is taken as a sign that the resurrection really happened and that Jesus was divine.

### Just Another Relic?

Perhaps the most fascinating aspect of the shroud of Turin controversy is the way true believers keep bringing up red herrings and the way skeptics keep taking the bait. Danin made his plant image/pollen grain argument in 1998, a follow-up on another plant image argument he made in 1997. He said in the 1998 article that his evidence showed that "the Shroud could have come only from the Near East." An AP article by Traci Angel (8/3/99) quotes Danin as saying that the evidence "clearly point to a floral grouping from the area surrounding Jerusalem." No doubt, a raging debate will follow (once again!) as to the origin of the plants and pollens. As if it matters. Even if it is established beyond any reasonable doubt that the shroud originated in Jerusalem and was used to wrap up the body of Jesus, so what? Would that prove Jesus rose from the dead? I don't think so. To believe anyone rose from the dead can't be based on physical evidence, because resurrection is a physical impossibility. Only religious faith can sustain such a belief. To believe that someone floated up to the sky and disappeared (i.e., rose into heaven) is also not going to be proved one way or the other by these shroud arguments. Finally, no amount of physical evidence could ever demonstrate that a man was God, was also his own Father and conceived without his mother ever having had sex. Thus, no matter how many brilliant scientists marshal forth their brilliant papers with evidence for images of Biblical ropes, sponges, thorns, spears, flowers, tumbleweeds, blood, etc., none of it has the slightest relevance for proving these matters of faith.

### Silva Mind Control (Silva Method)

The Silva Method (formerly Silva Mind Control) is a self-help program which claims to teach one how to increase one's IQ, develop clairvoyance and use the mind to heal the body and find God, among other things. The program promises to teach you to "use the untapped power of your mind to accomplish whatever you desire."\* The program is a hodgepodge put together by trial and error by José Silva (1914-1999), an electronic repairman who had a voracious appetite for literature in psychology, parapsychology and religion. He studied hypnosis, hoping to use it to increase the IQ of his children, but became interested in developing psychic abilities after he became convinced that one of his daughters was clairvoyant.

According to Silva, he began using his method in 1944 on family and friends, but the program that now goes by his name started in the 1960s. He called his program "subjective education" and psychorientology, which he defined as "Educating the mind to function consciously within its own psychic dimension....becoming aware of the enormity of human potential and learning how to actualize this potential for the better of humanity."



The instruction emphasizes positive thinking, visualization, meditation, and self-hypnosis. One key element of the course "consists of 'visiting' absent persons imagined by students and performing diagnoses on them" (Randi, 218). Silva became convinced that most personal and world problems are due to "using only logical, intellectual, objective means to correct problems."\* He claimed that "only 10 percent of humanity think with the right brain hemisphere" and these 10 percent are geniuses. The other 90 percent "use only the left brain hemisphere to think with. They do both their thinking and acting with only the left brain hemisphere."

Silva seems to have based his notions about the split-brain on the work of Roger Sperry and his colleagues. Silva, like many others who latched onto this split-brain model, seems to have modified it to his own purposes and beliefs. Much work has been done on the brain since Sperry. Without putting too fine a point on it, nearly everything Silva said about the brain is wrong. For a more accurate picture of what scientists think about this split-brain distinction see "Left Brain Right Brain" by John McCrone (New Scientist, July 3, 1999). The truth is that nobody thinks or acts only with their left hemisphere unless the right one is damaged or gone. In any case, it seems that Silva latched onto the split-brain theory after he had developed his subjective education program. I have no idea where he got the notion that geniuses don't use their left hemisphere.

So, Silva not only had found the method to make people smarter, healthier and happier, he also found out why his method works. It is because he is training his subjects to think with their right brain.

Those who think and act with only the left brain hemisphere get sick more often with psychosomatic health problems. They are more accident prone. They make more mistakes. They are less successful in life. When people think with the right brain hemisphere and act with the left, the results are just the opposite: They are healthier, less accident prone, make fewer mistakes, and are more successful in life.\*

How he knows these things is not clear. He claims that leftbrainers are functioning at the beta wave level, while rightbrainers are at the alpha wave level. Silva believed that alpha waves are significantly better than beta waves. Actually, alpha waves increase in meditation and under hypnosis, indicating lack of focus or visual stimulation, not some higher brain activity. They are also produced by both sides of the brain. And the evidence is very speculative and tenuous that geniuses and creative artists are primarily functioning at the alpha wave level. Beta waves are evidence of concentration and heightened mental activity. If they are too extreme, they can be indicative of stress. But no one in his or her right mind should want to eliminate beta waves, unless you are trying to relax or go to sleep, in which case you would want fewer beta waves and more alpha waves if you want to relax and more delta waves if you want to sleep.\*

Silva claimed that right brain thinking changes the sub-conscious into an inner-conscious level. This allows people to also use the information stored in the subconscious, consciously. Right brain thinking through intuition (ESP) connects us mentally with all information on this planet, so that we can use this information to correct problems. It also connects us with higher intelligence, so that we can get the guidance and help that we need. It is his claim that he found a gateway to the subconscious, the psychic and to a "higher intelligence" (which he also refers to as "Christ consciousness") that sets the Silva Method apart from other self-help programs such as Landmark Forum or Neuro-linguistic Programming. The claim to be teaching a way to get connected to that "higher intelligence" is what led some critics to think that the method is actually a religious movement.

Despite the fact that the Silva Method is promoted with hyperbole worthy of Fox news promoting the notion that aliens built the pyramids, it has many satisfied customers. Some claim their backhand in tennis has improved, others claim they were able to quit smoking or lose weight because of the Silva method. Still other say that they are happier and healthier than they've ever been, thanks to the Silva Method. It's been around for over forty years and claims to have instructors in 107 countries. Weekend seminars run about \$350 dollars.

For those who would like a cheaper method of improving your mind, especially your problem solving, and who would like to become more creative and effective as a thinker, I recommend Conceptual Blockbusting by James L. Adams. It's a lot cheaper and it will show you that there is a time for visualization and there is a time for logic and language. Knowing when to use which is the key to solving problems quickly and effectively. And it won't waste your time chasing after supposed truths in your subconscious. Nor will it mislead you with exercises for unleashing your psychic powers or for developing your Christ consciousness, which are more likely to lead your mind to delusion than to truth. Unfortunately, it is not likely to raise your IQ significantly or help you quit smoking or lose weight. But it will offer you some practical advice on how to use your mind more effectively.

Sitchin, Zecharia

Zecharia Sitchin and The Earth Chronicles

". .he's just another nut making a living selling books that treat folks to a tale they want to believe in."  
---Rob Hafernik

Sitchin, along with Erich von Däniken and Immanuel Velikovsky, comprise the holy trinity of pseudoscientific mythmakers regarding ancient history. Each begins with the assumption that ancient myths are not myths but historical and scientific texts. Sitchin's claim to fame is announcing that he alone correctly reads ancient Sumerian clay tablets. All other scholars have misread these tablets which, according to Sitchin, reveal that gods from another planet (Niburu, which orbits our Sun every 3,600 years) arrived on Earth some 450,000 years ago and created humans by some genetic engineering with female apes. No other scientist has discovered that these descendents of gods blew themselves up with nuclear weapons some 4,000 years ago. Sitchin stands alone, on nobody's shoulders, as a scholar nonpareil. He alone can look at a Sumerian tablet and see that it depicts a man being subjected to radiation. He alone knows how to correctly translate ancient terms allowing him to discover such things as that the ancients made rockets.

Sitchin, like Velikovsky, presents himself as erudite and scholarly. Both are very knowledgeable of ancient myths and both are nearly scientifically illiterate. Like von Däniken and Velikovsky, Sitchin weaves a compelling and entertaining story out of facts, misrepresentations, fictions, speculations, misquotes and mistranslations. Each begins with their beliefs about ancient visitors from other worlds and then proceeds to fit facts and fictions to their basic hypotheses. Each is a master at ignoring inconvenient facts, making mysteries where there were none before and offering their alien hypotheses to solve the mysteries. Their works read like bad-science fiction rather than good science. Nonetheless, they are very attractive to those who love a good mystery and are ignorant of or indifferent to the nature and limitations of scientific research.

Sitchin's ideas have been appropriated by Raël, another wise man, who has started his own religion (Raëlian Religion) around the idea that we humans are the result of a DNA experiment by ancient visitors from outer space. Raël has even written a channeled book, dictated to him by extraterrestrials. It is called The Final Message. We can only hope it is.

#### Sixth Sense

The sixth sense is a term sometimes used to refer to psychic abilities such as channeling or hearing the dead talk, ESP (telepathy, clairvoyance or precognition) or telekinesis.

Intuitives think they possess this so-called sixth sense.

#### Skepticism, Philosophical

The passion for philosophy...may only serve...to foster a predominant inclination...of the natural temper .There is, however one species of philosophy which seems little liable to this inconvenience, and that because it strikes ... no disorderly passion of the human mind, nor can mingle itself with any natural affection or propensity; and that is the Academic or sceptical philosophy .It is surprising, therefore, that this philosophy, which in almost every instance must be harmless and innocent, should be the subject of so much groundless reproach and blame.

--David Hume, Inquiry Concerning Human Understanding

The worst speculative Sceptic ever I knew, was a much better Man than the best superstitious Devotee & Bigot.

--David Hume (Letter to Gilbert Elliot of Minto, March 10, 1751)

Philosophical Skepticism is a critical attitude which systematically questions the notion that absolute knowledge and certainty are possible, either in general or in particular fields. Philosophical Skepticism is opposed to philosophical dogmatism, which maintains that a certain set of positive statements are authoritative, absolutely certain and true.

Philosophical Skepticism should be distinguished from ordinary skepticism, where doubts are raised against certain beliefs or types of beliefs because the evidence for the particular belief or type of belief is weak or lacking. Ordinary skeptics are not credulous or gullible. They don't take things on trust, but must see the evidence before believing. Ordinary skeptics doubt the miraculous claims of religions, the claims of alien abductions, the claims of psychoanalysis, etc. But they do not necessarily doubt that certainty or knowledge is possible. Nor do they doubt these things because of systematic arguments that undermine all knowledge claims.

On the other hand, philosophical Sceptics can be quite gullible. Most of what we know about ancient philosophical Scepticism comes from Sextus Empiricus, who flourished around the year 200, and who believed, among other things, that some animals bypass fertilization in reproduction and originate in fire, fermented wine, mud, slime, donkeys, cabbage, fruit, and putrefied animals.

Philosophical Scepticism is very ancient. For example, the sophist Gorgias (483-378 BCE) claimed that nothing exists or if something exists, it cannot be known, or if something does exist and can be known, it cannot be communicated. Gorgias, however, is known primarily as a Sophist rather than as a philosophical Sceptic. Pyrrho (c. 360-c.270 BCE) is generally considered the first philosophical Sceptic in western philosophy. Little is known of Pyrrho or his followers, or of the next big names in the history of scepticism, Arcesilaus (ca. 316-241 BCE) and Carneades (214-270 BCE), each of whom headed the Academy founded by Plato. The first group of philosophical Sceptics are known as Pyrrhonists, the latter are known as the Academics. Neither the Pyrrhonists nor the Academics seem to have advocated the kind of nihilism Gorgias maintained.

Other sophists can also be seen as philosophical Sceptics. For example, Protagoras (480-411 BCE) said that "Man is the measure of all things." This statement is usually interpreted to mean that there are no absolute standards or values and that each person is the standard of truth in all things. When applied to moral rules, this view is known as moral relativism, a type of philosophical Scepticism that denies there are any absolute moral values.

Gorgias' Scepticism was based upon his belief that all knowledge originates in sense experience and sense experience varies from person to person, moment to moment. His view might be called sensory Scepticism, the philosophical position that we cannot have absolute certainty about anything that is based solely on sense experience. Throughout the history of philosophy, arguments demonstrating the unreliability of sense experience have flourished, especially among dogmatists such as Plato and Descartes. One common argument is that what we perceive via the senses cannot be a reliable guide as to what is really beyond those appearances. The materialist Democritus (460-370 BCE), a contemporary of Gorgias and not generally considered a philosophical Sceptic, made such an argument.

Throughout the history of philosophy, sensory Sceptics have argued that we perceive only things as they appear to us and cannot know what, if anything, causes those appearances. Thus, if there is sense knowledge, it is always personal, immediate and mutable. Any inferences from appearances are subject to error and we are without a method to know whether the inferences or judgments we make are correct. However, these arguments did not prevent many Sceptics from putting forth a defense of probabilism with regard to empirical knowledge. Nor has sensory Scepticism hindered dogmatists from seeking absolute truth elsewhere, namely in Reason or Logic.

Perhaps the broadest criticism of the possibility of absolute truth is to be found in the Sceptic's argument regarding the criterion of truth. Any criterion used to judge the truth of a claim can be challenged because a further criterion is needed by which to judge the present criterion, and so on ad infinitum. This argument did not deter philosophers such as Plato and Descartes from claiming to have found an absolutely impeccable criterion of truth. While most Sceptics would reject the notion that such criteria are what they claim to be, most would probably accept the arguments of St. Augustine and others that there are absolutely certain claims, but that these are matters of Logic and have nothing to do with establishing the certainty of any claim that goes beyond immediate perception.

The ancient Sceptics did not all agree on even the most fundamental of matters, such as whether certainty and knowledge are possible. Some believed that they knew certainty was not possible; others claimed that they did not know whether knowledge is possible. The position that one knows that knowledge is impossible seems to be self-refuting. The view that one does not know whether knowledge is possible is consistent with the notion that it makes sense to strive to know, even if one can't be sure that one will arrive at knowledge. And, while some ancient Sceptics seem to have advocated that the ideal is to have no strong opinions, most seem to have maintained that when there was a preponderance of evidence supporting the probability of one position rather than another, then belief in the more probable position was desirable. Most ancient Sceptics do not seem to have believed that simply because one cannot be absolutely certain about anything, one should therefore suspend judgment on all things. Such a view would be self-refuting. For, according to the principle itself one should not accept it, but suspend judgment on it. Suspending judgment on claims should be reserved for those claims one knows nothing about, or can know nothing about, and for those claims for which the evidence is proportionate on opposing sides. It may be true that nothing is absolutely certain, but it is not true that all claims are equally probable. A reasonable person uses probability as a guide to belief, not absolute certainty, according to most philosophical Sceptics.

The Greek word *skeptikoi* means seekers or inquirers. Socrates, who claimed that the only thing he knew was that he knew nothing, frequently said "Skepteton," meaning we must investigate this. The Pyrrhonists sought the truth, even if most of the time that meant that they sought contrary arguments to dogmatic positions held by other philosophers, such as the Stoics or Epicureans. On those issues where argument and counterargument equaled one another, the Pyrrhonists held that we should suspend judgment. They

apparently found that such a stance fit well with their desired goal of peace of mind (ataraxia). For, it is the dogmatist who gets agitated when he doesn't possess the good or truth he knows he should have, or when others refuse to accept what he knows is the truth.

The other ancient school of Skeptics, the Academics, rejected their founder's metaphysical dogmatism and defended probabilism. It is this view that probabilities rather than absolute certainty are possible and do us just fine on the important matters in life that made possible the advancements of modern science in the seventeenth century. The dogmatists, led by Descartes and the Continental Rationalists, made contributions to math (analytic geometry and calculus) but not to physics; whereas, the probabilists, led by the founders of the Royal Society and the British Empiricists, made modern empirical science possible.

While probabilism in empirical matters was defended as reasonable by Skeptics, such an attitude was considered unreasonable with regard to metaphysics. One particular type of metaphysical skepticism (also known as positivism) is noteworthy: theological Skepticism. A theological Skeptic raises doubts regarding the possibility of knowledge about God. A theological Skeptic may be an atheist, but the two positions are distinct and a theological Skeptic may be a theist or an agnostic. The theological Skeptic maintains that we cannot know for certain whether God exists. Such a view does not entail the notion that we should be atheists. The theological Skeptic does not necessarily hold that one should only assent to absolutely certain propositions. Some theological Skeptics, however, will defend atheism on the grounds that there is much more support for the probability that God does not exist than for the probability that God exists. A theist might disagree and think the probability is greater for theism. An agnostic, as distinguished from a theological Skeptic, would hold that neither theism nor atheism is more probable than the other.

Theological Skepticism is based upon the nature of theological claims and the nature of the human mind. Theological claims transcend the limits of human knowledge. It is for this reason that some Skeptics assert that revelation from God is necessary. Ordinary skeptics may be atheists and be completely unaware of the arguments of theological Skepticism. The ordinary skeptic may be an atheist simply because he or she perceives little, if any, evidence for the belief in God.

In addition to providing philosophical doubts about metaphysics, some Skeptics aimed their arguments at specific types of claims. One of the most important figures in the history of Skepticism is David Hume (1711-1776), whose skeptical arguments against belief in miracles is still considered by many Skeptics to be the best single argument in the history of Skepticism. In fact, Hume hoped his argument would serve as "an everlasting check to all kinds of superstitious delusion." Basically, Hume argues that for the same reason it is reasonable to avoid the vicious dog trying to bite us, it is reasonable to reject miraculous claims. Miraculous claims assert that a violation of the laws of nature has occurred. Laws of nature are based on experience. Experience is our guide in avoiding the vicious dog and must be our guide in judging the miraculous event. To accept an event as miraculous is to accept that experience is not a reliable guide, but it is our only guide in such matters, unless we abandon reason and believe on pure faith. As he so eloquently and succinctly puts it: "A miracle is a violation of the laws of nature; and as a firm and unalterable experience has established these laws, the proof against a miracle, from the very nature of the fact, is as entire as any argument from experience can possibly be imagined" [Hume p. 122]. What other kinds of superstitious delusions would Hume's argument apply to? It seems that it would apply to things such as homeopathy, channeling, astral projection, levitation, past life regression, psychic surgery, map dowsing, and other things which require us to abandon experience as a guide. Claims about ESP, however, would not be covered by the argument, unless advocates maintain that ESP occurs outside the realm of the laws of nature. As long as the ESP advocate claims that ESP follows natural laws but we haven't discovered them yet, then Hume's argument would not apply.

Many Skeptics would agree that Logic is an area where dogmatism is justified. The principle of contradiction, that a statement is either true or false but not both, is accepted by many Skeptics as true but empty. That is, such a truth reveals nothing about the world of experience. In addition to formal truths, such as the principle of contradiction or the principle of identity, most Skeptics would probably accept that there are semantic truths, i.e., some statements that are true by definition. "A bachelor is an unmarried male," is true and does provide information about the world of experience, namely, how a certain word is used in a certain language. But the statement is a matter of convention, not discovery.

Philosophical Skepticism was never put forth as a literal guide for practical living. The earliest Skeptics did not allow vicious dogs to bite them on the ground that their senses might be deceiving them. Even if it cannot be proved with absolute certainty that any phenomenal object is real, experience is a good guide as to the probability of what will happen if one allows a vicious dog to tear into one's leg. Skeptics don't deny the reality of sense perception. Dog bites hurt and honey tastes sweet. What the Skeptics deny is that beyond the appearances of the biting dog there is a "dog essence" or that the experience of sweetness when tasting honey justifies inferring that "sweetness" is part of the essence of honey. Skeptics don't deny appearances and subjective knowledge. They don't deny that one bitten by a dog feels real pain and knows he or she is in pain. Skeptics deny that it is justifiable to infer from subjective experience to indubitable propositions about a reality beyond those appearances. Any inference to "objective reality," a reality that transcends immediate experience, should be couched in probabilistic language at best.

Nevertheless, ancient Skepticism was considered a guide for living by its advocates. Their goal was ataraxia, a state of no perturbedness, of peace of mind. Denying appearances would not serve such a goal. Rejecting dogmatism did. Finding ways to combat dogmatism is still the central element of philosophical Skepticism. Absolute certainty is not needed, according to Skeptics, either for science or for daily living. Science can do quite well even if limited to appearances and to probabilities. We can find guides for daily living, including moral principles, without needing absolute certainty. We can figure out what principles are likely to lead us to what we desire: a peaceful, happy life. Many philosophical Skeptics advocated a very conservative lifestyle, maintaining that nature and custom know best. They advocated following the laws and customs, including the religious customs, of one's native country. And they believed that following our natural appetites is a generally reliable guide to living well. It seems, however, that social and political conservatism, while probably serving well the goal of ataraxia for most Skeptics, is a non sequitur. That is, such a position is not a reasonable inference from either sensory or moral Skepticism. The probabilism advocated for Science seems sufficient for practical living as well.

Dogmatic philosophies have become rarer and rarer and the age of metaphysics is long gone, indicating that the Skeptics have won the war with the Dogmatists. Logic is about the only philosophical area left where professional philosophers still speak of absolute certainty with a straight face. The chance of another Plato or Hegel arising in the 21st century seems very slim. Most philosophers today content themselves with probabilistic arguments and the application of logical principles to concepts.

Slick 50

Slick 50 and Other Engine Oil Additives

Slick 50 and other engine oil additives supposedly reduce engine wear and increase fuel efficiency.

You may have heard the commercial or seen the ad: Multiple tests by independent laboratories have shown that when properly applied to an automotive engine, Slick 50 Engine Formula reduces wear on engine parts. Test results have shown that Slick 50 treated engines sustained 50 percent less wear than test engines run with premium motor oil alone.

There are about 50 other products on the market which make similar claims, many of them being just duplicate products under different names from the same company. The price for a pint or quart of these engine oil additives runs from a few dollars to more than \$20. Do these products do any good? Not much. Do they do any harm. Sometimes.

What's in these miracle lubricants, anyway? And, if they're so wonderful, why don't car manufacturers recommend their usage? And why don't oil companies get into the additive business? And where are these studies mentioned by Petrolon (Slick 50)? Probably in the same file cabinet as the tobacco company studies proving the health benefits of smoking.

The basic ingredient is the same in most of these additives: 50 weight engine oil with standard additives. The magic ingredient in Slick 50, Liquid Ring, Microlon, Matrix, QM1 and T-Plus from K-Mart is Polytetrafluoroethylene. Don't try to pronounce it: call it PTFE. But don't call it Teflon, which is what it is, because that is a registered trademark. Dupont, who invented Teflon, claims that "Teflon is not useful as an ingredient in oil additives or oils used for internal combustion engines." But what do they know? They haven't seen the secret studies done by Petrolon (Slick 50).

PTFE is a solid which is added to engine oil and allegedly coats the moving parts of the engine.

However, such solids seem even more inclined to coat non-moving parts, like oil passages and filters. After all, if it can build up under the pressures and friction exerted on a cylinder wall, then it stands to reason it should build up even better in places with low pressures and virtually no friction.

This conclusion seems to be borne out by tests on oil additives containing PTFE conducted by the NASA Lewis Research Center, which said in their report, "In the types of bearing surface contact we have looked at, we have seen no benefit. In some cases we have seen detrimental effect. The solids in the oil tend to accumulate at inlets and act as a dam, which simply blocks the oil from entering. Instead of helping, it is actually depriving parts of lubricant" (Rau).

In defense of Slick 50, tests done on a Chevy 6 cylinder engine by the University of Utah Engineering Experiment Station found that after treatment with the PTFE additive the test engine's friction was reduced by 13.1 percent, the output horsepower increased from 5.3 percent to 8.1 percent, and fuel economy improved as well. Unfortunately, the same tests concluded that "There was a pressure drop across the oil filter resulting from possible clogging of small passageways." Oil analysis showed that iron contamination doubled after the treatment, indicating that engine wear increased (Rau).

## The FTC and Slick 50

In 1997, three subsidiaries of Quaker State Corp. (the makers of Slick 50) settled Federal Trade Commission charges that ads for Quaker State's Slick 50 Engine Treatment were false and unsubstantiated. According to the FTC complaint, claims such as the following made in Slick 50 ads falsely represented that without Slick 50, auto engines generally have little or no protection from wear at start-up and commonly experience premature failure caused by wear:

"Every time you cold start your car without Slick 50 protection, metal grinds against metal in your engine."

"With each turn of the ignition you do unseen damage, because at cold start-up most of the oil is down in the pan. But Slick 50's unique chemistry bonds to engine parts. It reduces wear up to 50% for 50,000 miles."

"What makes Slick 50 Automotive Engine Formula different is an advanced chemical support package designed to bond a specially activated PTFE to the metal in your engine."

In fact, the FTC said, "most automobile engines are adequately protected from wear at start-up when they use motor oil as recommended in the owner's manual. Moreover, it is uncommon for engines to experience premature failure caused by wear, whether they have been treated with Slick 50 or not."

## Zinc: Good For The Common Cold & Your Engine

Another type of additive is zinc dialkyldithiophosphate. Zinc-d is found in Mechanics Brand Engine Tune Up, K Mart Super Oil Treatment, and STP Engine Treatment With XEP2, among others. The touting of zinc-d as a special ingredient in engine oil additives is a little like the Shell ads which touted "Platformate." (Most gasoline has similar additives but under different names.) Zinc-d is an additive in most, if not all, major oil brands. The wonder oils just put more of the stuff in a 50 weight engine oil. It would be useful if your engine were ever operated under extremely abnormal conditions where metal contacts metal: "the zinc compounds react with the metal to prevent scuffing, particularly between cylinder bores and piston rings....unless you plan on spending a couple of hours dragging your knee at Laguna Seca, adding extra zinc compounds to your oil is usually a waste.... Also, keep in mind that high zinc content can lead to deposit formation on your valves, and spark plug fouling" (Rau).

If zinc-d is so good for your engine, why haven't oil manufacturers been putting more of it in their standard mix of oil and additives? Actually, oil companies have been decreasing the amount of zinc-d because of research evidence which indicates that it seems to adversely affect catalytic converters, causing them to deteriorate.

The bottom line is that outside of the testimonials of happy and satisfied customers and the guarantees of company executives about the wonderful effects that studies have shown will follow the use of their products, there isn't much support for using oil additives. Of course, there are those millions of customers who buy the stuff: aren't they proof that these things really work? Not really. They're proof that this stuff really sells!

Though some additives may not contain anything harmful to your engine, and even some things that could be beneficial, most experts still recommend that you avoid their use. The reason for this is that your oil, as purchased from one of the major oil companies, already contains a very extensive additive package.

This package is made up of numerous, specific additive components, blended to achieve a specific formula that will meet the requirements of your engine. Usually, at least several of these additives will be synergistic. That is, they react mutually, in groups of two or more, to create an effect that none of them could attain individually. Changing or adding to this formula can upset the balance and negate the protective effect the formula was meant to achieve, even if you are only adding more of something that was already included in the initial package (Rau).

On the other side of the engine block are those additives which will cleanse your engine, not coat it. Stuff like Bardahl, Rislone and Marvel Mystery Oil claim they can make your engine run quieter and smoother; they can reduce oil burning. These are products which contain solvents or detergents such as kerosene, naphthalene, xylene, acetone or isopropanol. If used properly, I suppose these products will strip off your Teflon and zinc protective coatings! But unless you have a really old and abused car, you probably have no need of stripping away sludge and deposits from your engine. Thus, you probably have no need for these wonder cleaners. And, if you overuse such products you can damage your engine by promoting metal to metal contact.

Also, if you use a synthetic oil, such as Mobil 1, you are advised not to use any engine treatments or additives. Mobil claims that

The use of an engine oil additive is not recommended, either by Mobil or by virtually any vehicle manufacturer. In fact, it may void your new-car warranty.

Finally, you may have seen the commercial where two engines are allowed to run without any oil in them and the one which had the special oil additive keeps on ticking after the other engine has conked out. This may be appealing to the car owner who never changes his or her oil or who runs his or her car without oil, but it should be of little interest to the person who knows how to take care of their automobile.

Should you invest in something like Tufoil? It is touted as being "a super-suspension of micro-miniature PTFE particles and soluble Molybdenum, permanently suspended in oil." And, it will not clog filters or oil openings, according to the manufacturer. Or, how about Lubrilon, which contain a nylon polymer that will coat your metal parts? Or Bishop's Original Permafused Lubrication™, which also coats your metal parts with an anti-wear lubricant film? It's your money, but I think you'd be better off if you just changed your oil and oil filter regularly. And don't forget to change the fuel and air filters at the recommended intervals. We can't say for sure that these new products do no good, but what good they might do is probably not necessary or of much value for the average vehicle owner who takes proper care of the vehicle.

### Sokal Hoax

But why did I do it? I confess that I'm an unabashed Old Leftist who never quite understood how deconstruction was supposed to help the working class. And I'm a stodgy old scientist who believes, naively, that there exists an external world, that there exist objective truths about that world, and that my job is to discover some of them. --Allan Sokal

In its 1996 Spring/Summer issue (pp. 217-252), *Social Text* journal published an article by Allan Sokal, Professor of Physics at New York University, entitled *Transgressing the Boundaries: Towards a Transformative Hermeneutics of Quantum Gravity*. The article was a hoax submitted, according to Sokal, to see "would a leading journal of cultural studies publish an article liberally salted with nonsense if (a) it sounded good and (b) it flattered the editors' ideological preconceptions?" It would. Needless to say, the editors of *Social Text* were not pleased.

Sokal claims that the editors, had they been scrupulous and intellectually competent, would have recognized from the first paragraph of his essay that it was a parody. The physicist says he was "troubled by an apparent decline in the standards of intellectual rigor in certain precincts of the American academic humanities." The hoax was his way of calling attention to this decline.

In his article, Sokal attacks "the dogma imposed by the long post-Enlightenment hegemony over the Western intellectual outlook" that there is an external world governed by laws of nature which we can understand imperfectly using the scientific method. He also claims that "physical 'reality' ... is at bottom a social and linguistic construct." Furthermore, he wrote,

Throughout the article, I employ scientific and mathematical concepts in ways that few scientists or mathematicians could possibly take seriously.

For example, I suggest that the "morphogenetic field" -- a bizarre New Age idea due to Rupert Sheldrake -- constitutes a cutting-edge theory of quantum gravity. This connection is pure invention; even Sheldrake makes no such claim. I assert that Lacan's psychoanalytic speculations have been confirmed by recent work in quantum field theory. Even nonscientist readers might well wonder what in heavens' name quantum field theory has to do with psychoanalysis; certainly my article gives no reasoned argument to support such a link.

In sum, I intentionally wrote the article so that any competent physicist or mathematician (or undergraduate physics or math major) would realize

that it is a spoof. Evidently the editors of *Social Text* felt comfortable publishing an article on quantum physics without bothering to consult anyone knowledgeable in the subject.

Such lax editing might be expected in a New Age magazine, where preposterous and unfounded claims about paranormal "energies" being validated by quantum mechanics are commonplace. But Sokal thinks we should expect more of a prestigious journal edited by distinguished scholars in the humanities. But why did he pick on this particular journal?

Sokal hoaxed *Social Text* for political reasons. Both are "leftist" politically, but Sokal considers the New Left to be guilty of "epistemic relativism." (Is this another hoax?) He seems particularly peeved that the New Left promotes the notion that reality is a social construction. Furthermore, the New Left has created "a self-perpetuating academic subculture that typically ignores (or disdains) reasoned criticism from the outside."

So, apparently Sokal wanted to criticize the "epistemic relativism" and "social constructivism" of the New Left in a New Left journal but felt the only way they would let him do so would be if he pretended to share their ideology.

Many have pointed out the profound implications of this hoax. At the very least, articles should be reviewed by experts in the field covered by the article. Sources and references named in the article should be checked by the editors.

Above all, however, the Sokal hoax demonstrates how willing we are to be deceived about matters we believe strongly in. We are likely to be more critical of articles which attack our position than we are of those which we think supports it (Gilovich). This tendency to confirmation bias affects physicists as well as professors in the social sciences and the humanities.

Sollog

(Son of Light, Light of God)

Sollog--his real name is John Patrick Ennis--considers himself to be the Nostradamus of the nineties. He has many reported aliases: Sollog Immanuel Adonai-Adoni; Temple of Hayah; TOH; J.P. Essene; Hisam H'asi; Hasim Asi; El Haddid Etsah; Tony DiPaolo; Nick Ensley; and "God Almighty."

Sollog is promoted at [www.sollog.com](http://www.sollog.com) by ASSI Publishing, which also has the copyright to the [www.whatshotin.com](http://www.whatshotin.com) site called Thee Underground, a site whose only apparent connection to Sollog is that it features music by Sollog. This is mentioned because [Sollog.com](http://Sollog.com) appears not to be Sollog's page and thus what is said there appears not to be actually Sollog speaking but someone else, presumably from ASSI. Thus, in the following, whenever I say that Sollog says this or that I will put his name in quotes to remind the reader that it is not really Sollog but one of his many aliases or alters who writes the material for [sollog.com](http://sollog.com).

"Sollog" claims to be able to predict the future. He seems to favor predictions of disasters, violent deaths and the deaths of famous people, violent or peaceful. His predictions are often couched in vague, obscure language, which he then clarifies after the event he "predicted" occurs. For example, he says he predicted Princess Diana's death in 1995 because at that time he predicted that "The Goddess of the Moon (Diana) would die on the 31st and be connected to Napoleon (Paris, France)." (J.P. Essene, one of "Sollog's" alters, is editor of What's Hot! and has an article on the previous link which raves about Sollog and his prophecies.)

I first heard of Sollog the day Mother Teresa died but there was no mention of her on the Sollog WWW site that day. I e-mailed the site and someone who identified himself as J.P. Essene wrote back to inform me that any idiot who kept up with [alt.prophesies.nostradamus](http://alt.prophesies.nostradamus) knew that Sollog had predicted the death of Mother Teresa. His explanation had something to do with a prediction about a celebrity with a workplace in New York City dying within 31 days. Mother Teresa was a celebrity, had done some work in New York City and not only had died within 31 days of his prediction but died on the 2nd! (2 is between 1 and 3). Plus he had predicted that a religious figure would die. After reading his response, I could only agree that he sounds very much like Nostradamus and his promoter Erika Cheetham.

"Sollog's" prediction of Mother Teresa's death, along with his many other "successes" are gaudily displayed on the Sollog WWW site. It also features a host of other endeavors, including his own musical compositions, several books, translations of Nostradamus, and an offer to join TOH. Clicking on the Guest button takes you to a page with a hot link on the question Who is Sollog? Clicking on this question takes you to the Welcome to the Who is Sollog Page, wherein one can find a veritable litany of predictions of deaths and disasters "Sollog" claims were true prophecies of his. There is also a link on this page that indicates it will take the reader to Sollog's mathematical discoveries, but following the link takes one to the Thee Underground page where you are told that to access the page requested you must join Thee Underground, whose members, you are told, have access to XXX photos and photos of Dr. Laura nude, among other things. The membership is free for seven days, it says, but you must submit your Visa or MasterCard number. So much for finding out about Sollog's mathematical discoveries.

