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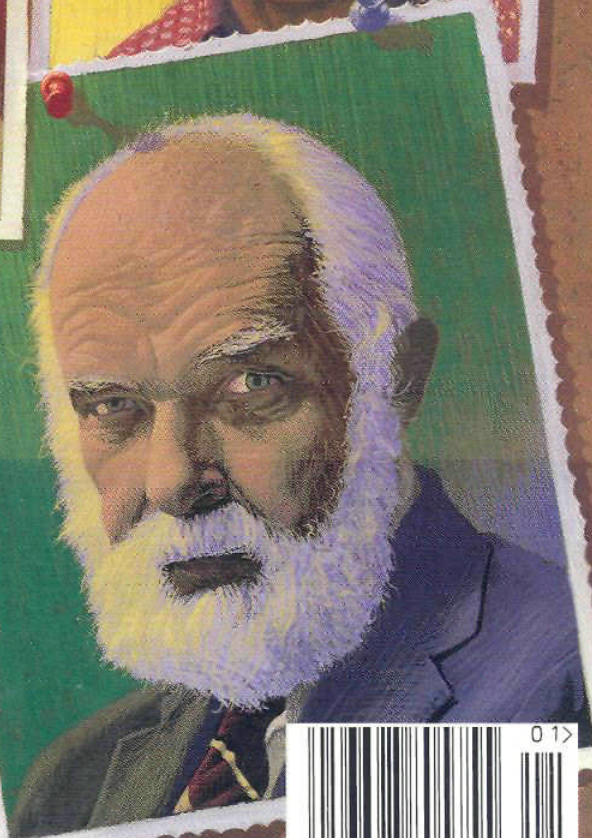
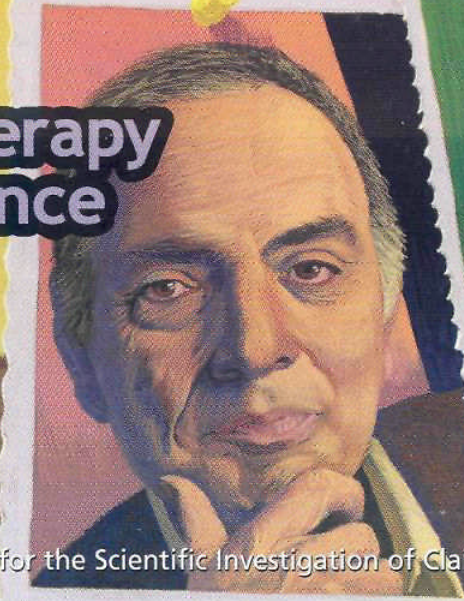
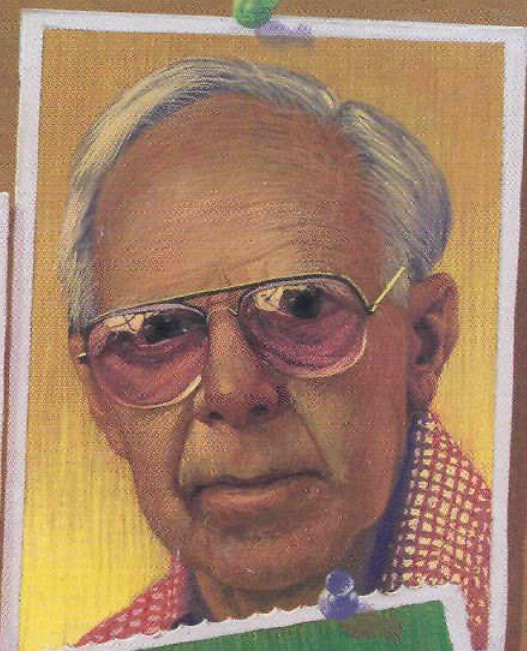
THE 10 OUTSTANDING SKEPTICS OF THE TWENTIETH CENTURY

Religious
Traditionalism
& Paranormal
Belief

The Mentalist
Who Baffled
Sir William
Crookes

Oxygen Therapy
Pseudoscience

Congress
Censures
Research
Paper



Published by the Committee for the Scientific Investigation of Claims of the Paranormal



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EDITOR'S NOTE

Who Are the Outstanding Skeptics of the Century?

There are many heroes of the skeptical movement, past and present. As the century draws to a conclusion, we thought it would be interesting to honor those considered most outstanding by their peers. We asked the Fellows and Scientific Consultants of the Committee for the Scientific Investigation of Claims of the Paranormal, publisher of the *SKEPTICAL INQUIRER*, for their choices. We provided no lists of names and offered no specific guidelines. They could choose anyone they wanted from any field of endeavor. They could choose their own criteria. The results are in this issue.

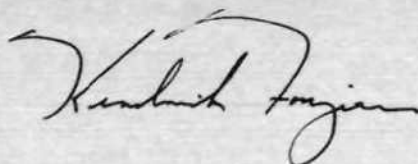
Our feature on the outstanding skeptics of the twentieth century identifies the ten *most* outstanding skeptics. Five of them are still hard at work on behalf of science, reason, and skepticism. Three herald from earlier parts of the century. Two were taken from us prematurely in the 1990s.

Fifty people in all received votes. They all—and many, many others besides them—have made notable contributions to science and skepticism. We are interested in your own brief opinions and comments, and will publish them in a future issue.

Can those who hold paranormal beliefs be divided into two neat categories? Are people who believe in the physical reality of heaven, the reality of angels and the devil, and the validity of special or biblical creation compartmentalized from those who, on the other hand, believe in ESP, psychokinesis, prophecies, astrology, UFOs as alien space shapes, crystal power, synchronicity, and so on? In a notable article in these pages in 1980 and in another in *American Scientist*, Bainbridge and Stark showed evidence that where one realm of belief is strong, the other is weaker, and vice versa. Their evidence indicated that in regions of the country where traditional religion is weakest, New Age type beliefs were strongest; where traditional religion had its strongest hold, the other kind of paranormal beliefs were weaker. More recently, Taylor, Eve, and Harrold (1995), also in these pages, likewise distinguished two separate dimensions of paranormalism, *creationism* and *fantastic archaeology*, with mutually exclusive domains that serve different functions, have different origins, and adherents who hold to different rules of evidence.

In this issue sociologist Erich Goode of the State University of New York at Stony Brook reexamines this question. He presents the results of his own 100-item survey of 484 students enrolled in three undergraduate courses at his university. Four questions concerned belief in Christian conservatism, traditionalism, or fundamentalism; five questions dealt with our usual conception of paranormal beliefs. When he cross-correlated the answers (20 tables of data), he found something surprising: For 18 of the 20 tables, respondents agreeing to the religion question were also more likely to agree to the paranormal questions. "In almost every case," he says, "respondents who believed in angels, heaven, divine creation, and the devil, also believed the reality of extraterrestrial vehicles, ESP, astrology, lucky numbers, and King Tut's curse." His data indicate a positive, strong, and significant, relationship between measures of traditional or fundamentalist Christian faith and specific tenets of paranormalism.

Goode suggests some possible reasons for the differences between his results and the previous studies. But, he says, "The parallels between religious faith and paranormal belief are more than abstractions or artificial constructs; they seem to have emotional resonance in the lives of many believers."



Skeptical Inquirer

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Science Trumps Creationism in New Mexico

DAVID E. THOMAS

On October 8 the New Mexico State Board of Education voted 13 to 1 in favor of a proposal to revise state science teaching standards to include evolution and related concepts, such as the age of Earth. The vote followed a series of statements by both the public and board members.

Initially, only one speaker from the public opposed the proposed science revisions; he was given six minutes to present his case against teaching evolution in biology classes. He was followed by nine speakers (given two-minute time limits) who supported the new proposal; several of these teachers,

scientists and laypersons are active in the local skeptics group, New Mexicans for Science and Reason. The speakers for the proposal strongly endorsed it, and the board's consideration of improved standards, in a brief string of statements. Subsequently, two late arrivals who opposed the standards changes were allowed to speak also, for about two minutes each.

An apparently unanimous vote in favor of the stronger science standards was temporarily set aside, as some board members felt it needed more discussion. A lively discussion ensued, and New Mexico board member Marshall Berman, a physicist from Sandia National Laboratories, provided an elo-

quent description of science as ongoing critical inquiry, quite unlike "theories" based on religious explanations like creationism and Intelligent Design, which explain everything, but only by terminating the whole discussion.

After the board discussion the vote in favor of evolution followed, with only one member (from Roswell, wouldn't you know) in opposition.

And so the fuzzy language in New Mexico's standards, which encouraged creationists and anti-evolutionists for three years, officially became history. After the vote, there was a round of applause from several teachers and scientists in attendance, and a flurry of interviews in the hallway, and then the

American Association of Physics Teachers Statement on the Teaching of Evolution and Cosmology

The following statement was adopted by the Executive Board of the American Association of Physics Teachers at its meeting in College Park, Maryland on October 16, 1999.

The Executive Board of the American Association of Physics Teachers is dismayed at the action taken by the Kansas State Board of Education to eliminate the most significant portions of the subjects of evolution and cosmology from the science standards which define educational objectives in the state.

Evolution and cosmology represent two of the most sweeping and unifying concepts of modern science. There are few scientific facts more firmly supported by observations than these: Biological evolution has occurred and new species have arisen over time, life on Earth originated more than a billion years ago, and most stars are at least several billion years old. The overwhelming evidence comes from so many and diverse sources—biological knowledge of the structure and function of DNA, geological examination of rocks, paleontological studies of fossils, telescopic observations of distant stars and galaxies—that no serious scientist questions these claims; we do our children a grave disservice if we remove from their education familiarity with the evidence and the conclusions. The

"Big Bang" theory of the origin of the universe is, to be sure, not quite so firmly established, and some scientists still consider alternatives. Here, too, however, the framework for skepticism and challenge is examination of scientific observations and the proposal of testable alternatives, not simply the rejection of the conclusions that have been reached by most scientists.

No scientific theory, no matter how strongly supported by available evidence, is final and unchallengeable; any good theory is always exposed to the possibility of being overthrown by new observational evidence. That is at the very heart of the process of true science. But to deny children exposure to the evidence in support of biological evolution and of cosmology is akin to teaching them that atoms do not exist, that the Sun goes around the Earth, and the planet Jupiter has no moons.

The Kansas State Board of Education has a responsibility to ensure that all Kansas children receive a good education in science. The American Association of Physics Teachers urges the Kansas Board to rescind its action which removes a significant portion of good science from the Kansas standards for science education.

—American Association of Physics Teachers

board returned to other business.

The vote is considered significant nationally. It reverses an anti-evolution trend that had gained enormous recent momentum in Kansas. It also showed that scientists and educators working together can score political victories over creationist forces. After the vote, both major newspapers in the state strongly endorsed the action. The *Albuquerque Tribune* wrote, "How odd that public officials should draw praise for doing perfectly sensible things. But given the state of teaching standards for science classes across the nation these days, the New Mexico Board of Education has earned its accolades." The state's largest paper, the *Albuquerque Journal*, said, "The religious beliefs of students and their parents must be respected—but the beliefs of some must not be allowed to curtail the science education of all."

Even Archbishop Michael J. Sheehan of the Diocese of Santa Fe weighed in, saying in two state newspapers, "I don't believe there is any real contradiction between the theory of evolution and the creation of the world by God. The church has no problem accepting the theory of evolution, provided that it is understood that God infuses a human soul at a certain point in the evolutionary process and that, in fact, God is the force behind the evolution process."

How different this all was from events of more than three years earlier. In fact, until this vote, events in New Mexico closely paralleled recent events in Kansas. In New Mexico, as in Kansas, a large committee of teachers and scientists had developed draft science content standards based on national teaching standards developed by the National Academy of Sciences. In both states, the draft standards thus developed included evolution, easily one of the top five science concepts of history. And in both states, board members hostile to evolution managed to get key concepts removed from the science standards. (See "Evolution

Loses Out in New Mexican Science Standards," *SKEPTICAL INQUIRER*, November/December 1996 23[6], News and Comment).

In New Mexico, the board member most responsible for the anti-science changes was Roger X. Lenard, one of five appointed members back in 1996 (the other ten are elected). Lenard is an ardent anti-evolutionist. Lenard engineered the last-minute removal of the only remaining reference to biological evolution from the Content Standards. In fact, much of the writing committee's hard work had been thrown out by Lenard, who ridiculed the National Academy as "clueless." Citizens had less than two hours to review his final changes, on the very day the board voted. This year, by contrast, board members published their intentions in the state's major newspapers two weeks before the board meeting.

As in Kansas, several university departments and science groups issued statements in 1996 critical of the dumbed-down curriculum requirements. A 1997 bill to restore evolution teaching passed the New Mexico State Senate, but failed in committee in the House. The Coalition for Excellence in Science and Math Education (CESE) developed a minimum set of revisions that were sent out for review by the State Department of Education. But although the survey results indicated overwhelming support for evolution and related concepts, these revisions were not adopted, not even one that received 85 percent in favor. On September 16, 1997, Lenard defended this lack of action, explaining the results of the survey as a "sort of a wash."

