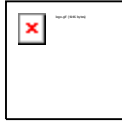




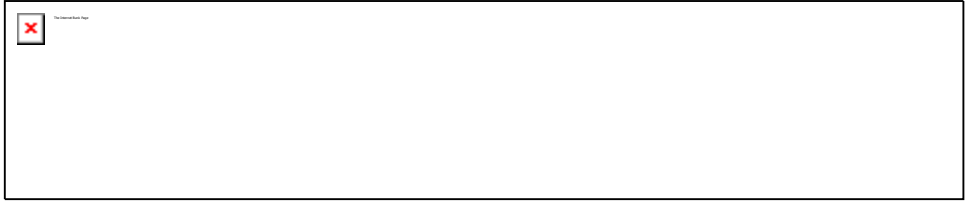
Robert Todd Carroll



[SkepDic.com](http://SkepDic.com)

[The Skeptic's Refuge](#)

**Internet Bunk** features WWW sites that provide false, misleading or deceptive information regarding scientific matters or alleged paranormal or supernatural events. Because there are millions of such sites, we try to present only the most egregious and offensive.



## [The Alternative Science Pages of Richard Milton](#)

Richard Milton's defense of "alternative" science is a textbook case of **Why Intelligent People Believe Dumb Things**. Nearly every logical fallacy and psychological foible that hinders us from being fair and accurate in our assessment of claims and arguments regarding [science](#) and the paranormal is exemplified by Milton.

### **selective thinking**

Let's begin with his version of the "they laughed at Galileo, so I must be right" fallacy, a *non sequitur* variation of [selective thinking](#).

In his book *Alternative Science*, and on his website under what he calls **Skeptics who declared discoveries and inventions impossible**, Milton lists a number of inventors and scientists who struggled to get their ideas accepted. Many were ridiculed along the way. But, like many others who commit this fallacy, Milton omits some important, relevant data. He does not mention that there are also a great number of inventors, scientists and thinkers who were laughed at and whose ideas have never been accepted. Many people accused of being crackpots turned out to be crackpots. Some did not. Thus, being ridiculed and rejected for one's ideas is not a sign that one is correct. It is not a sign of anything important about the idea which is being rejected. Thus, finding large numbers of skeptics who reject ideas as being "crackpot ideas" does not strengthen the likelihood of those ideas being correct. The number of skeptics who reject an idea is *completely irrelevant* to the truth of the idea. Ideas such as [alien abduction](#), [homeopathy](#), [psychokinesis](#), [orgone energy](#), [ESP](#), [free energy](#), [spontaneous human combustion](#), and the [rejection of evolution](#)--all favored by Milton--are not supported in the least by the fact that these ideas are trashed by thousands of skeptics.

### **anomalies and coincidences**

Like many believers in the paranormal, Milton is quite impressed with the statistical data of people defending claims that they have scientific evidence for such things as [telepathy](#) or [psychokinesis](#).

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**significance to anomalies and coincidences.** ---[John Allen Paulos](#)

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He cites Dean [Radin](#) who defends the [ganzfeld](#) experiments and [The Princeton Engineering Anomalies Research](#). In both cases, impressive [statistics](#) are used to support the belief in paranormal phenomena. It does not seem to occur to Milton that there might be alternative explanations for the statistics. Nor does it seem to occur to him that the defenders of these claims have not done a very good job of providing compelling evidence of anything significant. Milton seems to think that the parapsychologists are rejected because they pose some sort of threat to mainstream science. There is no threat. If a reasonable explanation of paranormal phenomena is ever made and compelling evidence is produced to support belief in [ESP](#), etc., mainstream scientists will jump on the bandwagon as they have in the past (see below, the examples of continental drift and pre-Clovis Americans).

#### **ad hominen**

Another common fallacy committed by Milton is to attack the motives of those who criticize and reject "crackpot ideas." Milton claims

**Some areas of scientific research are so sensitive and so jealously guarded by conventional science that anyone who dares to dabble in them -- or even to debate them in public -- is likely to bring down condemnation from the scientific establishment on their head, and risk being derided, ridiculed or even called insane.\***

These allegations may be true, but they are also irrelevant to whether the "sensitive" ideas are true or not. The charges are not true in at least two areas where Milton claims it is forbidden to do research: [cold fusion](#) and Darwinism. [Research continues](#) at several labs into [cold fusion](#), although it is apparently the case that the Department of Energy considers cold fusion to be forbidden territory. [Note: In March 2004, the Department of Energy said it would review over 15 years of cold fusion research (what it calls "low-energy nuclear reactions." The [report](#) came out Dec. 1, 2004. The bottom line? "While significant progress has been made in the sophistication of calorimeters since the review of this subject in 1989, the conclusions reached by the reviewers today are similar to those found in the 1989 review.")] Darwinism (natural selection), on the other hand, has been attacked from within the ranks of scientists almost from its inception. Even Darwin didn't think natural selection could completely explain evolution (See [The Descent of Man, and Selection in Relation to Sex](#)). Like many critics of evolution, Milton does not understand Darwinism. But that is another fallacy.

### **the straw man**

Milton's attack on Darwinism is an attack on a position quite distinct from the theory of natural selection. Milton attacks an idea few, if any, hold today. He attacks an ideology he characterizes as a godless philosophy of materialism, embracing the meaningless of life in a dog-eat-dog world of brute aggression. Darwinism implies nothing about the existence of God or a spiritual realm. It implies nothing about a Creator who does or does not meddle in evolution. It implies nothing about the kind of social world we have or should have. An evolutionary biologist is certainly free to believe that God designed evolution.