When I first visited the Sollog site "Sollog" was not only promoting himself, but free speech as well. He was claiming that the CIA had forced one of his Internet providers to shut him down. I thought that Sollog had several domain names to confuse the CIA and make it more difficult for the geniuses in Washington to figure out who is providing "Sollog" with his power. "Sollog" had been criticized by a writer at the Washington Post for abusing free speech and for representing the worst on the Internet. "Sollog" did not take lightly to the criticism and "Sollog" posted a very vigorous response to the Post article, accusing the author--as "Sollog" seemed to accuse anyone who criticized him--of being an enemy of free speech. "Sollog" also said he was slandered. "Sollog" called the one who caused him grief an ASSHOLE. "Sollog"



also noted that anyone who causes him grief SUCKS! But that was sometime in 1998, and a recent visit to the Sollog site had none of these things on it.

How long will "Sollog" last? Who knows, but I don't think he'll come near Nostradamus in longevity or popularity. "Sollog" has predicted that the pope will die on October 15 and Bill Clinton will die on November 13th, presumably this year, 1999. To be precise, Sollog predicts Clinton will die on the day before the November full moon. These predictions seem very precise, unlike and unbecoming a true prophet. Of course, if Clinton doesn't die as predicted, we will be reminded either that Clinton experienced a spiritual death that day, or he really did die and has been replaced by an impostor, or we were all fools for assuming "Sollog" meant this year, or that Clinton, or that "Pope" meant the pope, rather than some papa somewhere in some galaxy where there are more moons and the dates are different than ours.

In fact, "Sollog" has claimed success in predicting the death of the Pope. We now are told that he meant Anton Lavey, the Black Pope or Pope of Satan. And, someone identifying himself as NE [Nick Ensley? i.e., Sollog] and as a member of the board of directors of ASSI, has informed me that the Lewinsky "scandal did indeed start on November 15, THE EXACT DATE in the 902 prophecy for the Clinton prophecy!...An impeachment is an amazing allegory to POLITIC DEATH!"

What is amazing is that anyone can think this stuff up.

### Sorcery

Sorcery is, literally, divination by casting lots (from the Latin sortarius, one who casts lots). Sorcery is also often identified with witchcraft and black magic, both of which involve getting power from association with evil spirits or Satan. Sorcery is often associated with using magic potions and casting spells.

### Soul or Spirit

A soul or spirit is a non-physical entity capable of perception, self-awareness, and life. Souls are often believed to be immortal.

If ever there were an entity invented for human wish-fulfillment, the soul is that entity. As Thomas Hobbes pointed out, the concept of a non-substantial substance is a contradiction. It is not possible to imagine a non-physical entity having life and perception. Even believers in souls always imagine them as being like human shaped clouds or fogs. It is a delusion to believe that the concept of soul is conceivable. Yet, billions of people have believed in a non-spatial perceiver which can travel through space and perceive and interpret vibrations and waves in the air without any sense organs.

Work done by philosophers and psychologists based on the assumption of a non-physical entity, which somehow inhabits and interacts with the human body, has not furthered human understanding of the working of the mind. Instead, it has furthered superstition and ignorance while hindering the development of any real and useful knowledge about the human mind. More promising is the work of those who see consciousness in terms of brain functioning and who try to treat 'mental' illness as primarily a physical problem. Two vast industries have been made both possible and lucrative by this belief in a non-entity in need of treatment from experts in non-entities: religion and psychology. A third industry, philosophy, also flourishes in great part due to the concept of soul: a good many philosophers write books and articles based on the assumption of the existence of spirits, while a good many others make a living writing refutations and criticisms of those books and articles. It seems that the skeptic and the true believer need each other!

### Speed Reading

Speed reading is the purported ability to read as many as 10,000 to 25,000 words a minute. For example, Howard Berg claims to be able to read 25,000 words a minute by reading "15 lines at a time backwards and forwards." That's about 80-90 pages a minute. Tolstoy's War and Peace should take Berg about 15 minutes to read.

George Stancliffe claims he has taught a woman with a reading disability to read 18,000 words a minute. Such a feat, he says, is common in children, but rare in adults.\*

Anne Cunningham, a University of California at Berkeley education professor and an expert on reading, reports that tests measuring saccades (small rapid jerky movement of the eye as it jumps from fixation on one point to another) while reading have determined that the maximum number of words a person can

accurately read is about 300 a minute. "People who purport to read 10,000 words a minute are doing what we call skimming," she said. Speed in reading is mainly determined by how fast a reader can understand the words and expressions one is reading. The fastest readers are those with excellent "recognition vocabularies." Faster readers can see words and understand them faster than slower readers. To improve one's speed at reading, she says, one should work on comprehension and study strategies (Robertson).

Others claim that "the average college student reads between 250 and 350 words per minute on fiction and non-technical materials" and that a "good" reading speed is 500-700 words per minute.\* It does seem intuitively true that one could speed up one's reading by (a) spending less time between eye movements; (b) taking in more words with each fixation; and (c) always moving forward, rather than skipping back to re-read something. Having a good recognition vocabulary would certainly speed these processes up. Conscious practice at improving one's speed should also help.

Berg has repackaged the Evelyn Woods Reading Dynamics course, one popular several decades ago with people like John F. Kennedy. A reporter who attended one of Berg's classes noted that in his five-hour course, Berg hadn't said much about comprehension, except to suggest that it would come with practice. This did not deter several of the 35 students, who had paid \$51 each for the class from the Learning Exchange in Sacramento, from purchasing audio tapes for \$65 (Robertson).

The students would have done better to have enrolled in a community college course devoted to building study skills, vocabulary, and reading comprehension. It would have cost them less, and they would not end up wasting their time trying to read 10 lines at a time, backward and forward. They would also avoid the frustration that will be inevitable when they find that while they can skim through material at a greater rate than they can read it, the utility of such a skill is limited (good for most of what's likely to be in the daily newspaper, for example, but not for studying physics or reading a good novel). Skimming makes both comprehension and taking pleasure in words or ideas next to impossible. Why read fiction at all if you don't want to enjoy the language and the ideas? Who would want to hire a physician or lawyer who skimmed rather than read his or her texts?

\* There seems to only be one person who can read at such speeds with near-perfect comprehension. His name is Kim Peek and he has the ability to read two pages simultaneously, one with each eye, with 98% retention. Nobody knows how he does it but he was born without a corpus callosum, that bundle of nerves that connects the right and left hemispheres of the brain. However, others have also been born with no corpus callosum, or had it surgically disconnected, without resulting in an increase in reading or retention abilities. Kim can recall most of the contents of some 7,600 books. But, since nobody knows how Kim Peek does it, nobody can teach this skill to others.

Kim Peek was partly the model for Raymond, the idiot savant in the movie Rain Man.

## Spell

A spell is a word, formula, or incantation believed to have magical powers for good or ill. Spells are used by those who believe they can access occult powers or communicate with helpful spirits. Spells can be broken by counterspells or exorcisms.

## Spiritualism (a.k.a. Spiritism)

Spiritualism or spiritism is the belief that the human personality survives death and can communicate with the living through a sensitive medium. The spiritualist movement began in 1848 in upstate New York with the Fox sisters who claimed that spirits communicated with them by rapping on tables. (The "raps" were actually made by cracking their toe joints.) By the time the sisters admitted their fraud some thirty years later, there were tens of thousands of mediums holding séances where spirits entertained with numerous magical tricks such as making sounds, materializing objects, making lights glow, levitating tables and moving objects across the room. The mediums demonstrated every variety of psychic power from clairvoyance and clairaudience to telekinesis and telepathy. Repeated charges of fraud did little to stop the spiritualist movement until the 1920's when magicians such as Houdini exposed the techniques and methods of deceit used by mediums to fool even the wisest and holiest of men and women.

The Hollywood version of séances is fairly accurate: people sitting around a table, holding hands in a darkened room, a faked trance by the medium who passes on to the group any information given by the spirit, often accompanied by tricks such as the levitating table, mysterious sounds, materializing objects, etc. For many, spiritualism was "scientific proof" of life after death, which didn't involve any of the superstitious non-sense of religion.

## Spontaneous Human Combustion

Spontaneous human combustion (SHC) is the alleged process of a human body catching fire as a result of heat generated by internal chemical action. While no one has ever witnessed SHC, several deaths involving fire have been attributed to SHC by investigators and storytellers.

In the literature, spontaneous human combustion is almost exclusively reserved for corpses. One 17th century tale, however, claims that a German man self-ignited due to his having drunk an excessive amount of brandy. If drinking a great quantity of brandy caused self-combustion, there should be many more cases to study than this isolated report from Germany.

Many of the SHC stories have originated with police investigators who have been perplexed by partially ignited corpses near unburnt rugs or furniture. "What else could it be?" they ask. Many of the allegedly spontaneously combusted corpses are of elderly people who may have been murdered or who may ignited themselves accidentally. Yet, self-ignition due to dropping a lit cigarette, or ignition due to another person are ruled out by the investigators as unlikely. Instead, they favor an explanation which requires belief in an event which has never been witnessed in all of human history--unverifiable or reliable testimonies to the contrary.

## Physical Possibility of SHC

The physical possibilities of spontaneous human combustion are remote. Not only is the body mostly water, but aside from fat tissue and methane gas, there isn't much that burns readily in a human body. To cremate a human body requires enormous amounts of heat over a long period of time. To get a chemical reaction in a human body which would lead to ignition would require some doing. If the deceased had recently eaten an enormous amount of hay that was infested with bacteria, enough heat might be generated to ignite the hay, but not much besides the gut and intestines would probably burn. Or, if the deceased had been eating the newspaper and drunk some oil, and was left to rot for a couple of weeks in a well-heated room, his gut might ignite.

It is true that the ignition point of human fat is low, but to get the fire going would probably require an external source. Once ignited, however, some researchers think that a "wick effect" from the body's fat would burn hot enough in certain places to destroy even bones. To prove that a human being might burn like a candle, Dr. John de Haan of the California Criminalistic Institute wrapped a dead pig in a blanket, poured a small amount of gasoline on the blanket, and ignited it. Even the bones were destroyed after five hours of continuous burning. The fat content of a pig is very similar to the fat content of a human being. The damage to the pig, according to Dr. De Haan "is exactly the same as that from supposed spontaneous human combustion."

In their investigation of a number of SHC cases, Dr. Joe Nickell and Dr. John Fisher found that when the destruction of the body was minimal, the only significant fuel source was the individual's clothes, but where the destruction was considerable, additional fuel sources increased the combustion. Materials under the body help retain melted fat that flows from the body and serves to keep it burning.\*

They also found that plausible external sources of ignition, such as candles, lamps, cigarettes, fireplaces, etc., were rejected by investigators in favor of the implausible internal spontaneous combustion.

## Star Child

A star child is the offspring of a human and an alien.

## Steiner, Rudolf

### Anthroposophy, Rudolf Steiner and Waldorf Schools

The Austrian-born Rudolf Steiner (1861-1925) was the head of the German Theosophical Society from 1902 until 1912, at which time he broke away and formed his Anthroposophical Society. He may have abandoned the divine wisdom for human wisdom, but one of his main motives for leaving the theosophists was that they did not treat Jesus or Christianity as special. Steiner had no problem, however, in accepting such Hindu notions as karma and reincarnation. By 1922 Steiner had established what he called the Christian Community, with its own liturgy and rituals for Anthroposophists. Both the Anthroposophical Society and the Christian Community still exist, though they are separate entities.

It wasn't until Steiner was nearly forty and the 19th century was about to end that he became deeply interested in the occult. Steiner was a true polymath, with interests in agriculture, architecture, art, chemistry, drama, literature, math, medicine, philosophy, physics and religion, among other subjects. His doctoral dissertation at the University of Rostock was on Fichte's theory of knowledge. He was the author of many books and lectures, many with titles like *The Philosophy of Spiritual Activity* (1894), *Occult Science: An Outline* (1913), *Investigations in Occultism* (1920) and *How to Know Higher Worlds*. He was also much attracted to Goethe's mystical ideas and worked as an editor of Goethe's works for several years. Much of what Steiner wrote seems like a rehash of Hegel. He thought Marx had it wrong, that it really is the spiritual that drives history. Steiner even speaks of the tension between the search for community and the experience of individuality, which, he believed, are not really contradictions but represent polarities rooted in human nature.

His interests were wide and many but by the turn of the century his main interests were esoteric, mystical, and occult literature. Theosophists were sympathetic to occult and mystical beliefs. Steiner was especially attracted to two theosophical notions: (1) there is a special spiritual consciousness that provides direct access to higher spiritual truths; and (2) spiritual evolution is hindered by being mired in the material world.

Steiner may have broken away from the Theosophical Society but he did not abandon the eclectic mysticism of the theosophists. Steiner thought of his Anthroposophy as a "spiritual science." Convinced that reality is essentially spiritual, he wanted to train people to overcome the material world and learn to comprehend the spiritual world by the higher, spiritual, self. He taught that there is a kind of spiritual perception that works independently of the body and the bodily senses. Apparently, it was this special spiritual sense which provided him with information about the occult.

According to Steiner, people existed on Earth since the creation of the planet. Humans, he taught, began as spirit forms and progressed through various stages to reach today's form. Humanity, Steiner said, is currently living in the Post-Atlantis Period, which began with the gradual sinking of Atlantis in 7227 BC ... The Post-Atlantis Period is divided into seven epochs, the current one being the European-American Epoch, which will last until the year 3573. After that, humans will regain the clairvoyant powers they allegedly possessed prior to the time of the ancient Greeks (Boston).

Steiner's most lasting and significant influence, however, has been in the field of education. In 1913 at Dornach, near Basel, Switzerland, Steiner built his Goetheanum, a "school of spiritual science." This would be a forerunner of the Steiner or Waldorf schools. The term "Waldorf" schools comes from the school Steiner was asked to open for the children of workers at the Waldorf-Astoria cigarette factory in Stuttgart, Germany, in 1919. The owner of the factory had invited Steiner to give a series of lectures to his factory workers and apparently was so impressed he asked Steiner to set up the school. The first U.S. Waldorf school opened in New York City in 1928. Today, the Steinerians claim that there are more than 600 Waldorf schools in over 32 countries with approximately 120,000 students. About 125 Waldorf schools are said to be currently operating in North America. There is even a non-accredited Rudolf Steiner College offering degrees in Anthroposophical Studies or in Waldorf Education.

Steiner designed the curriculum of his schools around notions that he apparently got by special spiritual insight into the nature of Nature and the nature of children. He believed we are each comprised of body, spirit and soul. He believed that children pass through three seven-year stages and that education should be appropriate to the spirit for each stage. Birth to age 7, he claimed, is a period for the spirit to adjust to being in the material world. At this stage, children best learn through imitation, he said. (So did Aristotle, by the way.) Academic content is held to a minimum during these years. Children are told fairy tales, but do no reading until about the second grade. They learn about the alphabet and writing in first grade.

According to Steiner, the second stage of growth is characterized by imagination and fantasy. Children learn best from ages 7 to 14 by acceptance and emulation of authority. The children have a single teacher during this period and the school becomes a "family" with the teacher as the authoritative "parent".

The third stage, from 14 to 21, is when the astral body is drawn into the physical body, causing puberty. These anthroposophical ideas are not part of the standard Waldorf school curriculum, but apparently are believed by those in charge of the curriculum. Waldorf schools leave religious training to parents, but they tend to be spiritually oriented and are based on a generally Christian perspective.

Even so, because they are not taught fundamentalist Christianity from the Bible, Waldorf schools are often attacked for encouraging paganism or even Satanism. This may be because they emphasize the relation of human beings to Nature and natural rhythms, including an emphasis on festivals, myths, ancient cultures and various celebrations. The Sacramento Unified School District abandoned its plan to turn Oak Ridge Elementary into a Waldorf magnet school after many of the parents complained about it and at least one teacher complained of Satanism. The School District put the Waldorf program in a new location and is now being sued in federal court for violation of separation of church and state by PLANS, Inc., a group of Waldorf School Critics.

Some of the ideas of the Waldorf School are not Steiner's, but try to harmonize with the master's spiritual insights. For example, television viewing is discouraged because of its typical content and because it discourages the growth of the imagination. This idea is undoubtedly attractive to parents since it is very difficult to find anything of positive value for young children on television. When children are very young they should be socializing, speaking, listening, interacting with nature and people, not sitting in a catatonic trance before the boob tube. I don't know what the Waldorf teachers think of video games, but I would be very surprised if they didn't discourage them for their dehumanizing depictions of violent behavior as well as for their stifling of the imagination.

Waldorf schools also discourage computer use by young children. The benefits of computer use by children has yet to be demonstrated, though it seems to be widely believed and accepted by educators who spend billions each year on the latest computer equipment for students who often can barely read or think critically, and have minimal social and oral skills. Waldorf schools, on the other hand, may be as daffy over the arts as public schools are over technology. What the public school consider frills, Waldorf schools consider essential, e.g., weaving, knitting, playing a musical instrument, woodcarving, painting, etc

One of the more unusual parts of the curriculum involves something Steiner called "eurythmy," an art of movement that tries to make visible what he believed were the inner forms and gestures of language and music. According to the Waldorf FAQ, "it often puzzles parents new to Waldorf education, [but] children respond to its simple rhythms and exercises which help them strengthen and harmonize their body and their life forces; later, the older students work out elaborate eurythmic representations of poetry, drama and music, thereby gaining a deeper perception of the compositions and writings. Eurythmy enhances coordination and strengthens the ability to listen. When children experience themselves like an orchestra and have to keep a clear relationship in space with each other, a social strengthening also results."

Perhaps the most interesting consequence of Steiner's spiritual views was his attempt to instruct the mentally and physically handicapped. Steiner believed that it is the spirit that comprehends knowledge and the spirit is the same in all of us, regardless of our mental or physical differences.

Most critics of Steiner find him to have been a truly remarkable man, most decent and admirable. Unlike many other "spiritual" gurus, Steiner seems to have been a truly moral man who didn't try to seduce his followers and who remained faithful to his wife. There is no question that he made contributions in many fields, but as a philosopher, scientist and artist he rarely rises above mediocrity and is singularly unoriginal. His spiritual ideas seem less than credible and are certainly not scientific. Some of his ideas on education, however, are worth considering. He was correct to note that there is a grave danger in developing the imagination and understanding of young people if schools are dependent upon government. State funded education will likely lead to emphasis on a curriculum that serves the State, i.e., one mainly driven by economic and social policies. Education is driven not by the needs of children, but by the economic needs of society. The competition that drives most of public education may benefit society, but it probably does not benefit most individuals. An education where cooperation and love, rather than competition and resentment, marked the essential relationship among students might be more beneficial to the students' intellectual, moral and creative well-being.

On the other hand, it is likely that some of anthroposophy's weirder notions about astral bodies, Atlantis, etc., will get passed on in a Waldorf education, even if Steiner's philosophical theories are not part of the curriculum for children. Is it that hard to defend love and cooperation without having to ground them in some cosmic mist? Why does one have to leap into the realm of murky mysticism in order to defend criticizing the harm done to the individual by a life spent in pursuit of material possessions with little concern for what is being done to other human beings or to the planet? Why does one have to blame lack of spirituality for the evil around us? One might as well blame too much spirituality for our problems: the spiritual people think so little of this material world that they don't do enough to make it a better place. Why can't people tell stories, dance and sing, play music, create works of art and study chemistry, biology and physics to learn about the natural world, without the whole process being seen either as a means to job security and material wealth or as harmonizing one's soul with cosmic spirituality?

Children should be burdened with neither spirituality nor materialism. They should be loved and be taught to love. They should be allowed to grow in an atmosphere of cooperation. They should be introduced to the best we have to offer in nature, art and science in such a way that they do not have to connect everything either to their souls or to their future jobs. Unfortunately, most children have parents and their parents would not stand for such an education.

#### Stichomancy

Stichomancy (literally, divination from lines) is the practice of seeking answers to the great metaphysical questions, as well as trying to gain insight into the meaning of existence and reality, by reading random passages from a book such as the Bible or the I Ching.

## Stigmata

The stigmata is the appearance of wounds on the hands and feet, and sometimes on the side and head, to duplicate the wounds of Christ's crucifixion.

The stigmata should not be confused with the performance crucifixions that take place in the Philippines every Good Friday.

St. Francis of Assisi (1182-1226), devoted to imitate Christ in all ways, apparently inflicted himself with wounds and perpetuated the first stigmatic fraud. There have been several hundred others since, including Magdalena de la Cruz (1487-1560) of Spain (who admitted her fraud when she became seriously ill) and Therese Neumann of Bavaria (1898-1962). The latter reportedly survived for 35 years eating only the "bread" of the Holy Eucharist at mass each morning. One of the more recent stigmatics is Fr. James Bruce who claimed not only to have Christ's wounds but also that religious statues wept in his presence. This was in 1992 in a suburb of Washington, D.C., where strange things are common. Needless to say, he packed the pews. He now runs a parish in rural Virginia where the miracles have ceased.

Self-inflicted wounds are common among people with certain kinds of brain disorders, but claiming that the wounds are miraculous is rare and is more likely due to excessive religiosity than to a diseased brain, though both could be at work in some cases.

The likelihood that the wounds are psychosomatic (psychogenic purpuras), manifested by tortured souls, seems less likely than hoaxing in most cases. There are two main reasons for believing the stigmata are usually self-inflicted, rather than psychosomatic or miraculous. One, no stigmatic ever manifests these wounds from start to finish in the presence of others. Only when they are unwatched do they start to bleed. (There is one apparent exception to this rule.) And two, Hume's rule in "Of Miracles" is that when an alleged miracle occurs we ask ourselves which would be more miraculous, the alleged miracle or that we are being hoaxed? Reasonableness requires us to go with the lesser of two miracles, the least improbable, and conclude that we are witnessing not miracles but pious frauds. All 32 or so recorded cases of stigmata have been Roman Catholics and all but four of those cases were women. No case of stigmata is known to have occurred before the thirteenth century,\* when the crucified Jesus became a standard icon of Christianity in the west. Reasonableness seems to require the non-miraculous explanation.

One of the latest to be added to the list of alleged stigmatics is Audrey Santo, a child who has been in a coma since 1987 when she was three years old. What kind of people are inspired by the concept of a God who would render a child comatose and then inflict wounds on her?

## Subliminal

The subliminal is below the liminal (the smallest detectable sensation).

Anything truly below the level of detectable sensation could not, by definition, be perceived. However, the subliminal is generally said to be below the threshold of conscious perception. There is a widespread belief, not strongly supported by empirical research, that without being aware of its presence or content, a person's behavior can be significantly affected by subliminal messages. Thus, it is believed that one can influence behavior by surreptitiously appealing to the subconscious mind with words and images. If this were true, then advertisers could manipulate consumer behavior by hiding subliminal messages in their ads. The government, or Aunt Hilda for that matter, could control our minds and bodies by secretly communicating to us subliminally. Learners could learn while listening to music embedded with subliminal messages. Unfortunately, "...years of research has resulted in the demonstration of some very limited effects of subliminal stimulation" and no support for its efficaciousness in behavior modification (Hines, 312).

The fact that there is almost no empirical support for the usefulness of subliminal messaging has not prevented numerous industries from producing and marketing tapes which allegedly communicate directly with the unconscious mind, encouraging the "listener" not to steal, or coaching the "listener" to have courage or believe in his or her power to accomplish great things. Consumers spend more than \$50 million each year on subliminal self-help products (Journal of Advertising Research, reported by Dennis Love, Sacramento Bee, 9-14-2000). A place called Holistic Hypnosis offers a wide array of such tapes developed by James H. Schmelter, a hypnotherapist with an MBA and self-proclaimed expertise in synergistic science. If Schmelter's stuff is not to your liking, try Subliminal Inspiration from Success Cassettes, Inc.

It is true that we can perceive things even though we are not conscious of perceiving them. However, for those who put messages in tapes and then record music over the messages so that the messages are

drowned out by the music or other sounds, it might be useful to remember that if the messages are drowned out by other sounds, the only perceptions one can have are of the sounds drowning out the messages. There is no evidence of anyone hearing a message which is buried beneath layers of other sounds to the point where the message does not distinctly stand out. Of course, if the message distinctly stood out, it would not be subliminal.

The belief in the power of subliminal messaging to manipulate behavior seems to have originated in 1957 with James Vicary, an advertising promoter who claimed to increase popcorn sales by some 58% and Coke sales by some 18% in a New Jersey movie theater simply by flashing very briefly the messages "Drink Coca-Cola" and "Hungry - Eat Popcorn" at the subliminal level. Even though the claim has been shown to be a hoax, and even though no one has been able to duplicate the event, belief in the legend lingers. This story and several others were retold by Vance Packard in *The Hidden Persuaders* (1957), a book that became required reading for a generation of college students.\*

Belief in subliminal messaging reached a surreal apex in 1980 with the publication of *The Clam-Plate Orgy and Other Subliminals the Media Use to Manipulate Your Behavior* by Wilson Bryan Key. The book has been reissued under the sexier title: *Subliminal Adventures in Erotic Art*. Key claims that advertisers use subliminal messaging of a very serious sexual nature in order to manipulate behavior, including imbedding sexy figures and the word 'sex' in images of such things as ice cubes and food. While carefully examining a Howard Johnson's menu, Key saw that the plate of clams pictured on the menu was actually the portrayal of a sexual orgy which included various people and a donkey. Among Key's many unfounded claims is that the unconscious mind processes subliminal messages at the speed of light. Actually, the fastest brain process chugs along at some 40 m.p.h. (Hines).

Despite the fact that there is no body of empirical support for the notion that subliminal advertising is effective, in 1974 the Federal Communications Commission (FCC) issued an order saying that broadcast outlets that knowingly carry subliminal ads are operating "contrary to the public interest." In September 2000, Senators Ron Wyden of Oregon and John Breaux of Louisiana complained to the FCC about a Republican ad that flashes the word "RATS" (or "BUREAUCRATS") across the screen for 1/30 of a second. "We have reason to believe that broadcasters are airing television advertisements that contain subliminal messages in violation of the public interest," they said, apparently oblivious to the fact that something which can't be registered by the brain is unlikely to have any effect on viewers and is unlikely to violate anything except the reasonable bounds of credulity. Wyden and Breaux must be very bored. They ought to ask themselves why anyone would bother with useless subliminal messages when the overt message of the ad claims that Gore's prescription drug plan will introduce a bureaucracy that will interfere with doctor/patient relationship.

#### Substance Abuse Treatment

"The now tenacious attachment of the disease model and 12-step philosophy to caring behavior, commonly known as codependency, represents to me the most confusing, and iatrogenic ideas in the realm of clinical psychology." ----Robert Westermeyer, Ph.D.

Substance abuse treatment is treatment for using drugs or alcohol in a way determined to be detrimental to the well-being of the individual using the drugs or to those he or she must interact with.

Drug and alcohol abuse are evils often cited by law enforcement officials, politicians and religious leaders as so great as to threaten the survival of our society. Countless individuals worry constantly about their own and others' drinking or drug behaviors. Waiting to help all those with substance abuse "problems" are thousands of professionals in the "helping" professions. But are they really helping substance abusers? Or is substance abuse treatment (SAT) a racket designed primarily to make money or to promote some other selfish goal, with little regard for the health or well-being of patients? Or is it possible that SAT is a mixture of good and evil, much like the people it avers to help?

Criticizing those who profess to help substance abusers is unlikely to be welcomed either by those who see substance abuse as a subversive activity or by those who believe their own lives or the lives of loved ones are being destroyed by drugs or alcohol. Certainly, neither the psychologists, psychiatrists, interventionists and aids who work in treatment facilities, nor the owners and managers of such places, are likely to welcome criticism. Nevertheless, it is unconscionable to allow an industry to go unchecked simply because they claim to have good intentions. Remember Charles Dederich, who died recently, and his SAT, Synanon. In a little over twenty years, from the late '50s to 1980, Synanon grew to an authoritarian cult with perhaps between \$30 million and \$50 million in assets. His obituary in the *Sacramento Bee* reports that Dederich reportedly went way beyond SAT, destroying families instead of saving them. His empire collapsed when he pleaded no contest to a charge of conspiracy to commit murder. How do the Dederichs of the world get away with it? In his case, he was doing society's dirty business of helping drug addicts. To attack a person or an organization which is helping people is to show bad form and will generally be unrewarded. Unfortunately, this fact often gives the unscrupulous carte blanche to abuse the rest of us.

The Road To Hell Is Paved With Good Intentions.

The goals of SAT may be noble, but that does not justify using any means necessary to achieve those goals. To allow treatment which denies a person his or her human as well as civil rights should not be tolerated. To treat people for questionable diseases should not be tolerated. To use therapeutic techniques with little or no substantive evidence for their effectiveness should not be tolerated. And while there may be many SAT programs which respect the basic humanity of their patients and which do a good and decent job of helping substance abusers, there are too many programs which are not being monitored by anyone and which, if exposed as going on in certain foreign countries, would probably count as human rights violations. Let me cite just one example.

In February of 1994, Tim Scanlon experienced an "intervention." A group of people, including his wife, a neighbor, his brother from another state, his sister-in-law from out of town, two of his wife's colleagues, a nun, a nephew and an interventionist greeted him in his neighbor's house where he thought he was going to celebrate a child's birthday. These people were not there to celebrate anything, however. They were there to convince Tim that he was an out-of-control alcoholic and needed to get professional help for his "problem." As Tim saw it, he had two choices: leave his wife and walk out or agree to check into a substance abuse treatment facility. He chose the latter, though he did not believe he had a drinking problem. Of course, he was "in denial." He would have to overcome that before he could get into "recovery."

Whether Tim drank too much or not, I can't say. But he did not get a chance to plead his case, whatever it might have been. There would be no hearing of his side of the story. In fact, there would be no time for him to even determine what his side of the story might be. The intervention was sprung on him out of the blue and he was given no time to prepare a defense. Not that it would have mattered; for, had he provided a defense, that would have been taken as proof of his being in "denial." The shock of the intervention, its humiliating aspects, the intimidation of numbers, all combine to prevent any sort of rational exploration of the situation. Those who have been called together to intervene are all prepped to make the case against Tim. If he had a case to argue, he would have been outnumbered and coerced into submission. His only alternative would be to walk out and not come back. He "chose" to go to a SAT facility, but his was a Hobson's choice.

While Tim was in treatment he met others who were there because they were trying to save their own marriages. He also met others who were less than impressed with their "interventionist." The interventionist is a paid professional. He or she is paid not for caring for the person admitted but for getting the person admitted. They take on the role of Grand Inquisitor and deliverer, rather than that of counselor. But what justifies such a position? Why are there interventionists at all? They're needed to assist families in convincing a loved one to seek treatment. They are there to offer professional support to those who want their loved one treated. But why do people need an outsider, a stranger, to help convince their loved one to seek treatment? Is it because the interventionist plays the role of the independent facilitator, professional and disinterested? If so, then the position is a fraud. For the interventionist is not independent, put paid for delivery of a live customer to the treatment facility.

The treatment facility which Tim went to was an upscale place: a mansion in Maryland, once owned by a politician and now owned by the wealthy co-founders of "Happy Valley," as Tim calls the place (after Wilfred Sheed's *In Love with Daylight*). Like many other SAT programs this one is based on the notion that alcoholism is a disease from which each of the patients is suffering. The cure is Alcoholic's Anonymous 12-step program. Those familiar with AA will recognize that the "disease" model of substance abuse contradicts the AA model of the weak-willed sinner who needs God's power to conquer the mighty forces of satanic booze. Of course, these clashing metaphors of the victim and the sinner are basically contradictory: the one makes the victim passive and not responsible for being an abuser; the other puts the burden of responsibility on the alcoholic. But it is a meager responsibility, since all the sinner must do to be redeemed is admit he or she is a sinner and turn oneself over to God. Contradictions apparently do not matter when your goal is noble, however. There are even some AA programs which give the nod to the "genetic disease" model of alcoholism. Now that would be an interesting job for theodicy: explain why God plants genes which cause some people to be hopeless alcoholics? So He can come to the rescue in a 12-step program?

If alcoholism is a disease, it is the strangest disease there is. What other disease is there which requires coercive teamwork to convince the sick person that he or she is ill? If I have kidney disease, for example, I expect a certain kind of evidence to be produced to verify that I have such a disease. A few bits of medical evidence ought to suffice. I sure wouldn't need a team of interventionists to coerce me into seeing that I have kidney disease.

So what are the signs of this so-called disease? The first symptom of this disease is quantity of alcohol consumed. If you drink no more than the average American, then you probably do not have this disease. If you drink more than that, then you are probably an alcoholic. (In case you are wondering, if you drink 3 or



more drinks a week you are in the minority: only 27% have that many drinks. [Self-scoring Alcohol Check-up ] )

Another symptom of this disease is when you drink. If you drink when stressed or depressed, lonely or bored, to get motivated or amorous, to test yourself or to feel good, then you are very likely an alcoholic. Like I said, this is a very strange disease. It depends on how much and when you drink. Is there any other disease that is comparable to this one? The quantity of alcohol and the situations in which one drinks are not really symptoms of the disease; these are the disease of alcoholism.

Another interesting thing about this disease is that the effects of the disease are usually first felt by people other than the one suffering from the disease. What other disease is like that? For most diseases, the sick person feels bad. And if the sick person doesn't feel bad, nobody else feels bad. This disease is unique in that its first identification as a disease is when it starts to annoy others. Now, I'm willing to say that an alcoholic is a pain in the ass and a bother, perhaps even a danger, but I do not believe I am witnessing a person suffering from the disease alcoholism when I witness an alcoholic. I can understand why treatment facilities want alcoholism to be a disease: they profit by it.