What made the difference in New Mexico in 1999? In the end, it was politics, not science, that carried the day. Many New Mexico scientists were appalled by the evolution-muddled New Mexico standards, and one of them, Marshall Berman, who founded CESE, ran for the State Board of Education in the summer of 1998. Berman ran a strong, pro-science campaign and

defeated his opponent, a twenty-year incumbent who always voted with anti-evolutionists (while protesting that she never supported creationism), by a 2 to 1 margin. Berman won endorsements from some high-profile supporters (such as Harrison Schmitt, the last astronaut to walk on the Moon and a former U.S. Senator from New Mexico) and comet co-discoverer Alan Hale.

Pro-science citizens worked on several other board campaigns, and 1998 saw the removal of three anti-evolution board members and the defeat of like-minded candidates. In other words, the citizens made creationism the proverbial "third rail" of New Mexico politics.

After the fiasco in Kansas, in which the anti-evolutionists got much more than they ever did in New Mexico, the momentum to revisit New Mexico's flawed standards became overwhelming. Perhaps Kansas and states with similar problems may win turnarounds like this in the near future.

For the latest on science education happenings in New Mexico, check the CESE Web site at www.cesame-nm.org.

Dave Thomas, a physicist, is president of New Mexicans for Science and Reason and a SKEPTICAL INQUIRER consulting editor.

Woman Convicted During Sex Abuse Hysteria Released

A Massachusetts judge ruled in October that Cheryl Amirault LeFave, a woman convicted in a notorious child abuse case, will be released, her sentence revised to time already served. She had served more than eight years of an eight-to-twenty year sentence, convicted of sexually assaulting dozens of young children at the Fells Acres day care center in Malden, Massachusetts.

Middlesex District Attorney and prosecutors maintained that about forty children told the truth when they described being tied to trees, sexually

assaulted with knives, and tortured by a "bad clown" in a "secret room." Detectives and prosecutors could find no physical evidence to support the accusations, nor any corroborating testimony from teachers or visitors at the center.

The case hinged on the questionable testimony of young children, and is similar to several other unsubstantiated child abuse cases, including the McMartin preschool case, which was the longest and costliest criminal trial in California history.

LaFave's mother, Violet, and brother, Gerald, were also convicted in the case. A judge overturned the convictions of Ms. LaFave and her mother in 1995, and in 1998 Superior Court Judge Isaac Borenstein ordered a new trial, noting that, "There are so many examples in the evidence of this case of improper procedures that it would take days to go through them. This case should leave no one confident except for one thing—justice was not done." He also read aloud part of one child's testimony in which the preschooler denied ten times that she had ever been photographed by LeFave. "It goes on and on and on ... [the prosecutors] refusing to take no for an answer."

The state's highest court reinstated the convictions of Ms. LaFave in August. Violet died two years ago, and Gerald Amiraault is still in prison, having exhausted his appeal requests.

—Benjamin Radford

Benjamin Radford is Managing Editor of the SKEPTICAL INQUIRER.

Bennett Braun Case Settled; Two-Year Loss of License, Five Years Probation

The Illinois Department of Professional Regulation's case against Bennett Braun for his treatment of the Burgus family was settled prior to the scheduled November hearings.

As reported previously (SI January/February, March/April, and September/October 1999) the Illinois Department of Professional Regulation (IDPR) filed a complaint against psychiatrist Bennett Braun, a leader in the repressed memory movement, and two of his colleagues. One of those colleagues, Elva Poznanski, had settled her case a few months ago.

This settlement causes Braun to lose his license for two years, with a probationary period of at least five years. That period includes other ramifications. Braun will have to apply after that five years to be removed from probation. To do so, he will have to meet the requirements laid out for him, and that is by no means automatic. While on probation, he will be required to give a packet of the complaint, his response, and the final order to all prospective employers. He must submit quarterly reports to the IDPR, saying where he is practicing, what he is doing, and what he is treating his patients for. He cannot treat patients diagnosed with multiple personality disorder. He cannot supervise any health professionals, including, for example, nurses. According to Tony Sanders, IDPR public information officer, "In effect, he is out of commission in Illinois." Who, after all, would want to hire a doctor who can't even supervise a nurse? It also includes a \$5,000 fine and additional medical education.

One reason cited by Sanders for accepting this settlement was that even if the IDPR had managed to get Braun's license revoked indefinitely, Braun would have had the option to appeal to the circuit court—which might have allowed Braun to practice for at least three more years while the case went through the court system.

Asked how this would affect his status if he wanted to move to another state, Sanders noted that all states belong to a Federation of State Medical Boards, and they are supposed to check for problems in other states whenever a doctor applies for a license. Sanders thought it unlikely that Braun would be

able to pick up and move, especially given his notoriety.

Former lead prosecutor Thomas Glasgow, now in private practice, noted in a telephone interview that this settlement does what it is supposed to do: it protects the citizens of the state of Illinois. Braun is losing his livelihood, and that sends a "very powerful message" that doctors should not be practicing "hocus pocus psychiatry." He added that there is not now, nor was there at the time of treatment, any scientific evidence that Braun's methods were accepted. He noted that doctors are supposed to be scientists, and Braun acted in an unacceptable manner. Glasgow said that it is his opinion that Braun "got a kick out of being the leader in the field."

Pat Burgus, Braun's former patient, said in a telephone interview that she was satisfied with the outcome. He is fifty-nine years old now, she noted, and won't be able to practice without restrictions until he's at least sixty-six—retirement age. "He's ruined his own life," she said.

While the cases against Braun and Poznanski have now been settled, one IDPR case related to the Burgus family remains, against psychologist Roberta Sachs. Sanders said that her case is scheduled to go to hearing in January.

Interestingly, Braun filed suit against his own insurance company this summer for allegedly settling the previous lawsuit against him without his consent. He also has said that he only settled with the IDPR for monetary reasons—the cost of fighting the case—but claimed he could have proven he was in the right. He did not actually acknowledge wrongdoing as part of the settlement; he only admitted "that the Department could produce evidence of the facts alleged in the Department's case." And that is immediately followed by a statement saying, "The Respondent could produce evidence refuting the Department's charges but due to the Respondent's current plans and circumstances, the Respondent is

seeking to resolve these matters without protracted litigation."

In other words, it seems he may have learned nothing and may still believe in fantastic tales of huge satanic conspiracies. Burgus is of the opinion that Braun still believes in his conspiracies and his methods. Part of it, she thinks, is that he cannot admit to himself how much he hurt her and others; he has to maintain his stand to keep his belief system intact. There is something compelling about this description. Has the former patient diagnosed the doctor? Bennett Braun will have several years to ponder his beliefs and how they led him to where he is now.

—David Bloomberg

David Bloomberg is chairman of the Rational Examination Association of Lincoln Land (REALL) and can be reached at chairman@reall.org.

\$1,000 Challenge to 'Crazy Rod' Dowser Yields Chance Results

James D. Moore, Jr., of Hawthorne, Florida, claims the ability to detect the presence of buried gold, silver, and precious gems by use of a plastic Y-shaped divining rod, which he has created and marketed for \$39.95 as the Crazy Rod. His business card proclaims: "THE CRAZY ROD: Einstein predicted it—we did it." But hard as I tried (and I did manage to locate two very similarly named treatises), I was unable to find any record of "Einstein's Theory of Crazy Relativity."

And hard as the Tampa Bay Skeptics (TBS) tried, we were unable to certify Moore's ability as genuine. A weathered fifty-something-or-so (he won't tell), Moore was referred to TBS by the James Randi Educational Foundation for screening and pre-testing. Had he performed successfully for us, he would have earned our \$1,000 prize and

moved on to Randi's \$1,000,000 test.

The formal TBS \$1,000 Challenge was conducted in the green room of television studio WTVT-TV 13 in Tampa on September 10, 1999. Originally scheduled to be carried live on that day's *Your Turn with Kathy Fountain* portion of the noon newshour, the show was "bumped" due to late-breaking developments in a local 1997 missing-child case (the parents had just been arrested on suspicion of murder). But the videotaped Challenge (to be the topic of a later Kathy Fountain interview) turned out just as TBS suspected it would, thus sparing the necessity of revising the world's physics textbooks.

Moore had earlier supplied TBS with twenty-three open-topped boxes (hand-made of lead) and specially processed sand that was used to cover their contents. Two days before the Challenge, I had buried a one-ounce gold coin in roughly half of the boxes, and a wafer of aluminum in the remainder. Moore needed to correctly divine all twenty-three boxes, determining which contained gold and which did not. The probability of success, in the absence of genuine divining ability, was 1 in 8,388,608 (1:2²³), comparable to twenty-three consecutive coin flips. In his practice sessions at home, he claims to have enjoyed 100 percent success.

Prior to the test, Moore stated that he did not simply "believe" in his ability, but "knew" that it was genuine. When asked how he would explain a "50-50" outcome should that occur (as we predicted it would), Moore could not imagine any such possibility, stating that should he fail, he would get *all* the boxes *wrong*. In other words, if his rod decided to act "crazy" during the Challenge, the results would be 100 percent backwards, not a random mixture of right and wrong.

After the protocol documents were signed, one by one the twenty-three boxes were laid on the floor in front of him. Moore was permitted to place the end of his Crazy Rod within inches of the sand, and averaged less than ten seconds apiece in "divining" the contents of

the boxes. Although I didn't notice any significant difference in his rod's reaction between gold and aluminum, Moore confidently made his declarations. And at the test's conclusion, he expressed confidence that he had done well, and reaffirmed that he had not simply guessed but that his rod had definitely reacted differently to the boxes containing gold boxes than to the others.

The boxes were then lifted onto a table, and Moore was asked to uncover the objects buried in the sand. The first box, in which Moore's Crazy Rod had detected the presence of gold, turned out to contain an aluminum wafer—Moore had lost our \$1,000 Challenge. Of the twelve boxes that Moore thought contained gold, only six did; the other six contained aluminum. In all, Moore's Crazy Rod worked twelve times out of twenty-three, no better than had someone sniffed Crazy Glue and taken wild guesses.

Yet Moore was unwilling to entertain the possibility that, due to a lack of proper controls prior to this test, he had simply been deceiving himself for years. Rather, he now claimed that the "magnetic fields" in the boxes had become "transformed" by extraneous vibrations. But the purpose for having made the boxes out of lead, and for supplying specially processed sand, was to shield the buried objects from any such outside influences. Apparently he forgot all about having previously told us—twice—that he could conceive of *no possible explanation* for a "50-50" result. And during the Challenge, his divining rod seemed to him to be working just fine.

Although Moore was immune to our appeal to reason, his friend/associate has acknowledged to me that our Challenge has opened his own mind as to the genuineness of Moore's abilities, and the utility of the Crazy Rod. For me, that was reward enough.

—Gary Posner

Gary Posner, M.D., is founder of the Tampa Bay Skeptics and a CSICOP consultant. □



The Second Coming of Jesus

As the year 2000 approached, Protestant fundamentalists (I include members of Pentecostal churches and such fringe sects as Seventh-day Adventism and Jehovah's Witnesses) became more and more persuaded that the Lord's Second Coming was close at hand. Scores of strident books were published, and are still being published, showing how a correct interpretation of the books of Daniel and Revelation proves that the rapture of believers, the Battle of Armageddon, and the end of the world as we know it will be occurring very, very soon. The books range from the many by Hal Lindsey, which have sold by the millions, to obscure volumes which identify the Antichrist and reveal the meaning of 666, his number.

You would think that believers in the imminence of Christ's return would be bothered by the fact that, ever since the gospels were written, huge numbers of Christians have interpreted Biblical signs of the end as applying to *their* generation. The sad history of these failed prophecies makes no impression on the mind-sets of today's fundamentalists.

Martin Gardner's latest book, Annotated Thursday (on Chesterton's famous comic fantasy The Man Who Was Thursday), was published in September. W.W. Norton will soon be issuing a single volume reprinting of Gardner's Annotated Alice and More Annotated Alice.

Even Billy Graham, who should know better, has for decades preached and written about the impending return of Jesus. He grants that no one knows the exact year, but all signs indicate, he believes, that the great event is almost upon us.



It is often said that current excitement over the Second Coming, centering on the year 2000, had its parallel in a panic over the end of the world that swept through Christian Europe as the year 1000 approached. But did such panic actually occur? As Stephen Jay Gould makes clear in his wise little book *Questioning the Millennium* (1997), the

answer is far from clear. There is now, he tells us, an enormous literature on the topic that spans the full range of opinion from the claim that Europe did indeed experience "panic terror" to the claim that nothing of the sort took place.

Gould cites Richard Erdoes' *AD 1000: Living on the Brink of the Apocalypse* (1988) as a recent defense of the panic terror school. A German now living in Santa Fe, New Mexico, Erdoes is the author of two previous books, *The Sundance Principle* and *American Indian Myths*. "On the last day of the year 999," Erdoes begins his history, "... the old Basilica of St. Peter's at Rome was thronged with a mass of weeping and trembling worshippers awaiting the end of the world."