### **more selective thinking**

Milton ignores the fact that science has nothing to gain by believing what is false. Unlike Milton, who sees scientific beliefs as essentially ideological, scientists as a group have nothing at stake should the facts of nature turn out to be otherwise than currently believed. Of course, individual scientists from time to time get stuck in ideological and idiosyncratic corners, but science as a whole is an enterprise that is self-correcting. He attacks scientists for not accepting the criticisms of thinkers and writers who criticize Darwinism. But he does not see that these ideas are rejected either because their authors are barking up the wrong tree (attacking straw men) or they have not made their case convincingly. Milton should review the Alfred Wegener case for an example of how science really works, because it is quite different from his notion of conspirators guarding the gates of error and rejecting such things as homeopathy or [iridology](#) "because they threaten to violate the accepted canons of scientific rationalism."\* Milton seems to have little appreciation for the fact that it is easy to find confirmation for just about any hypothesis and that one must constantly be on guard against [confirmation bias](#), [self-deception](#), [wishful thinking](#), and other psychological hindrances that can lead to [pathological science](#). Examples abound in his pages, but one of the weakest arguments he has is given in favor of a Russian astrophysicist, Mark Zilberman, who has found a [correlation](#) between the 11-year cycle of solar activity and winners of the lottery in Russia and France. Milton seems to think this is an amazing feat and indicative of ESP "modulated by external geophysical factors." He can't understand why scientists are not beating a path to Zilberman's door.

### **Alfred Wegener and continental drift**

In *The Origin of Continents and Oceans* Wegener proposed the theory of continental drift against the prevailing theory that the earth was formed by cooling from a molten state and contractions. "Wegener's mode of reasoning lent itself to criticisms and counter-arguments. Wegener made assertions that could be checked and refuted as further evidence came in. He left room for his speculations to be superseded" (Radner & Radner, 92). Wegener did not have disciples, but sympathizers who "acted like

scientists." Yet, Wegner's idea that continents move was rejected by most scientists when it was first proposed.

Stephen Jay Gould notes that when the only American paleontologist defending the new theory spoke at Antioch college (where Gould was an undergraduate at the time), most of the audience dismissed the speaker's views as "just this side of sane" (Gould, 1979, 160). A few years later, all the early critics of the new theory would accept it as true. Why? Was it simply a matter of Wegener and a few others jumping the gun by accepting a new theory before the evidence was sufficient to warrant assent? Were the latecomers 'good' scientists, waiting for more facts to confirm the theory? Gould's view is that dogmatic adherence to the view that the ocean floor is solid and unchanging was the main stumbling block to acceptance of the new theory. Most scientists rejected continental drift because it did not fit with their preconceived ideas about the nature of the earth's crust. They assumed that if continents did drift they would leave gaping holes in the earth. Since there were no gaping holes in the earth, it seemed unreasonable to believe that continents move. The theory of continental drift, says Gould, "was dismissed because no one had devised a physical mechanism that would permit continents to plow through an apparently solid oceanic floor." Yet, "during the period of nearly universal rejection, direct evidence for continental drift--that is, the data gathered from rocks exposed on our continents--was every bit as good as it is today." Continental drift was considered *theoretically* impossible by some, even if it were *physically* possible for continents to move. The new theory could not be made to fit the theoretical model of the earth then universally accepted.

The theory of plate tectonics was then proposed--the idea that the continents ride on plates which are bounded by areas where new crust is being created from within the planet and old crust is falling into trenches. This provided *a mechanism which explains how continents drift*. Continental drift, according to Gould, came to be accepted not because more facts had been piled up, but because it was a necessary consequence of the new theory of plate tectonics. More facts were piled up, though--facts for the new theory of plate tectonics, of which the theory of continental drift is an essential element. Today, it is taken as a fact that continents move. Yet, the exact mechanism by which plates move is still incompletely understood. This area of science will no doubt generate much debate and theorizing, testing of hypotheses, rejection and/or refinement of ideas.

The continental drift episode is a good example of how science works. To someone who does not understand the nature of science, the early rejection of the idea of continental drift might appear to show how dogmatic scientists are about their pet theories. If scientists had not been so devoted to their belief that the earth's crust is solid and immovable, they would have seen that continents can move. That is true. However, the fact that Wegener's theory turned out to be correct does not mean that he and his

few early followers were more reasonable than the rest of the scientific community. After all, *Wegener did not know about plate tectonics and he did not provide an acceptable explanation as to how continents might move*. Wegener argued that gravity alone could move the continents. Gould notes: "Physicists responded with derision and showed mathematically that gravitational forces are far too weak to power such monumental peregrination." 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. "This [ad hoc hypothesis](#) added no increment of plausibility to Wegener's speculation," according to Gould (1979, 163).

It is true that the idea that the earth's crust is solid and immovable has been proved wrong, but Wegener didn't prove that. What his theory could explain (about rocks and fossils, etc.) other theories could explain equally well. However, in the end, the idea of continental drift prevails. It prevails because the dogmatism of science--the tendency to interpret facts in light of theories--is not absolute but relative. Gould notes with obvious admiration that a distinguished stratigraphy professor at Columbia University (where Gould did graduate work), who had initially ridiculed the theory of drifting continents, "spent his last years joyously redoing his life's work" (Gould, 1979, 160). It is hard to imagine a comparable scene involving any of the scientists admired by Milton.