Alcoholism as a disease is not a matter of discovery, but of definition. It is a disease because it has been declared to be so by the very ones who profess to have the cure for the disease. How fortunate for the world that those who define the disease also define the cure! Actually, they don't have a "cure." They have a remedy. The inventors of the disease also declare that no one can be cured of this disease. Once an alcoholic, always an alcoholic. You haven't had a drink in fifty years, you say. That is not evidence that you are no longer an alcoholic. A cure would mean an end to treatment. A remedy means a lifelong income for the SAT provider.

In Tim's case the remedy cost him nearly \$14,000 for a three week treatment, plus \$880 for the interventionist, not to mention what it cost his ego. As a patient, he was repeatedly told that the first step to his getting better would be his declaration: I am an alcoholic. For the sinner to be saved, the sinner must first admit he is a sinner. To refuse to do so is proof the sick one is "in denial" and without grace. The only way to prove you are not in denial is to admit you are an alcoholic. Does this remind anyone of the tactics of witchhunters? This is only phase one. The next phase, public confession, is reminiscent of a totalitarian gulag: each inmate must declare before the others how they degraded themselves and betrayed their humanity through substance abuse. The point, I suppose, is to get the substance abuser to believe he or she is hopelessly addicted or diabolically possessed (or both) and can be helped only by abandoning oneself to God and other medical divinities. On what scientific basis is this hogwash based?

Neither A.A. nor many other SATs are based on science, nor do they seem interested in doing any scientific studies which might test whether the treatment they give is effective. In Tim's case, he would probably be considered a "success" even if he returned several times for treatments. And A.A. members know A.A. works, so they don't need studies to verify the effectiveness of the program. But others might like to know how many don't stay and go through the program? How many go through it, but leave? We'll only hear about the successes, not the failures, because the failures aren't counted and they aren't around to be counted. And we won't read about any comparisons with non-AA programs, nor will we hear about those substance abusers who quit drinking or drugs without any treatment at all. They didn't need God's power, or the group's pressure to quit; they did it on their own. How is that possible? If alcoholism is a disease for which there is no cure, and which requires the substance abuser to give oneself over to God, how do some people quit abusing alcohol or drugs on their own? This should not be possible if either the AA philosophy or the disease theory is correct.

If alcoholism isn't a disease, then it is foolish to seek a "cure" for it. And it is foolish to have treatment centers with patients who are "suffering from alcoholism." Many SAT programs consider the substance abuser to be a "victim." Either this characterization is false or trivial. It is false if it means that the "victim" isn't responsible for abusing drugs or alcohol but is also not suffering from some other illness such as mental illness. In that case, it is the mental illness which should be treated, and alcoholism or drug abuse recognized as the behavioral effect of a neurochemical dysfunction not likely to go away with prayer or talk therapy. It is trivial if it means that alcoholics and drug abusers are "victims of their own bad choices." Why are they making those bad choices? In either case, it seems that calling an abuser a "victim" is a way to get others to feel sorry for him or her and agree that the "victim" needs treatment, rather than needs to change his or her behavior. That would be fine if the treatment were not for alcoholism or drug abuse but for mental illness which manifests itself by these and other self-destructive behaviors. Such people need psychiatric care and medication, not prayer and lectures on how more will power will save them.

Even if alcoholism is not a disease but a sin, I maintain that even if there is a God, it is especially foolish to treat all alcoholics with the AA 12-step program. According to AA, alcoholics are powerless and they need to get power from God to get some control back in their lives. How do the powerless get power from God? By giving up. Quit fighting. Quit struggling. Resign yourself. Make a total act of faith. Let God have possession of your mind and body. Trust in God. Admit your worthlessness. Tell the world what a weak, miserable creature you are. Ask God to erase your weaknesses and trust God to do so. Ask others to forgive you for all your trespasses. Make amends with others. Pray to God to help you. Wake up!

Giving oneself over to God is the means to redemption, and many people probably go along with it because they want to reach the goal of sobriety, i.e., of independence and control over their lives. The contradiction in giving up one form of dependency for another should be obvious. Being God-addicted may be less harmful to your body than being drug-addicted, but it isn't necessarily less harmful to your spirit. Not that all the goals of the 12-step plan require abandonment of the self to God. Some of the steps are things all of us should probably do from time to time: make a moral inventory and list all the people we've wronged; make amends and vow to harm no more. No one should quarrel with those steps. But to assume that to abuse alcohol or drugs is a disease of the soul and that the cure is the healing power of God is to claim something which no one has ever proved and no one could ever prove. The only evidence for these claims is in the form of the philosophical beliefs of those promoting these notions, as well as the anecdotes and testimonials of people who have found God and given up booze or drugs.

On the other hand, there is substantial evidence to support the notion that many who suffer mental illnesses, such as depression or manic depression, often turn to alcohol or drugs to ease their suffering or enhance their mania. Such people truly are ill but they need treatment for their mental disease, not for their alcoholism or drug abuse. Try talk therapy or prayer with someone who thinks dead people have invaded her brain and are commanding her to kill herself. It won't work. Try prayer or talk therapy with the severely depressed old lady living in a cardboard box who drinks herself into a constant stupor. You'll be wasting your time. If there is any hope for her it will not come from joining AA but from getting proper medical treatment for her mental illness.

Now, I don't deny that there are substance abusers who have ruined and wasted their own and others' lives. Nor do I deny that there are many such abusers who deny they have a problem. But it does not follow that everyone who denies they have a problem with alcohol really does have a problem with alcohol. I don't deny that many, perhaps most, substance abusers can't quit or modify their abusive behavior without help from others. Nor do I deny that many people have been greatly helped by AA and other SAT programs. But I do deny that there is much validity to the metaphysical and pseudo-medical baggage that substance abusers and their counselors use to explain abusive behavior and the methods needed to get such behavior under control. And I reject the notion that the subjective impressions of friends or professionals should suffice to establish this metaphysical and pseudo-medical baggage.

I also reject the notion that all alcoholics come from the same mold. They are not all physically addicted. They are not all psychologically addicted. They are not all addicted. They are not all victims. They are not all diseased. They are not all hopelessly without any will-power. They are not all completely irrational and incompetent. They are not all mentally ill. They don't all need therapy or medication. And there are probably many different, good programs besides those based on the "disease" or the "sinner" models of the alcoholic. Some of them are probably not very expensive but just as effective as "Happy Valley." Substance abusers who want to get back some control in their lives might check out some of these other programs and not feel it's either AA or a "chemical dependency" program or nothing. And those who offer these programs should recognize that many of the people who come to them or are brought to them should see a medical doctor, perhaps a psychiatrist, and should be examined to rule out a neurochemical dysfunction as the cause of their abusive and self-destructive behavior.

## Swastika

The swastika is a symbol representing the Nazi party and all of the evil that party stood for: anti-Semitism, the Holocaust, hatred of homosexuals, desire to eliminate the handicapped and infirm, etc.

I wonder what Hitler would have said had he known that the swastika was an ancient Jewish symbol. In fact the swastika is a frequently recurring symbol, found in many different cultures during many different times. One can find the swastika associated with Hopi Indians and Aztecs, the Celts, Buddhists, Greeks, Hindus, etc.

Whatever and however noble its ancient heritage, the symbol of the swastika has been forever tainted in the West because of its Nazi association. Those people who are trying to rehabilitate the symbol in the Western Hemisphere by citing its glorious past are misguided, in my view. If they found that in ancient cultures flipping off people was considered a holy blessing, it would not placate anyone today who was flipped off to be told that they should not be angry since at one time being flipped off was considered a great benefit. If it were true that people in many ancient cultures used to spit on each other or rub dung on each other's heads as a greeting and blessing, no one should be amused by such behavior today.

Some occultists think the swastika has special value because it is found in many cultures that were unaware of each other. How can this be, they ask, unless there is some universal significance to the symbol? Easy. The symbols that are called swastikas are often quite distinct. Drawing a straight line with perpendicular arms at each end going in opposite directions, is one of the simplest drawings possible. Like the cross and the circle, it should be expected to be found repeatedly because of its simplicity. Swastikas

are just variations on this theme. Several swastika designs cross 3-line figures. The Nazi has the arms going to the right and tilts the figure so that the tip of one of the arms is at the top. Other so-called swastikas have no arms and consist of crosses with curved lines. The Jain, Islamic and Maltese symbols look more like propellers than swastikas. The Aztec symbol looks like a stylized version of Notre Dame's fighting leprechaun. The so-called Celtic swastika hardly resembles a swastika in any significant way. The Buddhist and Hopi swastikas look like mirror images of the Nazi symbol; perhaps this is because the Hopi and Buddhist symbols are signs of peace, good luck and love, not hate and bigotry.

### Sympathetic Magic

Sympathetic magic is based on the metaphysical belief that like affects like. Sympathetic magic is the basis for most forms of divination. The lines, shapes and patterns in entrails, stars, thrown dirt, folded paper, the palm of the hand (the longer the lifeline, the longer the life), etc., are believed to be magically connected to the empirical world--past, present and future. It is also the basis for such practices as sticking needles into figurines representing enemies, as is done in voodoo. The pins and needles stuck in a doll are supposed to magically cause pain and suffering in the person the doll represents.

Sympathetic magic is the basis for the claims of psychic detectives who claim that touching an item belonging to a victim gives them magical contact with the victim. Barry Beyerstein believes that sympathetic magic is the basis for many New Age notions such as "resonance," the idea that if things can be mentally associated they can magically influence each other. Beyerstein also explains many notions of graphologists as little more than sympathetic magic, e.g., the notion that leaving wide spaces between letters indicates a proneness to isolation and loneliness because the wide spaces indicate someone who does not mix easily and is uncomfortable with closeness. One graphologist claims that a person betrays his sadistic nature if he crosses his t's with lines that look like whips.

Sympathetic magic is probably the basis for such notions as karma, synchronicity, eating the heart of a brave but defeated warrior foe, throwing spears at painted animals on cave walls, wearing the reindeer's antlers before the hunt, having rape rituals to increase the fertility of the crops, or taking Holy Communion to infuse the participant with Divinity. Sympathetic magic is surely the basis for homeopathy and remote healing.

Anthropologists consider magical thinking a precursor to scientific thinking. It is indicative of a concern with control over nature through understanding cause and effect. Nevertheless, the methods of magic, however empirical, are not scientific. Such thinking may seem charming when done by our ancestors living thousands of years ago, but today such thinking may indicate a profound ignorance or indifference towards science and a testable understanding of the world. Most of us, from time to time, undoubtedly slip into this primitive mode of thinking, but a bit of reflection should wake us up to the fact that oysters are not an aphrodisiac, having a bit of good luck is not likely to influence our chances of winning the lottery that day, and stabbing a photo of an enemy is not going to hurt her. It may be true that rubbing an amulet given you by your true love makes you feel her presence, but the feeling you have, however magical it may seem, has more to do with biology and psychology than with metaphysics. And changing your name to Dirk Studmuffin will not cause the cosmos to shake, rattle and roll.

### Synchronicity

Carl Jung (1875-1961), Synchronicity & The Collective Unconscious

Carl Jung was a Swiss psychiatrist and colleague of Freud's who broke away from Freudian psychoanalysis over the issue of the unconscious mind as a reservoir of repressed sexual trauma which causes all neuroses. Jung founded his own school of analytical psychology.

Jung believed in astrology, spiritualism, telepathy, telekinesis, clairvoyance and ESP. In addition to believing in a number of occult and paranormal notions, Jung contributed two new ones in his attempt to establish a psychology rooted in occult and pseudoscientific beliefs: synchronicity and the collective unconscious.

Synchronicity is an explanatory principle; it explains "meaningful coincidences" such as a beetle flying into his room while a patient was describing a dream about a scarab. The scarab is an Egyptian symbol of rebirth, he noted. Therefore, the propitious moment of the flying beetle indicated that the transcendental meaning of both the scarab in the dream and the insect in the room was that the patient needed to be liberated from her excessive rationalism. His notion of synchronicity is that there is an acausal principle that links events having a similar meaning by their coincidence in time rather than sequentially. He claimed that there is a synchrony between the mind and the phenomenal world of perception.

What evidence is there for synchronicity? None. Jung's defense is so inane I hesitate to repeat it. He argues that "acausal phenomena must exist...since statistics are only possible anyway if there are also exceptions" (1973, Letters, 2:426). He asserts that "...improbable facts exist--otherwise there would be no statistical mean..." (ibid.: 2:374). Finally, he claims that "the premise of probability simultaneously postulates the existence of the improbable" (ibid. : 2:540).

Even if there were a synchronicity between the mind and the world such that certain coincidences resonate with transcendental truth, there would still be the problem of figuring out those truths. What guide could one possibly use to determine the correctness of an interpretation? There is none except intuition and insight, the same guides that led Jung's teacher, Sigmund Freud, in his interpretation of dreams. The concept of synchronicity is but an expression of apophenia.

According to psychiatrist and author, Anthony Storr, Jung went through a period of mental illness during which he thought he was a prophet with "special insight." Jung referred to his "creative illness" (between 1913-1917) as a voluntary confrontation with the unconscious. His great "insight" was that he thought all his patients over 35 suffered from "loss of religion" and he had just the thing to fill up their empty, aimless, senseless lives: his own metaphysical system of archetypes and the collective unconscious.

Synchronicity provides access to the archetypes, which are located in the collective unconscious and are characterized by being universal mental predispositions not grounded in experience. Like Plato's Forms (eidos), the archetypes do not originate in the world of the senses, but exist independently of that world and are known directly by the mind. Unlike Plato, however, Jung believed that the archetypes arise spontaneously in the mind, especially in times of crisis. Just as there are meaningful coincidences, such as the beetle and the scarab dream, which open the door to transcendent truths, so too a crisis opens the door of the collective unconscious and lets out an archetype to reveal some deep truth hidden from ordinary consciousness.

Mythology, Jung claimed, bases its stories on the archetypes. Mythology is the reservoir of deep, hidden wondrous truths. Dreams and psychological crises, fevers and derangement, chance encounters resonating with "meaningful coincidences," all are gateways to the collective unconscious, which is ready to restore the individual psyche to health with its insights. Jung maintained that these metaphysical notions are scientifically grounded, but they are not empirically testable in any meaningful way. In short, they are not scientific at all, but pseudoscientific.

#### Tachyons and Takionics

A tachyon is a theoretical particle or wave which travels faster than the speed of light. Tachyons exist in a theoretical world where objects have negative mass and time goes backwards. Tachyon energy is used to scan "subspace", among other things, on the sci-fi fantasy program, Star Trek Voyager. So far, there is no empirical evidence for the existence of tachyons. "If they do exist, tachyons would be extremely difficult to utilize under our current understanding of physics," says NASA scientist Tom Bridgman. Despite being theoretical and, if real, difficult to utilize, and if utilized, of unknown value, tachyons are the main ingredient in a feature line of New Age products that range from beads, belts and shoe inserts, to sweatbands, power pillows, massage oils and vials of tachyon water.

A few enterprising New Agers claim that they know tachyons exist and they have harnessed its power. For example the people at Biotech Industries of Carbondale Colorado claim to know that "The Tachyon Field supplies the energy needs of all living organisms until balance is achieved, then it eases until called upon again. As it is needed, and a depletion occurs, it rushes in until balance is achieved once again."<sup>1</sup> But just in case Nature fails to keep you in tachyon balance, you can get all the tachyon power you need from one Biotech's swell takionic products. (The reason for the spelling difference has to do with the fact that the word 'tachyon' cannot be trademarked. The words 'takion' and 'takionic' can be trademarked and thereby used to identify one's products.)

The people at Biotech make some incredible claims. For example,

Motors have been built which draw upon the Tachyon Field for energy. They exhibit strange behavior, such as increasing in speed the longer they run, even though they are connected to no visible power source.<sup>2</sup>

Where are these motors? No one has seen them but we are to take it on faith that they exist. Perhaps they are in the vehicles bringing all those UFOs to earth for the cattle mutilations and reproductive experiments.

Here's another claim from Biotech:

Takionic products, with their aligned atomic polarities, enhance the body's natural ability to draw from the Tachyon Field for its energy needs. Athletes have discovered that Takionic products allow them to perform

faster and longer, and shorten recovery time. As conduits for input from the Tachyon Field, Takionic products are proving themselves in the sports performance arena.

Just what is this "Tachyon Field"?

The Tachyon Field is extremely dense. This density cannot be measured because it is a negative state, mirroring the universe of positive density which we inhabit. The theory of negative density is supported by an observable phenomenon: a perpetually expanding physical universe which is brought into being through pressure exerted by expansion of the invisible one. Pressure exerted by the Tachyon Field upon our physical universe indicates the existence of an invisible, highly dense universe, the Tachyon Field.<sup>3</sup>

The tachyon field may be dense but it would have to go a long way to match the density of the New Age Physicists who find this stuff compelling. There seems to be something missing here--such as a fundamental grasp of reality. We are asked to believe that here is a form of energy which "cannot be proven by instrumentation currently available" but which we can use to explain just about anything we want.

Tachyon theory is holistic because it accepts the notion of two interdependent universes which are actually indivisible: the visible, sub-light speed universe and an invisible, faster-than-light one. Tachyon theory also substantiates omnipresence, a purely metaphysical concept. God is omnipresent (simultaneously existing everywhere). Omnipresent existence can only occur at faster-than-light speeds, since slower-than-light travel takes time to cross space. Therefore, omnipresence can only be an attribute of a Tachyon Universe where time and space are uniform.<sup>4</sup>

Now we've got everything, all the ingredients for a New Age Physics: tachyon energy, chi, yin and yang, God, mirror universes and pantheism. The only problem is that there seems to be no more reason to believe in tachyon energy than in the metaphysical baggage it is used to explain. Once the speculation begins, this omnipotent omnipresence knows no bounds to what it can explain. For example, the author goes on to claim that "The nervous system and brain are nothing but an extremely sophisticated antenna and receiver to absorb, process and transform the resources of the Tachyon Field" and that "Healers have learned to access the Tachyon Field's resources for its healing powers more successfully than the average person has."

All the above claims are by way of introduction by their author to the line of takionic products he has for sale. New Age Energy is especially marketable in alternative health care, where the products to make us healthy and happy are as boundless as the imagination, as endless as New Age Energy itself. There are takionic beads, 10 for \$118.95, which are said to have antennae which "focus the beneficial tachyon energy". There is a takionic belt for \$268.95 which is said to help improve circulation and increase strength.. Takionic water comes in a small vial for \$27.95 and is "pure and cluster-free".

Another New Age business, Advanced Tachyon Technologies (ATT) of Santa Rosa, California, offers a much broader array of products, including some for cats and dogs. ATT has products which can enhance your love-life (including one called panther juice) and your athletic skills, not that the two are mutually exclusive. They have products to ease your pain and improve your brain. They have chakra balancing kits for those who would like a little takionic boost to their meditation. You can purchase a personal tachyonized cocoon for \$396. Or, you can enhance both your spiritual and sex life with the Tachyonized Silk Meditation Wrap for \$298. You are advised to "Use this Tachyonized Silk Meditation Wrap to meditate with your lover before making love."

Few things are more intimidating to the non-scientist than modern physics. Even an educated person has difficulty comprehending the most basic claims made about the entities and possible entities of the sub-atomic world, not to mention the exotic claims about entities and possible entities at the edges of the universe. Even the concepts of "sub-atomic" and "edge of the universe" boggle the mind. Perhaps it is because of the obscurity and inaccessibility of modern physics that many uneducated people scoff at science and find solace in fundamentalist religious interpretations of the origin and nature of the universe. Another response to the seemingly transcendental nature of concepts in modern physics has been to interpret those concepts in terms of ancient metaphysical doctrines popular for thousands of years in exotic places (to the Western mind) such as India and China. This notion of a "harmony" between ancient metaphysics and modern physics is attractive to those who accept science and reject the Christian sects they were raised in, but still have spiritual longings. Believing in this notion of "harmony" between the ancient East and the modern West has the virtue of allowing one to avoid appearing to be an imbecile who rejects science in order to accept religion. As such, it shares in common at least one trait with "scientific creationism": it re-creates science in its own image for its own purposes. Science is the handmaiden of Religion and Metaphysics, as Philosophy had been for Theology in the Middle Ages.

Acting much like nuclear accelerators on atoms, the New Age theorists smash concepts into bits, only the bits are interfered with in ways Heisenberg never foresaw. We may as well talk about "New Age physics";

for, what they have done to the concepts of modern physics is to refashion them into a metaphysics with its own technology and product line. Nothing demonstrates this more clearly than the New Age conception of "energy." In physics, the basic idea of energy is the capacity of a physical system to do "work." In physics, "work" is defined as the product of a force times the distance through which that force acts. "Energy" is a term to express the power to move things, either potential or actual. New Age spiritualism is all about empowerment. The New Age is about enhancing your energy, tapping into the energy of the universe, manipulating energy so that you can be happy, fulfilled, successful, and lovable, so life can be meaningful, significant, and endless. In short, the New Age is about becoming God, an omnipotent, eternal being capable of magic, having the power to move things at will.

Of course, New Age Energy has nothing to do with mechanics, electricity, or the nuclei of atoms. New Age Energy has more to do with things like chi. New Age Energy isn't measurable by any known scientific instrument. There are no ergs, joules, electron-volts, calories, or foot-pounds of New Age Energy. Only special people with special powers at "tuning in", "aligning", "rebalancing", "channeling", or otherwise manipulating New Age Energy, can measure this energy. How? They measure it by feeling it. They can feel the energy, feel the vibes. They're in tune with the cosmic strings. They vibrate to the harmony of the spheres. All the way to the bank.

#### Talisman

A talisman is a cut figure or engraving, such as on a coin, that has magical powers to avert evil or bring about good.

#### Tantra

The tantra refers to certain Hindu and Buddhist scriptures, or the rituals and practices described therein. They deal especially with meditative techniques and rituals involving sexual practices.

#### Tarot Cards

"The tarot is one of the most wonderful of human inventions. Despite all the outcries of philosophers, this pack of pictures, in which destiny is reflected as in a mirror with multiple facets, remains so vital and exercises so irresistible an attraction on imaginative minds that it is hardly possible that austere critics who speak in the name of an exact but uninteresting logic should ever succeed in abolishing its employment."  
--Grillot de Givry

Tarot cards are used today mainly in fortune-telling. A few years ago, tarot cards would have conjured up images of Gypsies, but today the cards are popular among occultists and New Agers in all walks of life.

The modern tarot deck has been traced back to fifteenth century Italy and a trick-taking game called triumphs (tarots in French) (Decker). The traditional tarot deck consists of two sets of cards, one (the major arcana) having 22 pictures, such as the Fool, the Devil, Temperance, the Hermit, the Sun, the Lovers, the Juggler, the Hanged Man and Death. The other set has 56 cards (the minor arcana) with kings (or lords), queens (or ladies), knights, and knaves (pages or servants) of sticks (or wands, cudgels or batons) , swords, cups and coins.\* Gypsies didn't begin using tarot cards until the twentieth century. Today, there are many different tarot decks used in cartomancy. The meanings of the figures and numbers on tarot cards vary greatly among tarot readers and advocates, many of whom find connections between tarot and the cabala, astrology, the I Ching, ancient Egypt, and various other occult and mystical notions.

The oldest playing cards date back to tenth century China, but the four suits of tarot and modern playing cards probably originated with a fourteenth century Muslim deck .[Decker] According to de Givry, in the modern 52-card deck of ordinary playing cards, sticks or wands = clubs (and announce news); swords = spades (and presage unhappiness and death); cups = hearts (and presage happiness); coins = diamonds (and presage money). According to Decker, the Muslim sticks represented polo sticks, and as Europeans were not yet familiar with polo, they changed the suit of sticks to that of wands, cudgels or batons.

Tarot cards are usually read by a fortune-teller, though in these days of New Age Enterprise, anyone can buy a deck with instructions on how to discover your real self and actualize your true potential. The fortune-teller seems always to be a woman. There is nothing sexist in this: women can't help it if they're more psychic than men. I don't think there is any evidence that women have more intuition than men, though that is a common prejudice. Nor do I think that there is any evidence that women can tell the future any better than men can. Be that as it may, there has been a strong belief for hundreds, perhaps thousands of years, that one's future is contained in the cards and that the fortune-teller can see what that

future is. Why anyone's fate would be mysteriously contained in playing cards is a mystery indeed. But as the occult sciences are essentially mysterious, we need not trouble ourselves with questions of origin, causality or uninteresting logic.

There is a romantic irresistibility to the notion of shuffling the cards and casting one's fate, to putting one's cards on the table for all to see, to drawing into the unknown, to having one's life laid out and explained by strangers who have the gift of clairvoyance, to gambling on the future, etc. The idea of staring at a picture card and letting it reveal the future or mirror the soul is not one that austere critics are likely to find tantalizing, but the thought of such visionary mysticism obviously has its attraction. Centuries of scientific advancement and learning have not diminished the popularity of occult guidance systems such as the tarot, ouija boards, astrology, the I Ching, palmistry, iridology, reflexology, ink blots, graphology, enneagrams, crystal balls, tea leaves, etc. The need to be guided, to have assistance in making decisions, to be reassured, may have their roots in unfulfilled childhoods. For, it is in childhood that one needs guidance, assistance and direction. It is in childhood that one needs to be comforted and reassured that it is acceptable to be master of your own destiny. Perhaps the many adults seeking occult guidance represent generations of children not guided and directed but tyrannically commanded, not reassured but demeaned, not taught to be masters of their own destiny but taught to be insecure and dependent. There is a kind of romantic irresistibility to these notions but they are probably just gibberish to exact but uninteresting occult logic. Still, some of the cards are very pretty and many of those who use them swear that they have come to a deeper and greater understanding of themselves by letting the cards stimulate their imagination.

Tart, Charles

"Anyone who thinks the brain is the total answer is ignorant." ----Charles Tart

Charles Tart, Ph.D., is known for his work on lucid dreams, astral projection, LSD, and ESP. He has retired from the University of California at Davis psychology department and is now associated with the Institute of Transpersonal Psychology. Recently, Tart hit the jackpot by hooking up with Robert Bigelow, a very wealthy Las Vegas businessman with a penchant for funding paranormal research. Bigelow gave nearly \$4 million to the University of Nevada at Las Vegas in exchange for establishing the Bigelow Chair of Consciousness Studies, a fine name for a program to fund parapsychologists like Charles Tart, who was given \$100,000 to develop a curriculum for this program and to teach a couple of classes. Tart plans to enlighten students on such subjects as dreams, meditation, hypnosis, out-of-body experiences, telepathy, and the ever-popular subject among college students, drug-induced altered states of consciousness.

Early in his career, Tart edited a psychology text, *Altered States of Consciousness* (New York: John Wiley & Sons, Inc.: 1969) and authored several of the articles in his anthology. Tart defined an "altered state of consciousness" (ASC) as one in which an individual "clearly feels a qualitative shift in his pattern of mental functioning." For those who prefer a behaviorist definition, he offered the following: "an ASC is a hypothetical construct invoked when an S's behavior (including the behavior of verbal report) is radically different from his ordinary behavior." Tart believes that Eastern Yoga and Zen had long been tapping into ASCs and that there was something mystical or spiritual, something superior or "higher" about these altered states of consciousness. For Tart, ASCs are a gateway to a higher consciousness, to the realm of the paranormal and the spiritual.

Tart considered a hypnotized person to be in an altered state and one of the more bizarre uses of hypnosis is described in his article, "Psychedelic Experiences Associated with a Novel Hypnotic Procedure, Mutual Hypnosis." The article exemplifies parapsychological research interests and techniques.

Tart's scientific experiment involved two people, or Ss. An S is a scientific notation for a subject. I guess parapsychologists think one S is like any other S so you don't need too many of them in a scientific experiment. What's true of one S is probably true of any other S. But, when you only have two subjects you might as well call them A and B. Tart had A hypnotize B. Then, while under hypnosis, B hypnotized A. Then A would deepen B's hypnotic state; then B would deepen A's hypnotic state, "and so on." Tart claims in his paper that what he was testing was the claim that "the depth of hypnosis an S could reach was a relatively constant factor for a given S." He wanted to see if he could increase the depth of hypnosis a given S could reach by having S en rapport. (A little French always looks good in a scientific paper.) Rapport is defined as "the special relationship supposed to exist between hypnotist and S." Says Tart: "I reasoned that if rapport was greatest in deep hypnotic states, a technique which markedly increased rapport would likely increase the depth of hypnosis." (292) Undoubtedly.

His experiment consisted of three sessions with three graduate students over a period of several months. He started out with just two subjects but "Carol accidentally participated in the second experimental session." (293) What physicist would write in a scientific paper "but several unplanned atoms wandered through the lab at just the crucial moment so we included them in the study"?

You might wonder how depth of hypnosis is to be measured. Well, there really isn't any way to measure depth of hypnosis, since hypnosis isn't a state of consciousness like sleeping or wakefulness. Not to worry; Tart invented a way to measure depth of hypnosis. He even says he was preparing a paper on his invention. The gist of his argument, he tells us, is "that the degree to which an S reports feeling hypnotized may be used as the criterion of hypnosis...." He calls this the Self-Report Depth Scale. (Sounds pretty scientific.) He gave his subjects a complicated scale that goes from 0 (the waking state) to 50+ ("extremely profound trance, so profound that your mind becomes naturally sluggish or slow." There were seven ranges of depth on his Self-Report Depth Scale. A fully awake and attentive person would have a very difficult time remembering the distinct depth ranges. Why think that a hypnotized person would remember the scale? Worse, what evidence is there that any two Ss would apply the scale in the same way?

Anyway, Bill and Anne, the two Ss, had no trouble in responding with a number when asked how deep they were hypnotized. Anne variously reported a 27, a 40, a 43, a 47, a 32, a 48, and a bunch of other numbers. Bill reported a 13, a 36, a 43, a 47, a 25, a 57, 48, 53, a 12 and a bunch of other numbers. What do these numbers mean? Who knows and who cares. Tart could not control his subjects. For all he knew they were dropping LSD before coming to the sessions. He claims the subjects hallucinated during the mutual hypnosis sessions. While some people might find his description of the hypnotic sessions amusing or entertaining, there is nothing very scientifically interesting about them. Yet, Tart concluded: "Although this report is based on only two Ss, the results with them were dramatic enough to warrant considerable research on mutual hypnosis." (307) He even notes that mutual hypnosis "might offer a way to produce psychedelic experiences in the laboratory without the use of drugs and with more flexibility and control than is possible with drugs." (308) Note the weasel word might. Then again it might not. But, even if it did, why would anyone want to produce psychedelic experiences in the laboratory, with or without drugs?

As to his alleged primary interest--increasing the depth of hypnosis of a given S--he says, "the possibilities of substantially increasing hypnotizability in Ss who are moderately responsive are worth looking into." Why? He doesn't say.

As an example of Tart's competence to investigate paranormal matters, consider the following letter he wrote to the New York Review (Feb 19, 1981) in response to criticisms by Martin Gardner of his work. [The bold italics have been added to call attention to how Tart uses language to reinforce the notion that he is a reputable scientist and that Gardner is the quack.]

I see that Martin Gardner is again using this popular literary journal as a vehicle to attack my scientific research that was reported in my *Learning to Use Extrasensory Perception* (University of Chicago Press, 1976) [NYR, May 15]. As a working scientist, I am committed to reporting and dealing with all of the facts in my studies, whether they agree with my cherished beliefs or not. Data is primary. Gardner, by contrast, apparently knows what's true and false in some absolute way, so when inconvenient facts run counter to his beliefs he suppresses them or rationalizes them away. He knows that ESP is impossible, so when he is presented with evidence for it, he imagines some way in which the experimenters are fools, frauds, or both. Mr. Gardner doesn't need actual evidence for this, his suspicions are sufficient. Most people would consider his casual and unsupported accusations of fraud against one of my more successful experimenters, Gaines Thomas (now a professional psychologist), as malicious libel, but I suppose Mr. Gardner believes he's just protecting us gullible people from ourselves....

Gardner has presented a clearly inadequate theory [about possible error and/or fraud in the work of parapsychologists] to a literary audience as if it were valid. The interested reader is invited to look at the above communications [Tart had cited several articles in the *Journal of the American Society for Psychical Research*] to ascertain the facts for himself. There are other distortions in Gardner's article that I shall not bother to waste our time correcting here: they are, unfortunately, typical of Gardner's writings on parapsychology.

When real scientists have criticisms of each other's work, the standard procedure is to submit the criticisms to the appropriate technical journal. The submission is reviewed by other scientists for basic competency and relevance, and then published. I doubt that Mr. Gardner's article would have stood up to this refereeing process in a legitimate scientific journal. A thoughtful reader might begin to wonder, then, why Mr. Gardner presents such a distorted and selectively incomplete picture of serious scientific research to the general audience represented by readers of the Review.

The implications of ESP for understanding human nature are enormous, and call for extensive, high quality scientific research. A recent survey of mine showed hardly a dozen scientists working at it full time, on a most inadequate budget of only a little over half a million dollars a year for the entire United States. The subject is too important and too underresearched to waste further time with pseudo-critics like Mr. Gardner who are covertly trying to manipulate public opinion, rather than contributing anything to scientific progress.

The first thing to note is how Tart tries to reinforce the idea that he and his ilk are real scientists, that their concern is only for the truth, they just collect data and let the stats fall where they may. Note next that Tart



insists again and again on his own integrity and seriousness. Note how he reinforces the notion that while he and his dozen comrades are trying to do serious research on a subject of huge significance for mankind, they are being persecuted and unjustly attacked by unworthy and devious opponents.

I can't say for certain that Tart lacks personal integrity and seriousness. It appears that he is a liar and a deceiver, but it may be that he is just self-deceived and overzealous. Yet, it appears that he's not much of a scientist; he apparently knowingly omits relevant data that refute rather than confirm his ESP hypotheses; he sets up experiments in sloppily controlled ways; he rationalizes any failure to confirm his pet theories; he distorts the claims of his critics; and, he fails to respond to questions which seriously undermine the integrity of his studies.