At the other end of the spectrum, Gould cites *Century's End* (1990), by Hillel Schwartz. Schwartz denies that any undue excitement over the Second Coming took place as 1000 loomed. An intermediate view, that there was *some* excitement but not much, is ably championed by French historian Henry Focillon in *The Year 1000* (English translation, 1969).

Gould admits that he favored Schwartz's position until he attended an international conference devoted to "The Apocalyptic Year 1000," held at Boston University in 1996. The conference organizer, medieval historian Richard Landes, convinced Gould that

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Co-chairs of the Fund for the Future Campaign: above, author and TV personality Steve Allen; below, author and critic Martin Gardner.

Council for Media Integrity

Formed just weeks after its inclusion in the Ten-Year Plan, the Council for Media Integrity monitors and challenges media programs that convey unfounded claims and mislead the public about science. Members include Steve Allen (co-chair), E. O. Wilson, Stephen Jay Gould, and many others. CSICOP will invest in electronic infrastructure to facilitate rapid response to irresponsible programs.

Enhanced Library Resources

The Center for Inquiry's skeptics' library—already the finest of its kind in the world—needs additional funding to enlarge its core collection and add electronic media. Worldwide modem access to the library's catalog is already nearly complete.

Adult Education

The Council cosponsors the Center for Inquiry Institute, which has already expanded its offerings to include a new three-year certificate program in science and skepticism. Courses are scheduled in Amherst, Los Angeles, and other cities.

Regional Outreach

With the establishment of The Center for Inquiry—West (Los Angeles), The Center for Inquiry—Midwest (Kansas City) and The Center for Inquiry—Rockies (Boulder, Colorado), giant steps have been taken to enhance direct field service to skeptical activists. Additional regional centers are planned, with expanded calendars of activities.

Focusing Upon the Young

To present the skeptical message more compellingly to the young, CSICOP will develop new materials—ranging from age-appropriate print publications to audio and video cassettes and instructional coursework. Goals include enhanced understanding of science and improved critical thinking skills.



Bill Nye "The Science Guy," Joe Nickell, and entertainer Steve Allen appear on a radio show.



there was considerable "millennial stirring" in the year 1000, especially among European peasants. One major drum beater for millennial terror was a monk named Raoul Glaber. Like almost all such failed prophets, Glaber found an error in his calculations when Christ did not appear. The thousand years, he proclaimed, should not be counted after Christ's birth, but after his death. This postponed the world's end, he said, until 1033.

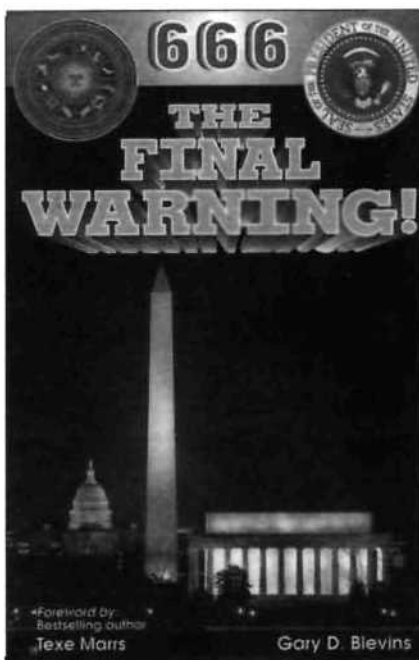
Hundreds of predictions have been made around the world as the year 2000 approached, about the date of the Lord's return. Here are some recent examples that are especially comic.

In 1988 Edgar C. Whisenant, then fifty-six, a retired NASA rocket engineer living in Little Rock, Arkansas, published a paperback booklet titled *88 Reasons Why the Rapture Will Be in 88*. The publisher, a firm in Santa Rosa, California, claimed they sold or gave away over six million copies. The book predicted that the rapture would occur on September 11, 12, or 13, 1988. When the event failed to take place, Whisenant found a slight error in his calculations, and moved the date ahead to September 1, 1989. When *that* date also proved wrong, Whisenant decided henceforth to keep his mouth shut. He told a reporter he was under medication to control paranoid schizophrenia, but that his mental condition had no bearing on his calculations.

Robert W. Faid's *Gorbachev! Has the Real Antichrist Come?* was published in 1988 by Victory House, a fundamentalist firm in Tulsa. Faid is identified on the cover as a nuclear engineer, and author of *A Scientific Approach to Christianity*. He lives in Taylors, South Carolina. Using elaborate systems of numerology, Faid finds that in one system Gorbachev's full name yields 666, and in another system it produces 888, a number Faid identifies with Jesus. Gorbachev is thus shown to be both the Beast of Revelation and the counterfeit Christ. The Second Coming, Faid warns, will take place in 2000 or shortly thereafter. A portion of his crazy book was actually reprinted in *Harper's Magazine* (January 1989). I have no idea

whether Faid today still thinks poor Gorbach is the incarnation of Satan.

Correspondent John Earwood called my attention to a much funnier book. Titled *666: The Final Warning*, the author is Gary D. Blevins, a former



Prudential Life Insurance agent, now a financial consultant in Tennessee. This lavishly illustrated paperback was privately published in 1990 by Blevins's Visions of the End Ministries, and can be obtained by writing to P.O. Box 944, Kingston, TN 37662. The book has 494 pages and an introduction by Texe Marrs, another fundamentalist, and author of several bestselling books.

Blevins's book is based throughout on what he calls the Bible's Secret Code, a code concocted by other fundamentalists whose books he recommends. The code is simple. Each letter is assigned a number that is the product of 6 and the letter's position in the alphabet. Thus A = $1 \times 6 = 6$, B = $2 \times 6 = 12$, C = $3 \times 6 = 18$, and so on to Z = $6 \times 26 = 156$.

Blevins must have labored long and hard at his calculations, applying the code to hundreds of names and phrases to produce relevant sums, and especially the sum of 666, Revelation's notorious "number of the Beast."

Blevins writes that he was surprised to find that *Kissinger* adds to 666, but he realized at once that Henry Kissinger

couldn't be the Antichrist because he failed to fit "Scripture guidelines." He was also amazed that so many common words and phrases, such as *New York*, *illusion*, *witchcraft*, *necromancy*, *Mark of the Beast*, and *Santa Claus* add to 666.

If not *Kissinger*, then who *does* Blevins think, or perhaps I had best say *thought* in 1990, is the primary suspect for being the Antichrist? You won't believe it, but the candidate is none other than Ronald Wilson Reagan!

Each of Reagan's three names has six letters, and the entire name has six syllables. This is suspicious enough, but Blevins is compelled to do more. Unfortunately *Ronald Reagan* is six short of 666, but Blevins remedies this by adding *A* in front of the name: *A Ronald Reagan*. That's not all. A tireless Blevins manages to find scores of other phrases about Reagan that add to 666. Here are some of them:

Office of Reagan, Rank of Reagan, A Mark of Reagan, Space of Reagan, Ray of Reagan, Vim of Reagan, Tact of Reagan, Talk of Reagan, Brain of Reagan, Mold of Reagan, Peer of Reagan, Karma of Reagan, Ranch of Reagan, Hope of Reagan, Faith of Reagan, Old Age of Reagan, Creme of Reagan, Reagan in Japan, and dozens of other phrases.

One might object that even in 1990, when Blevins's book was published, Reagan was no longer in power. This doesn't faze Blevins one bit. Does not Revelation 17:8 speak of "the beast that was, and is not, and yet is?" To Blevins this tells us that Reagan will regain power, but now on a global scale. He will rule the world by means of a supercomputer (Blevins's code gives to *computer* a sum of 666), and by keeping track of everybody with bar codes implanted in hands and foreheads. He will be assisted by the Masons (Blevins believes Freemasonry is a satanic cult), and by the present Pope. Blevins reminds us that Reagan is an honorary Mason, that he believes in astrology and lucky charms, and that 33 is his lucky number. (For more on number mysticism, see "Numerology: Comes the Revolution," by Underwood Dudley, SI 22[5].)

Blevins allows that he is not

absolutely certain that Reagan is destined to become the Beast, he says he likes Reagan personally, and hopes Reagan will not turn out to be the Antichrist. However, "the alarm must be sounded." In Blevins's opinion the evidence is "overwhelming" that Reagan is the prime suspect.

Blevins provides a tentative outline of what the next few years have in store. In 1991-94 New York City will be destroyed and UFOs will land. In 1996 Reagan's mind, invaded by Satan, will be transformed into the Antichrist who will rule the world for a thousand years. In 1998 Reagan will be cast into the Lake of Fire, the faithful will be raptured, Jesus will come back, and Satan will be bound for a thousand years. In 3000 Satan will go into the Lake of Fire along with the resurrected unsaved, and Jesus will rule over a peaceful new Earth.

"Most real theologians in our day," Blevins writes, "flatly state that we will not see the year 2000 before the Lord returns! I strongly agree with that statement."

Now that 1998 has passed with no sign of the Lord, and Reagan surely is no longer capable of ruling the world, one would suppose that an embarrassed Blevins would apologize for his blunders and withdraw his book from the market. But no. In 1999 I sent him \$16.50 for a copy. It arrived promptly with nary a hint of a disclaimer. Blevins's Vision of the End Ministries must need the money.

In Seoul, South Korea, in 1992, Lee Jang Rim, head of one of some 200 Protestant churches in that country, created nationwide hysteria by announcing that the rapture would take place on October 28, 1992. The prophecy was based on a vision that came to a 16-year-old boy. Twenty thousand Korean fundamentalists in South Korea, Los Angeles, and New York City took the prediction seriously. Hundreds quit jobs, left families, and had abortions to prepare for their trip to heaven. Rim's church paid for costly ads in the *Los Angeles Times* and the *New York Times*. They urged readers to prepare for their journey through the skies, and to refuse to allow 666 to be imprinted in bar code

on their forehead or right hand.

Riot police, plainclothes officers, and reporters crowded outside Korean churches, flanked by fire engines, ambulances, and searchlights. Believers took the failure of the prophecy calmly, and there were no reported riots. Only sadness. In December 1992 Rim was arrested and sentenced to two years in prison for having bilked \$4.4 million from his flock. He had invested the money in bonds that didn't mature until the following year!

In 1992 Harold Camping published, through a vanity press, his book *1994?* It predicted that the Second Coming would occur in September of that year. This was followed in 1993 by a sequel

titled *Are You Ready?* Together, the two books totaled 955 pages. Trained as a civil engineer, Camping made enough money running a construction company to found, in 1959, Family Stations, Inc. It soon came to control thirty-nine radio stations. A non-ordained Bible scholar, Camping conducted a nightly radio talk show from his headquarters in Oakland, California. After September passed with no sign of the Lord, Camping changed his date to October 2. When that passed uneventfully, he ran out of excuses and decided against any more date setting.

Among Protestant sects the Seventh-day Adventists continue to be the most vocal predictors of an impending Second Coming, though they no longer

"This Bible Code," moaned Reverend Dix
"Puts my name in a terrible fix."
He was fit to be tied
When the code was applied,
And his name totaled six sixty six.
— Armand T. Ringer

Finding 666 in the names of famous people is a number-twiddling pastime that has obsessed numerologists ever since the Book of Revelation was written. With patience and ingenuity it is not difficult to extract 666 from almost any person's name. For example, using Blevins's Bible code I discovered that *sun*, *moon* and *Pat J. Buchanan* each adds to 666. The same code yields 666 if you apply it to *Hal Lindsey B*, the B standing, of course, for Beast.

My favorite candidate for the Antichrist is Jesse Ventura, former wrestling beast and now governor of Minnesota. Apply Blevins's code to *J. Ventura*. Bingo! 666.

Satan and *Beast* each have five letters. So let's start Blevins's code with A = 5, B = 6, and so on. Applied to *Blevins*, the code gives 666. Could Charlton Heston, chief spokesman for the gun lobby, be preparing the forces of evil for the Battle of Armageddon? Heston has six letters. If we number the alphabet A = 6, B = 7, and so on, then apply Blevins's technique of multiplying each value by six, *Heston* adds to 666.

With more effort I found a way to apply 666 to *Jerry Falwell*. Number the alphabet backward, starting with Z = 0, Y = 1, X = 2, and so on. I call this the Devil's Code. Take the values of the letters in *Falwell*, multiply each by 6, add, and you get 666. The Devil's Code also turns Billy Graham into the Antichrist if you write his name *W. Graham*.

Could President Clinton be the Antichrist? Add the normal position values of *W.J.C.*, the initials of William Jefferson Clinton, and you get 36. The sum of all numbers 1 through 36 is 666. A few years ago mathematician Monte Zerger found a subtler way to identify Clinton with the Beast. He is our forty-second president. Jot down the integers 1 through 42, then strike out all the primes. The remaining numbers total 666.

—Martin Gardner

set a date for that event. The church had its origin in the teachings of a simple-minded farmer named William Miller. His study of the Bible convinced him that 1843 would be the year Jesus would return. When this didn't happen he moved the date to October 22, 1844. After that prediction also failed, Miller had the good sense to stop predicting, but the undaunted Millerites decided that October 22, 1845, was the correct date. This was later moved ahead to 1851. After that year Adventist leaders wisely realized that such date setting was giving the sect a bad reputation.