### **ad hoc hypotheses**

One characteristic of Milton's "alternative" sciences that distinguishes them from real science is their reliance on [ad hoc hypotheses](#) to explain the mysterious mechanisms behind homeopathy, psychokinesis, ESP, perpetual motion machines, spontaneous human combustion, etc. How *homeopathy* is explained will serve to demonstrate this point.

[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. Advocates of homeopathy think that concoctions with as little as one molecule per million can stimulate the "body's healing mechanism." They even believe 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! Critics maintain that such minute doses are unlikely to have any significant effect on the body. The critics base their belief on what they know about the body and how it works. Homeopaths base their belief on [anecdotes](#) and the metaphysical notion that like heals like. They have resorted to various ad hoc hypotheses to explain how a negligible or non-existent amount of a substance could have any effect on the body. They have appealed to various healing "energies" of "vital forces" bringing this, that, or the other into "harmony." The explanation that seems to have the most favor among "alternative" scientists is,

however, the theory of water memory, the notion that "that during serial dilution the complex interactions between the solvent (water) molecules are permanently altered to retain a "memory" of the original solute material."\*

Not only is there no evidence that such memory occurs, there is no explanation as to *how* such an event could occur. Current chemical knowledge cannot explain how water could "remember" a molecule that is no longer present. Thus, the expected and reasonable response of the scientific community when presented with homeopathic studies that support the notion that a homeopathic potion is effective is to assume that something else besides efficacy of the potion explains the results. Usually, that something else is [the placebo effect](#), bias in experimental design, methodological or calculative errors, or even fraud. Until homeopaths can provide a reasonable explanation for how such diluted potions can affect anything, it would be unreasonable for the scientific community to respond otherwise. Do "alternative" scientists really think that it would be reasonable to abandon hundreds of years of knowledge and experience, to give up all the established principles of chemistry, on the chance that someday someone might find a mechanism which explains how nothing affects something?

If and when the "alternative" scientist finds a plausible explanation for how actual or virtual non-existent molecules have an effect on the human body, the scientific community will have to alter its basic beliefs about chemistry. Until then, however, given the accomplishments of chemistry, it would be egregiously unreasonable to throw it all away in the hopes that there really is a mysterious force in the universe by which homeopathy and all chemical processes work.

### **the conspiracy theory and the bias of science red herrings**

Because scientists almost instinctively reject studies, no matter how well-designed they seem to be, that provide supportive evidence for "alternative" scientific notions, people like Milton argue that there is a conspiracy in the scientific community to stifle the truth. They also argue that the scientific community is so blind and biased that they refuse to consider evidence that upsets their pet beliefs. These two approaches seem to me contradictory rather than complementary. Either scientists know the "alternative" scientists are on to something, so they conspire to stifle them, or the scientists are just biased and bigoted. In any case, Milton reverts to attempts at "censorship" by defenders of science as the evidence for both claims.

Much of what Milton considers to be attempts at censorship have nothing to do with censorship at all. He raises issues that are red herrings, e.g., legitimate criticism of the media for promoting junk science in programs such as the [Mysterious Origins of Man](#) and [cases of scientists](#) who are

paranoid about their research or who have been ostracized by colleagues for their weird ideas.

Milton seems to have a naive view of open-mindedness. He calls [CSICOP](#) the Paradigm Police and takes a dim view of anyone who criticizes, boycotts, protests, etc. the promotion of junk science. He seems to think that what is true in politics ought to be true in science. We should have laissez faire science and let the most popular view win out. Milton seems to think that we should determine scientific truth by public vote. He sees no harm in letting pass egregious abuses of science (such as Mysterious Origins of Man) and monstrous falsehoods (such as, there is no proof for evolution, which is just a theory) in the name of "free speech." To rebel against the bunk promulgated by the mass media, school boards, etc., is, in Milton's view, a type of oppression.

Even if some scientists call for banning a network from the airwaves for promoting pseudoscience, there is no systematic attempt to censor weird ideas by any scientific organization. There is no persecution of pseudoscientists, no burning at the stake, no secret cabal blackballing those with new notions about the nature of reality. There is a requirement that ideas that challenge fundamental ideas in any science prove their worth. When they do, they will bump out the old ideas. Witness what has happened recently in American archaeology with regard to [Clovis and pre-Clovis](#) human settlements. Scientists who were on the outside, ridiculed by their peers, ostracized, etc., for their ideas about pre-Clovis inhabitants are gradually getting a strong hearing. Why? Because they are delivering the goods, i.e., piling up the evidence. The scientists Milton weeps for are not delivering the goods. If and when they do, like Wegener, like [Albert Goodyear](#), they will prevail.

### **arguments from ignorance**

Another common error Milton makes is to argue that something is true (such as clairvoyance) because a bad argument was given to show that it is false. The [argumentum ad ignorantiam](#) can be found at several places on Milton's pages, but I will focus on just one. Milton defends the significance of unrelated coincidences such as dreaming of an airplane crash in a foreign country and waking to find that the news is reporting that there was an airplane crash in a foreign country. His defense is built on showing that a parapsychologist, Dr. Richard Wiseman, gave [a false but persuasive explanation](#) of such coincidences as being expected by the laws of probability.