He seems to be lying when he says that he is committed to reporting all of the facts in his studies and that data is primary. One of the primary methodological principles of "real" scientific experimentation is that a single test of a causal hypothesis which results in statistical data that indicate a correlation between two or more events should not be taken as proof of a causal connection. Not only did Tart make extravagant claims on the basis of one set of experiments, when he repeated the experiment with better controls than in the first experiment (where a key piece of equipment was demonstrated by several mathematicians at UC Davis to have been malfunctioning), he was unable to duplicate the fantastic results of the first experiment done with faulty equipment and controls. Yet, he trivializes this fact in his book *Learning to Use Extrasensory Perception*. Sherman Stein, one of the mathematicians who determined that the randomizer used in the first tests was faulty, asked Tart when he was going to do the tests over with a proper randomizer and Tart told Stein that he'd already done it. The results were negative [i.e., the data were what one would expect due to chance] but Tart rationalized the contrary data as due to the less gifted, more uptight subjects and being "constantly plagued by machine malfunctions" in the second experiment (Randi, *FlimFlam!*, 153; Gardner, *Science Good, Bad & Bogus*, 211).

Tart is deceptive and attempts to manipulate opinion against Gardner by suggesting things it is likely Tart knows are not true. For example, Gardner has been writing about ESP and other paranormal phenomena for years. He has a long public record and he's never indicated any support for the notion that he or anyone else can have a priori knowledge about ESP. Gardner has never said, to my knowledge, that ESP is impossible. It seems odd that a man who would think all psychic phenomena are a priori impossible and therefore all paranormal claims can be known to be false without investigation would spend a lifetime investigating such claims! And, it seems reasonable that if in case after case, without a single exception, one's investigation keeps turning up evidence of foolishness, fraud, deception, self-deception, wishful thinking, errors and incompetence, that one would be justified in rejecting out of hand the next crackpot claim that comes down the pike. Yet, Gardner never does that. He gives even the stupidest of the stupid the same day in court as the wisest of the wise. It is Tart and other parapsychologists who act as if they know the truth about ESP in some absolute way and who rationalize away counterfactual evidence to their paranormal claims. It is they who have no need for actual evidence. One gets the feeling that they consider doing experiments to confirm their hypotheses a necessary evil that they must do to satisfy others.

It is also likely that Tart knew that Gardner did not accuse him or his associates of fraud. Gardner did point out that the design of the experiment was so poor that the results obtained could easily have been obtained fraudulently. A good experimenter--a real scientist?--especially in a field which has a lifelong history of fraudulent and incompetent experimenters, should take every precaution to guard an experiment's results from being potentially tainted. Any reasonable parapsychologist should expect to be checked for fraud and should therefore design experiments where cheating is impossible. The fact that this seems a reasonable requirement indicates something about the nature of the whole parapsychological enterprise. Would any reasonable person take physics or chemistry seriously if those disciplines were as rife with frauds and incompetents as parapsychology is?

Tart is absolutely correct about scientific papers being refereed by scientists before publication in reputable journals. He is certainly wrong, however, when he asserts that an article is published if it passes the tests of "competency and relevance." Those are necessary, but not sufficient conditions for publication in any journal, scientific or not. But I have no doubt that those are sufficient conditions for publication in the *Journal of the American Society for Psychical Research*. If Tart wants to call that journal a "scientific" journal he may do so but why stop there? We may as well call *Reader's Digest* and *Life* magazine scientific.

Tart's claim that Gardner "has presented a clearly inadequate theory to a literary audience as if it were valid" is too rich and resonant with irony to deserve anything but thunderous horse-laughs for comment. Likewise for Tart's claim that "Gardner presents...a distorted and selectively incomplete picture of serious scientific research...."

As for Tart's claim about the significance of ESP and ESP research, I can only call them self-serving claims of an incompetent egoist or naive claims of a deluded psychologist.

## Telekinesis and Psychokinesis

Telekinesis is the movement of objects by scientifically inexplicable means, as by the exercise of an occult power. Psychokinesis is the production of motion in physical objects by the exercise of psychic or mental powers. Uri Geller claims he can bend spoons and stop watches using only his thoughts to control the external objects. Others claim to be able to make pencils roll across a table by a mere act of will. The variety of parlor tricks used to demonstrate psychokinetic powers is endless.

## Telepathy

Literally, "distance feeling." The term is often a shortened version of mental telepathy and refers to mind-reading, discerning another's thoughts through ESP.

## Teleportation

Teleportation is the act or process of moving an object or person by psychokinesis. The term originated with Charles Fort, though he used it to describe magical transport between Earth and the heavens.

## Tensegrity

Carlos Castaneda (d. 1998)

"All paths are the same: they lead nowhere."  
---Don Juan

Carlos Castaneda was a best-selling author of a number of books centering on a Mexican Yaqui shaman's pharmacologically induced visions. He called the character Don Juan Matos. Castaneda claimed he was doing anthropology, that his books were not fiction. He was granted a Ph.D. by the UCLA Anthropology Department in 1973 for his third book, *Journey to Ixtlan*. Critics say the work is not ethnographically accurate and is a work of fiction.

Castaneda's books are full of stories of magic, sorcery, out-of-body experiences, etc. His first books hit the market during the 1960s when American culture was fascinated by Druglords such as Timothy Leary. These Druglords believed that the chemical changes in their brains which caused them to perceive the world differently and to perceive different worlds, were entering into a "divine" realm. Getting high meant opening the doors of perception to a higher reality.

Castaneda claimed that he met Don Juan in 1960 at a bus station in Nogales, Arizona. Castaneda was a graduate student in anthropology doing research on medicinal plants used by Indians of the Southwest. He claims that Don Juan made him a sorcerer's apprentice and introduced him to the world of peyote, etc. It is unlikely that a great shaman would pick someone up at a bus stop and make him a disciple, but we'll never know since no one but Castaneda ever met Don Juan. Was Don Juan a hoax? Maybe, but Castaneda's books have sold over eight million copies. How?

Castaneda obviously filled a need. He told good stories and gave enigmatic advice. He gave people hope, especially those who believe that the more modern civilization has become the further it has driven human beings from their spiritual or true nature. But these old shamans still know the way! They know truths your modern scientist has not even dreamed of! And they do hallucinogenics, too! Maybe that is why they thought they could fly and transmogrify into birds and other animals.

In his later years, Castaneda introduced a new way to get high: Tensegrity. It involves meditation, exercises, a luminous egg, an assemblage point, depersonalization, dreaming, and other New Age magic. Tensegrity allegedly leads to the perception of "pure energy," breaking down the barriers to higher consciousness. It is supposed to be based on some ancient magic, known to Indian shamans centuries ago.

## Testimonial Evidence

Testimonials and vivid anecdotes are one of the most popular and convincing forms of "evidence" presented for beliefs in the transcendent, paranormal and pseudoscientific. Nevertheless, testimonials and anecdotes in such matters are of near zero value in establishing the probability of the claims they are put forth to support. A sincere and vivid account of one's encounter with an angel, an alien, a ghost, a Bigfoot;

or purple auras around dying patients, a miraculous dowser, a levitating guru, or a psychic surgeon, is of little empirical value in establishing the reasonableness of believing in such matters. Why? Well, one reason is that such accounts are inherently unreliable and biased. They are of no more value than the televised accounts of satisfied customers of the latest weight loss program. In fact, the advertisers' obviously biased testimonials are superior to most testimonials of those claiming to have seen angels: we can at least imagine a way to test the claims of the advertiser. There is no conceivable test for angel sightings.

The testimonial of "personal experience" in paranormal or supernatural matters has no scientific value. If others cannot experience the same thing under the same conditions, then there will be no way to verify the experience. If there is no way to test the claims made, then there will be no way to tell if the experience was a delusion or was interpreted correctly. If others can experience the same thing, then it is possible to make a test of the testimonial and determine whether the claim based on it is worthy of belief. For example, a reader sent in the following example of the placebo effect:

As a child I vomited every time I got on an airplane, until a stewardess told me to try drinking alka-selzer before the flight. It worked! Unfortunately, it also tasted horrible, so I tried half a glass. That worked too. After a while just putting the alka-selzer in the glass was enough...  
[Delano DuGarm]

This reader was wise enough to recognize that, while testimonials to the wonders of alka-seltzer would be no more valuable than the testimony of dowsers to the wonders of dowsing, it would be possible to test the effects of the stuff. On the other hand, a testimonial to having been transported to heaven during the night to dance with the angels is one which could never be tested. Such testimony is scientifically worthless because it can't be tested.

The reason the testimonials of dowsers are scientifically worthless is because in such matters selective thinking and self-deception must be controlled for. Most dowsers do not even realize that the need to do a controlled test of their powers to rule out the possibility that they are deceiving themselves. They are satisfied with their experience as a dowser. Controlled tests of dowsers will prove once and for all that they are not being selective in their evidence gathering, i.e., counting only the successes and conveniently ignoring or underplaying the misses. Controlled tests can also determine if other factors, such as visible geological clues, might be more significant in predicting success at dowsing. Thus, in and of themselves, the testimonials of dowsers are scientifically worthless.

If such testimonials are scientifically worthless, why are they so popular and why are they so convincing? There are several reasons, I think. Testimonials are often very vivid and detailed, making them appear very believable. They are often made by enthusiastic people, who seem trustworthy and honest, with no apparent reason for wanting to deceive us. They are often made by people with some semblance of authority, such as Ph.D. in psychology or physics. Finally, testimonials are believable because people want to believe them. Nevertheless, testimonials which are of untestable claims are worthless on their face. And testimonials of testable claims are often worthless until tested.

Finally, it should be noted that testimonials are often used in many areas of life, including medical science by physicians in treating patients, and that giving due consideration to such testimonials is considered wise not foolish. A physician will use the testimonies of his or her patients to draw conclusions about certain medications or procedures. For example, a physician will take anecdotal evidence from a patient about a reaction to a new medication and use that information in deciding to adjust the prescribed dosage or to change the medication. This is quite reasonable. But the physician cannot be selective in listening to testimony, listening only to those claims which fit his or her own prejudices. To do so is to risk harming one's patients. Nor should the average person be selective when listening to testimonials about the wonders of some new diet drug or of such practices as Landmark Forum or Scientology.

#### Texas-sharpsooter Fallacy

The Texas-sharpsooter fallacy is the name epidemiologists give to the clustering illusion. Politicians, lawyers and some scientists tend to isolate clusters of diseases from their context, thereby giving the illusion of a causal connection between some environmental factor and the disease. What appears to be statistically significant (i.e., not due to chance) is actually expected by the laws of chance.

Of the thousands of studies of cancer-clusters investigated by scientists in the United States, "not one has convincingly identified an underlying environmental cause" (Gawande).

The term refers to the story of the Texas sharpshooter who shoots holes in the side of a barn and then draws a bull's-eye around the bullet holes. Individual cases of disease are noted and then the boundaries are drawn (Gawande).

## Theist

A theist is someone who denies that God doesn't exist.

## Theories

The term 'theory' can be understood in both a 'strong' and a 'weak' sense. In the strong sense, a theory is a principle or set of principles for explaining, organizing, unifying, and/or making sense out of some range of phenomena. In the weak sense, a theory is a belief or speculation. Non-scientists commonly use the term 'theory' in the weak sense to refer to a belief or to a speculation or guess based on limited information or knowledge, e.g., my theory of pre-marital sex is...or, my theory as to why the Yankees win so many championships is. We are only concerned with theories in the strong sense here.

Theories might be divided into scientific and non-scientific. The latter might be further divided into empirical and conceptual.

### Scientific Theories

A scientific theory is empirical, falsifiable and possesses predictive power, e.g., the wave theory of light, the theory of evolution, and the Big Bang theory. Scientific theories are essentially concerned with discovering the mechanisms by which Nature functions.

Scientific theories attempt to understand the world of observation and sense experience. They attempt to explain how the natural world works. A scientific theory must have some logical consequences we can test against Nature by making predictions based on the theory. The exact nature of the relationship between making predictions and being tested is something about which philosophers of science widely disagree, however (Kourany, 1997).

### non-scientific empirical theories

A non-scientific empirical theory attempts to explain some range of empirical phenomena but is not falsifiable, and has no predictive power, e.g. Freud's theories of repression and of the Oedipus complex.

### Conceptual Theories

A conceptual theory is non-scientific and non-empirical. Some conceptual theories are explanatory, e.g., metaphysical theories such as creationism, materialism or dualism. Like all conceptual theories, creationism, materialism and dualism cannot be empirically tested. They are not falsifiable nor do they have any predictive value. Each theory is logically coherent. That is, there are no logical contradictions in believing that everything real is physical, nor is there anything contradictory in believing that there are two fundamental realities, one physical and one spiritual. There is nothing contradictory in believing that the universe has a Creator, nor is atheism inherently self-contradictory. Each theory is consistent with what we know about the world. Everything that can be explained by spirits or non-physical realities can be explained by materialism. Nonetheless, neither materialism nor dualism can be empirically tested; thus, neither can be empirically confirmed in any meaningful way. Nothing in the universe we can explain by a Creator can't also be explained without reference to a Creator. On the other hand, conceptual theories cannot be refuted, either. There is no way one could prove that theism or atheism, or materialism or dualism is false by appeal to empirical evidence. Furthermore, everything that could be said about the value and validity of materialism and atheism applies equally to the theory of dualism and theism.

Some conceptual theories are prescriptive, e.g., ethical theories such as utilitarianism. They declare what ought to be rather than try to explain what is.

### Testing Theories

Generally speaking, a non-scientific theory is tested by its utility, its logical coherence (i.e., the compatibility of the concepts which make up the theory), and its consistency with what we know about the world and with other beliefs.

Non-scientific theories, if they are coherent, are consistent with every imaginable state of affairs in the universe. It is not surprising, then, that many non-scientific theories are put forth dogmatically. They are not offered to be tested, but to be accepted as infallibly true.

Empirical observations can be used to test scientific theories, but not non-scientific theories. Empirical facts may be consistent with either type of theory, but since empirical facts cannot refute a logically coherent non-scientific theory, such facts cannot be used to test such theories.

### Facts and Scientific Theories

To the uninformed public, facts contrast with theories. However, scientific theories vary in degree of certainty from the highly improbable to the highly probable. That is, there are varying degrees of evidence and support for different theories, i.e., some are more reasonable to accept than others. But even the most reasonable scientific theory is not absolutely certain. On the other hand, so-called 'facts' are not absolutely certain, either. Facts involve not only easily testable perceptual elements; they also involve interpretation. One sign that an idea is not empirical or scientific is the claim that the idea is infallibly certain and irrefutable. An idea which is infallibly certain cannot be empirically tested. Claims of infallibility and the demand for absolute certainty characterize not science but metaphysics and pseudoscience.

The history of science, however, clearly shows that scientific theories do not remain forever unchanged. The history of science is not the history of one absolute truth being built upon other absolute truths. Rather, it is, among other things, the history of theorizing, testing, arguing, refining, rejecting, replacing, more theorizing, more testing, etc. It is the history of theories working well for awhile, anomalies occurring (i.e., new facts being discovered which do not fit with established theories), and new theories being proposed and eventually replacing the old ones partially or completely.

A theory that assumes it is errorless is not a scientific theory. We should remember that science, as Jacob Bronowski put it, "is a very human form of knowledge....Every judgment in science stands on the edge of error.... Science is a tribute to what we can know although we are fallible" (Bronowski, 374). "One aim of the physical sciences," he said, "has been to give an exact picture of the material world. One achievement of physics in the twentieth century has been to prove that aim is unattainable" (353). Bronowski made his point about the human quality of scientific knowledge in a most poignant manner. For the televised version of his *Ascent of Man*, he went to the concentration camp and crematorium at Auschwitz. Millions of Jews, homosexuals and other 'undesirables' were murdered and cremated there by the Germans during World War II. Some of those executed were Bronowski's relatives. Standing in a pond where the ashes were dumped, and grabbing a handful of muck, he said

It is said that science will dehumanize people and turn them into numbers. That is false, tragically false. Look for yourself. This is the concentration camp and crematorium at Auschwitz. This is where people were turned into numbers. Into this pond were flushed the ashes of some four million people. And that was not done by gas. It was done by ignorance. When people believe that they have absolute knowledge, with no test in reality, this is how they behave. This is what men do when they aspire to the knowledge of gods (374).

Scientific knowledge is human knowledge and scientists are human beings. They are not gods, and science is not infallible. Yet, the general public often thinks of scientific claims as absolutely certain truths. They think that if something is not certain, it is not scientific and if it is not scientific, then any other non-scientific view is its equal. This misconception seems to be, at least in part, behind the general lack of understanding about the nature of scientific theories.

### Scientific Theories and Postmodernism

Another common misconception is that since scientific theories are based on human perception, they are necessarily relative and therefore do not really tell us anything about the real world. Science, according to certain "postmodernists" cannot claim to give us a true picture of what the empirical world is really like; it can only tell us how it appears to scientists. There is no such thing as scientific truth. All scientific theories are mere fictions. However, just because there is no one, true, final, godlike way to view reality, does not mean that every viewpoint is as good as every other. Just because science can only give us a human perspective, does not mean that there is no such thing as scientific truth. When the first atomic bomb went off as some scientists had predicted it would, another bit of truth about the empirical world was revealed. Bit by bit we are discovering what is true and what is false by empirically testing scientific theories. To claim that those theories which make it possible to explore space are "just relative" and "represent just one perspective" of reality, is to profoundly misunderstand the nature of science, scientific knowledge, and scientific theories.

### Theories of Human Behavior

There is wide disagreement as to what can be a subject for scientific theorizing. The behavior of gasses or particles can be a subject for science, but can human behavior be a subject for science? There is much disagreement here among philosophers and practitioners of the social sciences, viz., psychology,

sociology, history, and related fields. Is human behavior reducible to a set of principles or laws, just as the behavior of particles or waves is? Is human behavior reducible to observable phenomena or to the observable effects of lawful and regular phenomena? If so, human behavior can be the subject of scientific theorizing. If not, then no matter how empirical the study of human behavior is, it cannot be scientific. If human will, desire, and motivation cannot be reduced to principles of regularity, then human behavior is essentially different from the behavior of anything else in nature and cannot be the subject of scientific theorizing. But even if there can be no science of human behavior, there can still be explanations and theories of human behavior, whether they be psychological, sociological, or historical. Those explanations can be very heavily empirical, but because such theories are not falsifiable, they are non-scientific.

### Pseudoscientific Theories

Pseudoscientific theories are not another kind of theory, to be evaluated along with scientific and conceptual theories. Pseudoscientific theories, such as so-called scientific creationism, are theories that are not scientific but claim to be. They claim to be based on empirical evidence, and they may even use scientific methods, but either they are essentially not falsifiable or their adherents refuse to accept evidence which falsifies the theory. Pseudoscientists relish being able to point out the consistency of their theories with the known facts or with predicted consequences, but they do not recognize that such consistency is not proof of anything. For example, "the truth of the hypothesis that plague is due to evil spirits is not established by the correctness of the deduction that you can avoid the disease by keeping out of the reach of the evil spirits" (Beveridge, 118). Likewise, the fact that a dowser sometimes finds water does not prove he is using paranormal powers when he does.

### Theosophy

"We assert that the divine spark in man being one and identical in its essence with the Universal Spirit, our "spiritual Self" is practically omniscient, but that it cannot manifest its knowledge owing to the impediments of matter. Now the more these impediments are removed, in other words, the more the physical body is paralyzed, as to its own independent activity and consciousness, as in deep sleep or deep trance, or, again, in illness, the more fully can the inner Self manifest on this plane. This is our explanation of those truly wonderful phenomena of a higher order, in which undeniable intelligence and knowledge are exhibited. " [Madame Blavatsky]

"...we are imprisoned in the body, like an oyster in his shell." [The Socrates of Plato, Phaedrus]

To the philosopher, the body is "a disturbing element, hindering the soul from the acquisition of knowledge..."

"...what is purification but...the release of the soul from the chains of the body?" The Socrates of [Plato, Phaedo]

Theosophy, or divine wisdom, refers either to the mysticism of philosophers who believe that they can understand the nature of God by direct apprehension, without revelation, or it refers to the esotericism of eclectic collectors of mystical and occult philosophies who claim to be handing down the great secrets of some ancient wisdom.

Theosophical mysticism is indebted to Plato (c. 427-347 BCE), Plotinus (204/5-270) and other neo-Platonists, and Jakob Boehme (1575-1624), among others. It experienced its last great Western philosophical burst in 19th century German Idealism. The mystical tradition continues to be a strong element in many non-Western philosophies, such as Indian philosophy.

Theosophic esotericism begins with Helena Petrovna Blavatsky (1831-1891) usually known as Madame Blavatsky, one of the co-founders of the Theosophical Society in New York in 1875. The esoteric theosophical tradition of Blavatsky is indebted to several philosophical and religious traditions: Zoroastrianism, Hinduism, Gnosticism, Manichaeism, the Cabala, among others.

Her harshest critics consider Madame Blavatsky to be "one of most accomplished, ingenious, and interesting impostors in history." Her devoted followers consider her to be a saint and a genius. [They claim she discovered the true nature of light either by clairvoyance or intuition alone, without any need for scientific training or communication with other scientists.] Since these characteristics are not contradictory, it is possible she was both a fraud and a saintly genius. Much of what is believed about Blavatsky originates with Madame herself, her devoted followers or her enemies. Nevertheless, a few things seem less dubious than others. She seems clearly to have been widely traveled and widely read. Blavatsky claims she spent several years in Tibet and India being initiated into occult mysteries by various

"masters" (mahatmas or adepts) especially the Masters Morya and Koot Hoomi, who had "astral" bodies. These Adepts were said to dwell in the Himalayas, Egypt, Tibet and other exotic places. They are known for their extraordinary psychic powers and are the sacred keepers of some mysterious "Ancient Wisdom". They are not divine, she said, but more highly evolved than the rest of us mere mortals. (Evolution, according to Blavatsky, is a spiritual process.) Their goal is to unite all humanity in a Great White Brotherhood, despite the fact that they dwell in the remotest regions of the world and apparently have as little contact with the rest of us as possible.

#### Blavatsky's Deceptions

Blavatsky seems clearly to have had an overpowering personality. She was knowledgeable of the tricks of spiritualists, having worked for one in Egypt, and in the early days of the Theosophical Society seems clearly to have used trickery to deceive others into thinking she had paranormal powers. She most certainly faked the materialization of a tea cup and saucer, as well as written messages from her Masters, presumably to enhance her credibility. She certainly claimed to have paranormal experiences, but whether she really believed she was clairvoyant or possessed psychic powers, I can't say.

In 1875 she founded the Theosophical Society in New York City in collaboration with Henry Steele Olcott, a lawyer and writer, and W. Q. Judge. She met Olcott in 1874 while he was investigating the spiritualism of the Eddy brothers in Vermont. They continued to meet with other like-minded seekers and together founded their society. A few years later, she and Olcott went to India together and established Theosophical headquarters there. She left under a cloud of suspicion in 1885, having been accused of faking materializations of teachings from her Masters. Back in Europe in 1888 she published her major work *The Secret Doctrine*. The book "is an attempt...to reconcile science, the Ancient Wisdom, and human culture through...cosmology, history, religion, and symbolism." (Ellwood) According to Blavatsky herself, "The chief aim of the...Theosophical Society [was] to reconcile all religions, sects and nations under a common system of ethics, based on eternal verities."

She did not reject religions such as Christianity and Hinduism, but claimed that all religions have an exoteric and an esoteric tradition. The exoteric traditions are unique and distinct for each religion. The esoteric doctrine is the same for all. She claimed to be passing on the wisdom of the shared esoteric doctrines. And even though she had an early association with spiritualism, she eventually claimed that "the spirits of the dead cannot return to earth -- save in rare and exceptional cases...."

One might wonder why, if Theosophy is so ancient and universal, it was so unknown until 1875. Madame had an answer. This was due to "willing ignorance". We humans have lost "real spiritual insight" because we are too devoted to "things of sense" and have for too long been slaves "to the dead letter of dogma and ritualism." "But the strongest reason for it," she said, "lies in the fact that real Theosophy has ever been kept secret." There were several reasons why it was kept secret. "...Firstly, the perversity of average human nature and its selfishness, always tending to the gratification of personal desires to the detriment of neighbours and next of kin. Such people could never be entrusted with divine secrets. Secondly, their unreliability to keep the sacred and divine knowledge from desecration. It is the latter that led to the perversion of the most sublime truths and symbols, and to the gradual transformation of things spiritual into anthropomorphic, concrete, and gross imagery -- in other words, to the dwarfing of the god-idea and to idolatry." [The Key to Theosophy] One wonders, what in the world was any different in the late 19th century? If at that time humans were any less perverse, selfish, materialistic, profane, etc., than they had ever been, this should come as a great shock to all social historians.

#### Ancient Wisdom

What was this "Ancient Wisdom" which the theosophists promised to share? It is truly an eclectic compilation of Hindu, Egyptian, Gnostic and other exotic scriptures and teachings, neo-Platonism, and stories like the Atlantis myth. These are philosophies and stories for those who shake and quiver at the sound of such words as secret, special, spiritual, enlightenment, transformation, esoteric, occult, divine, ancient wisdom, cosmic, vision, dynamics, golden, Isis, mysteries and masters. They promise escape from the evils of the world, especially the body, while providing an explanation for Evil. They claim to know that the reason spiritual progress is so slow in coming is because of all this horrible stuff in the universe called "matter." They promise the power of divinity while providing an explanation for miracles which takes them out of the realm of the supernatural and puts the believer into the center of the spiritual universe. They promise union with some great moral purpose while offering membership in an isolated society of very special beings. But, probably the biggest attraction to joining such an esoteric society is that you don't have to go to college and you don't have to read Kant.

What you do need, though, is a penchant for the occult. This is dangerous stuff, according to Blavatsky, but theosophy can help.

When ignorant of the true meaning of the esoteric divine symbols of nature, man is apt to miscalculate the powers of his soul, and, instead of communing spiritually and mentally with the higher, celestial beings, the good spirits (the gods of the theurgists of the Platonic school), he will unconsciously call forth the evil, dark powers which lurk around humanity -- the undying, grim creations of human crimes and vices -- and thus fall from theurgia (white magic) into goetia (or black magic, sorcery). [What Is Theosophy?]

According to Madame, "...no one can be a true Occultist without being a real Theosophist; otherwise he is simply a black magician, whether conscious or unconscious. " She even thought that mesmerism and hypnotism were occult arts.

Occult sciences are not, as described in Encyclopaedias, "those imaginary sciences of the Middle Ages which related to the supposed action or influence of Occult qualities or supernatural powers, as alchemy, magic, necromancy, and astrology," for they are real, actual, and very dangerous sciences. They teach the secret potency of things in Nature, developing and cultivating the hidden powers "latent in man," thus giving him tremendous advantages over more ignorant mortals. Hypnotism, now become so common and a subject of serious scientific inquiry, is a good instance in point. Hypnotic power has been discovered almost by accident, the way to it having been prepared by mesmerism; and now an able hypnotizer can do almost anything with it, from forcing a man, unconsciously to himself, to play the fool, to making him commit a crime -- often by proxy for the hypnotizer, and for the benefit of the latter. Is not this a terrible power if left in the hands of unscrupulous persons? And please to remember that this is only one of the minor branches of Occultism. [The Key to Theosophy]

Blavatsky may have understood the secret of the divine essence, but I don't think she understood the nature of hypnosis or mesmerism. However, I believe she was right when she claimed that "...the ecstatic trance of mystics and of the modern mesmerists and spiritualists, are identical in nature, though various as to manifestation." [What Is Theosophy?] I believe that none of these so-called "trance" states is a unique state of consciousness, though they are states of mind, states governed by social role-playing rules, a position argued for by many contemporary psychologists including Nicholas P. Spanos.

#### Where Are The Plaudits?

The reader may wonder why theosophy isn't universally recognized as the salvation of mankind. For some it may have been the messenger which kept them away. Many people are not likely to take seriously a Russian noblewoman who claimed to have had childhood visions of a tall Hindu who eventually materialized in Hyde Park and became her guru and advisor. Many skeptics scoff at her noble origins and subsequent employment as a circus performer and séance assistant, plus we take seriously the charges of deception for whatever noble motive. For others, it may be the doctrines which keep us away. Despite the stated moral goals, and the desire for peace on earth and good will toward men and women, there is the small problem of astral bodies, evolution of spiritual races, Aryans, paranormal powers, Atlantis, the so-called Ancient Wisdom, etc. To some this may seem better than the Incarnation, transubstantiation and the Trinity, but to skeptics this is just more metaphysical codswallop. Finally, others may be repelled by the self-discipline required of theosophy.

...the foremost rule of all is the entire renunciation of one's personality -- i. e., a pledged member has to become a thorough altruist, never to think of himself, and to forget his own vanity and pride in the thought of the good of his fellow-creatures, besides that of his fellow-brothers in the esoteric circle. He has to live, if the esoteric instructions shall profit him, a life of abstinence in everything, of self-denial and strict morality, doing his duty by all men.

"...every member must be either a philanthropist, or a scholar, a searcher into Aryan and other old literature, or a psychic student." (The Key to Theosophy)

It is not an easy life, pursuing the path of the mahatmas and the Ancient Wisdom, striving to unite all humankind into a Great Brotherhood of spiritually evolved beings with secret knowledge of such great vacation spots for astrals as Atlantis. Plus, perhaps there were inconsistencies or inadequacies in the secret doctrines, as the group seemed to splinter and dissipate after the death of Madame. Her dream of a Brotherhood of Man remains a dream, although there are Theosophical societies all over the world.

#### Therapeutic Touch

Therapeutic touch (TT) is soon to be offered in a hospital near you, if it is not already on their menu of "complementary" medicines. My sources tell me that the practice is the rage among Canadian nurses and it is becoming more popular in the United States, where alternative medicine is seen as a penumbral right emanating from the rights to free speech and miracles. I have no objection to a consenting adult taking any kind of medicine or treatment he or she wants. If a rational adult wants to fart at the sun at high noon to dissolve his tumors, let him. If he wants to pay some shaman from another planet to do the farting and



howling, that's his business. But when he wants to use our tax dollars or insurance dollars to pay for it, then it becomes our business, too.

Your government has given the University of Alabama at Birmingham (UAB) Burn Center over \$350,000 to study therapeutic touch on burn victims. Actually, the Pentagon is spending our money on this project under the aegis of a wonderful sounding institution: the Uniformed Services University of the Health Sciences (USUHS). And, actually the therapeutic touch shamans aren't going to touch the burn victims; these "alternative health practitioners" will wave their hands over them and act "as a human energy support system until the person's own immunological system is robust enough to take over." Those words are from the grant proposal. If you want to read about this "scientific" study, pick up a copy of the July/August 1996 issue of the *Skeptical Inquirer* or read the on-line documents.

Of course, the skeptic faces a dilemma whenever confronted with a metaphysical and/or pseudoscientific theory which is to be scientifically tested. If we criticize the methods, protocols, standards or results of the study, we are accused of having an a priori bias against anything that doesn't fit with traditional science. Furthermore, in the case of New Age spiritual healing methods, we are up against a growing segment of the public who are armed with anecdotes as proof that the healing works. If anyone has an a priori bias in these matters, it is the advocates of the alternative therapies. They set out to prove what they already "know" from experience is true. They do not begin with the null hypothesis, attempting to disprove a causal connection between TT and some specific healing or cure.

Skeptics do not oppose, a priori, empirical studies, but we are opposed to spending tax dollars on allegedly "scientific" tests of metaphysical notions. We do not support spending tax money to test claims which are based upon metaphysical assumptions that contradict fundamental scientific facts and theories. Finally, we do not support spending tax dollars on proposals written up by people whose grant proposals exhibit an egregiously distorted misunderstanding of basic scientific facts, theories and testing protocols. If a private party wants to spend an entire fortune trying to build a perpetual motion machine or get a rabbit to give birth to a human, let them. It's their money and they can spend it as wisely or as foolishly as they wish. But when someone wants to spend tax dollars on a study, I expect that what is being tested is an empirical matter and that it is based upon accepted scientific theories, facts and protocols. I do not want my money being spent on so-called scientific tests of non-empirical matters. It is logically impossible to do an empirical test of a non-empirical claim. It is possible, for example, to test whether sticking a needle in a person's ear can be a significant causal factor in quitting smoking. But it is not possible to test the claim that sticking a needle in person's tongue can unblock his chi, his spiritual energy which runs in a parallel universe to the bodily universe, and put his yin and yang in balance. In short, if a phenomenon cannot be observed except subjectively by "feeling", then we cannot do a scientific study of the phenomenon.

Furthermore, skeptics do not want our tax dollars spent on tests of ideas which are based on theories which either contradict current scientific knowledge or are based on an egregious misunderstanding of such knowledge. I maintain that TT is based on both non-empirical beliefs and a bizarre interpretation of quantum physics. On the one hand, I would hope that the Pentagon has scientists deciding who gets grants to study scientific matters, but if they do, then they must be madder than Alice's hatter. On the other hand, I hope the Pentagon does not have scientists who give grants to study things such as TT, for at least then we can say that the military's USUHS is simply as misguided as some of their missiles.

What do the people who practice and advocate TT have to say about it? Here is what the UAB grant claims:

TT "is based on the assumption of a human energy field which extends beyond the skin. The idea behind TT is that the human energy field is abundant and flows in balanced patterns in health but is depleted and/or unbalanced in illness or injury..."

Central to the practice is the assumption of a human energy field and an environment filled with 'life energy' which is also present in all living organisms...."

Hmm. Are the "human energy field" and the "life energy" the same thing? Are they measurable by some sort of instruments or they pseudoscientific terms to replace the admittedly occult notion of auras? What is the nature of this energy? Is it electromagnetic? Or is it unobservable, something metaphysical and mysterious like chi? According to the grant writers:

"Support for this view is based entirely on a field world view....Quantum theory states that all of reality is made up of energy fields and that over 99% of the universe is simply space....Our present technology does not allow the measurement of the human energy field, but to a trained sense, primarily touch, the human energy field can be perceived and assessed."

On the one hand, we are supposed to believe that TT is grounded in quantum physics, an accepted set of scientific theories and facts. On the other hand, we are supposed to believe that the "human energy field" TT is based on can't be measured by current technology. Furthermore, we are supposed to believe that there are some people who can be trained to "feel" these energy fields. Not only can they "feel" the field; they can measure it, too. They can "assess" what they "feel." Well, I guess I am just the dumb one here for

not seeing the empirical and scientific nature of these concepts. But it seems to me a bit dangerous to rely on the feelings of someone who thinks what they are feeling is due to their ability to measure energy fields no scientist has ever heard of and who thinks these energy fields are the ones of interest to quantum physics. Would you let such people work on your cars, much less your body? I wouldn't even let them near my garage.