In Matthew 24 Jesus describes the darkening of the Sun and Moon, and a falling of stars from the sky, as signs of his approaching return. "Verily I say unto you, this generation shall not pass till all these things be fulfilled."

Liberal Bible scholars have long agreed that "this generation" refers to the generation of those listening to Jesus' words. Because he did not return in that generation, fundamentalists of all stripes have been forced to reinterpret Christ's remarks in less plausible ways. William Miller preached that the darkening of the Sun and Moon actually took place in 1780, and that the falling star prediction was fulfilled in 1833 by a dramatic shower of meteors. The generation witnessing these events, Miller maintained, would be the generation that would also see the Lord return in glory.

Until about 1933 Seventh-day Adventist literature defended these Millerite views. Adventist books included dramatic pictures of the dark day and the

falling "stars." The church taught that Jesus would surely return within the lifetime of at least some who had witnessed the 1833 meteor shower. When it became embarrassingly obvious that this could not be, the church quietly dropped from its literature all references to the dark day and the falling stars.

I was therefore surprised when I read *The Coming Great Calamity*, by Adventist Marvin Moore, published by his church in 1997. Moore edits the Adventist periodical *Signs of the Times*, and has written three previous books: *The Crisis of the End Times*, *The Antichrist and the New World*, and *Conquering the Dragon Within*.

Ellen White, the Adventist-inspired visionary and one of the faith's founders, defends Miller's views about the dark day and falling stars in her masterpiece *The Great Controversy Between Christ and Satan*. This is very painful now to conservative Adventists who are unable to admit that Mrs. White could be wrong about anything. How does Moore manage to defend Mrs. White? He argues that she was correct in seeing the dark day and the 1833 shower as fulfillments of Matthew 24, but they were only *partial* fulfillments. They tell us "that the time of the end had begun, not that it was about to end."

The complete fulfillments of Matthew 24, Moore reasons, will be soon, with Earth's destruction caused by "comets, asteroids, and/or meteors." He admits he could be wrong, nevertheless he is convinced that the new millennium will undoubtedly be the century in which stars will seem to fall, the Sun

and Moon will be obscured, and the Lord will return. Before he returns, Earth will experience a terrible destruction not seen since the great flood in the days of Noah.

Jehovah's Witnesses have an even worse record of failed predictions than the Adventists. They teach that Jesus returned in 1914, but it was an invisible, spiritual return. However, they also once taught that 1914 would see the beginning of Armageddon, followed by the destruction of all nations and the establishment of God's Kingdom on Earth. When this didn't happen, the date was moved to 1915. After that year passed, the date was pushed ahead again to 1918. Unfazed by the 1918 failure, 1975 was the next selection.

As far as I know, since then the group has stopped proposing dates, although it still preaches that the end times are near and millions now living will never die. It's useless to bring all this up when a Witness knocks on your door because most Witnesses today are ignorant of their faith's bizarre history, or about the errors and sins of Charles Taze Russell, who founded their sect. A good reference on the history of Jehovah's Witnesses is an article in the *Dictionary of Cults, Sects, Religions, and the Occult* (1993), by George A. Mather and Larry A. Nichols, and the many references they cite.

In my next column I will turn from this vast dreary literature about the Second Coming of Jesus to the 2,000-year hope of orthodox Jews for the *first* coming of the Messiah, an event promised in Hebrew Scriptures. □

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For more information, contact Barry Karr, Executive Director of CSICOP, at (716) 636-1425. All inquiries are held in the strictest confidence.



Canada's Mysterious Maritimes

"Maritimers better lock up their ghosts," the Canadian Press writer advised residents of the Atlantic provinces. "Professional skeptic Joe Nickell is touring the region," announced the tongue-in-cheek warning in Canadian newspapers, "and not a lake monster, a beloved spectre or even the Oak Island treasure is safe from the penetrating glare of his cold, hard logic" (Morris 1999).

The mock advisory was prompted by my June–July 1999 visit to "the Maritimes," initially to address forensic experts at the annual conference of the Canadian Identification Society.

Rather than fly to Fredericton just for the event, however, I decided to drive and thus be able to investigate a number of regional enigmas. Naturally I prepared extensively, studying such works as *Mysterious Canada* (Colombo 1998), formulating hypotheses, and contacting museum curators and others.

I passed through Maine (spending my first evening at the "haunted" Kennebunk Inn), then continued on to Canada where I promptly conducted three investigations: first of the Lake Utopia Monster in southern New Brunswick and, in Fredericton, of the haunted Christ Church and giant Coleman Frog. Subsequently I checked out Magnetic Hill in the southeastern part of the province, made my way to Prince Edward Island's Bay Fortune (to see firsthand the site of "The Homing

Coffin" enigma, a story told in my children's book, *The Magic Detectives* [Nickell 1989]), then proceeded to Nova Scotia where I investigated the Teazer Light phenomenon, the Oak Island treasure mystery, and the riddle of the Yarmouth Stone. Here is a case-by-case synopsis of my adventures and conclusions.

The Lake Utopia Monster

Lake Utopia, in southern New Brunswick, is reportedly home to a fearsome monster—according to Micmac Indian legend, century-old tales, and modern eyewitness reports. As with other lake leviathans it is varyingly described, although only rarely glimpsed and more often perceived by a churning of the water and debris sent up from the depths. There are no known photographs of the alleged creature, but in the early settlement period, tracks—or rather a "slimy trail" with claw marks—leading into the water were reported (Martinez 1988; Colombo 1988).

Today, it appears that most local people are skeptical of the monster's existence, although a few have reported seeing an unexplained wake (Murray 1999) or what they believed was a large animal (Gaudet 1999), or perhaps they know someone who has had such a sighting (K. Wilson 1999; T. Wilson 1999).

On June 27 I visited nearby St. George, N.B., where I collected local

accounts of the fabled monster and hired a guide, Tony Wilson of All Wet Aquatics, to take me on a jet-ski trip (via the Magaguadavic River and a natural canal) into and around the 3409-acre lake. Despite my efforts, however, the imagined creature did not have the courtesy to show itself, let alone pose for my camera.

As with similar lake monster claims, a major argument against the possibility of such a monster is the difficulty of a lake providing sufficient food—not merely for one leviathan, but for a breeding herd that would be necessary for the continuation of the species. Also, many mundane phenomena can simulate a monster. Local candidates include floating logs; windslicks; salmon, sturgeon (Gaudet 1999), and schools of smaller fish; and silver eels (once so plentiful that they clogged the pulp mill's water wheels [*Brief History* n.d.]). Other potential culprits include such swimming wildlife as deer, muskrats, beavers, and otters ("St. George" [1999])—especially otters, who could have produced many of the effects reported (Nickell 1995, 1999).

Giant Frog

Another reputed New Brunswick lake leviathan is the giant amphibian now

Joe Nickell is CSICOP's Senior Research Fellow.

displayed at the York Sunbury Historical Society Museum in Fredericton (figure 1). Dating to the 1880s, the huge bull-frog reportedly lived in Killarney Lake, some eight miles from Fredericton, where Fred B. Coleman operated a lodge. Coleman claimed he had made a pet of the great croaker and that his guests fed it June bugs, whiskey, and buttermilk. It thus grew to a whopping forty-two pounds, Coleman recalled, and was used to tow canoes and race against tomlcats. It was killed, he said, when poachers dynamited the lake to harvest fish, whereupon the distraught raconteur had it stuffed and placed on display in the lobby of his Fredericton hotel. His son's widow donated it to the museum in 1959 ("Coleman" n.d.).

Some local doubters insist Coleman had simply bought a display item which had been used to advertise a cough medicine guaranteed to relieve "the frog in your throat" (Phillips 1982). A former historical society president called it a "patent fake" and said it should have been thrown out years ago, while other officials coyly declined suggestions that it be examined scientifically (Colombo 1988, 50–51; "Coleman" n.d.). *Maclean's* magazine concluded: "The argument about whether it is a stuffed frog or an imitation may never be settled, but as a topic of conversation and a tourist curiosity it has had as long a career as any frog, dead or alive" (McKinney n.d.).

Following my expedition to the museum's third floor, however, I determined that the exhibit was probably not a *Rana catesbeiana*. Did I penetrate the sealed display case to obtain a DNA sample? No, I simply sweet-talked my way into the museum's files, which were revealing. A 1988 condition report by the Canadian Conservation Institute referred to the 68-centimeter (almost 27-inch) artifact as a "Large, possibly stuffed frog," but went on to observe that—in addition to many

wrinkles having formed in the "skin"—there was actually a "fabric impression underneath," and indeed "a yellowed canvas" visible through some cracks. There was an overall layer of dark green paint, to which had been added other colors, the report noted. Wax appeared to be "present below the paint layer" and the feet were described as being "a translucent colour, possibly consisting in part of wax."

While a taxidermist of the 1880s might possibly have used some of these materials ("Taxidermy" 1910; 1960), the overall effect is of a fabricated item, especially considering the canvas. Its im-



Figure 1. Coleman Frog. Since the 1880s folk have debated which is the greatest whopper: this giant amphibian or the claim that it is authentic.

pression showing through the paint suggests the lack of an intervening layer of true skin, for which the fabric was probably used as a substitute.

It should be noted that the largest frog actually known, according to *The Guinness Book of Records* (1999), is the African goliath frog (*Conraua goliath*), a record specimen of which measured a comparatively small 14 inches (sitting) and weighed just 8 pounds, 1 ounce. At almost twice the length and five times the weight, Coleman's pet froggie is no more credible than his outrageous yarns about the imagined creature.

In the museum file I also came across a letter stating the policy of the historical society regarding the Coleman Frog. To a man who had objected to exhibition of the artifact, President E. W. Sansom (1961) wrote: "It was agreed . . . that the stuffed frog was of historical interest

only as an artificial duplication used for publicity purposes by F. B. Coleman years ago in Fredericton. As such, the majority of those present felt the frog should be retained but only as an amusing example of a colossal fake and deception." And so it remains on display, according to one journalist (Brewer 1973), "as big as life—yea, bigger."

Haunted Cathedral

Built from 1845 to 1853, Christ Church Cathedral in Fredericton is considered "one of the most fascinating ecclesiastical buildings in Canada"

(Trueman 1975). Certainly with its imposing spire and its lofty interior arches it represents an excellent example of Gothic Revival architecture. Supposedly, the Anglican sanctuary also has a resident spirit.

Some describe only a vague sense of a presence, while others say a shadowy figure has been sighted—reportedly the ghost of Mrs. John Medley, wife of the first bishop. Just who is alleged to have seen her usually goes unreported but, according to a former assistant curate, Rev-

erend David Mercer, "She's supposed to come up Church Street and enter by the west door. What she does after that, I really don't know" (Trueman 1975, 85). One source of apparent late vintage attempted to supply the motive: In life the faithful Mrs. Medley had been accustomed to carry her husband's dinner to him at the church, a practice she supposedly rehearsed after she passed into spirit-hood. Unfortunately, this charming tale was debunked when I visited the Medleys' graves, located just beyond the east end of the cathedral. As carved inscriptions made clear, it was the Bishop who passed first, in 1892, his widow living on to 1905. Even a local storyteller, who had often repeated the anecdote about the dutiful ghost but who accompanied me to the gravesite, quickly conceded that the tale lost rationale in light of this evidence ("Haunted" 1999).

Another "it-is-said" source claims Mrs. Medley's alleged visitations are malevolent, resulting from her extreme dislike of her husband's successor (Dearborn 1996), while still another states that the perambulating spirit merely "surveys the Cathedral, as if in wonderment, and then disappears" (Colombo 1988). Such variant tales are an obvious indication of the human tendency for legend-making.

I talked with two elderly churchgoers (each with about forty-five years' membership) and a young tour guide, none of whom had ever seen a ghost in the church. The latter stated that the notion the cathedral was haunted was not supported by current parishioners and was largely regarded as folklore (Meek 1999).

The impetus for ghostly inklings may well have been the cathedral's own "spooky atmosphere" and indeed "haunted air"—an effect stemming from the somber setting and play of subdued light and shadow, and heightened by the presence of a stone cenotaph, its figure of Bishop Medley recumbent in death (Trueman 1975). Such an atmosphere, admits one writer, is "enough to spark the most dormant imagination" (Dearborn 1996).

Magnetic Hill

Located in eastern New Brunswick, near Moncton, is Magnetic Hill, Canada's third most-visited natural tourist attraction (after Niagara Falls and the

Canadian Rockies). Nineteenth-century farmers going to market noticed a mysterious stretch of road where a wagon going uphill would run against the hooves of the horse pulling it. In 1933, an ice-cream stand with a gas pump opened at the top of the hill, sparking more interest in the site (then known alternately as Fool Hill, Magic Hill, and Mystery Hill). Sightseers were invited to drive down the slope, place their vehicle in neutral, and experience being drawn back uphill! Truckers said the place must be magnetic, and the name stuck (Cochrane 1998; *Magnetic* 1997).

