

SKEPTICS AND BELIEVERS

People fall into one of two classes: skeptics and believers. The skeptical do not accept anything as true if the evidence for it is not conclusive. That does not mean they totally reject everything that lacks such evidence, only that they attach to such things merely the degree of "possibility" that the evidence warrants. That leaves very little that skeptics accept entirely. They believe in fully-corroborated history (Lincoln was an assassinated president, there was a World War I, the holocaust did happen). They believe in fully-verified scientific conclusions, such as evolution and the first and second laws of thermodynamics (the first says you can't get more out of a system than you put into it, and the second says you can't break even either), which make perpetual motion an impossibility. Partial credibility attaches to the adverse effects of global warming, the possible benefits of meditation, and the existence of intelligent life elsewhere in the universe (but not to their earthly visits).

Some beliefs of the believers to which skeptics attach zero credibility: graphology, parapsychology, ESP, astrology, mysticism, the occult, extra-terrestrials (who fly UFOs about), numerology, Bigfoot, the Loch Ness monster, teleportation, reincarnation, PSI power, personal auras, faith healing, healing waters, spontaneous human combustion, channeling, creationism, intelligent design, indigo children, and the list goes on and on. In this category fall all the beliefs that could never be disproved, which leads to their acceptance by believers and rejection by skeptics.

David Hume: "No testimony is sufficient to establish a miracle, unless the testimony be of such kind that its falsehood would be more miraculous than the fact which it endeavors to establish."

Carl Sagan: "Extraordinary claims require extraordinary evidence."

Michael Shermer, publisher of *Skeptic* magazine and author of *Why People Believe Weird Things*, discusses an example of widespread gullibility in the March 2006 issue of *Scientific American*. A book written by Kevin Trudeau entitled *Natural Cures "They" Don't Want You to Know About*, is "a rambling farrago of uninformed opinions, conspiracy theories and cheeky jabs at medical, pharmaceutical and government authorities ('they'). The book is so risibly ridiculous that even the most desperately ill would not take it seriously—would they?"

"Apparently they would, as the book got on the Times best-seller list even though the author spent almost two years in prison after pleading guilty to credit-card fraud and had to pay \$500,000 in consumer redress for his bogus infomercials, plus \$2 million to settle charges against him for claiming that coral calcium causes cancer (it doesn't) and that an analgesic product called Biotape permanently relieves pain (it doesn't)."

As I wrote in my essay on art, humans are programmed to look for patterns when trying to understand what they observe. Their first great discovery, perhaps after they left Africa, was historical extrapolation: they could use the past to predict the future. Noticing that fall and winter follow every summer, they stored up food supplies in the late summer and early fall to keep them alive during the winter. However, this strong drive to understand led mankind to "patternicity," the tendency to find patterns where there is only meaningless randomness.

Humans are also programmed to look for causes that lead to effects, obviously very important for understanding the world. Unfortunately, this leads to the common error of seeing purpose where there is only process. False cause-and-effect beliefs are very common. The error is known as *post hoc, ergo proper hoc* (what follows must have been caused by what preceded). That things frequently, or even continually, follow something else does not prove they are related in any objective, "real," manner--except in our minds.

In Michael Shermer's Skeptic column in Scientific American, June 2009, entitled Agenticity, he identifies two types of pattern errors. Type I is Patternicity, described above. Type II is a False Negative, in which a legitimate pattern is given no credibility. The Type II error, as in believing the motion in the grass is caused by the wind and not a predator, was very dangerous to our primitive ancestors. Natural evolution would therefore favor those who assumed all patterns are real. They came to infer agency behind all patterns, and a tendency to believe that the world is controlled by invisible intentional agents. That belief led to a multitude of superstitions that plague mankind, even today.

Will Durant: "Only the fortunate can take life without mythology."

In his book *SupseSense* Bruce Hood cites substantial evidence from cognitive neuroscience that humans readily find patterns and impart agency to them. "Many highly educated and intelligent individuals experience a powerful sense that there are patterns, forces, energies, and entities operating in the world. More important, such experiences are not substantiated by a body of reliable evidence, which is why they are *supernatural* and unscientific." He calls the inclination or sense that they may be real our "supersense." "We are natural-born supernaturalists," adds Shermer.