But perhaps I am too hasty in my evaluation of the energy field theory which is the basis of TT. Rebecca Witmer has written an article for Healing Arts magazine titled "Hands that Heal: The Art of Therapeutic Touch." Ms. Witmer is an administrator for a large insurance company with an interest in self-care and alternative health.

Derived from several ancient healing practices, including the laying on of hands, TT is a consciously-directed process of energy exchange during which the practitioner uses the hands as a focus to stimulate and enhance the patient's own natural healing ability. In its contemporary form, Therapeutic Touch was developed by Dolores Krieger, Ph.D., R.N., (Professor Emerita of New York University) and her mentor, Dora Kunz, in the early nineteen seventies. TT is now practiced by thousands of health care professionals and laypeople worldwide. Popular among nurses in many Canadian hospitals and nursing homes, TT is taught at over 80 universities and hospitals and has been incorporated into the College of Nurses of Ontario 1990 Implementation Standards of Practice. TT has been the subject of numerous doctoral dissertations and masters theses, and in early 1994, the U.S. National Institute of Health awarded a research grant to study TT. For a fledgling alternative health practice, TT has garnered immeasurable respect and interest.

But does TT deserve this immeasurable respect and interest? Is it really immeasurable? If so, then it is much like the energy fields the TTers are supposedly channeling. What is the empirical basis of TT? According to Ms. Witmer

The underlying principles upon which this technique is based include acceptance of the Einstein paradigm of a complex, energetic field-like universe (i.e., the existence of a Life energy flowing through and around all of us). Further, if life is characterized by an interchange of various qualities of energy, it can be assumed that any form of obstruction -- either within the organism or between the organism and the environment -- is contrary to Nature's tendencies and therefore unhealthy. In practicing Therapeutic Touch, one attempts to influence this energy imbalance towards health to restore the integrity of this field. In this way the TT practitioner does not so much "heal" the patient as facilitate the patient's own healing processes, by gently manipulating the body's energy flow and adjusting it as a whole. With the achievement of balance in mind, body and spirit, we have a truly holistic approach.

Now let's carefully examine these claims and the inferences drawn from them. Einstein, as far as I know, did not have a paradigm, much less a model or a theory, which included the notion of "a Life energy flowing through and around all of us." He may have written of interchanges of quantities of energy and many physicists have written of such things as transforming mechanical energy into electrical energy, for example, but as far as I know neither Einstein nor any other notable physicist ever wrote of life being characterized as an interchange of qualities of energy. I wonder if Einstein would even understand the expression "life is an interchange of qualities of energy"? I know I don't and I wish Ms. Witmer would explain the notion, for she must understand it. After all, she knows what may be logically inferred from this notion: any form of obstruction within the organism or between the organism and the environment is contrary to Nature's tendencies and therefore unhealthy. How she knows this, I have no idea. I don't think she even knows how she knows this, for she says that "if life is characterized by an interchange of various qualities of energy, it can be assumed that any form of obstruction -- either within the organism or between the organism and the environment -- is contrary to Nature's tendencies and therefore unhealthy."

What she seems to be saying is that since we have made one assumption, we may as well make another. Or maybe she is saying that since we claimed Einstein as the source for our first idea, we can assume anything we want after that! Who could fault such logic? In any case, let's examine these new notions, for whether they are assumptions or inferences from the false Einsteinian notion, they are either absolutely true or utter gibberish or absolutely false. It might be true that an obstruction within an organism is contrary to Nature's tendencies if by that we mean such things as blockage of an air passage is unhealthy or blocked arteries are unhealthy. Still, if I have either one of those problems I want a surgeon to unblock the passageway, not a mystic to wave her hands over me to move my energy field.

On the other hand, it seems clearly false to claim that it is contrary to Nature's tendencies for there to be an obstruction between an organism and its environment. If anything is more natural than obstructions between organisms and their environment, I don't know what it is. For most organisms, their environment is mostly obstructions. Whether this is healthy or unhealthy, I can't say, but it seems obviously true nonetheless.

Finally, what does it mean to say that it is unhealthy to go contrary to Nature's tendencies? Are the hurricane, the tornado, the volcano, the flood, the lightning bolt and the earthquake contrary to Nature's tendencies? How could they be, since they are part of Nature as we know it. If we could prevent these natural forces from destroying life and the environment, would that be "unhealthy"?

The "theory" of TT appears to be little more than a hodgepodge of ancient beliefs about life forces and a butchered version of quantum physics. I would hope any scientific committee in its right mind when approached by anyone wanting money to test this theory would be shown the back door. It is a metaphysical theory masquerading as one grounded in science. In short, it is a paradigm of a pseudoscience: a theory claiming to be scientific when it is not. Yet, over \$350,000 tax dollars are being spent to "test" this theory! The "test" is a howler, by the way. One group of patients will get "real" TT and what is being called the control group will get "fake" TT. I have no doubt that the Pentagon will get their money's worth or at least what they deserve.

Now, one might wonder why a group of otherwise intelligent, highly trained professionals such as nurses would be attracted to something like TT. Ms. Witmer might have the answer. She writes

Those who practice Therapeutic Touch often report reaping benefits for themselves. For example, the ability of TT to reduce burnout in health care professionals has been well-documented.

I can understand the benefits. You have powers physicians don't have. Secret, mystical powers which only you can measure. No one can prove you are wrong. You become the shaman and you find that people believe in you. You like that. You get a lot of positive feedback. You network and those in your network feed off of each other's enthusiasm. You feel revitalized, empowered.

Furthermore, you may actually be on to something. You find that patients aren't necessarily turned off by your weird notions. In fact, you find that patients are willing to try anything to help them get better. They begin asking for TT. Soon they'll be demanding it. You have found that you can even placate skeptics by saying things like "what harm can it do?"

Try this bit of visualization, if you will. In the future, hospitals will be packed inside and out with people praying, vibrating, waving colored sticks, chanting, burning incense, sending out good vibes, etc. Doctors and nurses won't be able to find a parking space because they'll all be used by New Age spiritual healers who are helping out. Or, more realistically, visualize this: hospitals offer more and more untested and untestable New Age spiritual healing "modalities" as part of their comprehensive "complementary medicine" plan. Gibberish becomes a marketing strategy. The patients want these New Age treatments. What harm will it do to offer them along with the traditional offerings. The competition's going to do it. And, who knows, maybe some day the government will require you to offer every alternative health care technique known on this or any other planet under its new "fairness" guidelines.

But enough of this negativity! I have made a resolution to look for a silver lining in every cloud and so I offer this possibility as the good that has come and will come from TT and other New Age modalities. It brings patient and health care practitioner together as person to person. It is very soothing and contrasts greatly with the often cold and impersonal way we are treated by our physicians and in hospitals. Maybe it will lead to a change in the way many physicians treat their patients. Maybe more physicians will begin treating their patients as human beings with feelings, hopes, desires and anxieties, as well as a body with parts that might be broken or malfunctioning. Maybe traditional medicine will become a bit more humane. If so, maybe fewer people will feel a need for TT and its sisters.

Some might say that I have ignored the anecdotes. Well, it is true that I don't put much weight on testimonials. Nevertheless, I'll mention just one. Someone posted a story on the WWW at <http://www2.corenet.net:80/numer/healing.html> (the link is now dead, as is, I suspect, the patient in the story) called cancer treatment by TT. It is the story of the author's uncle who was told by his doctor that he had cancer, that the two months of radiation therapy he had been getting had done no good and he had 2 months to live. Let's assume the doctor was an oncologist and he made such a specific prediction. The author claims that his uncle was told this some nine months ago but he is now "alive and well" because a spiritual healer treated his cancer with TT. Here is how it works

The healer directs his energy to the patient's body without touching it wave by wave. In our case he would place his hands over my uncle's chest and then move them in a slow motion around his lungs for about 30 minutes.

It is possible the doctor was wrong in his prediction of how long his patient had to live. Maybe this error will teach the doctor not to be so cocksure in his predictions in the future. Or maybe the uncle and his nephew misunderstood the doctor, who may have stated his prediction in a qualified way, such as, "my best guess is..." or "based on similar cases I have had, I would estimate...." It is also possible that the doctor was wrong about the effectiveness of the radiation therapy. It is possible that the cancer went into spontaneous remission. It is possible that his uncle was misdiagnosed and mistreated and he is alive only because his doctors had given him up for dead. It is possible the author is lying. It is also possible that TT worked in this case. But what seems more probable?

Let's just assume for a minute that there are people out there who can move electrons with laser powers in their fingers, for that seems to be what they should be able to do if they are altering the energy fields

quantum physics talks about. How do these people make it through the day? Wouldn't anything they get near be in danger of having its molecular structure changed? Wouldn't atomic explosions follow them along their mystical paths as they release all that pent up energy in the subatomic world? Wouldn't objects all around them be constantly transforming due to their energy displacements? Shouldn't they be able to walk through walls? In short, shouldn't we be able to identify those with these powers very easily? If the powers allegedly utilized by the practitioners of TT are as real as they say they are, would we really have to spend any money to test them?

On the other hand, maybe there is another explanation for the power of Bob Gibson's fastball. He didn't throw the ball by the batter; he threw it through their bats! The miracle was that he was able to halt his special power in the instant between the ball's going through the bat and arriving in the catcher's mitt. I always thought there was something supernatural about his fastball. Maybe there was.

In conclusion, we should note that 9-year old Emily Rosa tested 21 TT practitioners to see if they could even feel energy when they could not see its source. The test was very simple and seems to clearly indicate that the subjects could not detect the energy of the little girl's hands when placed near theirs. If they can't detect the energy, what are they detecting? It seems that TT is another in a long list of cases of self-deception based on wishful thinking and confirmation bias.

### Thought Field Therapy

Thought field therapy (TFT) is a type of cognitive therapy dressed up in the garb of traditional Chinese medicine. It was developed in 1981 by Dr. Roger Callahan, a cognitive psychologist. While treating a patient for water phobia, he asked her to think about water as he tapped her stomach. He claims that the patient claimed that she suddenly overcame her lifetime fear of water. He attributes the cure to his tapping, which he thinks unblocked "energy" in her stomach meridian.

TFT allegedly "gives immediate relief for PTSD [post traumatic stress disorder], addictions, phobias, fears and anxieties by directly treating the blockage in the energy flow created by a disturbing thought pattern. It virtually eliminates any negative feeling previously associated with a thought."\*

The theory behind TFT is that negative emotions cause energy blockage and that if the energy is unblocked then the fears will disappear. Tapping acupuncture points is thought to be the means of unblocking the energy. Allegedly, it only takes five to six minutes to elicit a cure. Dr. Callahan claims an 85% success rate. He even does cures over the phone using "Voice Technology" on infants and animals; by analyzing the voice he claims he can determine what points on the body the patient should tap for treatment.

For \$145 and one day of your time, Dr. Callahan's staff will train you to successfully treat people suffering from post traumatic stress disorder, trauma, phobias and addictions. The training is restricted to "licensed or certified mental health, medical professionals, social workers, massage therapists, acupuncturists, or homeopathic physicians actively employed in their field."

For \$280 and two days of your time, Dr. Callahan's staff will train you to also successfully treat people with obsessive compulsive disorder, depression, and panic attacks.

Dr. Callahan has a theory that thoughts have fields and these fields have an effect on the body. He also claims that there is a one-to-one correspondence (isomorphism) between perturbations caused by negative emotions and specific energy meridian points on the body. He claims to know the exact algorithm (where to tap) for each kind of perturbation. How he knows any of this is not clear, though it appears he made up the theory to fit with ancient Chinese beliefs in chi and meridians, and he seems to have figured out the algorithms by trial and error. He seems not to have done any controlled studies to rule out confirmation bias. He relies on anecdotes to support his beliefs and hence he cannot be sure that the effects he observes are not due to standard cognitive therapy techniques (including having the patient think about what frightens him or her) rather than to the tapping on particular pressure points.

### Thoughtography

(a.k.a. Psychic Photography)

Thoughtography is the use of the mind to transfer one's thoughts onto photographic film.

Thoughtography was made popular by psychiatrist Dr. Jule Eisenbud. He wrote a book about Chicago bellhop Ted Serios who claimed he could make images appear on Polaroid film just by thinking of an image.

Since the publication of Jule Eisenbud's *The World of Ted Serios: 'Thoughtographic' Studies of an Extraordinary Mind* others have claimed to be able to perform this feat.

James Randi, magician and debunker of all things paranormal, claims that psychic photography is actually trickery done using a handheld optical device (Randi 1982, 222ff.; 1995, 233).

For an explanation as to how a Freudian psychiatrist (presumably a well-educated man) could be deceived by such trickery (assuming he was deceived), see the following: communal reinforcement, confirmation bias, control study, the post hoc fallacy, selective thinking, self-deception, subjective validation, and wishful thinking.

Of course, it is possible that Mr. Serios does have powers that would, as James Randi put it, require rewriting all the laws of physics. The odds and the evidence seem against it, however.

#### Tomato Effect

The tomato effect is the rejection of effective medical treatments because they do not make sense in light of accepted theories of disease mechanism and drug action. The term was coined by Drs. James and Jean Goodwin. It reflects their view that there is a parallel between the rejection of effective medical treatment and the rejection of tomatoes years ago because they were thought to be poisonous when in fact they are nutritious.

According to the Goodwins, "the tomato effect is in its own way every bit as influential in shaping modern therapeutics as the placebo effect." Recognizing the reality of the tomato effect might not prevent future errors, they said, but it "may at least help us better understand our mistakes."

#### Trance Writing

Trance writing is writing "without consciousness," as if in a trance, quickly and without judgment, whatever comes to mind. Allegedly, this method allows one to tap into the subconscious mind, the true self, where uninhibited by the conscious mind, deep and mystical thoughts can be accessed.

Trance writing is used by some writers who think it helps them get at deep and cosmic truths that are censored by consciousness.

Trance writing is also used by some psychotherapists who think it is a quick way to release repressed memories. There is no scientific evidence that trance writing has any therapeutic value.

#### Transcendental Meditation (TM)

"As a student at Maharishi University of Management you discover that when you experience transcendental consciousness, you are experiencing the ocean of consciousness or intelligence, which is at the basis of the life and evolution of the universe."

"Over 500 scientific studies conducted at more than 200 universities and research institutions in 33 countries have documented the benefits of Transcendental Meditation (TM) for mind, body, behavior, and environment." [The Transcendental Meditation (TM) Program at Maharishi University of Management]

An interesting claim, since "transcendental consciousness" is not a scientific concept, but a metaphysical one.

Transcendental Meditation (TM) is a set of Hindu meditation techniques introduced to the western world by Maharishi Mahesh Yogi. TM (which letters are trademarked and patented!) allegedly brings the practitioner to a special state of consciousness often characterized as "enlightenment" or "bliss." The method involves entertaining a mantra, an allegedly special expression which is often nothing more than the name of a Hindu god.

The TM movement began in 1956 in India and is now worldwide, claiming more than 4 million followers, though the actual number of TM advocates is probably much smaller. Many know of TM because of the Beatles, who hung around with Maharishi in the late sixties. It may be that the Beatles found that money and fame weren't all they're made out to be, and like many others, they turned to the East for help in

finding their way to happiness and fulfillment. Many in the Western world have turned to India out of dissatisfaction with drugs and the emphasis on money, power and fame which seems to dominate our culture's values. Drugs only get you so high and they often have unpleasant side-effects, such as turning one into a drug-dependent slave. Meditation offers a way to a high higher than any drug, as well as a trip with pleasant side-effects such as feeling good rather than stressed out.

One of the main appeals of TM has been its claim to be a scientific means to overcoming stress. TM claims to be based on the "Science of Creative Intelligence," in which one may get a graduate degree at the Maharishi University of Management (formerly Maharishi International University) in Fairfield, Iowa, which offers "a Full Range of Academic Disciplines for Successful Management of All Fields of Life . " It is also the basis for a number of health and beauty products for sale to those who want a perfect body to go with the perfect mind.

TM recruiting literature is full of charts and graphs demonstrating "scientifically" the wonders of TM. Things like metabolic rate, oxygen consumption rate, bodily production of carbon dioxide, hormone production, brain waves, etc. are measured and charted and graphically presented to suggest that TM really takes a person to a new state of consciousness. The truth is that most TM `scientists' do not do controlled experiments and, in fact, are on par with most parapsychologists when it comes to experimental design and controls, namely, incompetent, if not fraudulent. Or, the studies are trivial: you can get some of the same physiological results by relaxing completely. Though, according to TM advocates, tests have shown that TM produces "neurophysiological signatures that are distinctly different from relaxation and rest. "[Judy Stein, personal correspondence] Critics disagree, however, and cite other studies suggesting that TM may be hazardous to your health. For example, a German study done in 1980 found that three-fourths of long-term meditators experienced adverse health effects. I would be cautious in drawing any strong conclusions from this study, however, not only because the same group was small but because TM attracts people who are stressed out and are seeking relief. Thus, many of those who have physical or psychological problems after meditating may have had them before they started meditating. Thus, for some, meditation may not have caused their problems, but it didn't relieve them, either.

Probably the least believable claim of TMers was that they can fly--well, not really fly, more like hover. TM was big on levitation in the early days. You may have seen TV news clips of groups of TMers hopping around in the lotus position, claiming to be flying. Apparently, this claim was too easily disproved and now TMers do not claim to be able to fly or hover, though some advocates have maintained they can achieve a range of supernatural or paranormal powers through TM, including invisibility. This is not surprising, since TM is, after all, a religion. And, while many might be interested in TM mainly for the alleged health benefits, many have joined in order to find "God" or whatever you want to call Ultimate Reality.

One of the demonstrable powers claimed by TM is the "Maharishi effect." This is another so-called scientifically demonstrated fact: "collective meditation causes changes in a fundamental, unified physical field, and that those changes radiate into society and affect all aspects of society for the better." [Barry Markovsky] One TM study claimed that the Maharishi effect was responsible for reducing crime and accidents while simultaneously increasing crop production in the vicinity of Maharishi University in Fairfield, Iowa. James Randi checked with the Fairfield Police Dept, the Iowa Dept of Agriculture and the Dept of Motor Vehicles and found that the data of TM scientist who reported these fantastic facts was invented.\*

TM is, like other religious groups these days, heavily involved in politics. The Natural Law Party is TM's attempt to introduce its metaphysical teachings and practices into every aspect of American life: education, health, economics, prison reform, energy, the environment...they even have a policy on healthy foods.

There have also been attempts to introduce TM into public schools. For example, The March 1, 1995, edition of the Sacramento Bee (p. B4) reports that John Black, director of a TM program in Palo Alto, California, is trying to convince officials a few miles down the road in San Jose to let him teach TM in the schools. Meditation in the classroom, he claims, would increase test scores, reduce teenage pregnancies, rid campuses of violence and drugs and diminish teacher burnout. This powerful message was delivered at a free forum for teachers and meditators titled "Solving the Crisis in Our Schools."

It may be true that people such as John Black really believe that TM can do all these things, but they have no proof that TM in the schools will accomplish any of these noble goals. John Black says that "the crisis in the schools is that people are stressed out." He may be right, but school officials have wisely remained unconvinced. Even a newspaper ad in which Maharishi Mahesh Yogi himself offered "A Proven Program to Eliminate Crime in San Jose" for a mere \$55.8 million a year couldn't convince City Hall. Similar ads were placed in several cities. There were no takers.

And who said you can't trust City Hall!

\* The scientist who reported these lies was Dr. Robert Rabinoff, who claims to have a Ph.D. in physics, the subject he was hired to teach at MIU. See James Randi, *Flim-Flam!* (Buffalo, New York: Prometheus Books, 1982), pp. 99-108.

Judy Stein, however, defends Rabinoff as follows: "In any case, whether or not that one weather study of Rabinoff's was invalid (and it may well have been), you can't lay all the claims about and research on the Maharishi Effect at his door. He was a very minor player very early in the game, and the standards for TM research have risen significantly since his time.

Also I would question on general principles your use of the term "lie," which to most people implies deliberate falsehood rather than falsehood grounded in self-delusion or ignorance." [personal correspondence]

I would only add, that somebody lied, whether it was Rabinoff or those who fed him information. Anyway, Randi is not the first to accuse TM scientists of lying. And from what I have read, I do not trust the work of TM scientists, or any scientists, for that matter, who have a metaphysical agenda to support by their research.

### Transubstantiation

Transubstantiation is the alleged process whereby the bread and wine offered up at the communion service has its substance changed to that of the body, blood, soul and divinity of Jesus Christ while its accidents appear to be that of bread and wine. What looks like, tastes like, etc., bread and wine is actually another substance altogether. How this happens is a mystery. How it can happen would require a miracle.

Transubstantiation is also known as the real presence.

### Trepanation

"A genius is one to whom the knowledge of the difference between yes and no is innate."  
-- Dr. Bart Huges

Trepanation is the process of cutting a hole in the skull. According to John Verano, a professor of anthropology at Tulane University, trepanation is the oldest surgical practice and is still performed ceremonially by some African tribes. A trepanned skull found in France was dated at about 5,000 BCE. About 1,000 trepanned skulls from Peru and Bolivia date from 500 B.C.E. to the 16th century.\*

Bart Huges (b. 1934), a medical school graduate who has never practiced medicine except for a bit of self-surgery, believes that trepanation is the way to higher consciousness. He wanted to be a psychiatrist but failed the obstetrics exam and so never went into practice. Or, so he says. In 1965, after years of experimentation with LSD, cannabis and other drugs, Dr. Huges realized that the way to enlightenment was by boring a hole in his skull. He used an electric drill, a scalpel and a hypodermic needle (to administer a local anesthetic). The operation took him 45 minutes. And how does it feel to be enlightened? "I feel like I did when I was 14," says Huges.

What led Dr. Huges to believe that trepanation would lead to enlightenment? His first insight came when he was taught that he could get high by standing on his head. He came to believe that by permanently relieving pressure he could increase the flow of blood to the brain and achieve his goal. After he took a little mescaline, he soon understood what was going on. "I recognized that the expanded consciousness was attributed to an increase in the volume of blood to the brain." How has such a simple fact eluded scientists and mystics alike for so many millennia?

In the past, trepanation was apparently used either to relieve pressure on the brain caused by disease or trauma, or to release evil spirits. The former is still an accepted medical procedure. The latter has died out in those parts of the world where scientific understanding has replaced belief in invading demons. Huges has yet to command a large following of trepanners, but he has managed to attract a few supporters with holes in their heads. One of his most illustrious pupils was Amanda Fielding from Oxford, England, who not only lived through the filming of her self-surgery but also became a candidate for Parliament. She received 40 votes from the people of Chelsea in 1978 where she ran on the promise of free trepanation from the National Health Service.

Fielding maintains that having a hole in her head allows more oxygen to reach her brain and helps expand her consciousness. And it's safer than LSD. She claims she now has more energy and inspiration, and is on a "permanent natural 'high'." She claims the trepanned are "better prepared to fight neurosis and

depression and less likely to become prone to alcoholism and drug addiction."\* One could say that she is very open-minded.

### True-Believer Syndrome

The need to believe in phony wonders sometimes exceeds not only logic but, seemingly, even sanity.  
--The Rev. Canon William V. Rauscher

The true-believer syndrome merits study by science. What is it that compels a person, past all reason, to believe the unbelievable. How can an otherwise sane individual become so enamored of a fantasy, an imposture, that even after it's exposed in the bright light of day he still clings to it--indeed, clings to it all the harder?

--M. Lamar Keene

True-believer syndrome is an expression coined by M. Lamar Keene to describe an apparent cognitive disorder characterized by believing in the reality of paranormal or supernatural events after one has been presented overwhelming evidence that the event was fraudulently staged. Keene is a reformed phony psychic who exposed religious racketeering--to little effect, apparently. Phony faith healers, psychics, channelers, televangelist miracle workers, etc., are as abundant as ever.

Keene believes that "the true-believer syndrome is the greatest thing phony mediums have going for them" because "no amount of logic can shatter a faith consciously based on a lie." That those suffering from true-believer syndrome are consciously lying to themselves hardly seems likely, however. Perhaps from the viewpoint of a fraud and hoaxer, the mark who is told the truth but who continues to have faith in you must seem to believe what he knows is a lie. Yet, this type of self-deception need not involve lying to oneself. To lie to oneself would require admission that one believes what one knows is false. This does not seem logically possible. One can't believe or disbelieve what one knows. (Belief is distinct from belief in, which is a matter of trust rather than belief.) Belief and disbelief entail the possibility of error; knowledge implies that error is beyond reasonable probability. I may have overwhelming evidence that a "psychic" is a phony, yet still believe that paranormal events occur. I may be deceiving myself in such a case, but I don't think it is correct to say I am lying to myself. It is possible that those suffering from true-believer syndrome simply do not believe that the weight of the evidence before them revealing fraud is sufficient to overpower the weight of all those many cases of supportive evidence from the past. The fact that the supportive evidence was largely supplied by the same person exposed as a fraud is suppressed. There is always the hope that no matter how many frauds are exposed, at least one of the experiences might have been genuine. No one can prove that all psychic "miracles" have been frauds; therefore, the true believer may well reason that he or she is justified in keeping hope alive. Such thinking is not completely illogical, though it may seem pathological to the one admitting the fraud.

It does not seem as easy to explain why the true-believer continues to believe in, that is, trust the psychic once he has admitted his deception. Trusting someone who reveals he is a liar and a fraud is irrational and such a person must appear crazy to the hoaxer. Some of them may well be mad, but some may be deceiving themselves by assuming that it is possible that a person can have psychic powers without knowing it. Thus, one could disbelieve in one's psychic ability, yet still actually possess paranormal powers. Just as there are people who think they have psychic powers but don't really have any such powers, there are people who have psychic powers but think they don't.

In any case, there are two types of true believers, though they are clearly related. One is the kind Keene was referring to, namely, the type of person who believes in paranormal or supernatural things contrary to the evidence. Their faith is unshakeable even in the face of overwhelming evidence against them, e.g., those who refused to disbelieve in "Carlos" once the hoax was revealed. Keene's examples are mostly of people who are so desperate to communicate with the dead, that no exposé of fraudulent mediums (or channelers) can shake their faith in spiritualism (or channeling). The other is the type described by Eric Hoffer in his book *The True Believer*. This type of person is irrationally committed to a cause like murdering doctors who perform abortions or to a guru like Jim Jones.

True-believer syndrome may account for the popularity of Uri Geller, Sai Baba or James Van Praagh, but the term does not help us understand why people believe in the psychic or supernatural abilities of such characters, despite the overwhelming evidence that they are frauds and make their living by bilking people of great sums of cash. Since by definition those suffering from true-believer syndrome are irrationally committed to their beliefs, there is no point in arguing with them. Evidence and logical argument mean nothing to them. Such people are by definition deluded in the psychiatric sense of the term: they believe what is false and are incapable of being persuaded by evidence and argument that their notions are in error.

Clearly, if there is any explanation for true-believer syndrome, it must be in terms of the satisfaction of emotional needs. But why some people have such a strong emotional need to believe in immortality, racial



or moral superiority, or even that the latest fad in management must be pursued with evangelical zeal, is perhaps unanswerable. It may have to do with insecurity. Eric Hoffer seemed to think so. He said

The less justified a man is in claiming excellence for his own self, the more ready he is to claim all excellence for his nation, his religion, his race or his holy cause....

A man is likely to mind his own business when it is worth minding. When it is not, he takes his mind off his own meaningless affairs by minding other people's business....

The fanatic is perpetually incomplete and insecure. He cannot generate self-assurance out of his individual resources -- out of his rejected self -- but finds it only by clinging passionately to whatever support he happens to embrace. This passionate attachment is the essence of his blind devotion and religiosity, and he sees in it the source of all virtue and strength.... He easily sees himself as the supporter and defender of the holy cause to which he clings. And he is ready to sacrifice his life.

Hoffer also seemed to think that true-believer syndrome has something to do with the desire to give up all personal responsibility for one's beliefs and actions: to be free of the burden of freedom. Perhaps Hoffer is right for many of the more severe cases, but many of the lesser ones may have to do with little more than wishful thinking.

A study done by psychologists Barry Singer and Victor Benassi at California State University at Long Beach illustrates the will to believe in psychic powers in the face of contrary evidence. They brought in a performing magician, Craig Reynolds, to do some tricks for four introductory psychology classes. Two of the classes were not told that he was a magician who would perform some amateur magic tricks. They were told that he was a graduate student who claimed to have psychic powers. In those classes, the psychology instructor explicitly stated that he didn't believe that the graduate student or anyone else has psychic abilities. In the other two classes the students were told that the magician was a magician. Singer and Benassi reported that about two-thirds of the students in both groups believed Craig was psychic. The researchers were surprised to find no significant difference between the "magic" and "psychic" classes. They then made the same presentation to two more classes who were explicitly told that Craig had no psychic abilities and that he was going to do some tricks for them whereby he pretends to read minds and demonstrate psychic powers. Nevertheless, more than half the students believed Craig was psychic after seeing his act.

Singer and Benassi then asked the students whether they thought magicians could do exactly what Craig did. Most of the students agreed that magicians could. Then they asked the students if they would like to change their estimate of Craig's psychic abilities in light of the negative data they themselves had provided. A few did, reducing the percentage of students believing in Craig's psychic powers to 55 percent. Then the students were asked to estimate how many so-called psychics were really fakes using magician's tricks. The consensus was that most "psychics" are frauds. The students were again asked if they wished to change their estimate of Craig's psychic powers. Again, a few did, but the percentage believing in Craig's psychic powers was still a hefty 52 percent. [Benassi and Singer; Hofstadter]

For many people, the will to believe at times overrides the ability to think critically about the evidence for and against a belief.

### Unconscious Mind

The unconscious or subconscious mind, according to classical Freudian psychoanalysis, is a "part" of the mind which stores repressed memories. The theory of repression maintains that some experiences are too painful to be reminded of, so the mind stuffs them in the cellar. These painful, repressed memories manifest themselves in neurotic or psychotic behavior and in dreams. However, there is no scientific evidence either for the repression of traumatic experiences or their causal agency in neurotic or psychotic behavior.

The unconscious mind is also thought by some, such as Jung and Tart, to be a reservoir of transcendent truths. There is no scientific evidence that this is true.

It would be absurd to reject the notion of the unconscious mind simply because we reject the Freudian notion of the unconscious. We should recognize that it was Freud more than anyone else who forced us to recognize unconscious factors as significant determinants of human behavior. Furthermore, it seems obvious that much, if not most, of one's brain's activity occurs without our awareness or consciousness. Consciousness or self-awareness is obviously the proverbial tip of the iceberg. But most interest in the unconscious mind has been restricted to potentially harmful memories that might be stored or stirring there, memories of bad experiences that influence our conscious behavior even though we are unaware of their impact.

It is assumed that the unconscious is distinguished from the conscious by the fact that we are aware of conscious experience, but unaware of the unconscious. However, there is ample scientific data to establish as a fact that some conscious perception goes on without self-consciousness. It is possible to be unaware of having experienced something and unable to remember the experience, but still give evidence that one has had the experience. Several examples should suffice to establish this point.

1. blindness denial. There are cases of brain damaged people who are blind but who are unaware of it.
2. jargon aphasia. There are cases of brain damaged people who speak unintelligibly but aren't aware of it.
3. blindsight. There are cases of brain damaged people who see things but are unaware of it.
4. oral/verbal dissociation. There are cases of brain damaged people who cannot orally tell you what you just said, but they can write it down correctly. Furthermore, they can't remember what they wrote down or what it refers to.

Somehow it does not seem appropriate to speak of these cases as involving the unconscious mind, even though the perceivers are not aware of what they are perceiving. It might be less confusing to abandon talk of the unconscious mind and refer instead to "lost memory" or "implicit memory" or "fragmented memory." It is not repression of traumatic experiences which causes memories to be lost. Memories are lost because of inattentiveness in the original experience. Memories are incomplete because the original experience occurred at an age when the brain was not fully developed. Memories are lost because we have no recognizable need to reference the original experience. (Many fragments of pleasant experiences, such as the name of a place or a product, may be influencing present choices without one's being aware of it.) Memories are lost because of brain damage, loss of consciousness during an experience, neurochemical imbalance, cognitive restructuring, and sensory, emotional or hormonal overload. All the empirical evidence indicates that the more traumatic an experience the more likely one is to remember it. Novel visual images, which would frequently accompany traumas, stimulate the hippocampus and left inferior prefrontal cavity and will become part of long-term memory.

Neuroscience tells us that a memory is a set of connections among groups of neurons that participate in the encoding process. Encoding can take place in several parts of the brain. Neural connections go across various parts of the brain; the stronger the connections, the stronger the memory. Recollection of an event can occur by a stimulus to any of the parts of the brain where a neural connection for the memory occurs. If part of the brain is damaged, access to any neural data that was there is lost. On the other hand, if the brain is healthy and a person is fully conscious when experiencing some trauma, the likelihood that they will forget the event is near zero, unless either they are very young or they later experience a brain injury.

Long-term memory requires elaborative encoding in the inner part of the temporal lobes. If the left inferior prefrontal lobe is damaged or undeveloped, there will be grave difficulty with elaborative encoding. This area of the brain is undeveloped in very young children (under the age of three). Hence, it is very unlikely that any story of having a memory of life in the cradle or in the womb is accurate. The brains of infants and very young children are capable of storing fragmented memories, however. Such memories cannot be explicit or deeply encoded, but they can nevertheless have influence. In fact, there are numerous situations--such as cryptomnesia-- where memory can be manifested without awareness of remembering. But such unconscious memories, even though pervasive, are not quite what Freud or Jung meant by the unconscious. "In Freud's vision, unconscious memories are dynamic entities embroiled in a fight against the forces of repression; they result from special experiences that relate to our deepest conflicts and desires. . . . [I]mplicit memories . . . arise as a natural consequence of such everyday activities as perceiving, understanding, and acting." (Schacter, pp. 190-191) Implicit memory may be far more mundane than Freud's dynamic 'unconscious mind', but it is more significant since it reaches into every aspect of our lives. As Daniel Schacter notes: "If we're unaware that something is influencing our behavior, there is little we can do to understand or contradict it." (p. 191)

Most lost memories are lost because they were never elaborately encoded. Perception is mostly a filtering and defragmenting process. Our interests and needs affect perception, but most of what is available to us as potential sense data will never be processed. And most of what is processed will be forgotten. Amnesia is not rare but the standard condition of the human species. We do not forget in order to avoid being reminded of unpleasant things. We forget either because we did not perceive closely in the first place or we did not encode the experience either in the parietal lobes of the cortical surface (for short-term or working memory) or in the prefrontal lobe (for long-term memory).