Visitors to Magnetic Hill—the drivers and passengers of up to 700 vehicles daily during the peak summer season—offer priceless quotes: "Do you stay in your car, or does it go up the hill by itself?" "I have an expensive watch. The magnet won't hurt it, will it?" And "Do you leave the magnet on all the time, or does it get turned off at night?" (Cochrane 1998). Souvenir magnets are sold in the gift shop of the adjacent theme park.

In fact, of course, the place is no more magnetic than various similar sites—including two each in Ontario and Québec (Colombo 1988), as well as one in central Florida discussed in an earlier SKEPTICAL INQUIRER (Wilder 1991). As the very helpful staffers at Magnetic Hill are quick to admit, the mysterious effect is essentially due to an optical illusion. This is created, says one source, "by a hill on top of a hill, which makes people believe that they are actually travelling uphill when they are, in

fact, going downhill" (Cochrane 1998).

A more precise explanation is obtained by using a simple carpenter's implement. I was permitted to "walk" my four-foot level along the route, observing the bubble frequently. This demonstrated that the course is not a straight incline but a dipped one, although higher at the top. In other words, proceeding downhill, after the initial incline the course seems to almost level off, continuing in a gentle downslope, but in fact it actually turns gently upward (see figure 2). Therefore, from the point designated for vehicles to stop and be placed in neutral, they will begin to roll backward. The effect seems quite mysterious, since the driver is conscious of having driven downhill, and trees on either side of the road help hide the true horizon. The momentum achieved by a vehicle of average weight is usually sufficient to propel it all the way back up the steeper portion to the beginning. (Lighter vehicles fare poorly, and motorcyclists are so advised and are admitted free.)

But myths die hard. One Torontonian returned annually, claiming the magnetic force helped relieve his arthritis, and an American tourist insisted he could feel the magnet pulling on the nails in his shoes. One visitor insisted: "If it was only an optical illusion, my car wouldn't actually do it!" (Trueman 1972).

Phantom Ship

At Nova Scotia's Mahone Bay, I investigated the twin riddles of the Teazer



Figure 2. Magnetic Hill. Driver proceeds from point A along an apparently continuous downhill course to B, places vehicle in neutral and removes foot from brake pedal. Vehicle seems mysteriously drawn backward, but in fact the distance from B to C is a slightly downward incline and momentum propels the vehicle back to A.

Light and the Oak Island "Money Pit." (The latter, one of the world's greatest unsolved mysteries, will be treated in a later column.)

The Teazer Light is an example of "ghost lights" or "luminous phenomena" (see Corliss 1995), in this case the reputed appearance of a phantom ship in flames. On June 26, 1813, the *Young Teazer*, a privateer's vessel, was cornered in the bay by British warships. Realizing they were doomed to capture and hanging, the pirates' commander had the ship set ablaze, whereupon—at least according to legend—all perished (Blackman 1998). Soon after, however, came eyewitness reports that the craft had returned as a fiery spectral ship. It has almost always been observed on foggy nights, according to marina operator (and private investigator) Jim Harvey (1999), especially when such nights occur "within three days of a full moon" (Colombo 1988, 32).

In the late evening of July 1 (approximately three days after the full moon) I began a vigil for the Teazer Light, lasting from about 11:00 P.M. until 1:00 A.M. Unfortunately the phantom ship did not appear, although that was not surprising given that one of the last reported sightings was in 1935 (Colombo 1988). I wondered if the diminishing of apparition reports might be due, at least in part, to encroaching civilization, with its accompanying increase in light pollution (from homes, marinas, etc.) obscuring the phenomenon.

In researching the Teazer Light I came across the revealing account of a local man who had seen the fiery ship with some friends. They shook their heads in wonderment, then went indoors for about fifteen minutes. When they came out again, "... [T]here, in exactly the same place, the moon was coming up. It was at the full, and they knew its location by its relation to Tancook Island." The man appreciated the sequence of events: "It struck him then that there must have been a bank of fog in front of the moon as it first came over the horizon that caused it to appear

like a ship on fire, and he now thinks this is what the Mahone Bay people have been seeing all these years. If the fog had not cleared away that night he would always have thought, like all the other people, that he had seen the *Teazer*" (Creighton 1957).

Yarmouth Stone

My final adventure (before ferrying 200 miles across the Atlantic to the coast of Maine to begin the drive back to Buffalo) focused on the intriguing case of the Yarmouth Stone, now located in the Yarmouth County, Nova Scotia, Museum. This is a four-hundred-pound boulder bearing an inscription that has been variously "translated" since it came to light in 1812 (figure 3). In that year



Figure 3. Yarmouth Stone. Discovered in 1812, these markings have been described as representing a mysterious—possibly Viking—inscription, an accident of nature, or a deliberate hoax. Photo by Joe Nickell.

a Dr. Richard Fletcher claimed to have discovered the stone near the head of Yarmouth Harbour.

The stone began to receive serious attention in 1875 when an antiquarian convinced himself the markings were Norse runes that read "Harkko's son addressed the men" (Phillips 1884). But in 1934 another amateur runeologist (said by one critic to be "able to find runes in any crevice or groove in any stone and decipher them" [Olessen n.d.]) decided the "runes" actually read "Leif to Eric Raises [this Monument]" (Archives 1999).

As qualified runic scholars disparaged the imaginative "translations" and debunked a Viking source for the inscription (Goldring 1975), others

came forward to "identify" the apparent writing as an "old Japanese" dialect, or the work of early Greeks, Hungarians, or others, including Nova Scotian Micmac Indians. Zoologist-cum-epigrapher (decipherer of ancient texts) Barry Fell thought the writing ancient Basque, which he interpreted as "Basque people have subdued this land," but he later changed his mind to favor a Norse source (Archives 1999; Surette 1976; Colombo 1988, 44–45). (Fell believed America was extensively visited by Old World peoples far in advance of Columbus, but critics accuse him of lacking "a scientific, skeptical, or deductive approach" [Feder 1996, 101].) An editorial in the Yarmouth *Vanguard* expressed the view of many local skeptics when it asked regarding the inscription, "Why don't we just say it was left by aliens?" ("Runic" 1993).

I began my own investigation of the stone by consulting Viking archaeologist Birgitta Wallace Ferguson (1999) and Nova Scotia Museum ethnologist Ruth Holmes Whitehead (1999) who concluded, respectively, that the inscription was neither runic nor Micmac. It appears, in fact, to represent no known alphabet (Ashe et al. 1971) and is "not translatable" since, reportedly, "the characters were taken from a number of different alphabets" (Goldring 1975). It was probably therefore "made by the later English, either for amusement or for fraudulent purposes" (Webster n.d.).

There has long been speculation that the markings were mere fissures, glacial striations, or the product of some other natural agency (Nickerson 1910; Surette 1976), possibly subsequently enhanced, but that view has been challenged (Wickens 1967). The museum's curator, Eric Ruff, graciously gave me full access to the stone, and I proceeded to do a rubbing (using Japanese art paper and a lithographic crayon) as well as an oblique-light examination (used to enhance surface irregularities [see Nickell and Fischer 1999]). I saw no significant evidence of similar natural markings elsewhere on the stone.

I examined the inscription at consid-

erable length using a stereomicroscope removed from its base. I was able to determine the successive stages of alterations the inscription had undergone, "enhancements" confirmed by knowledgeable sources. The original carving was done, according to an early account, somewhat "delicately" and "barely penetrated the layers of quartz" (Farish [1857?]). Later the characters were traced over with white paint, and still later—in the 1930s—a well-meaning curator further altered the markings by rechiseling them (Ruff 1999)—their dashed-line appearance suggesting the use of a slotted screwdriver or narrow chisel pounded, punchlike, with a hammer or mallet.

The superficiality of the original carving, together with the diminutive size of the inscription and the stone's location—in a marshy area, in a cove, at the head (rather than mouth) of the harbor—does not inspire confidence that the inscription was meant to command the attention of others. (Fell, for example, believed it was intended as a warning sign to other explorers that the land had already been claimed [Surette 1976].)

Thus scrutiny must fall back upon the original "discoverer," Dr. Richard Fletcher. A retired army surgeon, Fletcher had moved to the area in 1809 and lived there until his death a decade later. His descendants say he had a reputation as "a character," and there is a family tradition that he had probably carved the inscription himself (Ruff 1999). According to one direct descendant, "It was always believed in the family, that he had done it as a joke" (quoted in Goldring 1975). Thus it would appear that the Yarmouth Stone is but another in a series of fakes that includes the Grave Creek, West Virginia, sandstone disc of 1838; the Davenport, Iowa, "Moundbuilder" tablets of 1877; and the notorious Kensington, Minnesota, rune stone of 1898 (Feder 1996, 114–15, 131).

Indeed, a second Yarmouth-area artifact was the Bay View Stone "discovered" in 1895 but since lost (Ruff 1999). It bore a similar inscription to that of the Yarmouth Stone but "was

proven to be a hoax perpetrated by a local hotel owner and displayed outside the hotel for several years" (MacInnis 1969).

In the preface to his *Mysterious Canada*, John Robert Colombo (1988, v) insisted, quite properly, that "We should know more about the mysteries that surround us." And he predicted: "Anyone who looks long and hard enough will no doubt find rational explanations for the mysteries in this book. There is no need to resort to a supernatural explanation to account for any one of them." And that is just what my series of investigations has shown, I think, that if we steer between the extremes of gullibility and dismissiveness—in other words, if our minds are neither too open nor too closed—we may learn more about our world and ourselves. We may even have some fun doing it.

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The Congressional Censure of a Research Paper: Return of the Inquisition?

KENNETH K. BERRY and JASON BERRY

On July 12, 1999, the United States House of Representatives took an historic step toward censorship of scientific findings when it voted 355 to 0 to condemn and censure a scientific publication because the members disagreed with the findings and believed that they would have a negative effect upon citizens' thoughts and actions.

The paper, published a year earlier in the American Psychological Association's journal *Psychological Bulletin* (July 1998), by Bruce Rind of Temple University, Philip Tromovitch, and Robert Bauserman was titled, "A Meta-analytic Examination of Assumed Properties of Child Sexual Abuse Using College Samples." This paper was basically a review and analysis of fifty-nine previous research studies of the consequences of sexual molestation of children.

The congressional members found some of the findings personally repugnant, particularly the conclusion that some molested children grow up to be normal and a small portion are seemingly little affected by this experience. The members, especially Rep. Salmon (an Arizona Republican and a sponsor of H.Con.Res.107) believed that the

findings would not only encourage pedophilia among United States citizens, but the findings could not be true. The Representatives' thinking appeared to be a demonstration of what Donald Watson (1993) called "Autistic Certainty" ("I would not believe something that was not true; I believe this is not true, therefore this must be untrue").

The journal's review of past research was brought to the attention of congressional members by several very vocal, fundamentalist religious voices. Two of these are lobbying groups: the Family Research Council, a group whose primary missions appear to oppose civil rights for homosexuals, advocate celibacy for heterosexuals, and to stop abortions when they are not celibate; and the Christian Coalition, a strong political group with similar goals but with the additional one of doing away with the separation between church and state. Another strong voice was that of radio talk show host Laura Schlessinger, who uses her popular nationally syndicated radio program ("Dr. Laura") as a forum to attack those who do not agree with her personal ideas of morality and religion.

Although this may be the first time in US history that the legislative branch of the federal government has officially condemned and censured a scientific publication, it is not a first in world history. In the thirteenth century there was no separation of church and state in

Europe and mysticism prevailed over direct observation of phenomena; Roger Bacon, known for his publications on logic and experimental sciences, was condemned and spent two years in prison. Following this he wrote his final paper, published the year of his death in 1292, which was a caustic critique of the corruption of Christianity. An outspoken supporter of Copernican views of the solar system, Giordano Bruno, was victim of an inquisition (meaning "inquiry"), found guilty of heresy, and was burned at the stake by the Church/State in 1600.

Perhaps the best known incident of suppression of scientific research was Galileo's proposition of the heliocentric theory of the solar system. Those in power disagreed with his research findings and believed that the Sun circled Earth because to them it appeared to do so. An inquisition was held and, in order to avoid punishment, Galileo recanted his findings. It is an interesting parallel that Dr. Raymond Fowler, Executive Director of the American Psychological Association, "recanted" in a letter sent to the House of Representatives during the congressional inquisition. This action brought the APA praise from the House.

The most recent period of official condemnation that led to governmental censorship of science occurred in the USSR under Communism. This followed the similar pattern that led to

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the book burnings in Nazi Germany in the 1930s.

Historically, the path begins with religions or states (or both as in Res. 107) exerting pressure upon research bodies, researchers themselves and other writers, to "self-censor." This is often achieved through withdrawal, or threat of withdrawal, of financial support for specific kinds of research and/or by public censure of anything that lacks "religious" or "political" correctness. This has often been effective in science, especially in behavioral sciences. Researchers quickly become afraid to apply for grants or perform research that might bring them pejorative labels or worse. In 1633, upon hearing of Galileo's situation, Descartes expressed surprise and vowed out of fear to either burn his manuscript in progress or hide it so that no one would ever see it. Fortunately he did the latter.