First, Wiseman's argument is not very persuasive and I wonder if Milton is being disingenuous here. Second, no matter how many bad arguments against clairvoyance Milton can produce, they are irrelevant to whether there is any good positive evidence for such a thing. Wiseman's argument, as presented by Milton, claims that there are so many air crashes every day that dreaming of one would be very likely to coincide with an actual air

disaster. A better explanation would be that fear of airplane crashes is widespread and the number of people who dream of such things every night is probably very great, so on any given night it is highly probable that there is at least one person of the six billion on the planet who dreams of an air disaster in a foreign country.

### **false labeling**

Another common error Milton makes is to mislabel things. For example, he labels as pseudoscience Richard Dawkins analogy of the 'evolution' of [biomorphs](#) with the 'evolution' of living creatures. This misclassification exposes Milton's malevolence (if it is intentional and he knows this example has nothing to do with pseudoscience but he thinks it will help his anti-evolution cause) or his ignorance regarding pseudoscience. Milton may truly believe that Dawkin's analogy is a false analogy, but you might as well call nuclear physics a pseudoscience for having made an analogy between planets revolving around the sun and electrons revolving around the nucleus of an atom. A [pseudoscience](#) claims it is science when it is not. The distinguishing characteristic of pseudoscience is not logical error, nor is it empirical error. What distinguishes pseudoscience from science is that the former proposes theories which cannot be tested in any meaningful way, or if the theory can be tested, its adherents refuse to accept refuting evidence as valid. The pseudoscientist would rather reject hundreds of years of investigation, argument, theorizing, testing, revising, etc., than ever give up his or her belief, regardless of the evidence. So-called [creation science](#) is the paradigm of a pseudoscience. Pseudoscience is static and leads nowhere. It generates no fruitful discussion about the nature of things and produces nothing but dogmatists who will retain their views until the end of time. Science is dynamic and leads to all kinds of interesting discussions about the nature of things and produces a seemingly endless array of ideas and techniques, many of which supercede and supplant earlier ideas and techniques.

### **false dilemmas**

Milton seems driven by a need to propose false dilemmas. The basic form of his argument goes like this:

**Either we believe my side or we believe these liars, cheats, deceivers, frauds, pseudoscientists, false historians, conspirators, and dogmatists. Clearly, the second choice is unacceptable. Therefore, we should believe my side.**

Milton's approach reminds me of Arlen Specter's proposal to his colleagues during the Clarence Thomas hearings: Who do you believe? The distinguished gentleman or the slut? (Apologies to Dave Barry, whose created this caricature question that captures the essence of Specter's line of questioning.)



There are always third or fourth alternatives to Milton's proposals because he is so selective in his presentation of evidence and because he mixes legitimate criticism (e.g. of CSICOP and the Gauquelin affair, even though CSICOP turned out in the long run to be right about Gauquelin's data) with misunderstanding. He doesn't seem to have a clue as to what Carl Sagan meant by the following

**We've arranged a global civilization in which the most crucial elements profoundly depend on science and technology. We have also arranged things so that almost no one understands science and technology. This is a prescription for disaster.** (from [\*The Demon-Haunted World: Science as a Candle in the Dark\*](#))

Sagan was lamenting, as he had done many times before, the lack of communication between scientists and the public; the poor use of the mass media to convey what science is, does and has yet to do; and the inadequate job we are doing in educating our young people about the beauty and wonder of science. Milton thinks Sagan was claiming that science is an elitist affair, a claim Milton uses as a springboard to launch into his defense of eccentrics, crackpots and loners as the real heroes of science, the point of which is difficult to ascertain. It seems that he thinks that since some great scientists were crackpots, all crackpots are great scientists. Or, perhaps he means to argue that since some crackpots did good science, we should never close the door on any crackpot. However, if science opened the door and took seriously every crackpot idea that is proposed, nothing of worth would ever get done. The burden of proof is always on the crackpot, the new kid on the block, the one who wants to knock off hundreds of years of research, argument, theorizing, testing, etc., with a single dream. "I have a dream" might be a wonderful line in politics, but it has no intrinsic value in science.

It has been said that "Today's mighty oak is just yesterday's nut that held its ground." That's one way to look at it.

If you smash a nut with a hammer, nobody will give it any attention tomorrow. That's another way to look at it.

\* \* \*

**[Richard Milton responds:](#)** At first, Milton responded with a little piece of disingenuous word juggling, distortion, and evasiveness with so little substance it was not worth responding to in detail. Either the man can't read or he intentionally twisted nearly every criticism I made of his work, save one (he's right about the DOE's stifling of research on cold fusion). He doesn't seem to see the difference between "exemplifies" or "seems to believe" with "says." He says he doesn't "favor ideas" and that "I present empirical evidence for consideration by my readers. (As I make abundantly clear, I am a reporter)." Since he does not say "I believe" this

or that, his website should not be treated as if he were an advocate of the ideas he presents. When he labels something "Scientists and inventors who were ridiculed by science" we are supposed to read this as just a report by a reporter, noting a fact. We are not supposed to think that he might have some reason for the label or the selection of scientists he makes. Another label: "Taboo subjects. Investigate these and you're a crackpot." This label and these subjects are selected for no reason? What Milton does might be called "alternative" journalism.)

Then, he went whole hog and devoted an entire [page on his website](#) to debunking me and *The Skeptic's Dictionary*. Here, at least, he makes some substantive claims that I can respond to.