To those whose lives are devoted to getting into the unconscious mind, either to find out why they have problems or to find some transcendent truth, I say you will be looking for a long, long time. You might better spend your time reading a book on memory or neuroscience.

Unicorns

The unicorn is a creature from fables, usually depicted as a white horse with a spiraled horn protruding from its forehead. The unicorn is also a symbol of virginity and in Christian iconography is sometimes used to represent the Virgin Mary. Medieval and Renaissance tapestries often feature the unicorn.

Cryptozoologists have been alerted to sightings of the unicorn throughout the world, but especially in India, where it was once thought to be a native beast.

## UFOs

(Unidentified Flying Objects)

"...nothing has come from the study of UFOs in the past 21 years that has added to scientific knowledge...further extensive study of UFOs probably cannot be justified in the expectation that science will be advanced thereby." -Edward U. Condon

A UFO is an unidentified flying object which has been identified as a possible or actual alien spacecraft. Such objects include meteors, disintegrating satellites, flocks of birds, aircraft, lights, weather balloons, and just about anything within the visible band of electromagnetism. So far, however, nothing has been positively identified as an alien spacecraft in a way required by common sense and science. That is, there has been no recurring identical UFO experience and there is no physical evidence in support of either a UFO flyby or landing.

There are as many photographs of UFOs as there are of the Loch Ness Monster, and they are of equal quality: blurs and forgeries. Other physical evidence, such as alleged debris from alien crashes, or burn marks on the ground from alien landings, or implants in noses or brains of alien abductees, have turned out to be quite terrestrial, including forgeries. The main reasons for believing in UFOs are the testimony of many people, the inability to distinguish science fiction from science, the ability to trust incompetent men telling fantastic stories, the ability to distrust all contrary sources as being part of an evil conspiracy to withhold the truth, and a desire for contact with the world above. In short, belief in UFOs is akin to belief in God.

"UFOlogy is the mythology of the space age. Rather than angels...we now have...extraterrestrials. It is the product of the creative imagination. It serves a poetic and existential function. It seeks to give man deeper roots and bearings in the universe. It is an expression of our hunger for mystery...our hope for transcendental meaning. The gods of Mt. Olympus have been transformed into space voyagers, transporting us by our dreams to other realms." --Paul Kurtz

Dr. J. Allen Hynek, astronomer, foremost proponent of UFOs, and the one who came up with the expression "close encounters of the third kind", defines a UFO as:

[T]he reported perception of an object or light seen in the sky or upon land the appearance, trajectory, and general dynamic and luminescent behavior of which do not suggest a logical, conventional explanation and which is not only mystifying to the original percipients but remains unidentified after close scrutiny of all available evidence by persons who are technically capable of making a common sense identification, if one is possible.

These mystifying words seem to say that when you see something which intelligent people cannot rationally explain, then you saw a UFO. Witnesses to such sightings often claim that what they saw could not be explained by the known laws of physics. They claim to have witnessed a violation of a law of nature, i.e., a miracle.

What Hynek considers to be "all available evidence" may be much less than what a skeptic would require. For example, the evidence appealed to by UFOlogists consists of (1) the testimony of people who claim to have seen aliens and/or alien spacecraft; (2) facts about the type of people who give the testimony; (3) the lack of contrary testimony or physical evidence that would either explain the sighting by conventional means (weather balloon, prank, meteor shower, reflection of light, etc.) or discredit the reliability of the eyewitness; and, (4) alleged weaknesses in the arguments of skeptics against the UFOlogists. The last item is irrelevant to the issue, yet it plays a disproportionately large role in UFOlogy.

Attacking an opponent's arguments or motives, instead of presenting positive evidence in defense of one's own view is common among defenders of the claim that UFOs are alien spacecraft. Of course, there is nothing wrong with attacking an opponent's argument and exposing weaknesses and faults thereby. But refutation is no substitute for support. It is simply faulty logic to assume that because an opponent's reasons are flawed, one's own reasons are valid. One's own reasons may be just as flawed as an opponent's, or even more flawed.

Another common tactic of UFOlogists is to claim that the skeptic cannot prove that what was seen was not an alien craft. One is supposed to infer from this fact that the perception probably was of an alien craft. This kind of reasoning is known as the argumentum ad ignorantiam. A claim does not become true or reasonable if a contrary claim cannot be proved to be true. With arguments for UFOs there are two distinct moves here. One is to claim that no logical explanation is possible because some scientist, pilot, Air Force Colonel, or Ph.D. cannot think of one. The other is to point to the lack of contrary evidence: no counter-testimony of other eyewitnesses, no proof that there were not aliens or alien spacecraft. Here, too, there is a logical error. The fact that some genius cannot come up with an explanation for something is irrelevant to whether or not the correct explanation should be couched in terms of visitors from outer space. The choice is not either (A) we know this conventional explanation is correct, or we must conclude that (B) aliens have visited us.

It seems more reasonable to believe that the only reason we cannot explain these sightings by conventional means is because we do not have all the evidence; it not because these sightings are probably due to alien visitations. If we had all the evidence, we would probably be able to explain the sightings by some conventional means. The fact that we cannot prove that Mr. and Mrs. Barney Hill were not abducted by aliens, does not support the hypothesis that they were abducted by aliens.

Many UFOlogists think that if eyewitnesses such as Whitley Strieber, Betty and Barney Hill, or other alleged alien abductees are not insane or evil, then they cannot be deluded and are to be trusted with giving accurate accounts of alien abduction. Yet, it seems obvious that most sane, good, normal people are deluded about many things and not to be trusted about certain things. While it is generally reasonable to believe the testimony of sane, good, normal people with no ulterior motive, it does not follow that unless you can prove a person is crazy, evil or a fraud that you should trust their testimony about any claim whatsoever. When the type of claim being made involves the incredible, additional evidence besides eyewitness testimony is required. Would it be reasonable to convict a paraplegic of a crime on the basis of the testimony of ten pillars of the community who said they saw the defendant flying naked with angel's wings and snatch the purse from a little old lady? It is much more reasonable to believe that good people are doing evil things, or that they are deluded, than to believe a paraplegic could sprout wings and fly.

UFOlogists would rather follow their faulty logic than accept the conclusions of Project Blue Book, the U.S. Air Force report which states that "after twenty-two years of investigation...none of the unidentified objects reported and evaluated posed a threat to our national security." UFOlogists are unimpressed with the Condon Report, as well. Edward U. Condon was the head of a scientific research team which was contracted to the University of Colorado to examine the UFO issue. His report concluded that "nothing has come from the study of UFOs in the past 21 years that has added to scientific knowledge...further extensive study of UFOs probably cannot be justified in the expectation that science will be advanced thereby."

It is assumed by UFOlogists that the government, especially the CIA, is lying and covering up alien landings and communication. However, there is no evidence for this other than a general distrust of the government and the fact that many government officials have lied, distorted the truth and been mistaken when reporting to the general public. The CIA, however, has shown little interest in UFOs since about 1950, except to encourage UFOlogists to believe that reconnaissance flights might be alien craft. UFOlogists prefer another kind of lie to the government lie. They support the work of NBC, for example, which produced two dozen programs called "Project UFO", said to be based on Project Blue Book. However, unlike the Air Force, NBC suggested that there were documented cases of alien spacecraft sightings. The programs, produced by Jack Webb of Dragnet fame, distorted and falsified information to make the presentation look more believable. No UFOlogist took NBC to task for lying. To the skeptic, NBC was pandering to the taste of the viewing audience. Government agents lie for all sorts of reasons, but covering up alien landings does not seem to be one of them.

Most unidentified flying objects are eventually identified as hoaxes or astronomical events, aircraft, satellites, weather balloons, or other natural phenomena. In studies done by the Air Force, less than 2% of UFO sightings remain unidentifiable. It is more probable that with more information those 2% would be identified as meteors, aircraft, etc., than that they are alien spacecraft.

The reason no logical explanation seems credible to UFOlogists is probably because those making and hearing the reports either do not want to hear a logical explanation or they make little or no effort to find one. In any case, the fact that some pilots or scientists claim they cannot think of any logical explanations for some perceptual observations is hardly proof that they have observed alien spacecraft.

Finally, it should be noted that UFOs are usually observed by untrained skywatchers and almost never by professional or amateur astronomers, people who spend inordinate amounts of time observing the heavens above. One would think that astronomers would have spotted some of these alien craft. Perhaps the crafty aliens know that good scientists are skeptical and inquisitive. Such beings might pose a threat to the security of a story well-told.

## Urantia Book

According to The Urantia Book Fellowship (UBF), The Urantia Book (UB) is an anthology of 196 'papers' indited between 1928 and 1935 by superhuman personalities.... The humans into whose hands the papers were delivered are now deceased. The means by which the papers were materialized was unique and is unknown to any living person.

The UB Fellowship was founded in 1955 as the Urantia Brotherhood and is an association of people who say they have been inspired by the "transformative teachings" of the UB. According to the UBF, these "superhuman personalities" are from another world. They synthesized the work of more than 1,000 human authors in a variety of fields, including an "astronomical-cosmological organization of the universe" unknown to modern science and an elaborate extension (700 pages) on the life of Jesus. The UB also reveals that the "Universe is literally teeming with inhabited planets, evolving life, civilizations in various states of development, celestial spheres, and spirit personalities." In short, the UB is over 2,000 pages of "revelations" from superhuman beings which "correct" the errors and omissions of the Bible. "Urantia" is the name these alleged superhumans gave to our planet. According to these supermortal beings, Earth is the 606th planet in Satania which is in Norlatiadek which is in Nebadon which is in Orvonton which revolves around Havona, all of which revolves around the center of infinity where God dwells.

Martin Gardner is skeptical of the UBF's claims. He believes the UB has very real human authors. Originally, he says, the UB was the "Bible" of a cult of separatist Seventh Day Adventists, allegedly channeled by Wilfred Kellogg and edited by founder William Sadler, a Chicago psychiatrist. According to Gardner, in addition to an array of bizarre claims about planets and names of angels, etc., the Urantia Book contains many Adventist doctrines. Sadler died in 1969 at the age of 94 but his spiritual group lives on. Sadler got his start working for Dr. John Harvey Kellogg, Adventist surgeon, health and diet author, and brother of cornflake king William Keith Kellogg. These are the same Kellogg brothers who were featured and lampooned in the movie "The Road to Wellville."

One can easily understand why Mr. Gardner would suspect that the UB has human rather than superhuman origins. The book has all the traits of humanity upon it. For example, our human philosophers and theologians are mimicked perfectly in passages such as the following:

The philosophers of the universes postulate a Trinity of Trinities, an existential-experiential Trinity Infinite, but they are not able to envisage its personalization; possibly it would equalate to the person of the Universal Father on the conceptual level of the I AM. But irrespective of all this, the original Paradise Trinity is potentially infinite since the Universal Father actually is infinite. (Foreword XII, The Trinities)

Any medieval casuist would be proud of such writing and thinking.

Primary supernaphim are the supernal servants of the Deities on the eternal Isle of Paradise. Never have they been known to depart from the paths of light and righteousness. The roll calls are complete; from eternity not one of this magnificent host has been lost. These high supernaphim are perfect beings, supreme in perfection, but they are not absonite, neither are they absolute. (Paper 27)

Some UBFers are attracted not so much to the theology, but to its great insights. Here are a few of those insights culled from paper 100, "Religion in Human Experience." Ask yourself if a superhuman being was necessary to reveal these gems.

The experience of dynamic religious living transforms the mediocre individual into a personality of idealistic power....

Give every developing child a chance to grow his own religious experience....

Religious experience is markedly influenced by physical health, inherited temperament, and social environment....

Spiritual development depends, first, on the maintenance of a living spiritual connection with true spiritual forces....

The goal of human self-realization should be spiritual, not material....

Human likes and dislikes do not determine good and evil; moral values do not grow out of wish fulfillment or emotional frustration....

Jesus was an unusually cheerful person, but he was not a blind and unreasoning optimist....

If the philosophical, theological or spiritual insights do not impress you, then you might want to consider the scientific insights of the UB, such as the resurrection of the pre-Adamite thesis of Isaac la Peyrère (1596-1676).

Not everyone agrees with Gardner's claim that the Urantia Book was channeled by Wilfred Kellogg. Ernest Moyer, for example, believes that the UB is a revelation from God that appeared "out of thin air" in fully developed form, exactly as we know it today. Moyer claims that Sadler was put through a lengthy process by our "planetary supervisors" in order to prepare him to accept the UB as true revelations. The process began by introducing Sadler to the Sleeping Subject (SS), whose nocturnal ramblings would later be understood to be preparatory messages from extraterrestrial "midwayers." According to Moyer, "SS was a member of the Chicago Board of Trade, a highly pragmatic, hard-nosed business man who did not believe in 'psychic' phenomena or any such nonsense." Why SS was selected for this task is unknown, but Moyer assures us that the midwayers never took over SS's mind and came only at night when SS was unconscious so as not to disrupt his life too much. Moyer contrasts this with the evil spirit who invaded Edgar Cayce during the daytime, a sure sign that Cayce was a false prophet. Sadler was selected, according to Moyer, because of his personality and training.

Moyer is convinced that we are on the verge of a nuclear holocaust and that the UB offers advice on how to save oneself from destruction and what to do afterward. This is all part of God's plan, as revealed to Sadler. According to Moyer, "God is using this technique to screen the human race."

It seems to me that God tried this once before with water instead of nuclear bombs. Well, if at first you don't succeed....

#### Urine Therapy

Drink water from your own cistern, flowing water from your own well. (The Book of Proverbs 5:15)

Urine therapy refers to one of several uses of urine to prevent or cure sickness, to enhance beauty or to cleanse one's bowels. Most devotees drink the midstream of their morning urine. Some prefer it straight and steaming hot; others mix it with juice or serve it over fruit. Some prefer a couple of urine drops mixed with a tablespoon of water applied sublingually several times a day. Hip New Agers no doubt prefer to take their dose with their evening salad tossed with Piss & Vinegar dressing, available at alternative specialty shops. Some wash themselves in their own golden fluid to improve their skin quality. Many modern Japanese women are said to engage in urine bathing. The truly daring use their own urine as an enema. Urine is not quite the breakfast of champions, but it is the elixir of choice of a number of holy men in India where drinking urine has been practiced for thousands of years. The drink is also the preferred pick-me-up for a growing number of naturopaths and other advocates of "nature cures." The main attractions of this ultimate home brew are its cost, availability and portability. It is much cheaper than that other "water of life," whisky (uisge beatha), which also has been hailed for its medicinal qualities. Unlike whisky, however, urine is always available, everyone carries a supply at all times, and, for most people, there are no intoxicating side effects. Furthermore, the urge to overindulge is almost absent when drinking urine. The same can't be said for good single malt such as Highland Park or a good whiskey such as Black Bush.

Many advocates claim that urine is a panacea. There is practically nothing it won't cure. Urine is said to be effective against the flu, the common cold, broken bones, toothache, dry skin, psoriasis and all other skin problems. It is said to deter aging and is helpful with AIDS, allergies, animal and snake bites, asthma, heart disease, hypertension, burns, cancer, chemical intoxication, chicken pox, enteritis, constipation, and pneumonia. Urine is said to be effective against dysentery, edema, eczema, eye irritation, fatigue, fever, gonorrhea, gout, bloody urine, small pox, immunological disorders, infections, infertility, baldness, insomnia, jaundice, hepatitis, Kaposi's sarcoma, leprosy, lymphatic disorder, urticaria, morning sickness, hangover, obesity, papilloma virus, parasitoses, gastric ulcer, rheumatism, birth marks, stroke, congestion, lumbago, typhus, gastritis, depression, cold sore, tuberculosis, tetanus, Parkinson's disease, foot fungus, diabetes and other endocrine related diseases. Some enthusiasts see urine therapy as a divine manifestation of cosmic intelligence. They use urine to unleash their kundalini, sending it straight into the third eye, bringing instant enlightenment.

With such wondrous properties, it is amazing that science bothered developing medicine when it had the key to good health already in the bottle, so to speak. Each of us is a walking pharmacopoeia. Homer Smith (Man and His Gods) once wrote that "man is a machine for turning wine into urine." Little did he know that man is a machine for turning just about anything into a medicinal tonic.

Despite the claims by authors of books on urine therapy, the scientific evidence which would recommend that we all start drinking our own urine is piss poor. According to urminophiles, the medical establishment has conspired to keep us ignorant of the wonder drug we all carry in our bladders. One self-proclaimed expert on the subject claims

...the medical community has already been aware of [urine's] astounding efficacy for decades, and yet none of us has ever been told about it. Why? Maybe they think it's too controversial. Or maybe, more accurately, there wasn't any monetary reward for telling people what scientists know about one of the most extraordinary natural healing elements in the world.\*

This is a common argument from defenders of alternative therapies: the greed of medical doctors leads them to conspire against chiropractors, chelation therapists, etc. The evidence for this conspiracy wouldn't fill a specimen beaker. Part of the alleged conspiracy to keep us ignorant of the wonders of our own wee is the fact that many people think urine is poisonous. Urine is generally not toxic and you will not die of uremic poisoning if you start your day off with a cup of your own golden fluid. However, it hardly seems fair to blame the medical establishment for the general public's ignorance on this matter. In any case, just because something is not toxic does not mean it is good for you. Hair is not toxic, either, and even though it might be a good source of fiber, it is generally not desirable to put hair in food.

Furthermore, while it is true that some of the constituents of urine are being used and tested for their potential or actual therapeutic value, it does not follow that drinking one's urine is therapeutic. It may be discovered that one of the chemicals in human urine is effective for fighting cancer. However, drinking one's own urine is not likely going to supply enough of any cancer fighting substance to do any good. It is also true that some of the substances in urine are good for you. For example, if you are ingesting more vitamin C (a water soluble vitamin) than your body needs or can process, you will excrete it in your urine. It doesn't follow that drinking your urine is a good way to get vitamin C into your body. An orange or a tablet might be preferable. However, if you are urinating excess vitamin C, what do you think your body will do with the vitamin C you ingest with your urine? If you guessed that it would get rid of it, you guessed right. The reason your urine contains vitamins and minerals is because your body didn't need them or couldn't use them. You might as well pour water into a full glass as reuptake your excess vitamins and minerals. Even urea, which can be toxic in very high doses, occurs in such minute quantities in the average person's urine that there is very little chance of poisoning from drinking one's own urine.

The origin of this unusual practice seems to be in certain religious rites among Hindus, where it is called amaroli in tantric religious traditions. The tantric tradition is known for its flouting of conventional behavior as a means of establishing the moral superiority of its practitioners. It is also possible that this practice is related to superstitions based on sympathetic magic. Since urine is emitted from the same bodily organ used in sex, perhaps it was thought that by drinking one's urine one was swallowing some sort of sexual energizer. In any case, it is unlikely that Indians some 4,000 years ago had scientific reasons for drinking their own urine.

Another rather unscientific notion which seems to be accepted by urinophiles is that urine is really blood, since it is the byproduct of blood filtering by the kidneys. It is unlikely that if you need a blood transfusion that urine will work just as well.

Another misleading claim being made by urinophiles is that amniotic fluid is nothing but urine: fetal urine. If it is good for the fetus, it should be good for all of us. Here is what urine expert Martha Christy has to say on the subject:

... the amniotic fluid that surrounds human infants in the womb is primarily urine. Actually, the infant "breathes in" urine-filled amniotic fluid continually, and without this fluid, the lungs don't develop. Doctors also believe that the softness of baby skin and the ability of in-utero infants to heal quickly without scarring after pre-birth surgery is due to the therapeutic properties of the urine-filled amniotic fluid.

Some of the chemicals found in amniotic fluid are not going to be found in most urine samples. It is misleading, to say the least, to claim that amniotic fluid is "primarily" urine. It would be more accurate to say that they are both primarily water. I don't know what doctors she is talking about, but most parents will tell you that when their babies came out of the womb their skin was anything but beautiful. Comparisons to wrinkly prunes are quite common. So is comparison to one's skin after being in the swimming pool for a long time. The baby's skin becomes soft only after it has been out of its liquid environment for some time. There is a reason for that, according to Kim Kelly, a naturopathic doctor and nurse from Seattle. Newborns don't produce oil from their sebaceous glands until several weeks after their birth, which is why they often appear to have dry, flaky skin. Rather than amniotic fluid contributing to soft skin, according to Kelly, babies in the womb are protected by vernix, a creamy substance that serves as a barrier between the baby and the amniotic fluid. So, unless your urine is full of vernix, using it as a skin lotion is unlikely to work as a moisturizer.

What is urine? Urine is usually yellow or clear, depending upon a person's health and diet. It usually has an ammonia-like odor due to the nitrogenous wastes that make up about 5% of the fluid (the remaining 95% is water). It is a slightly acidic fluid which carries waste from the kidneys to the outside world. The kidneys have millions of nephrons which filter toxins, waste, ingested water and mineral salts out of the bloodstream. The kidneys regulate blood acidity by excreting excessive alkaline salts when necessary. The chief constituent of the nitrogenous wastes in urine is urea, a product of protein decomposition. Urea is, among other things, a diuretic. Average adult urine production is from one to two quarts a day. The

bladder, where urine is stored for discharge, holds on average about 16-20 ounces of fluid, though the average discharge is about half that amount. In addition to uric acid, ammonia and creatine, urine consists of many other waste products in minute quantities.

Being a waste product does not mean that a substance is toxic or harmful. It means that the body cannot absorb the substance at the present time. We might think of many of urine's constituents as if they were leftovers from a meal. We could throw the excess food away or we could eat it later after diluting it substantially with water and putting it in the blender. With urine, unfortunately, we cannot ingest waste products in the form they had when first ingested.

For most people most of the time, one's own urine is not likely to be harmful. However, it is not likely to be healthful or useful except for those rare occasions when one is buried beneath a building or lost at sea for a week or two. In such situations drinking one's own urine might be the difference between life and death. As a daily tonic, there are much tastier ways to introduce healthful products into one's blood stream.

Also, unfortunately not everybody can just jump right in and start drinking their own urine without negative side effects. The Chinese Association of Urine Therapy warns that

Common symptoms include diarrhea, itch, pain, fatigue, soreness of the shoulder, fever, etc. These symptoms appear more frequently in patients suffering long term or more serious illnesses, and symptoms may repeat several times. Each episode may last 3-7 days, but sometimes it may last one month, or even worse over 6 months. It is a pity that many give up urine therapy because of such bad episode [sic]. Recovery reaction is just like the darkness before sunrise. If one persists and overcomes the difficulty, one can enjoy the eventual happiness of healthy life.

These same people advise that "All kinds of throat inflammation can be helped by gargling with urine to which a bit of saffron has been added" and "drinking one ounce of urine . . . is more beneficial to the average person than a fully staffed multi-billion dollar medical center." I was unable to find their evidence for these claims. Perhaps the evidence was produced at the First World Conference on Urine Therapy which took place in India in February 1996. Or maybe it came up in 1998 during the Second World Conference on Urine Therapy held in Germany.

Why do alternative therapies such as urine therapy become popular? Probably the main reason is that they seem to work. For any popular alternative therapy, there will always be a good number of testimonials from people who know they work. They know this because they have tried it and it "helped" or "cured" them of some malady. It does little good to point out to true believers that most of their ailments would have cured themselves and gone away had they done nothing at all to treat themselves. One's tooth pain or facial pimples may have gone away after drinking a cup of one's golden fluid, but that is not strong evidence that there was any causal connection between two events. (See the post hoc fallacy.) Likewise, you are not likely to dissuade a true believer by noting that many diseases go into remission for unknown reasons and that just because the remission occurred after drinking urine for a month, does not mean there is any causal connection. And you waste your breath trying to get a true believer to consider the possibility that to begin with they were misdiagnosed by their alternative practitioner. Thus they were never cured because there was never anything wrong with them.

Probably the most common reason for the "effectiveness" of alternative therapies is the placebo effect. Many maladies have a behavioral component, often connected to the subjective evaluation of one's pain. Belief affects behavior and behavior affects the body. Hence, if one believes in a therapy, it is often the case that one will feel better, or think one feels better and act as if one is better, even though there is no objective evidence in the form of urine or blood tests, x-rays, etc., which would prove that one is better. Furthermore, acting in a healthy way could cause objective, measurable improvements. In such cases, it would be misleading to say that the therapy was useless. However, it was not the therapy as such that led to improvement, but one's belief in the therapy. Some might say, what difference does it make since a cure is a cure? It might make all the difference in the world. First, there may not have been a cure after all. Just because one's mood improves does not mean one has been cured. Secondly, there might be a better therapy one is avoiding by using the "alternative" therapy. Thirdly, the relief might be temporary, while the better therapy might produce permanent or long-term relief. Fourthly, for those who are not helped by the alternative therapy, there might be grave consequences which could have been avoided had they been properly treated in the first place.

Finally, many people who use "alternative" therapies, use them in conjunction with traditional scientific medicine. They give credit to the "alternative" therapy if they improve and blame traditional medicine if they do not.

Vampires



Vampires are mythical creatures who overcome death by sucking the blood from living humans. The most common variation of the myth portrays the vampire as a dead person who rises from the grave at night to seek his victim from the realm of the sleeping. The vampire is a popular theme of film makers who have started with Bram Stokers's novel (Dracula) and added a number of variations to the theme, e.g., the ability to fly (like the vampire bat); a lust for beautiful women as victims who then become vampires upon being bitten; fear of the symbol of the Christian cross; repelled by garlic or garlic flowers; and death by sunlight or by a special stake driven through the heart (a fitting death for a character based on the 15th century warrior, Vlad the Impaler).

Legends of bloodsucking creatures are found in many cultures throughout history. One of the more popular bloodsuckers of our age is the chupacabra. The vampire is also a popular literary subject. Hence, there are numerous descriptions of the origin, nature, powers, etc. of vampires. What seems to be universal about vampire myths is their connection with the fear of death and the desire for immortality. The ritual drinking of blood to overcome death has been practiced by many peoples. The Aztecs and other Native Americans, for example, ate the hearts and drank the blood of captives in ritual ceremonies most likely to satisfy the appetite of their gods and gain for themselves fertility and immortality. Also typical were the rites of Dionysus and Mithras, where the drinking of animal blood was required in the quest for immortality. Even today, some Christians believe that their priests perform a magical transubstantiation of bread and wine into the body and blood of Christ to be eaten and drunk in the quest to join God in eternal life.

We might say we've made progress in our ritualistic quest to overcome death. First, we sacrificed humans and drank their blood to keep the gods alive and happy, or to join them in overcoming death. We later came to substitute bulls or other animals for humans to achieve our goal. Finally, we progressed to a vegetarian menu. Even so, the basic truth is depressing: for anything to live, something or someone else must die. Whether this truth sets you free or not depends, I suppose, on your place at or on the dinner table. Since we are deep into metaphors, we may as well note here that the vampire has become a metaphor for those who define and create themselves by destroying others. People whose lives center on destroying other people's lives by disempowering them, who reduce their victims to dependent subjects to be lorded over, have been called spiritual vampires. Some of the therapists, ministers and gurus I've written about elsewhere in the Dictionary could be called spiritual vampires, very aptly.

This cultural link between vampirism and the quest for immortality seems to have been subordinated in literature and film, where other themes, such as blood for blood's sake, fear for fear's sake, or entrance into the realm of the occult, seem to dominate. One sign of the cultural deterioration of our ancestor's noble quest for immortality can be seen in the modern secondary meaning of 'vampire': a woman who exploits and ruins her lover. Another example of deterioration can be seen in the numerous WWW sites on vampires which appeal to occult or New Age interests such as entering the so-called dark side of reality, gaining power, establishing a unique identity as a special person or selling commercial products and games.

Apparently, role playing and masquerading as vampires is not enough to satisfy the bloodlust of some people, and covens or cults of "vampires" have emerged among some occultists. They seek blood to give them power, a sexual rush, or to establish a unique and special fictional persona based on creating fear and mystery in others. Unlike our ancient ancestors, their power is not sought because of fear based on an ignorance and misunderstanding of nature, but on an ignorance and misunderstanding of themselves. Like other occult cults these vampire covens are attractive to the young and the weak.\* Those who seek instant and effortless strength and knowledge, hoping their new powers will lead them to a position of dominance, are drawn by the allure of the dark. Just a few years ago, such "vampyres" would have been considered ill or evil. Today, they are said to have an "alternative lifestyle."

\* "5 vampire cultists nabbed in killings," reads the headline of a story in the Sacramento Bee (November 29, 1996, p. A28). The five are all teenagers from a self-described "Vampire Clan" in Kentucky. They're wanted for the murders of Richard and Naomi Wendorf of Eustis, Florida. The 15-year-old daughter of the victims is one of the suspects, along with her boyfriend who was described by schoolmates as having boasted of immortality as a vampire.

Van Praagh, James

"...we [psychics] are here to heal people and to help people grow...skeptics...they're just here to destroy people. They're not here to encourage people, to enlighten people. They're here to destroy people."  
--James Van Praagh on Larry King Live, March 6, 2001

"Aren't you a bit surprised that the only message that the dead seem to be able to give to us is someone had a nickname Miss Piggy? And they can only tell us that, you know, I had a heart condition?...I want to hear just one of the psychics today tell me when is there going to be the next bus bombing in Tel Aviv so we can avoid going on that bus."

--Rabbi Shmuley Boteach, on Larry King Live, March 6, 2001

James Van Praagh is a self-proclaimed medium. He claims that he has a gift which allows him to hear messages from just about anyone, provided he or she is dead. Michael Shermer of Skeptic magazine calls Van Praagh "the master of cold-reading in the psychic world." Sociologist and student of anomalies, Marcello Truzzi of Eastern Michigan University, is less charitable. Truzzi has studied characters like Van Praagh for more than 35 years and he describes Van Praagh's demonstrations as "extremely unimpressive." ("A Spirited Debate," Dru Sefton, Knight Ridder News Service, The San Diego Union-Tribune, July 10, 1998, p. E1.)

According to Van Praagh, all the billions and billions and billions of dead people are just waiting for someone to give him their names. That's all it takes. Give Van Praagh a name, any name, and he will claim that some dead person going by that name is contacting him in words, fragments of sentences, or that he can feel their presence in a specific location. He has appeared on Larry King Live, where he claimed he could feel the presence of Larry's dead parents. He even indicated where in the room this "presence" was coming from. He took phone calls on the air and, once given a name, started telling the audience what he was "hearing" or "feeling". He fished for positive feedback and got it, indicating that he really was being contacted by spirits who wanted to tell the loved ones left behind in this vale of tears that being dead is good, that they love them, and that they are sorry and forgive them everything.

In Why People Believe Weird Things Shermer describes Van Praagh's success and how he wowed audiences on NBC's New Age talk show The Other Side. Shermer also tells us how he debunked Van Praagh on Unsolved Mysteries. Yet, none of the others in the audience was sympathetic to Shermer. One woman even told him that his behavior was "inappropriate" because he was destroying people's hopes in their time of grief.

Another devotee of Van Praagh is Charles Grodin, whose talk show on CNBC was cancelled shortly after Van Praagh's second appearance. Grodin demonstrated how open-minded, gullible, and devoted to his dead mother he is, as he fawned over the man who talks to heaven. Van Praagh's performance on Grodin's show was less than heavenly, but it was enough to satisfy Grodin and at least one couple in the audience who seemed to believe that their dead daughter was talking to Van Praagh. The only skepticism shown by Grodin was in wondering whether Van Praagh wasn't really reading the minds of the audience and the callers, rather than getting his messages from "the other side". The only person on the show who stated her doubts about the authenticity of Van Praagh's contact was a woman who lost a daughter to murder by terrorist Timothy McVeigh in the Oklahoma City bombing. She stated that nothing Van Praagh said rang true about her daughter except some generalities. The woman also claimed that her daughter communicates to her directly. I can understand and sympathize with the woman who believes her dead daughter talks to her, but I have no affection for Mr. Van Praagh. He plays a kind of twenty-questions game with his audience. He goes fishing, rapidly casting his baited questions one after the other until he gets a bite. Then he reels the fish in. Sometimes he falters, but most of the fish don't get away. He just rebaits and goes after the fish again until he rehooks. The fish love it.

When he can't get a good bite, he reminds his audience that sometimes the message is in fragments, sometimes he doesn't understand it, sometimes he misinterprets it, etc. If he's wrong, don't blame him since he never claimed to be perfect. Van Praagh seemed particularly inept to me on the Grodin show. Perhaps this is because I was looking for his tricks and already consider him a charlatan. Nevertheless, I think I can still appreciate good art, and he was not very artful. He used his usual bait: questions about girls and grandmothers, changes in the home, unresolved feelings, etc. He claimed to get messages about the usual stuff: angels, cancer, the heart, newspapers. What saves him much of the time are ambiguous questions that end with "am I right?" and the client saying "yes", though we have no idea what the "yes" is in response to.

More pathetic than Van Praagh, however, was Grodin, who practically asked for his guest's blessing as he thanked him for his wonderful work. I don't know what was wonderful about it. Although it did leave me wondering why there wasn't more skepticism shown. If this is the kind of response Van Praagh gets on a bad night, no wonder he is so popular. Grodin liked it so much that he invited Van Praagh back. James Randi was supposed to be interviewed by satellite during the second show, but Grodin apparently didn't want any skepticism cast upon his hopes to communicate with his dead mommy. Marcello Truzzi says that most of what Van Praagh gives out is "twaddle," but it is good twaddle since "what people want is comfort, guilt assuagement. And they get that: Your parents love you; they forgive you; they look forward to seeing you; it's not your fault they're dead." I guess I shouldn't begrudge Grodin his twaddle.

Van Praagh has a book out with a can't-miss title: Talking to Heaven. (Talking to God and Talking to Angels have already been taken.) And he has an adoring fan who has put up a WWW site to keep us informed of Van Praagh's books, tapes, upcoming products, tours and appearances. (Van Praagh has his own site, of course, and it is a bit dreamier than his admirer's page.) I predict continued success for Van Praagh, as long as he never never tells someone like Larry King on national television that Larry's parents forgive him for torturing them while they were alive. There is little chance of that happening, however. In an interview

with Dru Sefton, Van Praagh states that "there is no death, there is only life....every person is psychic or intuitive to a degree," and most spirits end up in heaven.