Gamblers are notorious for such misapprehensions, imagining that they see meaningful patterns in results that are merely random. Often the same gamblers will at times hold two contradictory beliefs: (1) a repeated result means that the result will tend to continue and (2) a repeated result means that a change is "due." The latter betting philosophy, widely held, is known as "maturity of chances." Gamblers have derived innumerable "systems" based on the maturity of chances, each involving wagering on selected members of a sequence of plays, making the decision whether to bet (and how much to bet) or not to bet on the outcome of the *n*th trial a function of the preceding trials. It is easy to prove mathematically that all betting systems employed in a series of plays, each with the same advantage or disadvantage, lead ultimately (after a large number of plays) to the same value of mathematical expectation of gain per unit amount wagered. "Betting system votaries are spiritually akin to the proponents of perpetual motion machines, butting their heads against the second law of thermodynamics." - Richard A. Epstein

Richard Feynman (1918-1988), Nobel Prize winner for physics, said in an interview with the BBC: "You see, one thing is I can live with doubt and uncertainty and not knowing. I think it's much more interesting to live not knowing than to have answers that might be wrong. I have approximate answers and possible beliefs and different degrees of certainty about different things, but I'm not absolutely sure of anything and there are many things I don't know anything about, such as whether it means anything to ask why we are here, and what the question might mean....I don't feel frightened by not knowing things, by being lost in a mysterious universe without having any purpose, which is the way it really is as far as I can tell. It doesn't frighten me."

Francis Bacon: "If a man will begin with certainties, he shall end in doubts; but if he will be content with doubts, he shall end in certainties."

Bertrand Russell: "Give to any hypothesis which is worth your while to consider just that degree of credence which the evidence warrants. And if the hypothesis is of sufficient importance there is the additional duty of seeking further evidence."

Voltaire: "Incredulity is the foundation of all knowledge."

David Hume: "If we take in our hand any volume; of divinity or school metaphysic, for instance; let us ask, 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."

The Roman Lucretius: "I teach about important matters and endeavor to disentangle the mind from the strangling knots of superstition."

Frederick II (“the Great”), King of Prussia: “Superstition is a weakness of the human mind, which is inseparably tied up with it; it has always existed, and it always will.”

Leonardo Da Vinci: “The noblest pleasure is the joy of understanding.”

Geronimo Cardano (1501-1576): “Of all ends that man may attain, none seems more worthy or more pleasing than the recognition of truth.”

Will Durant: “The historian acquainted with the pervasive pertinacity of nonsense reconciles himself to a glorious future for superstition; he does not expect perfect states to arise out of imperfect men; he perceives that only a small proportion of any generation can be so freed from economic harassments as to have leisure and energy to think their own thoughts instead of their forbears or their environment; and he learns to rejoice if he can find in each period a few men and women who have lifted themselves, by the bootstraps of their brains, or by some boon of birth or circumstance, out of superstition, occultism, and credulity to an informed and friendly intelligence conscious of its infinite ignorance.”

As to religion, well, it seems to be a necessity for those who can't face the alternative, so I won't mention it here. Joanne Agate had this to say in *Skeptical Briefs*, December 2005:

"Not many of us can face the cold, hard fact that maybe this is it. There may indeed be no God/Goddess/afterlife/higher power, etc. We may all be here simply because we are here and that is that. Once we can accept this, then we can truly enjoy life. Until then, some people will search for answers, while others are more than willing to provide those answers--for a price."

Hitler was a moralist (indeed, a moral vegetarian). As the historian Ian Buruma wrote, “This shows once again that the true believers can be more dangerous than cynical operators. The latter might cut a deal; the former have to go to the end—and drag the world down with them.”

Can we ask this of the believers? Please be tolerant of those whose beliefs differ from yours. Too many millions have died throughout history because of religious differences. How many suicide bombers would there be if they knew there will be no virgins waiting for them in paradise after they commit their suicidal murders? Enough, already!

Will Durant: “A supreme and unchallengeable faith is a deadly enemy to the human mind.”

The main organization for skeptics is the Center for Inquiry (CFI) (www.centerforinquiry.net). It includes the Committee for Skeptical Inquiry (CSI) (www.csicop.org). The CSI bi-monthly publication, *The Skeptical Inquirer*, "The Magazine for Science and Reason," debunks innumerable superstitious beliefs that plague our society. Associate members of CSI also receive the *Skeptical Briefs* quarterly magazine. Another branch of CFI is the Council for Secular Humanism (www.secularhumanism.org), which publishes *Free Inquiry*, a bi-monthly magazine similar to *The Skeptical Inquirer* but with more emphasis on secular humanism.

Suggested reading:

A History of Western Philosophy, by Bertrand Russell.

The Theory of Gambling and Statistical Logic, by Richard A. Epstein. While there are a few errors in this comprehensive treatment of the title's subjects, I know of no book that rivals it. Its final chapter “Fallacies and Sophistries” mathematically debunks both the superstitions of gamblers and the claims of ESP researchers.

The Pleasure of Finding Things Out, The Best Short Works of Richard P. Feynman. No difficult scientific writing here, just fascinating reminiscences and insightful philosophical comments by one of the greatest physicists of the 20th century.

Don't Believe Everything You Think: The 6 Basic Mistakes We Make in Thinking, by Thomas Kida. The six mistakes are:

- We prefer stories to statistics
- We prefer to confirm, not to question, our ideas
- We rarely appreciate the role of chance and coincidence in shaping events
- We sometimes misperceive the world around us
- We tend to oversimplify our thinking
- Our memories are often inaccurate