The next step on the road to control of science, as happened in the USSR, is "official censorship" (Sinitsyna 1998). Governmental bodies, or "committees," are established (some of which in the USSR were called "editorial boards") to review research projects and prevent publication of findings if they do not agree with the beliefs of those in power.

During Stalin's period and after (official censorship did not end until 1988) research in the behavioral sciences floundered. The reasons for censorship of a particular piece of work, whether art or science, were political. Work that did not fit or was critical of "accepted" standards of ideology, work that dealt with a prohibited subject (such as nudity in

art), and *findings or facts that might cause undesirable thoughts or associations in citizens* (emphasis added, Sinitsyna 1998), were all subject to censure.

It seems that a number of variables may have influenced this recent Congressional decision. First is the general turning away from science and critical thinking and toward mysticism in the US as shown by revival of interest in supernatural and psychic powers. Science—or at least its methodology—is too little valued or respected today in the United States by the majority of people and their elected representatives. The rise of fundamentalist Christian thinking appears to have played a role in shaping judgmental attitudes, values, and the public's negative attitude toward critical thinking. The lack of public media interest in the ramifications of the House action should be a matter of concern for everyone.

One cannot help but wonder what would have occurred if the *Washington*

Post or the *New York Times* had been publicly censured by Congress in response to a published article or an editorial. Is it then that scientific journals, which are intended for a relatively small number of professionals and scientists, are fair game? Congressional members are well aware of the control they can exert over research, since much of the funding comes from governmental grants. Scientists are at the mercy of those in power and, at least for now, those in power are often at the mercy of the public press.

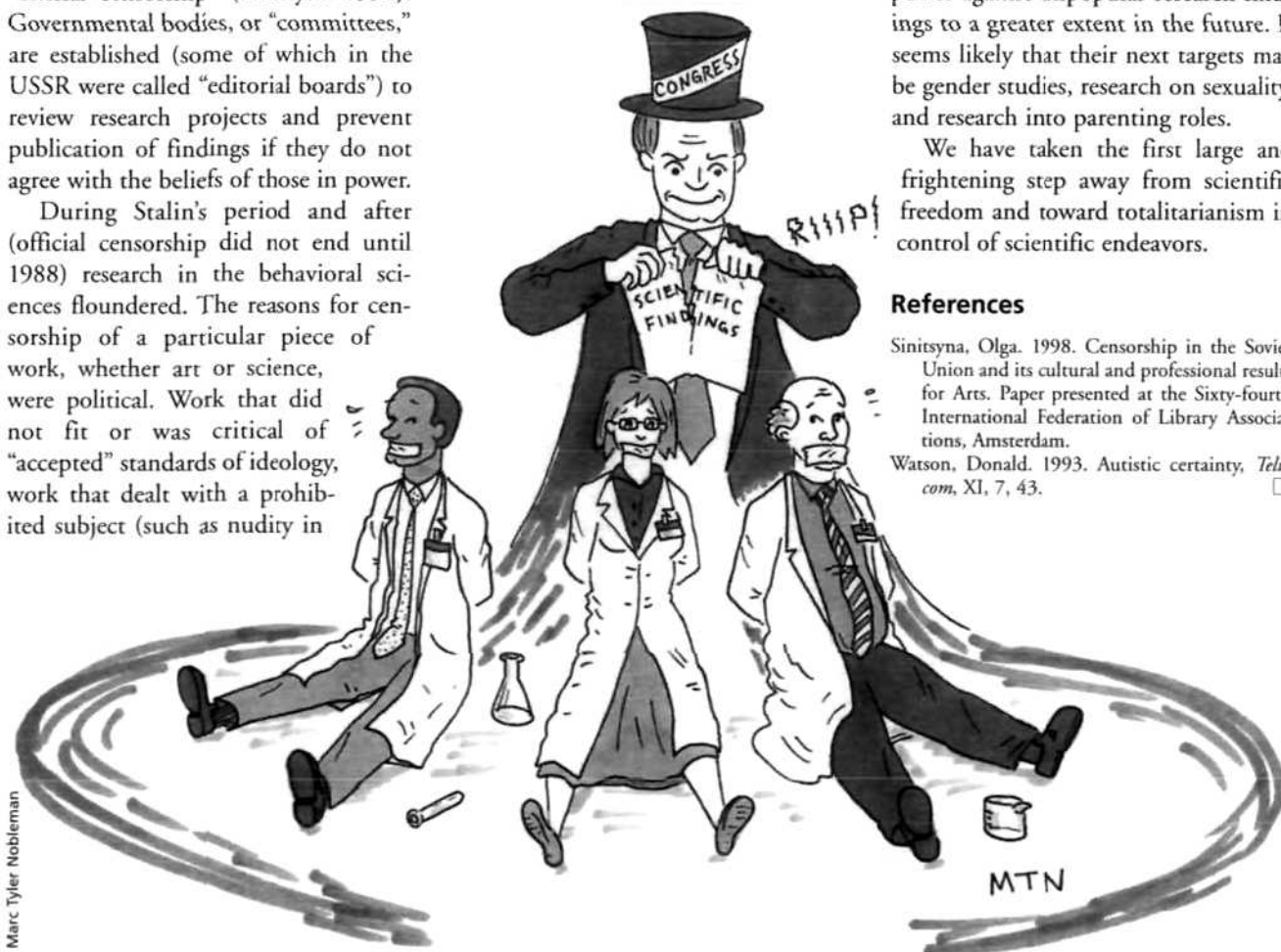
Throughout the history of science, scientists themselves have been the harshest critics of research, but their denouncement of specific studies is usually based upon the strength or weakness of the methodology, rather than their personal values and emotions about the findings.

The Evangelical Christian groups appear to have "discovered" the behavioral sciences and may likely wield their power against unpopular research findings to a greater extent in the future. It seems likely that their next targets may be gender studies, research on sexuality, and research into parenting roles.

We have taken the first large and frightening step away from scientific freedom and toward totalitarianism in control of scientific endeavors.

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Marc Tyler Nobleman

The Ten
Outstanding
Skeptics
of the
Twentieth
Century



Who are the outstanding skeptics of the twentieth century?

We put that question to an elite group of scholars who should know—the Fellows and Scientific Consultants of CSICOP. The results follow on these pages.

We wanted their selections to be free form. We provided no list of names and we offered no suggested criteria. Those they selected could be chosen from any combination of science, scholarship, writing, public education, outreach, investigation, activism, leadership, or other qualities—whatever they found most important. The only restriction was that the person's major contributions have been made in the twentieth century.

Some cast their votes quite widely, choosing eminent figures from twentieth century science and philosophy. Others focused more on people identified specifically with the skeptical movement. With most it seemed a combination. All this seems fitting. "Skeptic" can be defined in a wide variety of ways. Skepticism is entwined with science and philosophy—and with numerous other fields of scholarship, inquiry, and investigation as well.

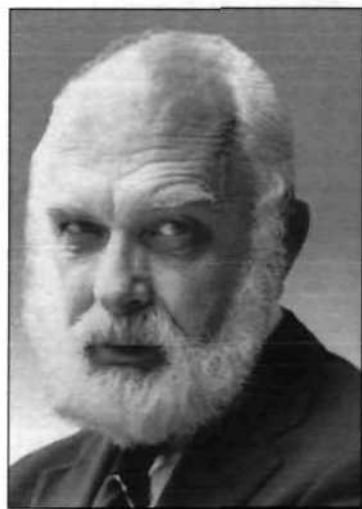
Although our main interest was in identifying the 10 outstanding skeptics with a 1 to 10 ranking, the voters were encouraged to list other prominent skeptics beyond just 10 if

they wished, and many did so. In this manner, nearly 50 different individuals received at least one vote.

The main interest here is not in ranking people in comparison with each other but to honor and recognize those individuals who are recognized as truly outstanding by their peers.

In the pages that follow we present photos and brief profiles of those selected. Comments were also solicited, and some of them are included here.

We are also interested in your own brief comments and suggestions. We'll try to publish some in a future readers' letters column.



James Randi

For decades, James Randi has been the world's leading skeptical investigator of paranormalists and other pretenders to scientific miracles. Randi uses a mastery of conjuring skills (stage name "The Amazing Randi"), an irrepressible

energy, a sharp critical intelligence, and a fine understanding of science to investigate and expose paranormal, occult, and supernatural claims. His investigations of spoonbender Uri Geller and televangelist Peter Popoff are among his most famous exposés, but he has been tireless in designing tests and exposing flim-flam wherever it arises, from psychic surgery and dowsing to psychokinesis and ESP. His controversial Project Alpha planted magicians in a university-based parapsychology labora-

tory to see if the physicist-investigator could detect deception. He was an invited member of the *Nature* scientific team that investigated a French biochemist's claims of water with memory. Randi's lectures and television appearances have entertainingly educated audiences worldwide about the differences between genuine science and pseudoscience, the methods of psychic claimants, and the pitfalls of self-deception and gullibility. Respected by scientists and skeptics, feared

The 10 Outstanding Skeptics of the Century

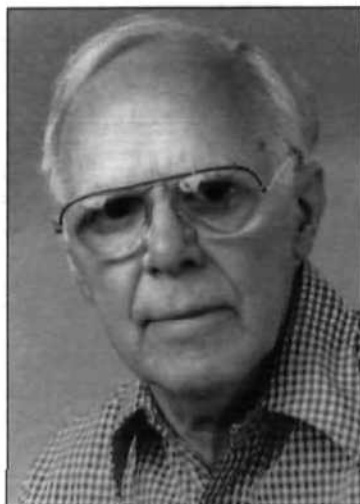
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|-------------------|---------------------|
| 1. James Randi | 6. Isaac Asimov |
| 2. Martin Gardner | 7. Philip J. Klass |
| 3. Carl Sagan | 8. Bertrand Russell |
| 4. Paul Kurtz | 9. Harry Houdini |
| 5. Ray Hyman | 10. Albert Einstein |

by paranormal claimants, Randi was named a MacArthur Foundation Fellow in 1986 and now carries out his investigations through the James Randi Educational Foundation. Notable books: *The Truth About Uri Geller, Flim-Flam!, The Faith Healers, The Mask of Nostradamus, Houdini — His Life and Art, and An Encyclopedia of Claims, Frauds, and Hoaxes of the Occult and Supernatural.*

Martin Gardner

Martin Gardner published his first journal article about pseudoscience a half century ago in 1950 and his first book about pseudoscience in 1952. He has never stopped. That first book, the lively *Fads and Fallacies in the Name of Science*, influenced and informed generations of scholars and future skeptics, and became a classic. To many leaders of the modern skeptical movement, which he helped found, he is simultaneously a colleague and a hero. Essentially an independent scholar but without academic trappings, the polymathic Gardner keeps tabs on all kinds of topics and issues in mathematics, science, philosophy, and religion, not to mention the fads and foibles of paranormalists, fringe scientists, quacks, and pseudoscientists. And he writes about them all with clarity, wit, authority, and penetrating insight. For three decades he wrote the highly

popular Mathematical Games column for *Scientific American*, and books based on them still appear. He's written for the SKEPTICAL INQUIRER since its beginning, and his Notes of a Fringe-Watcher column has appeared in every issue since 1983. He followed *Fads and Fallacies* with later books about pseudoscience and fringe science, including *Science: Good, Bad, and Bogus; The New Age; On*



the Wild Side, and *Weird Water & Fuzzy Logic*. He has also written classic works of popular science, such as *The Ambidextrous Universe* and *The Relativity Explosion*, as well as whimsical works such as *The Annotated Alice*.

Personal works of philosophy include *The Whys of a Philosophical Scrivener*, the recent *The Night Is Large: Collected Essays 1938–1995*, *Logic Machines and Diagrams*, and *Introduction to the Philosophy of Science*, written with Rudolf Carnap. An acerbic observer and critic of pseudoscience, he is thought of as a hard-nosed skeptic—yet his personal demeanor is quiet and gentle, and he is famous for adopting the H.L. Mencken aphorism, “One horselaugh is worth ten-thousand syllogisms.”

Carl Sagan

Carl Sagan was the people's astronomer, the public's scientist. In a brilliant career foreshortened by death in 1996 at the age of 62, he used his passion for science, intelligence,



Nobelists, Women, Fellows

- Seven Nobel Prize winners received votes as outstanding skeptics: Bertrand Russell (literature), Albert Einstein (physics), Richard Feynman (physics), Barbara McClintock (physiology or medicine), Steven Weinberg (physics), Niels Bohr (physics), and George Bernard Shaw (literature).
- Six women received votes: Barbara McClintock, Elizabeth Loftus, Simone de Beauvoir, Susan Blackmore, Rachel Carson, and Eugenie Scott.
- Seven of the top 10 outstanding skeptics (Randi, Gardner, Sagan, Kurtz, Asimov, Hyman, Klass) were founding Fellows of CSICOP. The other three (Houdini, Russell, and Einstein) died prior to CSICOP's existence.

charisma, and formidable literary and communications skills (*The Dragons of Eden* won the Pulitzer Prize and it wasn't even his best book) to turn several generations of young people on to the wonders of science and the rewards of critical thinking. He had a unique talent to inspire wonder and awe at the true mysteries of science while cautioning against bogus science and the temptations of wishful thinking and self-deception. The result was a nearly

unparalleled champion of science and skepticism and foe of pseudoscience. As a professional astronomer he helped shape and articulate the golden age of planetary exploration when we first sent unmanned emissaries to the major planets. His interests in planetary science, the origins of life, and the scientific search for extraterrestrial intelligence drove his career, but he ranged freely into fields far beyond astronomy. The world was Sagan's classroom. He believed strongly in democracy and the ability of the common person to appreciate science if portrayed in a clear and legitimately exciting way. His frequent network television appearances, his popular books and articles, and his highly successful *Cosmos* public television series all brought his messages to the masses worldwide. His last book published before his death, *The Demon-Haunted World*, ranged over late-twentieth-century fringe science and warned of the perils of a public unable to distinguish real science from bogus science. Other noteworthy books: *The Cosmic Connection*, *Cosmos*, *Broca's Brain*, *Shadows of Our Forgotten Ancestors* (with Ann Druyan), *A Pale Blue Dot*, and *Billions and Billions*.