Currently, there is a three-year wait for a private session with Van Praagh. However, there may be some dissatisfaction in Heaven, as several others on earth are now getting messages from the dead, too. George Anderson, a former switchboard operator featured on CBS news, says the dead talk to him all the time. And John Edward now has his own talk-to-the-dead show on the Sci Fi Channel called "Crossing Over with John Edward." "At least they got the channel right for once. (Edward has been exposed as a fraud by James Randi [Skeptic, v. 8, no. 3] and Leon Jaroff [Time, March 5, 2001].)

## Velikovsky's Worlds in Collision

### Immanuel Velikovsky's Worlds in Collision

Reading something they can understand, that seems to make sense, that presents itself as technically competent, non-scientists are easily gulled by fake science. --Henry H. Bauer

In 1950, Immanuel Velikovsky published *Worlds in Collision*, a book which asserts, among many other things, that the planet Venus was a comet until rather recently. Such a claim, on its face, is not preposterous, nor would it be likely to raise much of a fuss among scientists were it proposed on the basis of scientific evidence and argument. Velikovsky argues for his claim, however, on the basis of cosmological myths of ancient peoples. The ancient Greeks, for example, believed that the goddess Athena (whom Velikovsky identifies with the planet Venus) sprang from the head of Zeus (whom Velikovsky identifies with the planet Jupiter). This myth, along with others from ancient China, India, Egypt, Israel, Mexico, etc., are used to support the claim that "Venus was expelled as a comet and then changed to a planet after contact with a number of members of our solar system" (Velikovsky, 182).

Furthermore, Velikovsky then uses his Venus-the-comet claim to explain several events reported in the Old Testament as well as to tie together a number of ancient stories about flies. For example,

Under the weight of many arguments, I came to the conclusion--about which I no longer have any doubt--that it was the planet Venus, at the time still a comet, that caused the catastrophe of the days of Exodus (181).

When Venus sprang out of Jupiter as a comet and flew very close to the earth, it became entangled in the embrace of the earth. The internal heat developed by the earth and the scorching gases of the comet were in themselves sufficient to make the vermin of the earth propagate at a very feverish rate. Some of the plagues [mentioned in Exodus] like the plague of the frogs...or of the locusts, must be ascribed to such causes (192).

The question arises here whether or not the comet Venus infested the earth with vermin which it may have carried in its trailing atmosphere in the form of larvae together with stones and gases. It is significant that all around the world people have associated the planet Venus with flies (193).

The ability of many small insects and their larvae to endure great cold and heat and to live in an atmosphere devoid of oxygen renders not entirely improbable the hypothesis that Venus (and also Jupiter, from which Venus sprang) may be populated by vermin (195).

Well, who can deny that vermin have extraordinary survival skills? But these cosmic hitchhikers are in a class all of their own, I think. How much energy would have been needed to expel a "comet" the size of earth and how hot must Venus have been to have only cooled down to its current surface temperature of 750o K during the last 3,500 years? To ask such questions would be to engage in scientific discussion, but one will find very little of that sort of discussion in *Worlds in Collision*. What one finds instead are exercises in comparative mythology, philology and theology which together make up Velikovsky's planetology. That is not to say that his work is not an impressive exercise and demonstration of ingenuity and erudition. It is very impressive, but it isn't science. It isn't even history.

What Velikovsky does isn't science because he does not start with what is known and then use ancient myths to illustrate or illuminate what has been discovered. Instead, he is indifferent to the laws of nature or he assumes that the laws of nature could have been different just a few millennia ago. And he seems to take it for granted that the claims of ancient myths should be used to support or challenge the claims of modern astronomy and cosmology. In short, like the creationists in their arguments against evolution, he starts with the assumption that the Bible is a foundation and guide for scientific truth. Where the views of modern astrophysicists or astronomers conflict with certain passages of the Old Testament, the moderns are assumed to be wrong. Velikovsky, however, goes much further than the creationists in his faith; for Velikovsky has faith in all ancient myths, legends and folk tales. Because of his uncritical and selective acceptance of ancient myths, he cannot be said to be doing history, either. Where myths can be favorably

interpreted to fit his hypothesis, he does not fail to cite them. The contradictions of ancient myths regarding the origin of the cosmos, the people, etc. are trivialized. If a myth fits his hypotheses, he accepts it and interprets it to his liking. Where the myth doesn't fit, he ignores it. In short, he seems to make no distinction between myth, legends and history.

If, occasionally, historical evidence does not square with formulated laws, it should be remembered that a law is but a deduction from experience and experiment, and therefore laws must conform with historical facts, not facts with laws (11).

Velikovsky's disciples consider him a genius. If so, he is a genius pseudoscientist and pseudohistorian.

He is certainly ingenious. Not only are his explanations of parallels among ancient myths very entertaining, interesting and apparently plausible, his explanation of universal collective amnesia of these worlds in collision is the one I find most amusing. Imagine we're on earth 3,500 years ago when an object about the same size as our planet is coming at us from outer space! It whacks us a couple of times, spins our planet around so that its orbit stops and starts again, creates great heat and upheavals from within the planet and yet the most anyone can remember about these catastrophes are things like "...and the sun stood still" [Joshua 10: 12-13] and other stories of darkness, storms, upheavals, plagues, floods, snakes and bulls in the sky, etc. No one in ancient times mentions an object the size of earth colliding with us. You'd think someone amongst these ancient peoples, who all loved to tell stories, would have told their grandchildren about it. And someone would have passed it on. But no one on earth seems to remember such an event.

Velikovsky explains why our ancestors did not record these events as they occurred in a chapter entitled "A Collective Amnesia." He reverts to the old Freudian notion of repressed memory and neurosis. These events were just too traumatic and horrible to bear, so we all buried the memory of them deep in our subconscious minds. Our ancient myths are neurotic expressions of memories and dreams based on real experiences.

The task I had to accomplish was not unlike that faced by a psychoanalyst who, out of disassociated memories and dreams, reconstructs a forgotten traumatic experience in the early life of an individual. In an analytical experiment on mankind, historical inscriptions and legendary motifs often play the same role as recollections (infantile memories) and dreams in the analysis of a personality (12).

By comparing his work to psychoanalysis, Velikovsky speak more truth than he imagined. The typically unscientific theories and fanciful explanations of psychoanalysis are only a bit harder to swallow than Velikovsky's own fancies. Both are rooted in imagination, pseudoscience and hubris.

It is not surprising that when one thumbs through any recent scientific book on cosmology, no mention is made of Velikovsky or his theories. His disciples blame this treatment of their hero as proof of a conspiracy in the scientific community to suppress ideas which oppose their own. The evil leader of this evil conspiracy is said to be Carl Sagan, one of my heroes. Another of my heroes, Stephen Jay Gould, is also considered to be part of this conspiracy against Velikovsky.

Charles Ginenthal wrote a book on Sagan and Velikovsky claiming Sagan made a "scathing" and deceitful attack on Ginenthal's hero.\* This same Ginenthal is part of another project to attack establishment science as conspiring to ruin and minimize Velikovsky: Stephen J. Gould and Immanuel Velikovsky, Essays in the Continuing Velikovsky Affair. What Sagan did was to treat Velikovsky as if he were a scientist making scientific claims. What was "scathing" about Sagan's arguments was that he demonstrated that the events Velikovsky described were extremely improbable. Velikovsky's defenders claim that Sagan was "dishonest" and knowingly did "bad science" to make Velikovsky look bad. Sagan never replied to these critics, as far as I know. By not even mentioning Velikovsky in his Science as a Candle in the Dark, Sagan seems to have turned up his nose at the Velikovskians, as if to say that they and their hero are insignificant now.

Sagan published a critique of Velikovsky's central claims some twenty-nine years after the publication of Worlds in Collision (Sagan, 81-127). In addition to the claims already mentioned above, Velikovsky claimed that the Venus-comet also caused the Nile to turn red, and produced earthquakes that leveled Egyptian (but not Hebrew) buildings. The comet also caused the Red Sea to part when the Israelites were being chased by the Egyptian army, allowing the former to escape. The comet also left a trail of hydrocarbons or carbohydrates (the text differs from place to place) in the sky, which fell on the desert for forty years, providing the wandering Jews with either bread or motor oil as their 'manna' from heaven.

According to Velikovsky, the comet also caused the Earth to stop rotating (when Joshua said the sun stood still), assisting Joshua in battle. The movement of Mars accounts for the destruction of the Assyrian army by the Israelites. Then, somehow, the Earth began rotating again exactly as before.

One of the characteristics of a reasonable explanation is that it be a likely story. To be reasonable, it is not enough that an explanation simply be a possible account of phenomena. It has to be a likely account. To be likely, an account usually must be in accordance with current knowledge and beliefs, with the laws and principles of the field in which the explanation is made. An explanation of how two chemicals interact, for

example, would be unreasonable if it violated basic principles in chemistry. Those principles, while not infallible, have not been developed lightly, but after generations of testing, observations, refutations, more testing, more observations, etc. To go against the established principles of a field puts a great burden of proof on the one who goes against those principles. This is true in all fields which have sets of established principles and laws. The novel theory, hypothesis, explanation, etc., which is inconsistent with already established principles and accepted theories, has the burden of proof. The proponent of the novel idea must provide very good reasons for rejecting established principles. This is not because the established views are considered infallible; it is because this is the only reasonable way to proceed. Even if the established theory is eventually shown to be false and the upstart theory eventually takes its place as current dogma, it would still have been unreasonable to have rejected the old theory and accepted the new one in the absence of any compelling reason to do so.

According to Sagan, some of Velikovsky's claims violate principles of Newtonian dynamics, laws of conservation of energy and angular momentum--all of which are rather firmly established in modern physics. Sagan argues against Velikovsky's claim that Jupiter ejected a comet which became Venus by examining the amount of kinetic energy needed for a body with the mass of Venus to escape from Jupiter's gravitational field. Sagan shows that the kinetic energy needed would heat the comet to several thousands of degrees. The 'comet' never would have gotten off the launching pad; it would have melted! If the melted 'comet' had been ejected into space, it would have been as a rain of "small dust particles and atoms, which does not describe the planet Venus particularly well" (Sagan, 97). Sagan also points out that escape from the gravitational field of Jupiter requires a velocity of at least 60 kilometers per second. But if the velocity is greater than 63 km/sec, the comet will be hurled out of our solar system. "There is only a narrow and therefore unlikely range of velocities consistent with Velikovsky's hypothesis" (Sagan, 98). Such energy is "equivalent to all the energy radiated by the sun to space in an entire year, and one hundred million times more powerful than the largest solar flare ever observed....We are asked to believe," says Sagan, "without any further evidence or discussion, an ejection event vastly more powerful than anything on the sun, which is a far more energetic object than Jupiter" (Sagan, 98).

The essence of Velikovsky's unreasonableness lies in the fact that he does not provide scientific evidence for his most extravagant claims, some of which turn out to be correct. His claims are based on assuming cosmological facts must conform to mythology. He rejects current physical laws on the grounds that they are not necessarily invariable. In general, he offers no support for the plausibility of his theory beyond an ingenious argument from comparative mythology. Of course, his scenario is logically possible, in the sense that it is not self-contradictory. To be scientifically plausible, however, Velikovsky's theory must provide some compelling reason for accepting it other than the fact that it helps explain some events described in the Bible or makes Mayan legends fit with Egyptian ones.

Now, whether Sagan treated Velikovsky unfairly or not, you will have to decide for yourself. Read Sagan's and Ginenthal's accounts, if you can bear to waste any more time on this issue. I suppose I should mention that Henry Bauer does not even mention Sagan in his lengthy entry on Velikovsky in the Encyclopedia of the Paranormal, unless he is making an oblique reference to Sagan when he writes about "some sloppy or invalid technical discussions by critics purporting to disprove Velikovsky's ideas." For my part, I had never heard of Velikovsky until I read Broca's Brain. What interested me about Sagan's account of Velikovsky was not the science, good or bad, honest or deceitful, done by Sagan, but the scientific indifference and incompetence of Velikovsky. What still interests me are those who offer theories as scientific but who seem ignorant or indifferent to what science is or what it has accomplished and established. Velikovsky seemed satisfied that his study of myths established events which science must explain, regardless of whether or not those events clashed with the beliefs of the vast majority of the scientific community. In this he is like L. Ron Hubbard proposing engrams which require cellular memory while not indicating that he was aware that this needed to be explained in light of current scientific knowledge about memory, the brain, etc. Both are like the so-called "creation scientists" who would create science anew if needed to justify the truth of their myths.

#### Victim Soul

But the goat, on which the lot fell to be the scapegoat, shall be presented alive before the LORD, to make an atonement with him, and to let him go for a scapegoat into the wilderness (Leviticus 16: 10).

And he shall make an atonement for the holy place, because of the uncleanness of the children of Israel, and because of their transgressions in all their sins: and so shall he do for the tabernacle of the congregation, that remaineth among them in the midst of their uncleanness (Leviticus 16: 16).

A victim soul is a person who suffers pain or sickness for another person. This notion is clearly related to the belief that Jesus of Nazareth redeemed humankind by suffering and dying for our sins. Christ as scapegoat probably goes back to the ancient Jewish custom of letting a goat loose in the wilderness on Yom Kippur after the high priest had (symbolically) laid upon the goat all the sins of the people (Leviticus 16).

According to the Most Rev. Daniel P. Reilly, Bishop of Worcester (Massachusetts), the concept of the victim soul was popular in the 18th and 19th centuries. He has set up a committee to investigate the claims that a young girl in his diocese, Audrey Santo, is a victim soul. The girl allegedly agreed with the Virgin Mary to be a victim soul when asked while on a pilgrimage to Medjugorje in Bosnia-Herzegovina (formerly part of Yugoslavia). At the time the girl was four-years old and in a comatose state due to an accident that had destroyed a good part of her brain a year earlier. Her mother, Linda Santo, had hoped for a miracle cure. Instead, she says, the Virgin Mary appeared to her daughter and talked to her about being a victim soul. Linda Santo claims that her daughter suffers so others can live and has turned her lifeless daughter into a living relic.

## Vitalism

Vitalism is the metaphysical doctrine that living organisms possess a non-physical inner force or energy that gives them the property of life.

Vitalists believe that the laws of physics and chemistry alone cannot explain life functions and processes. Vitalism is opposed to mechanistic materialism and its thesis that life emerges from a complex combination of organic matter.

The vitalistic principle goes by many names: chi or qi (China) prana (India and therapeutic touch), ki (Japan); Wilhelm Reich's orgone, Mesmer's animal magnetism, Bergson's élan vital (vital force), etc. English advocates much prefer the term energy. Many kinds of alternative therapies or energy medicines are based upon a belief that health is determined by the flow of this alleged energy. For examples, see Ayurvedic medicine, therapeutic touch, reiki, and qigong.

## von Däniken, Erich

### Ancient Astronauts and Erich von Däniken's Chariots of the Gods?

The term 'ancient astronauts' designates the speculative notion that aliens are responsible for the most ancient civilizations on earth. The most notorious proponent of this idea is Erich von Däniken, author of several popular books on the subject. His *Chariots of the Gods? Unsolved Mysteries of the Past*, for example, is a sweeping attack on the memories and abilities of ancient peoples. Von Däniken claims that the myths, arts, social organizations, etc., of ancient cultures were introduced by astronauts from another world. He questions not just the capacity for memory, but the capacity for culture and civilization itself, in ancient peoples. Prehistoric humans did not develop their own arts and technologies, but rather were taught art and science by visitors from outer space.

Where is the proof for von Däniken's claims? Some of it was fraudulent. For example, he produced photographs of pottery that he claimed had been found in an archaeological dig. The pottery depicts flying saucers and was said to have been dated from Biblical times. However, investigators from Nova (the fine public-television science program) found the potter who had made the allegedly ancient pots. They confronted von Däniken with evidence of his fraud. His reply was that his deception was justified because some people would only believe if they saw proof ("The Case of the Ancient Astronauts," first aired 3/8/78, done in conjunction with BBC's Horizon and Peter Spry-Leverton)!

However, most of von Däniken's evidence is in the form of specious and fallacious arguments. His data consists mainly of archaeological sites and ancient myths. He begins with the ancient astronaut assumption and then forces all data to fit the idea. For example, in Nazca, Peru, he explains giant animal drawings in the desert as an ancient alien airport. The fact that the lines of the drawing would be useless as a runway for any real aircraft because of their narrowness is conveniently ignored by von Däniken. The likelihood that these drawings related to the natives' science or mythology is not considered. He also frequently reverts to false dilemma reasoning of the following type: "Either this data is to be explained by assuming these primitive idiots did this themselves or we must accept the more plausible notion that they got help from extremely advanced peoples who must have come from other planets where such technologies as anti-gravity devices had been invented." His devotion to this theory has not dwindled, despite contrary evidence, as is evidenced by still another book on the subject, *Arrival of the Gods : Revealing the Alien Landing Sites at Nazca* (1998).

There have been many critics of von Däniken's notions, but Ronald Story stands out as the most thorough. Most critics of von Däniken's theory point out that prehistoric peoples were not the helpless, incompetent, forgetful savages he makes them out to be. (They must have at least been intelligent enough to understand the language and teachings of their celestial instructors--no small feat!) It is true that we still do not know how the ancients accomplished some of their more astounding physical and technological

feats. We still wonder how the ancient Egyptians raised giant obelisks in the desert and how stone age men and women moved huge cut stones and placed them in position in dolmens and passage graves. We are amazed by the giant carved heads on Easter Island and wonder why they were done, who did them, and why they abandoned the place. We may someday have the answers to our questions, but they are most likely to come from scientific investigation not pseudoscientific speculation. For example, observing contemporary stone age peoples in Papua New Guinea, where huge stones are still found on top of tombs, has taught us how the ancients may have accomplished the same thing with little more than ropes of organic material, wooden levers and shovels, a little ingenuity and a good deal of human strength.

We have no reason to believe our ancient ancestors' memories were so much worse than our own that they could not remember these alien visitations well enough to preserve an accurate account of them. There is little evidence to support the notion that ancient myths and religious stories are the distorted and imperfect recollection of ancient astronauts recorded by ancient priests. The evidence to the contrary--that prehistoric or 'primitive' peoples were (and are) quite intelligent and resourceful--is overwhelming.

Of course, it is possible that visitors from outer space did land on earth a few thousand years ago and communicate with our ancestors. But it seems more likely that prehistoric peoples themselves were responsible for their own art, technology and culture. Why concoct such an explanation as von Däniken's? To do so may increase the mystery and romance of one's theory, but it also makes it less reasonable, especially when one's theory seems inconsistent with what we already know about the world. The ancient astronaut hypothesis is unnecessary. Occam's razor should be applied and the hypothesis rejected.

## Waldorf Schools

### Anthroposophy, Rudolf Steiner and Waldorf Schools

The Austrian-born Rudolf Steiner (1861-1925) was the head of the German Theosophical Society from 1902 until 1912, at which time he broke away and formed his Anthroposophical Society. He may have abandoned the divine wisdom for human wisdom, but one of his main motives for leaving the theosophists was that they did not treat Jesus or Christianity as special. Steiner had no problem, however, in accepting such Hindu notions as karma and reincarnation. By 1922 Steiner had established what he called the Christian Community, with its own liturgy and rituals for Anthroposophists. Both the Anthroposophical Society and the Christian Community still exist, though they are separate entities.

It wasn't until Steiner was nearly forty and the 19th century was about to end that he became deeply interested in the occult. Steiner was a true polymath, with interests in agriculture, architecture, art, chemistry, drama, literature, math, medicine, philosophy, physics and religion, among other subjects. His doctoral dissertation at the University of Rostock was on Fichte's theory of knowledge. He was the author of many books and lectures, many with titles like *The Philosophy of Spiritual Activity* (1894), *Occult Science: An Outline* (1913), *Investigations in Occultism* (1920) and *How to Know Higher Worlds*. He was also much attracted to Goethe's mystical ideas and worked as an editor of Goethe's works for several years. Much of what Steiner wrote seems like a rehash of Hegel. He thought Marx had it wrong, that it really is the spiritual that drives history. Steiner even speaks of the tension between the search for community and the experience of individuality, which, he believed, are not really contradictions but represent polarities rooted in human nature.

His interests were wide and many but by the turn of the century his main interests were esoteric, mystical, and occult literature. Theosophists were sympathetic to occult and mystical beliefs. Steiner was especially attracted to two theosophical notions: (1) there is a special spiritual consciousness that provides direct access to higher spiritual truths; and (2) spiritual evolution is hindered by being mired in the material world.

Steiner may have broken away from the Theosophical Society but he did not abandon the eclectic mysticism of the theosophists. Steiner thought of his Anthroposophy as a "spiritual science." Convinced that reality is essentially spiritual, he wanted to train people to overcome the material world and learn to comprehend the spiritual world by the higher, spiritual, self. He taught that there is a kind of spiritual perception that works independently of the body and the bodily senses. Apparently, it was this special spiritual sense which provided him with information about the occult.

According to Steiner, people existed on Earth since the creation of the planet. Humans, he taught, began as spirit forms and progressed through various stages to reach today's form. Humanity, Steiner said, is currently living in the Post-Atlantis Period, which began with the gradual sinking of Atlantis in 7227 BC ... The Post-Atlantis Period is divided into seven epochs, the current one being the European-American Epoch, which will last until the year 3573. After that, humans will regain the clairvoyant powers they allegedly possessed prior to the time of the ancient Greeks (Boston).

Steiner's most lasting and significant influence, however, has been in the field of education. In 1913 at Dornach, near Basel, Switzerland, Steiner built his Goetheanum, a "school of spiritual science." This would be a forerunner of the Steiner or Waldorf schools. The term "Waldorf" schools comes from the school Steiner was asked to open for the children of workers at the Waldorf-Astoria cigarette factory in Stuttgart, Germany, in 1919. The owner of the factory had invited Steiner to give a series of lectures to his factory workers and apparently was so impressed he asked Steiner to set up the school. The first U.S. Waldorf school opened in New York City in 1928. Today, the Steinerians claim that there are more than 600 Waldorf schools in over 32 countries with approximately 120,000 students. About 125 Waldorf schools are said to be currently operating in North America. There is even a non-accredited Rudolf Steiner College offering degrees in Anthroposophical Studies or in Waldorf Education.

Steiner designed the curriculum of his schools around notions that he apparently got by special spiritual insight into the nature of Nature and the nature of children. He believed we are each comprised of body, spirit and soul. He believed that children pass through three seven-year stages and that education should be appropriate to the spirit for each stage. Birth to age 7, he claimed, is a period for the spirit to adjust to being in the material world. At this stage, children best learn through imitation, he said. (So did Aristotle, by the way.) Academic content is held to a minimum during these years. Children are told fairy tales, but do no reading until about the second grade. They learn about the alphabet and writing in first grade.

According to Steiner, the second stage of growth is characterized by imagination and fantasy. Children learn best from ages 7 to 14 by acceptance and emulation of authority. The children have a single teacher during this period and the school becomes a "family" with the teacher as the authoritative "parent".

The third stage, from 14 to 21, is when the astral body is drawn into the physical body, causing puberty. These anthroposophical ideas are not part of the standard Waldorf school curriculum, but apparently are believed by those in charge of the curriculum. Waldorf schools leave religious training to parents, but they tend to be spiritually oriented and are based on a generally Christian perspective.

Even so, because they are not taught fundamentalist Christianity from the Bible, Waldorf schools are often attacked for encouraging paganism or even Satanism. This may be because they emphasize the relation of human beings to Nature and natural rhythms, including an emphasis on festivals, myths, ancient cultures and various celebrations. The Sacramento Unified School District abandoned its plan to turn Oak Ridge Elementary into a Waldorf magnet school after many of the parents complained about it and at least one teacher complained of Satanism. The School District put the Waldorf program in a new location and is now being sued in federal court for violation of separation of church and state by PLANS, Inc., a group of Waldorf School Critics.

Some of the ideas of the Waldorf School are not Steiner's, but try to harmonize with the master's spiritual insights. For example, television viewing is discouraged because of its typical content and because it discourages the growth of the imagination. This idea is undoubtedly attractive to parents since it is very difficult to find anything of positive value for young children on television. When children are very young they should be socializing, speaking, listening, interacting with nature and people, not sitting in a catatonic trance before the boob tube. I don't know what the Waldorf teachers think of video games, but I would be very surprised if they didn't discourage them for their dehumanizing depictions of violent behavior as well as for their stifling of the imagination.

Waldorf schools also discourage computer use by young children. The benefits of computer use by children has yet to be demonstrated, though it seems to be widely believed and accepted by educators who spend billions each year on the latest computer equipment for students who often can barely read or think critically, and have minimal social and oral skills. Waldorf schools, on the other hand, may be as daffy over the arts as public schools are over technology. What the public school consider frills, Waldorf schools consider essential, e.g., weaving, knitting, playing a musical instrument, woodcarving, painting, etc

One of the more unusual parts of the curriculum involves something Steiner called "eurythmy," an art of movement that tries to make visible what he believed were the inner forms and gestures of language and music. According to the Waldorf FAQ, "it often puzzles parents new to Waldorf education, [but] children respond to its simple rhythms and exercises which help them strengthen and harmonize their body and their life forces; later, the older students work out elaborate eurythmic representations of poetry, drama and music, thereby gaining a deeper perception of the compositions and writings. Eurythmy enhances coordination and strengthens the ability to listen. When children experience themselves like an orchestra and have to keep a clear relationship in space with each other, a social strengthening also results."

Perhaps the most interesting consequence of Steiner's spiritual views was his attempt to instruct the mentally and physically handicapped. Steiner believed that it is the spirit that comprehends knowledge and the spirit is the same in all of us, regardless of our mental or physical differences.

Most critics of Steiner find him to have been a truly remarkable man, most decent and admirable. Unlike many other "spiritual" gurus, Steiner seems to have been a truly moral man who didn't try to seduce his followers and who remained faithful to his wife. There is no question that he made contributions in many



fields, but as a philosopher, scientist and artist he rarely rises above mediocrity and is singularly unoriginal. His spiritual ideas seem less than credible and are certainly not scientific. Some of his ideas on education, however, are worth considering. He was correct to note that there is a grave danger in developing the imagination and understanding of young people if schools are dependent upon government. State funded education will likely lead to emphasis on a curriculum that serves the State, i.e., one mainly driven by economic and social policies. Education is driven not by the needs of children, but by the economic needs of society. The competition that drives most of public education may benefit society, but it probably does not benefit most individuals. An education where cooperation and love, rather than competition and resentment, marked the essential relationship among students might be more beneficial to the students' intellectual, moral and creative well-being.

On the other hand, it is likely that some of anthroposophy's weirder notions about astral bodies, Atlantis, etc., will get passed on in a Waldorf education, even if Steiner's philosophical theories are not part of the curriculum for children. Is it that hard to defend love and cooperation without having to ground them in some cosmic mist? Why does one have to leap into the realm of murky mysticism in order to defend criticizing the harm done to the individual by a life spent in pursuit of material possessions with little concern for what is being done to other human beings or to the planet? Why does one have to blame lack of spirituality for the evil around us? One might as well blame too much spirituality for our problems: the spiritual people think so little of this material world that they don't do enough to make it a better place. Why can't people tell stories, dance and sing, play music, create works of art and study chemistry, biology and physics to learn about the natural world, without the whole process being seen either as a means to job security and material wealth or as harmonizing one's soul with cosmic spirituality?

Children should be burdened with neither spirituality nor materialism. They should be loved and be taught to love. They should be allowed to grow in an atmosphere of cooperation. They should be introduced to the best we have to offer in nature, art and science in such a way that they do not have to connect everything either to their souls or to their future jobs. Unfortunately, most children have parents and their parents would not stand for such an education.

Wallach, Joel D.

"The Mineral Doctor"

Joel D. Wallach, MS, DVM, ND, is a veterinarian and naturopath who claims that all diseases are due to mineral deficiencies, that everyone who dies of natural causes dies because of mineral deficiencies, and that just about anyone can live more than one hundred years if they take daily supplements of colloidal minerals harvested from a pit in Utah. He learned all this from living on a farm, working with Marlin Perkins (of Mutual of Omaha's "Wild Kingdom" fame), doing necropsies on animals and humans, and reading stories in National Geographic magazine and the 1934 novel by James Hilton, *The Lost Horizon*.

Dr. Wallach makes these claims despite the fact that in 1993 a research team from the Centers for Disease Control and Prevention in Atlanta, Georgia, reported the results of a 13-year study on 10,758 Americans which failed to find any mortality benefits from vitamin and mineral supplements. The study found that even though supplement users smoke and drink less than non-users, eat more fruits and vegetables than non-users, and are more affluent than non-users, they didn't live any longer than non-users. The study also found no benefit from taking vitamin and mineral supplements for smokers, heavy drinkers or those with chronic diseases.

The basic appeal of Dr. Wallach is the hope he gives to people who fear or are mistrustful of medical doctors and scientific knowledge. He gives hope to those who want to live for a really long time. He gives hope to those who are diagnosed with diseases for which current medical knowledge has no cure. He gives hope to those who want to avoid getting a terminal disease. And he gives hope to those who want to be healthy but who do not want to diet or exercise. All we have to do is drink a magic elixir of colloidal minerals and we'll be healthy. You can't just take your minerals in pill form, he warns us. You must take the colloidal variety in liquid form. Furthermore, this elixir must come from a pit in Utah, the only source approved by Dr. Wallach, and the only one, I suspect, in which he has a financial interest.

The Audio Tape

Dr. Wallach seems to be most famous for a widely circulated audio tape he calls "Dead Doctors Don't Lie." The label of the tape I have notes that Dr. Wallach was a Nobel Prize nominee. This is true. He was nominated for a Nobel Prize in medicine by the Association of Eclectic Physicians "for his notable and untiring work with deficiencies of the trace mineral selenium and its relationship to the congenital genesis of Cystic Fibrosis." The Association of Eclectic Physicians is a group of naturopaths founded in 1982 by two naturopathic physicians, Dr. Edward Alstat and Dr. Michael Ancharski. In his book *Let's Play Doctor* (co-authored with Ma Lan, M.D., M.S.) he states that cystic fibrosis is preventable, is 100% curable in the early

stages, can be managed very well in chronic cases, leading to a normal life expectancy (75 years). If these claims were true, he might have won the Prize. He didn't win, but he gave a lot of (false?) hope to parents of children with cystic fibrosis.

The basic danger of Dr. Wallach is not that people will be harmed by taking colloidal minerals, or even that many people will be wasting their money on a product they do not need. Many of his claims are not backed up with scientific control studies, but are anecdotal or fictional. Because he and other naturopaths exaggerate the role of minerals in good health, he may be totally ignored by the scientific community even if the naturopaths happen to hit upon some real connections between minerals and disease. Furthermore, there is the chance that legitimate scientific researchers may avoid this field for fear of being labeled a kook.

Dr. Wallach claims that there are 5 cultures in the world that have average life-spans of between 120 and 140 years: the Tibetans in Western China; the Hunzas in Eastern Pakistan; the Russian Georgians and the Armenians, the Abkhasians, and the Azerbaijanis. He also mentions the people of the Vilcabamba in Ecuador, and those who live around Lake Titicaca in Peru and Bolivia. The secret of their longevity is "glacier milk" or water full of colloidal minerals. It is probably news to these people that they live so long. Dr. Wallach does not mention on what scientific data he bases his claims, but I am sure there are many anthropologists and tour book authors who would like to know about these Shangri-La havens.

He claims to have written over 70 articles in peer reviewed journals, but a search of the University of California periodical index list comes up with zero articles authored or co-authored by him, as did a search in the Multimedia Medical Reference Library. He claims to have written several books, but the only one in the UC library is Diseases of exotic animals: medical and surgical management (Philadelphia: Saunders, 1983) which he wrote with William J. Boever.

As mentioned above, his audio tape is titled "Dead Doctors Don't Lie." The label on the tape I have says "Learn why the average life span of an MD is only 58 years." On his tape, Dr. Wallach claims that "the average life span of an American is 75 years, but the average lifespan of an American doctor is only 58 years!" Maybe dead doctors don't lie, but this living one certainly stretches the truth. If he is telling the truth, it is not the whole truth and nothing but the truth. I contacted the American Medical Association and asked about the longevity of their members. Kevin Kenward responded and informed me that I was not the first person to question Dr. Wallach's statistics. According to Kenward, "Based on over 210,000 records of deceased physicians, our data indicate the average life-span of a physician is 70.8 years." One wonders where Dr. Wallach got his data. The only mention in his tape of data on physician deaths is in his description of a rather gruesome hobby of his: he collects obituaries of local physicians as he takes his mineral show from town to town . Maybe he extrapolated his statistic from this "data"?

On his tape, Dr. Wallach says

...what I did was go back to school and become a physician. I finally got a license to kill (laughter), and they allowed me to use everything I had learned in veterinary school about nutrition on my human patients. And to no surprise to me, it worked. I spent 12 years up in Portland, Oregon, in general practice, and it was very fascinating.

Dr. Wallach is an N.D., a doctor of naturopathy, not an M.D. as his tape obviously suggests. It is unlikely that most of the people in his audience know that naturopaths call themselves physicians and that there is a very big difference between an M.D. and an N.D. He also claims he did hundreds of autopsies on humans while working as a veterinarian in St. Louis. How does a veterinarian get to do human autopsies?

Well, again, to make a long story short, over a period of some twelve years I did 17,500 autopsies on over 454 species of animals and 3,000 human beings who lived in close proximity to the zoos, and the thing I found out was this: every animal and every human being who dies of natural causes dies of a nutritional deficiency.

To accomplish this, he would have to do 6 autopsies a day, working 5 days a week for the twelve years and taking only a two-week vacation each year. He was allegedly performing all these autopsies in addition to his other duties, and presumably while he was writing essays and books as well. Maybe all those minerals gave him superhuman powers!