1. Milton writes that *Carroll is one of a growing band of non-scientists (he teaches philosophy) who believe they are qualified to tell us what we should and shouldn't believe, scientifically.*

**It is true that I am a non-scientist and that I teach philosophy. However, I don't tell anyone what to believe, about science or any other subject. I try to give reasons for *not* believing in certain things, like using acupuncture to unblock chi along a meridian in order to cure disease.**

2. *That he has no scientific qualifications, or training, or professional experience, does not deter Carroll from his conviction that he is an authority on this subject and, in The Skeptic's Dictionary, he sets out to tell us ordinary people what we may and may not legitimately think.*

**It is true that I am not a scientist. (I hope Milton doesn't think you have to be a scientist to understand science.) I am a layperson who took physics, chemistry, and biology in college, who has read many books and magazines by scientists about science. I've even learned a few things from journalists (science writers for newspapers and magazines). I don't pretend to be a complete scientific illiterate who gets messages from Atlantis. I may not be qualified to comment on a claim about chemical bonding or dark matter, but I know enough about causality and properly designed experiments to recognize weaknesses in design or drawing conclusions not justified by the data. Even so, I don't tell anyone, ordinary or extraordinary, what they may legitimately think.**

**As I say in the first lines of the introduction: "*The Skeptic's Dictionary* 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....Another purpose of *The Skeptic's Dictionary* is to provide references to the best skeptical materials on whatever topic is covered....[T]he one group that this book is not designed for is that of the true believers. 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, not authoritative, unscientific, unfair, biased, closed-minded, irrational, and/or diabolical." Richard Milton's criticisms of my work support this last claim.

3. *This bogus-guru stance should be warning enough of what is to follow but, once he warms to his subject, Carroll's inhibitions disappear completely and he veers from the dogmatic to the preposterous in a hilarious display of scientific ignorance and prejudice.*

The first item I have listed in my FAQ is the following:

**Q. Who made you God? [or, Who made you a bogus-guru?]**

**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 alternatives are 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.**

...

**Anyway, here are Milton's examples of my "hilarious display of scientific ignorance and prejudice:**

4. Carroll says; "Scientific research . . . has failed to demonstrate that [acupuncture](#) is effective against any disease."

*Except for the scientific research that has demonstrated acupuncture is effective against some diseases and was published in peer-reviewed scientific journals more than a decade ago, such as Dundee, J.W., 1988, in Journal of the Royal Society of Medicine, Dundee, J.W., 1987, in British Journal of Anaesthesia, 59, p 1322. And Fry, E.N.S., 1986, in Anaesthesia, 41: 661-2.*

*Had Carroll made even the slightest attempt to search the scientific literature he would have found these and many other references to well-conducted double-blind trials in which patients experienced measurable benefits in comparison with the placebo group.*

**If Milton had read the first three sentences in my article on acupuncture he would have read: "Acupuncture is a traditional Chinese medical technique for unblocking chi (ch'i or qi) by inserting needles at particular points on the body to balance the opposing forces of yin and yang. Chi is an energy that allegedly permeates all things. It is believed to flow through the body along 14 main pathways called meridians. " None of the studies he mentions--nor any others, for that matter--show that sticking needles into points on the traditional Chinese meridians (which do not correspond to anything we know about the body) unblocks chi. Nor do any studies show that any disease is due to blocked chi that knocks yin and yang out of balance. *Yin, yang, chi, and meridian* are metaphysical concepts that have not been, and I doubt ever could be, tested by science.**

**Milton knows that I am well aware that sticking needles into people has physiological and psychological effects. So does giving people placebos or homeopathic remedies. It may seem like a fine point to Milton, but I maintain that sticking needles into people does not make what you are doing *traditional Chinese acupuncture*. Unless you are unblocking chi and making possible a balance of yin and yang, you are not performing acupuncture.**

5. [Cryptozoology](#)

*The Skeptic's Dictionary tells us that; "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 . . ."*

*Had he read Dr Heuvelmans' book, Carroll would have learned that the discovery of new species is normal science and many are discovered each year. New species number hundreds amongst insects, and dozens among small mammals and reptiles. Discovery of large unknown mammals and reptiles is unusual but certainly not unknown or even rare.*

*In 2002, for example, respected primatologist Dr Shelly Williams of the prestigious Jane Goodall Institute in Maryland, tracked and came face to face with a previously unknown species of great ape at Bili in the Congo, deep in the African jungle. The creatures stand some 6 feet tall and weigh up to 225 pounds. Dr Williams reported in New Scientist, "Four suddenly came rushing out of the bush towards me. These guys were huge and they were coming in for the kill. As soon as they saw my face, they stopped and disappeared."*

**I have no idea what his gripe is here. Is he trying to claim that Jane Goodall or anyone who discovers a new species is a cryptozoologist? Or that I am unaware that new species are still being discovered? You don't have to read Heuvelman's book to know that. A newspaper will do.**

**Milton seems to have misunderstood my point in comparing cryptozoologists to psi researchers. Let me try to clarify it. Both cryptozoologists and psi researchers spend there time trying to prove the existence of elusive phenomena: Bigfoot, ESP, the Loch Ness Monster, remote viewing, chupacabras, psychokinesis, and so on.**

6. [\*Dermo-optical perception\*](#)

*Carroll says; "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."*

*The scientific view; Dr Yvonne Duplessis was appointed director of a committee to investigate Dermo-optical sensitivity. Her conclusion is, 'Controlled studies indicate support for the theory of dermo-optical sensitivity and perception.' For details click here.*

[Unfortunately, the link Milton has--

<http://www.creatic.fr/cic/B041Doc.htm>-- is dead. I was able to find another source, however at