Paul Kurtz

Paul Kurtz is a philosopher and intellectual with a strong practical bent and a special talent for visionary leadership. He has a knack for founding and running organizations and a passion for applying unfettered inquiry to broad human issues. In a long career as professor of philosophy (now emeritus) at SUNY-Buffalo, where he received acclaim as a distinguished teacher, Kurtz also wrote prolifically (his scholarly books now number more than thirty) and always in steadfast defense of a scientific, skeptical worldview. Much of his writing has been on the nature and philosophy of skepticism. He founded three important organizations that carry out missions about which he is deeply committed: the Committee for the Scientific Investigation of Claims of the Paranormal, publisher of the *SKEPTICAL*

INQUIRER; the Council for Secular Humanism, publisher of *Free Inquiry* magazine (which he also edited until recently); and Prometheus Books, which publishes a hundred books a year in philosophy, science, skepticism, humanism, freethought, and ethics. He still chairs the former two organizations. His twin passions for humanism and skepticism echo throughout everything he does. With diplomatic skills and an internationalist perspective, he has an uncanny ability to bring diverse people together. Over the decades he has organized dozens of international conferences and authored three humanist manifestos (including the just-published *Humanist Manifesto 2000*), signed by eminent scholars and thinkers worldwide. Still as

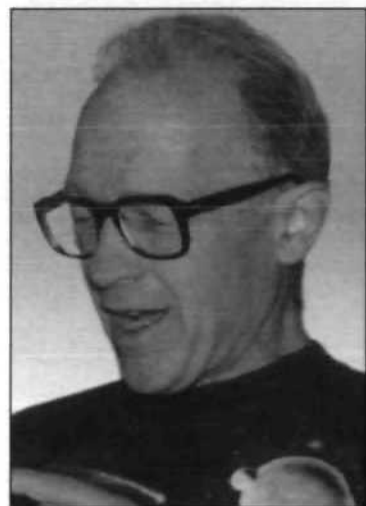


active as ever, he continues to take a deep interest in all issues of intellectual inquiry, open-minded skepticism, and the use of scientific methods to improve the human condition. Notable books: *The Transcendental Temptation*, *The New Skepticism*, *A Skeptic's Handbook of Parapsychology*, *The Courage to Become*, *Exuberance*, and *Philosophical Essays in Pragmatic Naturalism*.

Ray Hyman

Ray Hyman is considered the leading constructive critic of academic para-

psychology research. A longtime professor of psychology (now emeritus) at the University of Oregon, Hyman has taught about the psychology of belief and self-deception and conducted painstaking critical analyses of published parapsychology experiments. An amateur magician, he has critiqued experiments with highly visible psychics and other psychic claimants conducted by private scientific and government organizations. Despite intense controversies, he has managed to maintain the respect of both parapsychologists and fellow skeptics. As a well-informed outside critic, he is often credited with helping raise the quality of parapsychological research. He has conducted detailed critical analyses of Ganzfeld experiments—research that parapsychologists find compelling but he so far does not. In 1995 he was one of two experts the CIA contracted for an outside evaluation of the military's twenty-year program to see if alleged remote viewing could assist with intelligence gathering. His essentially negative evaluation was reflected in the sponsor's report. He has consistently maintained that parapsychology must refine its techniques if it is ever to persuade the scientific community that it has some-



thing significant. He has also cautioned skeptics on the need to become better informed about the research they criti-

cize. Notable books: *Water Witching USA* (with Evon Vogt), which explains belief in dowsing, soon to be published in a third edition; *The Elusive Quarry: A Scientific Appraisal of Psychical Research*, a collection of his papers about parapsychological research, scientists' involvement in the paranormal, psychic phenomena, and the psychology of belief.

Isaac Asimov

Isaac Asimov was the master science popularizer of his time, perhaps of all time. Famous at an early age for his science fiction, he soon also turned to science fact. He was a Ph.D. biochemist and polymath turned full time to writing. From the 1950s until his death in



1992 he wrote prolifically about every aspect of science—and with enormous clarity, directness, and charm. His audience was always the lay person. Possibly no one has ever amassed a body of written work simultaneously so voluminous (nearly 500 books), diverse, and substantive. He loved the historical approach, and his works always put scientific progress into historical perspective. Asimov was a steadfast defender of science and reason and foe of nonsense, superstition, and pseudoscience. (His 1986 SI essay, "The Perennial Fringe"

pointed out the comforting appeal of paranormal beliefs: "...a thumb to suck, a skirt to hold.") He never veered from forthrightly stating the truth as found by science, wherever it led. He revered learning and intellect and clear thinking and was disgusted by their opposites. He blasted astrology, creationism, all pseudoscience. Despite his tough mindedness, his writings were usually congenial, the "Good Doctor" talking colloquially to the "Gentle Reader." A few of his notable books: *Asimov's New Guide to Science*, *Asimov's Biographical Encyclopedia of Science*, *The Roving Mind* (dedicated to CSICOP), *In Memory Yet Green*, *In Joy Still Felt* (both autobiographies), *The Left Hand of the Electron*, *The Planet That Wasn't*, *X Stands for Unknown*, *The Relativity of Wrong*, and (science fiction) the *Foundation* series, *I, Robot*, *The Martian Way*, *The Gods Themselves*.

Philip J. Klass

Philip J. Klass, sometimes called "The Sherlock Holmes of UFOlogy," has been the world's leading skeptical investigator of UFO claims for well over



three decades. In a field dominated by proponents and wishful believers, he and a few colleagues have been the almost lone voice of careful, reasoned

analysis and critical thinking to bring balance to the topic. His UFO investigations have always been a sideline to his nearly thirty-four-year career as a distinguished Washington-based senior editor (and since his "active retirement" in 1986 he has been a contributing editor) of *Aviation Week & Space Technology* magazine, the world's leading aerospace publication. He has always focused his efforts on investigations of "best cases"—those that UFO proponents identify as the best evidence of UFOs. A Fellow of the Institute of Electrical and Electronics Engineers, Klass brings a methodical approach and an innate skepticism to conduct detailed investigations and evaluations. He carries out extensive correspondence with colleagues and UFO proponents. His writings are clear, detailed, and comprehensive.

Notable books: *UFOs Identified*, *UFOs Explained*, *UFOs: The Public Deceived*, *UFO Abductions: A Dangerous Game*, *Bringing UFOs Down to Earth* (for young readers), and *The Real Roswell Crashed-Saucer Coverup*. He is also founder and editor of the *Skeptic's UFO Newsletter*. In 1999, an asteroid was officially named Klass 7277 in his honor. Klass has long been chairman of CSICOP's UFO Subcommittee. In 1994 he was awarded CSICOP's Distinguished Skeptic Award.

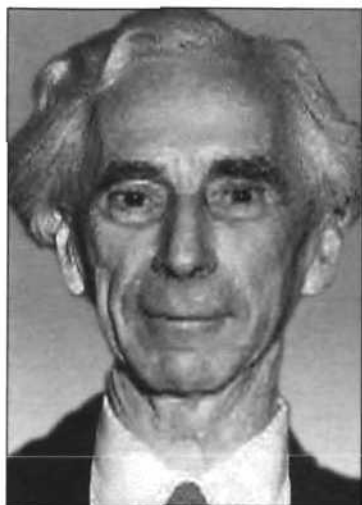
Bertrand Russell

Bertrand Russell was one of the leading philosophers of the twentieth century.

Born in West England, Russell wrote widely, covering topics including epistemology, psychology, morals, education, and political and social reform.

Russell believed that logic was capable of untangling many of the problems that have vexed philosophers throughout history. Russell was a defender of the humanist outlook and believed that despite mankind's possible extinction by nuclear warfare, we must confront the indifferent or hostile universe and stand for our ideals.

He was a Fellow of Trinity College,



though his activities on behalf of peace in the First World War caused him to lose his fellowship. Russell later received an Order of Merit in 1949 and the 1950 Nobel Prize in Literature. He is the author of dozens of books and treatises. His writings include *The Problems of Philosophy*, *Introduction to Mathematical Philosophy*, *Principia Mathematica*, *Logic and Knowledge*, *Sceptical Essays*, and *Mysticism and Logic and Other Essays*.

Harry Houdini

The world's best-known magician and escape artist, is also the twentieth century's most famous ghostbuster. Born Ehrich Weiss, he took his stage name from French conjurer Robert-Houdin and became (as a poster heralded) "The World's Handcuff King & Prison Breaker."

Later he used his knowledge of magic to expose the secrets of such wonderworkers as "the Spaniard with X-ray Eyes," an "Egyptian Miracle Man," and a host of spiritualist mediums offering "materializations" and other séance deceptions.

Houdini challenged mediums to perform under test conditions and offered various inducements for demonstrations of genuine psychic phenomena, including \$10,000 as part of a *Scientific American* reward. His efforts—including his books, *A Magician Among the*

Spirits and Miracle Mongers and Their Methods—caused spiritualist devotee Sir Arthur Conan Doyle to break off their friendship. After Houdini's untimely death on Halloween, 1926, his wife Bess attempted to contact his spirit through mediums, seeking a pre-arranged message. But after ten years (despite a sham



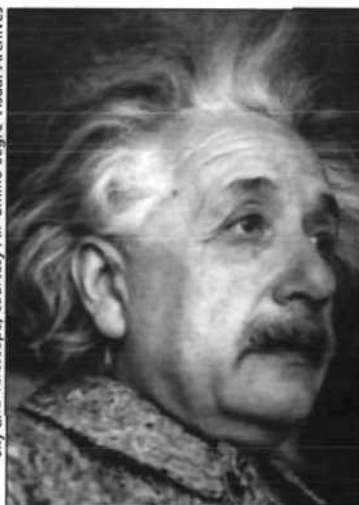
contact by the notorious medium Arthur Ford) Bess extinguished the "eternal light" she had kept by his portrait, concluding: "Houdini hasn't come. I don't believe he will come."

Houdini's life is celebrated in countless movies, books, and other venues, including annual Halloween séances at which—although he is invariably a no-show—Houdini's legacy is kept alive.

Albert Einstein

In the single year of 1905 a young physicist named Albert Einstein published papers on three topics that revolutionized our view of the universe. One (for which he later won the Nobel Prize) explained the photoelectric effect in terms of the then-new quantum theory of Max Planck. One provided the first mathematical analysis of Brownian motion. And one propounded the special theory of relativity, after which physics would never be the same. By assuming a constant velocity of light,

the work explained the earlier Michelson-Morley experiment, deduced the length-contraction and mass-enlargement effects of FitzGerald and Lorentz, and abolished the notion of absolute time. This was followed by a short published note working out the equivalence of mass and energy in the famous equation $E=mc^2$. His crowning achievement came in 1915 with publication of his paper on the general theory of relativity, a wholly new theory of gravitation based on the curvature of space-time. General relativity had numerous specific consequences that could be tested experimentally. When observations confirmed the predictions, Einstein's reputation as the premier scientist of the century was assured. Many polls conducted in 1999 chose Einstein as the most influential person of the twentieth century. It was



Sky and Telescope, courtesy AIP Emilio Segre Visual Archives

he who signed the famous letter to President Roosevelt urging him to establish the program that led to the atomic bomb. Later Einstein fought to end the threat of nuclear warfare. Einstein's brilliance and achievements, his kindly manner, his philosophical nature, his dramatic visage, his seeming indifference to material matters, all presented the rare reality of a preeminent philosopher-scientist simultaneously revered by intellectuals and beloved by the public.