#### An Attack and a Panegyric

Dr. Wallach's "Dead Doctors Don't Lie" tape is both an attack on the medical profession and a panegyric for minerals. The attack is vicious and mostly unwarranted, which weakens his credibility about the wonders of minerals. For example, he claims that "300,000 Americans are killed each year in hospitals through neglect and sloppy mistakes." This statistic is taken from Ralph Nader, he says. As far as I know, there has never been a national study of the issue. There was a study done in New York in 1991 (The Harvard Medical Practice Study) which found that nearly 4 percent of patients were harmed in the hospital and 14 percent

of these died, presumably of their hospital-inflicted injuries. Lucian L. Leape, a Boston physician, extrapolated from this data that as many as 180,000 Americans may be dying each year of medical injuries suffered at the hands of medical care providers. Statistical extrapolations are notoriously unreliable, but the fact that large numbers of people are being killed by medical personnel in hospitals should not be ignored. However, it doesn't follow from the fact that medical personnel are killing patients through incompetence that it is safer to seek treatment from a naturopath, especially one who recommends minerals for your cancer, heart disease, cystic fibrosis, schizophrenia, or just about any other ailment imaginable.

Also worth noting is Dr. Wallach's tone and attitude toward the medical profession. He does not come across as an objective, impersonal scientist. He delights in ridiculing "Haavaad" University and cardiologists who die young from heart attacks. (My mother's cardiologist will probably die young. He only went into the field because he was born with a congenital heart defect. But when this man dies, Dr. Wallach will say the cause of death was "mineral deficiency." Apparently, the science of genetics is not taught at colleges of naturopathy.) He reverts to name calling on several occasions, as well. Doctors, he says, routinely commit many practices that would be considered illegal in other fields. At one point he claims that the average M.D. makes over \$200,000 a year in kickbacks. This ludicrous claim didn't even get a peep of skeptical bewilderment from his audience. He sounds like a bitter, rejected oddball who is getting even with the medical profession for ignoring him and his "research."

In addition to citing his many scientific studies and years of research as proof that we need mineral supplements for good health, Dr. Wallach presents U.S. Senate document #264. This paper claims that U.S. soils are 85% depleted of essential minerals. According to Dr. Wallach, that is why we can't get enough minerals from our foods. He has further evidence, too:

...to live to be 100+ we need to consume 90 nutrients per day...60 minerals, 16 vitamins, 12 amino acids and 3 fatty acids...there are some 10 diseases associated with the lack of each of these 90 nutrients or potentially 900 diseases...the American Medical Association did a study in 1939 and came to the conclusion that it is no longer feasible to get all the vitamins we need from foods.

I wonder if the AMA has done any studies on this issue since 1939? If so, why aren't they mentioned? And why, even if mineral supplements are needed can't we buy them off the shelf of our local supermarket? Because they aren't "colloidal." He suggests at one point in his tape that minerals in pill form aren't absorbed at all; they just pass right through the body and out into the sewer lines. But why do our colloidal minerals have to come from a pit in Utah? Here is his explanation:

the only place you can get these in the United States is from a prehistoric Valley in southern Utah that, according to geologists, seventy-five million years ago had sixty to seventy-two minerals in the walls and the floor of that valley, and those trees and the grasses in that valley and that forest took up all the metallic minerals and made colloidal minerals in their tissues. About that time there was a volcanic eruption which entombed that valley with a thin layer of mud and ash, not thick enough or heavy enough to crush or pressurize this into oil or coal. It was very dry in here, so it never became fossilized or petrified. Okay. Never became rock.

Today, if you put a shaft into this valley, it's still just dried hay. It's seventy-five million year old hay, according to geologists. You can still see the grass and the leaves and the twigs and the pine cones and the bark and so forth. And we grind this plant material up into a flour, very small, particle sized flour, just like a good wheat flour and for three to four weeks we soak it in filtered spring water and when it reaches a specific gravity of 3.0, it's very heavy, it has thirty-eight grams of this colloidal mineral in it per quart or liter and by actual analysis it has sixty colloidal minerals in it. This particular product has been on the market since 1926. It's the only nutritional product on the market that has a legal consent decree from a federal court and an approval from the U.S. Department of Health and Human Services to be harvested and sold as a nutritional supplement. Everybody else who has a vitamin, or mineral, or what not, just follows the labeling requirements of the FDA. This is the only one that, in fact, has a federal consent decree to do it, because it passed all their tests. It's the only one that has been put to this level of test because it works.

How do we know it works? Dr. Wallach guarantees it. Or your money back! Should you trust him? Why wouldn't you trust someone who tells stories about people in China who lived to be over 250 years old or about a 137 year-old cigar-smoking woman! Of course, it is up to you to infer that they lived so long because they took colloidal minerals, though the good Dr. has enough sense not to make such a claim. In case you are still not convinced of this man's trustworthiness, let me inform you that, according to Dr. Wallach, for the past twenty years there have been cures for arthritis, diabetes and ulcers. These cures were discovered by veterinarians, who also discovered the cause of Alzheimer's disease years ago.

In conclusion, Dr. Wallach has spawned a small industry of mineral sellers, including some MLM projects and a few who advertise on the WWW. Keeping in the truthful mode of Dr. Wallach, some of these WWW sites quote Linus Pauling as saying "You can trace every sickness, every disease, and every ailment to a mineral deficiency." This claim is supposed to come from the man who spent much of the latter part of his

long life as an advocate for vitamin C. Maybe Dr. Pauling didn't know the difference between a vitamin and a mineral. I think it is more likely that Dr. Wallach and his followers don't know the difference between fact and fiction.

#### Warlock

A warlock is, literally, one who breaks his word (woer-loga, 14th century Anglo-Saxon) i.e., a deceiver. The word was used to designate Satan and came to designate wizards, sorcerers and male witches, i.e., those who practice black magic.

#### Watsonville, Our Lady of

Our Lady of Watsonville is a foot-high image of the Virgin Mary seen in the bark of an oak tree in Watsonville, Santa Cruz county, California. Anita Contreras was the first to see Our Lady of Watsonville. On June 17, 1993, the Virgin appeared while Contreras knelt to pray for her children. Since then, thousands of pilgrims have flocked to the site, hoping for a miracle.

Mary is worshipped by many Roman Catholics as the Mother of God. Mexicans have been especially fond of her since her apparent apparition in 1531 to Cuauhtlatoatzin, a Nahuatl peasant and Christian convert who took on the name of Juan Diego. (Watsonville is about 62% Mexican-American.)

The story of Our Lady of Guadalupe is a bit more dramatic than that of Our Lady of Watsonville. Juan Diego was a bit of an ascetic mystic, who frequently walked barefoot the 14 miles from his village to church in Tenochtitlan (Mexico City). It was on these walks that he had several visions of the Virgin Mary. He allegedly brought to the bishop his cloak on which an image of the Virgin had been painted (Our Lady of Guadalupe, shown here, is the centerpiece of the Basilica of the Virgin of Guadalupe in Mexico City). Many believe that the painting is of heavenly origin. Skeptics believe it was done by a human artist and passed off as being of miraculous origin in order to win more converts to Christianity.

The name "Guadalupe" is Spanish and is a bit mysterious, since there was no town or shrine near Cuauhtitlan, Juan's village, by that name when the legend began. It is thought that the word derives from a Nahuatl word, coatlaxopeuh, which supposedly sounds like Guadalupe in Spanish and means something like "one who crushes the serpent." (The serpent can be identified with Satan or with the Aztec serpent-god Quetzalcoatl.) It is also possible that the legend has Juan saying that the Virgin was to be called Our Lady of Guadalupe because the one who invented it was Spanish. The creator of the name may have been intrigued by a statue of Our Lady of Guadalupe in Estremadura, Spain. In any case, it is easy to understand how a mystical Indian could become enchanted with Christianity. Not only did the new religion abound in stories of the miraculous, but the Spanish Christians had put an end to the Aztec empire. The Aztecs had conquered the Nahuatl and perhaps had even sacrificed a few of Juan's relatives to the hungry gods.

The improbability of the story of Juan Diego, his visions, and the miraculous painting has not deterred the faithful from belief. In fact, only a deep religious faith could account for the continued popularity of Virgin Mary sightings. The skeptic understands the desire to have a powerful ally in heaven, one who will protect and guide, console, and love you no matter what troubles you have here on earth. The skeptic also understands how easy it is to find confirmation for almost any belief, if one is very selective in one's thinking and perception. We understand how easy it is to see things that others do not see. Having visions also makes one feel special. Thus, it is not difficult to understand how many people see the Virgin Mary in the clouds, in a tortilla, in a dish of spaghetti, in patterns of light, and in the bark of a tree.

The cult of the Virgin Mary probably has its roots in goddess worship, which has its roots in the desire for a Good Mother, one who loves and nourishes, protects and guides, comforts and encourages. The Virgin is pure, clean, generous with her time, infinitely patient, unlike so many people one meets. She is often the harbinger of peace. The Mother gives birth and through sympathetic magic brings fertility to the tribe, the crops, etc. The Virgin Mary is the mother of Jesus who is believed by many to be God, making her the mother of God. She is also said to have been impregnated by the Holy Spirit, rather than by her husband, Joseph. She is not divine, according to the Catholic Church, but her devotees certainly seem to view the Virgin Mary as a goddess.

A shrine to Our Lady of Watsonville has been set up near the soccer fields and playgrounds of Pinto Lake County Park. Father Roman Bunda celebrated Mass at the site on the 6th anniversary of the Contreras' discovery of the image in the bark. "For those who believe, no explanation is necessary," said Fr. Bunda. "For those who don't believe, no explanation is possible." He's right about the first part.

## Werewolf

A werewolf is an animal from folklore believed to consume human flesh or blood, which can change from human to wolf and back again. (Wer is an Old English term for man.) While there are no documented cases of any human turning into a wolf and back, there are documented cases of humans who believed they were werewolves. To suffer from such a delusion is known as lycanthropy.

Some have speculated that certain excessively hirsute individuals resemble wolves and that the legend of the werewolf may have a basis in the genetic disorder known as hypertrichosis or in some other endocrine disorder, such as adrenal virilism, basophilic adenoma of the pituitary, masculinizing ovarian tumors, or Stein-Leventhal syndrome. (See the Merck Manual.)

## Wicca

Wicca is a nature religion based upon beliefs and rites believed to be rooted in ancient practices. Wicca claims a direct connection to the ancient Celtic tradition, which is thought to be more in tune with natural forces than Christianity and other modern religions of the West. However, rather than see wiccans as members of a religion, it might be more accurate to see them as sharing a spiritual basis in nature and natural phenomena. For wiccans have no written creed which the orthodox must adhere to. Nor do they build stone temples or churches to worship in. They practice their rituals in the great outdoors: in parks, gardens, forests, yards or hillsides. According to a Wicca FAQ page

"Wicca" is the name of a contemporary Neo-Pagan religion, largely promulgated and popularized by the efforts of a retired British civil servant named Gerald Gardner [late 1940's]. In the last few decades, Wicca has spread in part due to its popularity among feminists and others seeking a more woman-positive, earth-based religion. Like most Neo-Pagan spiritualities, Wicca worships the sacred as immanent in nature, drawing much of its inspiration from the non-Christian and pre-Christian religions of Europe. "Neo-Pagan" simply means "new pagan" (derived from the Latin *paganus*, "country-dweller") and hearkens back to times before the spread of today's major monotheistic (one god) religions. A good general rule is that most Wiccans are Neo-Pagans but not all Pagans are Wiccans. [ Wicca FAQ]

A good general rule seems to be that there is no single set of beliefs or practices which constitutes Wicca, though one belief seems to recur: An' it harm none, do what you will. Also, some rituals seem to recur.

Wiccans practice a number of rituals associated with such natural phenomena as the four seasons, the solstices and the equinoxes. Their symbols are based on the connectedness of Nature to human life. For example, they celebrate summer in a fertility rite known as Beltane. Rather than pray to some unnatural god beyond all experience, wiccans seem more concerned with self-awakening, with arousing their connectedness to nature and nature gods, female as well as male. Their rituals seem to be metaphors for psychological processes. They sing, they dance, they chant. They burn candles and incense. They use herbs and charms. Often, wiccans favor herbs to traditional medicines. In group rituals they express their desires to the community. They don't cast spells. They ask for blessings from north, south, east and west. They meditate. They don't cook weird poisonous stews in cauldrons. They don't fly off on brooms. They don't pray for harm to their enemies. Because wiccans seem to worship nature and nature goddesses and gods, they can be called pantheists.

Wiccans do share one thing in common with Christians, however. Both believe that the indifferent destructiveness of Nature is essentially something good. We should be thankful for the blessings of Nature (or God), including the pumiced humans at Pompei, the children swept away in flash floods, those sucked out of their homes by the tornado and thrown into the Guinness sky of the volcano, the millions who bake under an uncaring sun in parched lands, the innocent monsters deformed by uncaring biological laws, those devoured by great cracks in the earth, those drowned in hurricanes, the millions left homeless each year by indifferent forces ravaging an indifferent landscape. Only in their mythologies have wiccan magick or Christian prayer stopped the flood, ignited the lighting bolt, stilled the whirlwinds of tornado and hurricane, awakened the quaking earth, or put to sleep the tsunami.

The attractiveness of wicca may be due to its friendliness towards women, its naturalistic view of sex and its promise of power through magick. It is very popular among women, and it is tempting to say that wicca is women's revenge for the centuries of misogyny and "femicide" or "gynicide" practiced by established religions such as Christianity. Wicca, like the Celtic religion, allows women full participation in the practice. Women are equals, if not superiors, of men. Women in Celtic mythology are unusual, to say the least. They are intelligent, powerful warriors, ruthless, sexually aggressive, and leaders of nations.

Finally, it should be noted that wicca is not related to Satan worship. That practice is related to the persecution of "witches" by Christians, especially during the medieval and Spanish Inquisitions.\* The spirit of the Inquisitions, however, lives on in the hearts of many devout Christians who continue to persecute wiccans, among others, as devil worshippers. The modern inquisitors do not burn people to death. Rather,

they try to abolish Halloween, school nicknames (such as Blue Devils, the mascot of our local high school which has provided many good Christians around here with a zealous cause), books which mention witches, and any sign, symbol or number the Christians associate with Satan. (One local pizza house was even hounded for some markings it had on its delivery boxes. Local witchhunters claimed the markings were satanic signs. The pizza house changed it boxes rather than deal with adverse publicity.)

On the first day of spring in 1996, our local newspaper ran an article about a local coven of witches. The story portrayed the all-female group as harmless nature worshippers who dance in circles and ask for blessings from the north, south, east, west, etc. The article prompted a long letter to the editor decrying the naivete and ignorance of the author of the story on the local coven. Witches are in cahoots with Satan, said the letter writer, who signed off as "a survivor of satanic ritual abuse." The sincerity of the letter writer seemed as genuine as the sincerity of the women of Salem who confessed to being witches. Are the modern day victims of satanic ritual abuse as deluded as the witches hunted down by pious Christians through the centuries who truly believed that they were as evil as their persecutors said they were? Are the wiccans of today part of a satanic conspiracy? I doubt it. If there are Christians who are being systematically abused by satan worshippers, their abusers are not part of an international conspiracy known as Wicca.

### Wishful Thinking

Wishful thinking is interpreting facts, reports, events, perceptions, etc., according to what one would like to be the case rather than according to the actual evidence. If it is done intentionally and without regard for the truth, it is called misinterpretation, falsification, dissembling, disingenuous, or perversion of the truth.

### Witches

"Though shalt not suffer a witch to live," it says in the book of Exodus (xxii, 18). This and other Biblical admonitions and commands both defined the witch and prescribed his or her fate. A witch is someone in consort with Satan, the Evil One, the spirit who rebelled against God but whom God suffered to live.

Today, the typical witch is generally portrayed as an old hag in a black robe, wearing a pointed black cap and flying on a broomstick across a full moon. Children dress up as witches on Halloween, much to the dismay of certain pious Christians. Hollywood, on the other hand, conjures up images of sexy women with paranormal powers such as psychokinesis, mind-control, hexing and an array of other occult talents. "Pagan" or anti-Christian New Age religions are sometimes identified with witches because some pious Christians think they practice witchcraft or because those in the religions claim to practice "magick" or "the craft." Some of the members of these groups refer to themselves as "witches" and their groups as "covens." (Some male witches are very touchy about being called "warlocks".) Some of the members of these groups call themselves "sorcerers" and worship Satan, i.e., they believe in Satan and perform rituals which they think will get them a share of Satan's supernatural occult powers. (Some are very touchy about being called "sorcerers".) Most New Age witches do not worship Satan, however, and are very touchy about the subject. They would rather be associated either with the occult and magick or with attempts to re-establish a kind of nature religion which their members associate with ancient, pagan religions, such as the ancient Greek or the Celtic, especially Druidism. The neo-pagans also refer to both men and women witches as witches. One of the largest and most widespread of these nature religions is Wicca.

The witches of Christian mythology were known for their having sex with Satan and using their magical powers to do evil of all sorts. The culmination of the mythology of witchcraft came about from the 15th to the 18th centuries in the depiction of the witches' Sabbath. The Sabbath was a ritual mockery of the Mass. Witches were depicted as flying up chimneys at night on broomsticks or goats, heading for the Sabbath where the Devil [in the form of a feathered toad, a crow or raven, a black cat, or a he-goat] would perform a blasphemous version of the Mass. There would also be obscene dancing, a banquet and the brewing of potions in a huge cauldron. The banquet might include some tasty children, carrion and other delicacies. The witches' brew was apparently to be used to hurt or kill people or to mutilate cattle (de Givry, p. 83). Those initiated into the satanic mysteries were all given some sort of physical mark, such as a claw mark under the left eye. The Devil was depicted as a goat or satyr or some sort of mythical beast with horns, claws, tail and/or strange wings: a mockery of angel, man and beast. One special feature of the Sabbath included the ritual kiss of the devil's ass (de Givry, p. 87), apparently a mockery of the traditional Christian act of submission of kneeling and kissing the hand or ring of a holy cleric. Numerous testimonials to having witnessed the witches' Sabbath are recorded. For example, a shepherdess, Anne Jacqueline Coste, reported in the middle of the 17th century that during the night of the feast of St. John the Baptist she and her companions heard a dreadful uproar and

looking on all sides to see whence could come these frightful howlings and these cries of all sorts of animals, they saw at the foot of the mountain the figures of cats, goats, serpents, dragons, and every kind

of cruel, impure, and unclean animal, who were keeping their Sabbath and making horrible confusion, who were uttering words the most filthy and sacrilegious that can be imagined and filling the air with the most abominable blasphemies (de Givry, p. 76).

Such stories had been told for centuries and were accepted by pious Christians without a hint of skepticism as to their veracity. Such tales were not considered delusions, but accurate histories.

Pierre de l'Ancre, in his book on angels, demons and sorcerers published in 1610, claims he witnessed a Sabbath. Here is his description:

Here behold the guests of the Assembly, having each one a demon beside her, and know that at this banquet are served no other meats than carrion, and the flesh of those that have been hanged, and the hearts of children not baptized, and other unclean animals strange to the custom and usage of Christian people, the whole savourless and without salt.

The claims made in books such as de l'Ancre's and the depictions of Sabbath activities in works of art over several hundreds of years were not taken as humorous fictions or psychological manifestations of troubled spirits. These notions, as absurd and preposterous as they might seem to us, were taken as gospel truth by millions of pious Christians. What is even more strange is that there are many people today who believe similar stories about child-eating and ritual killing of animals, combined with sexual abuse and satanic influences.

I will leave it to the Freudians to interpret these persisting myths of satanic creatures with horns, big red tails and huge sexual appetites; of kidnapping and sexually abusing, mutilating or killing children; of women who put long sticks between their legs and rub on a magic unguent and fly to a sexual liaison with a demonic he-goat; and of creatures with supernatural powers such as metamorphosis. My guess is that witchcraft and sorcery were for the most part brewed in the cauldron of sexual repression and served up as a justification for the public trading in art and literature, if not in life, of Church created, sanctified and glorified pornography.

To be sure, there was undoubtedly some persecution of those, especially in the countryside, who maintained a connection with their pagan past. But it is difficult to believe that the descriptions of witchcraft wrenched from tortured and mutilated victims century after century were not mostly created in the imaginations of their tormentors. The inquisitors' power was so great, their tortures so varied and exquisitely sadistic, that they had thousands of their victims deluded into believing they were possessed and wicked. The cruelties and delusions went on for centuries. Witchhunting was not abolished in England until 1682. The hunt spread to America, of course, and in 1692, in Salem, Massachusetts, nineteen witches were hanged. The last judicial execution of a witch took place in Poland in 1793. The last injudicial attempted execution took place in Ireland in 1900 when two peasants tried to roast a witch over her own fire (Smith, p. 295).

Whatever the psychological basis for the creation of an anti-Church with witches and sorcerers joined with Satan to mock and desecrate the symbols and rituals of the Church, the practical result was a stronger, more powerful Church. No one knows how many witches, heretics or sorcerers were tortured or burned at the stake by the pious, but the fear generated by the medieval and Spanish Inquisitions\* must have affected nearly all in Christendom. Being accused of being a witch was as good as being convicted. To deny it was to prove your guilt: of course a witch will say she is not a witch and that she does not believe in witchcraft. Throw her in the river! If she sinks and drowns that will prove she is not a witch; if she swims, we will know the devil is assisting her. Pull her out and burn her to death, for the Church does not like bloodshed! In truth, the Church ran a Reign of Terror the superior in many ways to those of Stalin or Hitler. Their Terrors lasted only a few years and were restricted to limited territories; the Church's Terror lasted for several centuries and extended to all of Christendom. The Church's Terror was also aimed mainly at women. Thus, it is not strange that those religions today whose members call themselves witches or sorcerers should be anti-Christian, pagan and woman-centered, or satanic. It is not strange that these New Age religions exalt whatever the Church condemned (such as egoism and healthy sexuality in adults whether homosexual or not) and condemn whatever the Church exalted (such as self-denial and the subservient role of women). Who could blame them?

Wizard

A wizard is, literally, a wise person (from the 15th century Middle English wysard). The term came to refer to someone who claims to have supernatural knowledge or power, such as a sorcerer or one devoted to black magic. Today, the term is extended to refer to anyone who has a seemingly magical skill.

WWJD?

WWJD? stands for What Would Jesus Do? A youth group in Holland, Michigan, began a movement based on this question asked by a tramp interrupting a worship service in the 1896 novel *In His Steps* by Charles M. Sheldon.

The founders of the movement started with a basic presupposition - if each person would ask the question - What Would Jesus Do? with each decision they made, the world would be changed for the better one question at a time.

I can save them a lot of worry and trouble. The first thing Jesus would do is tell each of us that our opinions as to what Jesus would do are irrelevant. Jesus would not ask anyone what to do. He would tell them. He would command them. And if they disobeyed he would threaten them with eternal damnation.

So, WWJD? Well, for starters, he wouldn't care what you think he'd do. Secondly, he wouldn't want you to use your rational intellect to decide what to do. He'd want you to follow orders. He wouldn't want you to do anything on your own. And, he certainly wouldn't want you to ask, What would Jesus do?

I prefer DTRT: Do the right thing. How do you figure that out? You use your critical rationality, you analyze, you debate, you argue, you defend with reasons. You show some intellectual humility and admit that you might be wrong. You do not look to some guru or book for the ready and infallible answer to tough questions. You take responsibility for what you do.

### Xenoglossy

Xenoglossy is the alleged speaking or writing in a language entirely unknown to the speaker.

### Yeti

Bigfoot [a.k.a. Abominable Snowman of the Himalayas, Mapiinguari (the Amazon), Sasquatch, Yowie (Australia) and Yeti (Asia)]

"There is a Yeti in the back of everyone's mind; only the blessed are not haunted by it."--an old Sherpa

Bigfoot is an apelike creature reportedly sighted hundreds of times in the U.S. (most often in the Pacific Northwest) and around the world since the mid-19th century. The creature is variously described as standing 7-10 ft (2-3 m) tall and weighing over 500 lb (227 kg), with footprints 17 in. (43 cm) long. The creature goes by many names, but in northern California it is known as "Bigfoot." The creature is big business along a stretch of US-101 in southern Humboldt County known as the Redwood Highway. Numerous shops line the roadway, each with its own gaping Bigfoot chainsaw-carved out of majestic redwood.

Most scientists discount the existence of such a creature because the evidence supporting belief in the survival of a prehistoric bipedal apelike creature of such dimensions is scant. The evidence consists mainly of testimony from Bigfoot enthusiasts, footprints of questionable origin, and pictures that could easily have been of apes or humans in ape suits. There are no bones, no scat, no artifacts, no dead bodies, no mothers with babies, no adolescents, no explanation for how a species likely to be communal has never been seen in family or group activity, no evidence that any individual, much less a community of such creatures, dwells anywhere near all the "sightings," etc. In short, the evidence points more towards hoaxing and delusion than real discovery. The Bigfoot legend seems to be primarily a function of enthusiastic fans of the paranormal, aided greatly by the mass media's enthusiastic catering to such enthusiasm. Yet, some believers dismiss all such criticism and claim that Bigfoot exists in another dimension and travels by astral projection. No wonder the creature is so hard to locate!

Besides the testimonials of enthusiastic fans, footprints and film provide the bulk of the evidence provided by proponents of Bigfoot. Of the few footprints available for examination in plaster casts, there is such great disparity in shape and configuration that the evidence "suggests many independent pranksters" (Dennett, 1996).

Probably the most well-known evidence for belief in Bigfoot's existence is the film shot by Bigfoot hunters Roger Patterson and Bob Gimlin on Oct 20, 1967, at Bluff Creek in northern California. The film depicts a walking apelike creature with pendulous breasts. Its height is estimated at between 6' 6" and 7' 4"; its weight at nearly one ton. Over thirty years have passed, yet no cryptozoologist has returned to the site and found any further evidence of the creature.



A group of Bigfoot enthusiasts calling themselves the North American Science Institute claim that they spent over \$100,000 to prove the film is of a genuine Bigfoot. However, according to veteran Hollywood director John Landis, "that famous piece of film of Bigfoot walking in the woods that was touted as the real thing was just a suit made by John Chambers" who helped create the ape suits in Planet of the Apes (1968). Howard Berger, of Hollywood's KNB Effects Group, also has claimed that it was common knowledge within the film industry that Chambers was responsible for a hoax that turned Bigfoot into a worldwide cult. According to Bobbie Short, Chambers denied these allegations in an interview and claims that Landis started the rumor about Chambers making the suit. According to Mark Chorvinsky, Chambers was involved in another Bigfoot hoax (the so-called "Burbank Bigfoot") but apparently Short did not ask him about that incident nor did he interview Landis for his version of the story. Believers in Bigfoot, such as Short and Loren Coleman, reject the hoax theory and maintain that the film is not of a man in an ape suit but is footage of a genuine Bigfoot.

According to David J. Daegling and Daniel O. Schmitt, "it is not possible to evaluate the identity of the film subject with any confidence." Their argument centers on uncertainties in subject and camera positions, and the reproducibility of the compliant gait by humans matching the speed and stride of the film subject.

Bigfoot is also the name of a fine Barleywine brewed by Sierra Nevada of Chico, California. (It is called a wine because it has an alcohol content of 8% and can't legally be called a beer in California.)

### Yin and Yang

According to traditional Chinese philosophy, yin and yang are the two primal cosmic principles of the universe. Yin (Mandarin for moon) is the passive, female principle. Yang (Mandarin for sun) is the active, masculine principle. According to legend, the Chinese emperor Fu Hsi claimed that the best state for everything in the universe is a state of harmony represented by a balance of yin and yang.

### Zener cards

Zener cards are used by some parapsychologists to test psychic ability. There are five kinds of card: a star, three vertical wavy lines, a plus sign, a circle and a square. A deck of Zener cards consists of five of each symbol. The cards might be shuffled and the subject then tries to guess the order of the cards. Or a sender might look at a card and then try to telepathically communicate the perception to a receiver.

Since there are twenty-five cards in the deck and five kinds of card, there is a one in five chance (or 20% chance) that any given card is on top of the deck or being viewed by a sender. A correct "guess" is called a "hit". Anything significantly higher than 20% hits in the long run would indicate that something other than chance is at work. In the short run, higher percentages are expected by chance. Thus, if you get nine out of twenty-five correct (36%), that would NOT be statistically significant. If you got 36% correct over 100 trials through the deck, that would be statistically significant and would indicate that something else besides chance is going on. Maybe you're psychic, maybe you are unconsciously picking up cues, or maybe you're cheating!

### Zermatism

Zermatism is a pseudoscience invented by Stanislaw Szukalski (1893?-1987), a gifted Polish artist and immigrant to the United States, in a 39-volume work. Zermatism maintains that all human culture derived from Easter Island after the flood which destroyed all living creatures except those on Noah's ark. All languages derive from a single source (the Protong) and all art is a variation on a few themes that can be distilled down to a single series of universal symbols. Zermatism explains the differences in races and cultures by claiming that they are due to the cross breeding of species. The first humans were nearly perfect but they mated with Yeti with abominable results.

### Zombis and p-zombies

Zombis are dead bodies with no souls, created by the black magic of voodoo sorcerers. Voodoo is a religion which originated in Haiti where West African slaves could not practice their religion openly and were forced to adopt in public the practices of the French Catholic settlers. Voodoo is still a popular religion in Haiti and in cities where Haitians have immigrated, such as New Orleans. Vodou is an African word meaning spirit or god. The black magic of voodoo sorcerers allegedly consists of various poisons which immobilize a person for days, as well as hallucinogens administered upon revival. The result is a brain damaged creature used

by the sorcerers as slaves, viz., the zombis. The zombi is not to be confused with the zombi astral, whose soul (ti-bon-ange) is controlled by the sorcerer.

It is quite understandable that a religion practiced under slavery would emphasize evil spirits. It is a cruel irony that some in the religion would evolve to worship at evil's altar and engage in practices which not only enslave others but keep the community in line from fear of being turned into a zombi/slave.

Many people are skeptical of the existence of zombis, which I take to mean they are skeptical that a dead person could be revived with or without retaining his or her "soul" or "self-consciousness" or "mind." Once you are dead, you are dead forever. For those who don't believe a person has a soul, death is not the separation of the body from the soul, but the end of life and consciousness. The voodoo zombi is not a dead person, but a living person who has been brain-damaged.

There is another kind of zombie, however: the philosophical zombie. A philosophical zombie (p-zombie, for short) would be a human body without consciousness which would nevertheless behave like a human body with consciousness. To some philosophers (e.g., Daniel Dennett) this is a contradictory notion and thus an impossible conception. If it behaves like a person and is indistinguishable from a person, then it is a person. Other philosophers (e.g. Todd Moody and David Chalmers) argue that a p-zombie would be distinguishable from a person even though indistinguishable from a conscious person. It is distinguishable, say these philosophers, because it is stipulated that it is not conscious even though it is indistinguishable from a conscious being. In case you are wondering why philosophers would debate whether or not it is possible to conceive of a p-zombie, it is because some philosophers do not believe or do not want to believe that consciousness can be reduced to a set of materialistic functions. Important metaphysical and ethical issues seem to hinge on whether or not there can be p-zombies. Can machines be conscious? If we created a machine which was indistinguishable from a human person, would our artificial creation be a "person" with all the rights and duties of natural persons? To the p-zombie advocates, consciousness is more than brain processes and neurological functions. No adequate account of consciousness will ever be produced that is "reductionist," i.e., completely materialistic.

I think it is possible to conceive of a machine which "perceives" without being aware of perceiving. In fact, they already exist: motion detectors, touch screens, tape recorders, smoke alarms, certain robots. An android which could process visual, auditory, tactile, olfactory and gustatory input but which would lack self-consciousness, i.e., would not be aware of perceiving anything, is conceivable. We can even conceive of such machines resembling humans in the flesh. How would we distinguish such automata from persons? The same way we do now: by the imperfect and fallible methods of conversation and observation. But that is not what would make the two distinct; self-consciousness or the lack of it would distinguish the automata from persons. "Visual perception" by a motion detector is unlike visual perception by a person just because of the difference in awareness of perception, i.e., self-consciousness. A smoke detector might "smell" certain chemicals, but it does not process odors the way a person does. In my view, the only conceivable p-zombie would be a machine which perceives but has no awareness of perceiving, i.e., no self-consciousness. Such machines are essentially distinct from conscious persons.

For what it's worth, I side with Dennett and those who think that the concept of the p-zombie is a logical absurdity. If the "zombie" exhibits all the symptoms of consciousness, then the "zombie" is not a zombie; for to exhibit all the symptoms of consciousness is to have consciousness, which the zombie is denied by definition.

Anyway, this reminds me of a story by Raymond Smullyan, the great logician and paradoxer. A man wants to commit suicide but does not want to cause his family any grief. He finds out about an elixir he can take which will kill him, i.e., separate his soul from his body, but leave his body intact to wake up, go to work, play with the kids, keep the wife satisfied and bring home the bacon. But before he takes the elixir, a well-intentioned friend sneaks in during the night and injects his suicidal friend with the stuff, thereby killing him, i.e., releasing his soul. The man wakes up and doesn't know he's dead (i.e., that he has no soul), so he takes the elixir. He can't kill himself, since he's already dead. But he thinks he can kill himself and become a p-zombie. However, he is already a p-zombie. Question: if the p-zombie can't tell the difference between a real person and a p-zombie, why would we think that we real persons could tell the difference? In fact, since the conception of the "soul" makes absolutely no difference in either the nature of a person or a p-zombie, the concept of the "soul" is superfluous. If persons are indistinguishable from p-zombies then they are not two distinct concepts, but one concept manipulated by language to mislead us into thinking there are two distinct concepts here.

As to the ethical questions regarding how we should treat androids which are behaviorally indistinguishable from natural persons, I think that if we stipulate that such creatures are persons with rights, then they will be persons; otherwise, they will not be persons. The concept of a person is not a matter of discovery, but of stipulation. I would argue, also, that the same is true of the concept of "soul." But it is not true of the concept of "consciousness": anyone who is conscious should be able to tell the difference between a dead body and a living person. Dead bodies which act like persons, and bodiless souls which perceive like conscious persons, exist only in the movies or in the minds of certain philosophers and other fantasy writers.

Personally, I would argue that self-conscious androids should be granted the status of persons on the grounds that the distinction between being synthetic or natural is insignificant. I have a feeling that believers in souls would disagree and would justify creating a race of androids to serve as slaves and to be treated as things not persons.

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