<http://www.sciencefrontieres.com/articles/dermo-optique.htm>]

*Dr Duplessis's experiments have even led to a possible perfectly natural explanation. In her conclusions, she says, 'Thus these different methods show that the thermal feelings induced by visible colors are not subjective, as it is generally admitted, and that the infrared radiations, situated in a far infrared range. are acting on every part of the body. This gives us possible grounds for concluding that also during ordinary visual perception of colored surfaces a human eye reacts not only to rays of the visible spectrum but also to infrared radiation emitted by these surfaces.'*

*More simply, Dr Duplessis's experiments appear to show that coloured surfaces reflect energy as heat as well as light and that the eye (like other parts of the human body) is to some extent sensitive to heat as well as to light -- a very much simpler explanation than Carroll's baseless inventions.*

**It is true that Duplessis claims to have evidence that humans can sense, with the skin, differences in thermal energy (i.e., heat) allegedly emitted as invisible radiations from different colors in the far infrared range. Milton calls her claims "the scientific view." However, Duplessis is just one in a long line of scientists who have made similar claims and have been discredited. This history is documented by Martin Gardner in his articles "Eyeless Vision" and "Dermo-optical Perception: A Peek Down the Nose." As in so many other cases of extraordinary claims backed by scientists who claim they could not possibly be duped, the DOP researchers have been duped time and time again. There have been two distinct DOP claims. One, and by far the more common, is the claim to be able to see words, images, colors, and so on while blindfolded. Whenever an expert in [mentalism](#) and deception is brought in to thwart all methods of peeking through the blindfold, the amazing DOP feats cease. The other claim involves being able to detect colors of objects hidden from sight. Some of these, like Duplessis, even invent the theory of thermal sensitivity of organs like the eyes or skin, to explain how the feat is achieved.**

**Duplessis's [Paranormal Perception of Colors](#) has been available in English since 1975. There is a reason we haven't seen a great surge in DOP performances by blindfolded or blind people over the past quarter of a century. If what she claims were in fact true and had been replicated and verified in other labs, the blind would now be living in colored environments where they had learned to "read" walls and halls, doors and floors, by different colors or colored lights. It didn't happen because Duplessis's theory has not been accepted by the scientific community. Perhaps it has not been accepted because of what is known about the amount of thermal energy given off by different colors on the same material and what is known about**

**the sensitivity of organs like the eye and skin. The likelihood that anyone has skin or an eye sensitive enough to pick up the small differences in thermal energy between say a blue and a red piece of cloth is near zero. Duplessis says she's proved this but the scientific community ignored her. Milton thinks she's right and the rest of the scientific world is wrong.**

**Gardner discusses several cases of people who were known for their ability to tell colors by touching things. In every case, when tests were done under controlled conditions where peeking was impossible, the subjects failed. In the cases where they succeeded, precautions were not taken to avoid cheating. Gardner even designed an aluminum box to put over the heads of such subjects for testing purposes, but few researchers seem to have used it, preferring their own sloppy protocols to any that might preclude cheating. If Milton thinks my claim that DOP feats are typically done by peeking is a "baseless invention," he should read Gardner's articles or read a book on conjuring or mentalism. Eyeless vision acts have been around for a long time.**

7. [Extraterrestrials \(UFOs, Flying Saucers\)](#)

*Carroll says "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'."*

*Carroll adds, "So far . . . 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."*

*Had Carroll troubled to actually read Condon's report he would have found this conclusion regarding photographs identified by the report as 'Case 47';*

*'This is one of the few UFO reports in which all factors investigated, geometric, psychological, and physical appear to be consistent with the assertion that an extraordinary flying object, silvery, metallic, disk-shaped, tens of meters in diameter, and evidently artificial, flew within sight of two witnesses.'*

*It is perfectly true that Edward Condon concluded that 'further*

*extensive study of UFOs probably cannot be justified' but the reason he gave is that it is not possible to study fruitfully a phenomenon that occurs at random. He and his team emphatically did NOT conclude that "there is no physical evidence in support of either a UFO flyby or landing" - that is the conclusion of Carroll alone, and it is based purely on ignorance of the real facts as stated in Dr Condon's report.*

**Case 47** refers to a movie of a sighting at Great Falls, Montana (lat. 47° 30' and long. 111° 18') on August 15, 1950. Click [here](#) to see a frame from this movie. Here is an abstract of this positive ID of a UFO:

**"Witness I, general manager of a Great Falls baseball team, and Witness II, his secretary, observed two white lights moving slowly across the sky. Witness I made 16mm. motion pictures of the lights. Both individuals have recently reaffirmed the observation, and there is little reason to question its validity. The case remains unexplained. Analysis indicates that the images on the film are difficult to reconcile with aircraft or other known phenomena, although aircraft cannot be entirely ruled out. "**

Milton meant to refer to [case 46](#). For some reason, Milton left out the sentence prior to the one he quotes: "While it would be exaggerating to say that we have positively ruled out a fabrication, it appears significant that the simplest, most direct interpretation of the photographs confirms precisely what the witnesses said they saw. Yet, the fact that the object appears beneath the same part of the overhead wire in both photos can be used as an argument favoring a suspended model." Milton also left out the final sentence of the conclusion of the report on this case: "It cannot be said that the evidence positively rules out a fabrication, although there are some physical factors such as the accuracy of certain photometric measures of the original negatives which argue against a fabrication."

What was actually observed? "Witness I reportedly saw a metallic-looking, disk-shaped UFO. She called her husband, they located their camera, and he took photographs of the object before it disappeared in the distance." This occurred about 7:45 PM on May 11, 1950, in McMinnville, Oregon. The witnesses' testimony was taken 17 years after the event. The witnesses produced two photographs of the flying saucer. [Photo 1](#). [Photo 2](#). I leave it to the reader to peruse [the entire account](#). Decide for yourself whether this is good physical evidence of a UFO flyby. Or has Milton's enthusiasm for the UFO hypothesis clouded his judgment once again?



8. [Carl Jung](#)

*Carroll says; "[Jung's] 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. . . What evidence is there for synchronicity? None."*

*Carroll carefully neglects to mention that the theory of synchronicity was proposed not by Jung alone but jointly with Wolfgang Pauli, who was Professor of Theoretical Physics at Princeton, a member of Niels Bohr's team that laid the foundations of Quantum Theory and who won the Nobel Prize in Physics in 1945. There thus exists a reasonable probability that the originator of synchronicity theory knew somewhat more about science than Carroll does. Asking 'what evidence is there?' for an explanatory theory that has been advanced specifically to account for previously unexplained evidence is a question even Homer Simpson would blush to ask.*

**Sometimes, even those who ridicule you and stoop to ad hominem attacks are right about some things. Milton correctly suggests that asking for evidence for an explanation is at best the wrong question. At worst it is a [category mistake](#). I should be asking for evidence of the *explicandum* (the thing to be explained), not the *explanans* (what does the explaining). I have rewritten two sentences in the Jung entry to fix this problem.**

**"What reasons are there for accepting synchronicity as an explanation for anything in the real world? What it explains is more simply and elegantly explained by the ability of the human mind to find meaning and significance where there is none ([apophenia](#))."**

9. [Occult statistics](#)

*Carroll says; "Legions of parapsychologists, led by such generals as Charles Tart and Dean Radin, have also appealed to statistical anomalies as proof of ESP." But, "Skeptics are unimpressed with occult statistics that assert improbabilities for what has already happened."*

*Carroll's scientific illiteracy finally comes out into the open here. Even his fellow 'skeptics' in CSICOP would hesitate to assert that science may only cite statistics on probability in connection with events that have not yet happened!*

*Probability theory deals with the mathematical calculation of the*

*chances of an event taking place -- regardless of whether the event has taken place or not. The probability that a tossed coin will land heads is 50-50 or  $P=0.5$ . This is as true for a coin that has already been tossed as it is for one yet to be tossed. If someone were to toss 100 heads in a row having declared in advance their intention to make this happen, then the odds against such a series happening normally are so high as to merit scientific investigation to attempt to determine a cause other than chance.*

*In the case of the experiments reported by Dean Radin in the respected physics journal *Foundations of Physics*, the odds against the results obtained in the Princeton Engineering Laboratory coming about by chance alone are one in 10 to the power of 35 (1 in 1035).*

*For Carroll to ignore improbabilities of this magnitude is not being "skeptical" -- it is being in denial.*

**The two quotes cited by Milton at the top of this comment are juxtaposed to make them appear to be related to one another. In the article, I think it is clear that when I bring up the point about being dazzled about improbabilities regarding what has already happened, I am referring to arguments regarding the need for a designer of the universe based on some theoretical notion of odds of the genetic code happening by chance or odds of the various parts of the solar system, galaxy, or universe coming together by chance.**

**Radin, Charles Honorton, Robert Jahn, Gary Schwartz, and others of like ilk are fond of asserting things about odds being a trillion to one against chance. Such claims impress people like Milton. I have written about Jahn's claims in my entry on the PEAR experiments.**

**In 1987, Dean Radin and Nelson did a [meta-analysis](#) of all RNG experiments done between 1959 and 1987 and found that they produced odds against chance beyond a trillion to one (Radin 1997: 140). This sounds impressive, but as Radin says "in terms of a 50% hit rate, the overall experimental effect, calculated per study, was about 51 percent, where 50 percent would be expected by chance" [emphasis added] (141). A couple of sentences later, Radin gives a more precise rendering of "about 51 percent" by noting that the overall effect was "just under 51 percent." Similar results were found with experiments where people tried to use their minds to affect the outcome of rolls of the dice, according to Radin. And, when Nelson did his own analysis of all the PEAR data (1,262 experiments involving 108 people), he found similar results to the earlier RNG studies but "with odds against chance of four**

thousand to one" (Radin 1997: 143). Nelson also claimed that there were no "star" performers.

However, according to Ray Hyman, "the percentage of hits in the intended direction was only 50.02% (Hyman 1989: 152)" in the PEAR studies. And one 'operator' (the term used to describe the subjects in these studies) was responsible for 23% of the total data base. His hit rate was 50.05%. Take out this operator and the hit rate becomes 50.01%. According to John McCrone, "Operator 10," believed to be a PEAR staff member, "has been involved in 15% of the 14 million trials, yet contributed to a full half of the total excess hits" (McCrone 1994). According to Dean Radin, the criticism that there "was any one person responsible for the overall results of the experiment...was tested and found to be groundless" (Radin 1997, 221). His source for this claim is a 1991 article by Jahn et al. in the *Journal of Scientific Exploration*, "Count population profiles in engineering anomalies experiments" (5:205-32). However, Jahn gives the data for his experiments in *Margins of Reality: The Role of Consciousness in the Physical World* (Harcourt Brace, 1988, p. 352-353). McCrone has done the calculations and found that 'If [operator 10's] figures are taken out of the data pool, scoring in the "low intention" condition falls to chance while "high intention" scoring drops close to the .05 boundary considered weakly significant in scientific results.'

The bottom line is that *statistical significance* is not equivalent to *meaningful* or *important*.

#### 10. [Remote viewing](#)

*Carroll says; "The CIA and the U.S. Army thought enough of remote viewing to spend millions of taxpayers' dollars on research in a program referred to as 'Stargate'."*

*Carroll scorns such trials because of the inaccuracy of some statements made by the subjects but, scientifically, the question is not how consistently accurate is remote viewing, but does it exist at all? There is unequivocal evidence that it does.*

*A recently declassified CIA document details a remarkably accurate example, under controlled conditions, of remote viewing of a top secret Russian base by Pat Price in 1974. To read details of this project [Click Here](#). Although Price made a lot of incorrect guesses about the target he was able to produce, with startling accuracy, engineering grade drawings of a unique 150-foot high gantry crane with six foot high wheels running into an*

*underground entrance. The existence of this massive structure, exactly as described, was later confirmed through satellite photography.*

**It's true there is a document in which somebody is dazzled by Pat Price's description of a crane. To Milton, this counts as "unequivocal evidence" for remote viewing.**

**I don't scorn the waste of more than 20 million tax dollars on Stargate on the grounds that there were inaccurate statements made by remote viewers. Of the thousands of statements made, it would be odd if many of them couldn't be made to fit many scenarios and be deemed "accurate" by Milton or the CIA. I scorn the experiment because the idea that humans are clairvoyant ("remote viewing" is just a fancy expression for clairvoyance) or telepathic has been tested for more than 150 years and, in the words of Milbourne Christopher "...many brilliant men have investigated the subject...and they have yet to find a single person who can, without trickery, receive even the simplest three-letter word under test conditions."**

#### 11. [Spontaneous Human Combustion](#)

*Carroll says; "While no one has ever witnessed SHC, several deaths involving fire have been attributed to SHC by investigators and storytellers."*

*The slightest research would have revealed to Carroll that many cases of possible SHC were independently witnessed by reliable people. In some cases, the victims themselves survived to tell about their experiences. Six survival cases are described in detail [Here](#).*

*Cases include London Fire Brigade Commander John Stacey and his fire crew who reached the scene of a burning man within 5 minutes of receiving a emergency call, and the case of Agnes Phillips who burst into flames in a parked car in a Sydney suburb in 1998 and was pulled out by a passer-by.*

**The research Milton thinks I should have done is in the book *Ablaze!: The Mysterious Fires of Spontaneous Human Combustion* by Larry E. Arnold, a book which features a blurb from Maury Povich on its back cover. [Joe Nickell refers to this work as [Spontaneous Human Nonsense](#).]**

**The stories that Milton posts on his web site reveal his willingness to be dazzled by speculations about SHC. It is true that the examples he has chosen can't be explained by the wick effect because they are all of cases where the person in flames**

**is come upon within a relatively short time of being on fire. The wick effect requires hours of slow burning. However, the evidence that any of these cases is actually a case of spontaneous human combustion is flimsy at best. As Milton says: "None of these cases is conclusive evidence for the existence of 'Spontaneous Human Combustion'."**

*Many more similar examples of ignorance and prejudice could be quoted from The Skeptic's Dictionary, but would serve little purpose. It is already abundantly clear that Carroll's book is no dictionary but a private agenda, and that he himself is no skeptic but a knee-jerk reactionary to the new, the unexpected, the ambiguous and the anomalous.*

**My agenda is set forth in the first few lines of the introduction to my book. I am skeptical of the kinds of things Milton accepts and I set out to provide the best skeptical arguments on those topics with references to the best skeptical literature I'm aware of. Nothing more, nothing less.**

*Robert Todd Carroll is a perfect example of the reason for this site's existence. Some academic professionals who are meticulously careful of fact in their normal professional life, suddenly throw off all reasoned restraint when it comes to so-called "debunking" of what they consider to be new age nonsense and feel justified in making as many careless and inaccurate statements as they please because they mistakenly imagine they are defending science against weirdos.*

**I can't speak for other skeptics, but I do not believe Milton or others who believe in the paranormal, the supernatural, or the occult are "weirdos." Nor do I think that believers are unintelligent. Many of them are obviously very intelligent, much more intelligent than I am. But being more intelligent than someone else doesn't make one right. I simply think Milton is wrong about many things and his arguments are defective.**

*The reality is that their irrational reaction arises from their own inability to deal scientifically with the new and ambivalent, even when (as in the case of dermo-optical perception) there is probably a simple natural explanation, or when (as in the case of the new Congo primate) it is simply unexpected and previously unknown to science.*

**Milton can try to rationalize our disagreements with him by proposing that we suffer from some sort of mental defect, but the fact is that the skeptics I read and admire try to offer good reasons for their beliefs and their disbeliefs. Whatever is**

**motivating them is irrelevant to whether their arguments and explanations are cogent.**

*This book is a stark warning to every student of science, logic and philosophy of what can happen when an otherwise rational person goes off on a personal crusade motivated by his own self-deluding prejudices.*

**The same might be said of Milton's Alternative Science pages.**

### **more Internet Bunk**

- [The Millennium Group - Science in the Service of Humanity](#)
- [Joe Firmage & The Truth](#)
- [Pharaoh's Pump Foundation](#)
- [The Junk Science Page](#)

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