Other outstanding skeptics who received multiple votes or at least one first-place vote:

- | | |
|-----------------------|----------------------|
| 11. Richard Feynman | 18. Stephen Barrett |
| 12. Joe Nickell | 19. Bart Bok |
| 13. Karl Popper | 20. Michael Shermer |
| 14. H.L. Mencken | 21. Kendrick Frazier |
| 15. Richard Dawkins | 22. Mark Twain |
| 16. Stephen Jay Gould | 23. Oscar Pfungst |
| 17. James Alcock | 24. Robert A. Baker |

Other persons who received votes:

Heini Hediger, Barbara McClintock, Frederick Crews, George Santayana, David Marks, Elizabeth Loftus, Eric Dingwall, Joseph Jastrow, I.F. Stone, William Jarvis, John Dewey, Simone de Beauvoir, Milbourne Christopher, Donald Menzel, Alfred Kinsey, Steven Weinberg, Corliss Lamont, Ambrose Bierce, Sidney Hook, Susan Blackmore, Abraham Koovoor, Mohandas Ghandi, Steve Allen, Johnny Carson, George Abell, B. Premanand, Rachel Carson, Richard Kamman, Walter McCrone, George Bernard Shaw, Niels Bohr, The FDA, Lewis Thomas, Eugenie Scott, Bill Nye, Douglas Hofstadter, Salman Rushdie, C.E.M. Hansel, B.F. Skinner, Barry Beyerstein, John Paulos, Andrew Fraknoi, John Stossel, Robert Rosenthal, The Scooby Doo Gang, Terence Hines, Robert Sheaffer, D.H. Rawcliffe, Anos Tversky, Albert Ellis. □

Skeptics Not to be Forgotten


Several scholars and investigators received top ten or multiple votes who made outstanding contributions to skepticism in the early or mid-portions of the twentieth century and may not be as well known to audiences today. Here are four:

- **Joseph Jastrow** (1863–1944) A true pioneer in what is now known as modern skepticism or the skeptical movement. A professor at the University of Wisconsin, he was a dedicated skeptic, student of C.S. Peirce and friend of Alexander Herrmann, Harry Kellar, Harry Houdini, Howard Franklin Thurston, and other contemporary magicians. His books *Fact and Fable in Psychology* (1900) and *Wish and Wisdom: Episode in the Vagaries of Belief* (1935) demonstrated the gullibility of humanity in all ages and places.

- **D.H. Rawcliffe** Another pioneer, like Jastrow. His book *The Psychology of the Occult* (available as a 1959 Dover reprint under the title *Illusions and Delusions of the Supernatural and Occult*) exposed, rationally, ESP and telepathy, stigmata, séances, auras, levitation, firewalking, automatic writing, ghosts, dowsing, mental healing, mediums, etc., long before modern skeptics every approached these topics.

- **Oscar Pfungst** (1874–1932) German animal psychologist, uncoverer of the Clever Hans effect and fallacy, which was characterized by James R. Angell (1911) this way: "No more remarkable tale of credulity founded on unconscious deceit was ever told, and were it offered as fiction, it would take high rank as a work of imagination."

- **Milbourne Christopher** (1914–1984) A noted American magician and illusionist, he headed the Occult Investigations Committee of the Society of American Magicians. Books such as *ESP, Seers, and Psychics* (1970) and *Mediums, Mystics & the Occult* (1975) exposed the secrets of psychics, astrologer, thought readers, Lady Wonder (the "talking horse"), poltergeists, spiritualism, and so on.



Two Paranormalisms or Two and a Half? — An Empirical Exploration

Most researchers have found an inverse or negative correlation between religious traditionalism and paranormal beliefs. It is possible that the two dimensions share a great deal more in common than previous surveys suggest.

A new study supports that view.

ERICH GOODE

A ccepted wisdom among expert observers has it that a disjunction exists between two distinct realms or dimensions of paranormal belief: that which is based on traditional, fundamentalist religious dogma, and that which represents the sorts of parapsychological, occult, and supernatural beliefs that are routinely and most often referred to as the classic forms of paranormalism. The first dimension includes belief in the physical reality of heaven, the real-world influence of angels, the devil as a materially existent being, and the validity of special or biblical creation. The second dimension includes belief in

extrasensory perception (ESP), PK (psychokinesis), prophecies, astrology, UFOs as alien space ships, crystal power, pyramid power, lucky numbers, the special significance of synchronicity, King Tut's "curse," and so on. So much has this separatist claim become a fixture in the study of paranormalism and religious belief that it may be referred to as the "two paranormalisms" thesis.

Bainbridge and Stark (1980) hypothesize that New Age beliefs tend to be strong specifically in regions of the country where traditional Christianity tends to be weak, and vice versa. When and where traditional religion fails to inspire and hold its adherents, belief in conventional science does not become correspondingly strong. In fact, New Age thinking, largely a variety of paranormalism, represents a substitute for traditional religion, and emerges where persons with a religious background lose their faith and seek a plausible alternative. Far from finding acceptance among the most strongly and traditionally religious, paranormal beliefs tend to be most enthusiastically embraced among persons who proclaim to hold no religion.

In addition, a survey by Bainbridge and Stark among University of Washington undergraduates found that the "no religion" respondents were strikingly more likely than born-again Christians to agree that UFOs are spaceships from another planet; that Eastern religious practices probably have "great value"; that ESP "definitely exists"; and to say that they have personally experienced ESP themselves. In addition, the "no religions" were less likely to say that they strongly dislike "occult literature" and their local paper's horoscope column (Bainbridge and Stark 1980, 24). Clearly, these authors see paranormalism and traditional religion as separate and distinct. Where one is strong, the other tends to be weak, and vice versa. Paranormal beliefs serve as a kind of functional alternative to religious belief, substituting for it when it fails to satisfy. One *displaces* rather than *complements* the other. They are mutually exclusive; they compete, they do not commingle. There are "two paranormalisms" running along separate tracks. Traditional religion is the "old" superstition, paranormalism is the "new."

Following Feder (1987), Eve and Harrold (Harrold and Eve 1986; Taylor, Eve, and Harrold 1995) distinguished two dimensions of paranormalism: *fantastic archaeology* (belief in the reality of UFOs, psychic powers, and scientifically unverified creatures, such as Bigfoot), and *creationism*. They argue that the two dimensions of belief constitute mutually exclusive domains which serve different functions and have different origins and that the adherents hold to different rules of evidence or epistemologies. The two thought systems, say Taylor, Eve, and Harrold, are "not just independent of one another, but largely antagonistic" (27).

At first glance, the "two paranormalisms" thesis makes a

certain amount of sense. Many paranormal and New Age beliefs are specifically rejected by organized religions, especially traditional Christianity. For example, the validity of astrology, Tarot cards, pagan or pre-Christian forms of worship, non-Christian prophecy, pyramid power, and crystal power are widely regarded as occult and distinctly contrary to the teachings of Christianity. And many fundamentalist Christians argue that Satan has genuine powers, which must be resisted; embracing those occult, diabolical powers is itself a type of paranormal belief which is, again, emphatically rejected by Christianity. (Still, both fundamentalists and many paranormalists believe in the *reality* of the devil, though the former rejects his moral or theological righteousness.) Clearly, disjunctions exist between these two systems of belief.

On the other hand, we can place adherents of both fundamentalist Christianity and many forms of paranormalism in roughly the same camp with respect to the material-spiritual dimension. Both reject raw empiricism, the idea that there is no reality outside what the senses tell us exist. Both see a plane of existence above and beyond the material dimension, a plane on which happenings cannot be discerned, measured, or tested with the crudely physical tools of science. Both see science as an inadequate guide to human existence; both, in fact, wish to deny a certain measure of legitimacy and credibility to mainstream, conventional science. It would be surprising if there were not more overlap between traditional religion and paranormal thinking than the "two paranormalisms" thesis suggests.

What Is This Thing We Call Paranormal?

The prefix "para" is taken from Greek and means "next to" (as in "paraprofessional"); "similar to" (as in reference to the police as a "paramilitary" force); or "outside of," that which "lies beyond," which is where paranormal comes in. The Random House dictionary defines *paranormal* as that which is outside of or lies beyond or cannot be explained by routine, ordinary, known, or recognized scientific laws or natural forces. What defines paranormalism is that scientists cannot account for its existence or occurrence with an explanation they consider plausible. Paranormal accounts invoke or make use of forces, factors, dynamics, or causes that scientists regard as inconsistent with a satisfying, naturalistic explanation. Gray (1991, 7) defines the paranormal as constituting "phenomena that apparently transcend the explanatory power of mainstream science and stem from unknown or hidden causes." Says Hines, what characterizes paranormalism "is a reliance on explanations for alleged phenomena that are well outside the bounds of established science" (1988, 7). Hence, by their very nature, traditional religious assertions that invoke special powers (such as those that violate the laws of physics, chemistry, or biology) are technically paranormal. But technical similarity is not the same thing as empirical compatibility; are religious assertions and "classic" paranormal claims accepted by the same or different sets of people?

Pseudoscience and paranormalism are not the same thing, of course. Many beliefs are *unscientific* (that is, they violate the rules of evidence and research methods that are conventionally

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accepted by scientists) but *not* paranormal (that is, invoke a power or causal mechanism that scientists believe violates a law of nature). For instance, scientists would hold that uncritical belief in exotic, inexplicably shy creatures such as Bigfoot, the Loch Ness Monster, and the Abominable Snowman represents an example of pseudoscience, but it is not paranormal in nature. If Bigfoot were to lumber out of the forest for all to see, this would not overturn any major established scientific theory or explanation. In theory, within the scope of existing science, such monsters could exist, it's just that most scientists feel the evidence to support their existence is weak, inconclusive, contradictory, or disconfirmatory. In contrast, for UFOs to be extraterrestrial craft from distant parts of the cosmos, Einstein's theory that the speed of light traveling through a vacuum is a constant, that no object can travel faster than the speed of light, would somehow have to be circumvented. Similarly, evolution is the foundation of modern biology; if creationists were correct about the origin of life, biology would have to be scrapped and rewritten from scratch. Consequently, Hines argues that paranormalism is a *subset* of pseudoscience; all paranormal beliefs are pseudoscientific, but not all pseudoscience is paranormal in nature (1988, 7).

Rationale

Here, I am interested in *paranormalism*, the belief that conventional science is wrong about materialistic, naturalistic, or mechanistic theories concerning how the universe works. Paranormalists believe that what scientists see as the laws of nature *can* be violated, set aside, or surmounted.

There are as many varieties of paranormalists as can be imagined.

Traditional or fundamentalist religion, with its belief in creationism, an afterlife, angels, the devil, and all manner of miracles, represents an instance of belief in the existence or occurrence of violations of the known laws of science; hence, as we saw, it constitutes one instance of paranormalism.

New Age thinking, with its reliance on the emanation and preeminence of the soul or spirit, channeling, alternative modes of healing, a separate spiritual plane of existence, psychic experiences, predictions about the future, and so on, likewise represents a distinct and specific manifestation of paranormal thinking.

UFOlogists, too, offer a specialty niche in the paranormal landscape. While mainstream scientists regard some of their beliefs as merely pseudoscientific (their reading of the evidence on the supposed crashes of alien craft, for instance, or their faith in government conspiracies), their disregard of the speed of light as a barrier to interstellar travel qualifies them as paranormalists.

Astrology, with its 4,000-year-old tradition, attracts its own adherents with their own special endorsement of extrascientific or occult forces. Even if statistical regularities were to be found among persons with specific birth signs on the one hand and personality and/or fate on the other, the mechanism by which all this works transcends the scientific or naturalistic paradigm.

Belief in ghosts, haunted houses, the spiritual or extraterrestrial origins of crop circles, King Tut's curse, the Bermuda Triangle, the special significance of coincidence, extrasensory perception, and so on, enlist the support of adherents who are at once unique, distinctive, and different in their beliefs from, yet who share much in common with, all other paranormalists. Are the differences between and among these various forms or types of paranormalism misleading, their commonalities vital, essential, and substantial? Can they be merged into two major or "master" forms or types, one stemming from traditional or conservative religion and the other a more classically paranormal form?

I suggest that, while the "two paranormalisms" thesis contains a grain of truth, there nonetheless remains a common thread throughout the many manifestations of paranormal belief, religion included. I suggest that the overlap is sufficiently great as to argue for "two and a half" rather than two paranormalisms. Each belief system shades off into the other, making for a middle ground that adherents of both polar extremes find compatible and feel comfortable with. In fact, I argue there is likely to be a significant positive correlation between belief in many of the specifics of one dimension with belief in many of the other, at least in some social and cultural contexts.

By arguing that there are "two and a half" paranormalisms, I am suggesting that conventional wisdom is only half right. It is true that, at its polar end point, fundamentalism shares little in common with classic paranormalism, aside from a stress on the spiritual dimension and a rejection of conventional, institutional science. Certainly the likes of astrology, shamanism and witchery, and Tarot cards are anathema to the dyed-in-the-wool fundamentalist Christian. But the fact is there are many beliefs in the paranormal panoply that would seem to be intuitively appealing to the Christian traditionalist. And, even more strongly, I suggest having a traditional Christian background lays the foundation for many paranormalisms. After all, belief in the immanence of the spirit, which is inherent in evangelical and charismatic Christianity, is essential to most manifestations of paranormal belief. To the strict materialist, the leap from spirits to ghosts, from the wrath of God to King Tut's curse, from miracles at Lourdes to psychic surgery, from the power of prayer to therapeutic touch, from angels to aliens, must seem quite small and inessential. What is more religious than the UFOlogist's yearning for a transcendent beyond, and beings with supernatural powers, a superhuman intelligence, and infinite wisdom?

A detailed survey of paranormal belief system by Greeley (1975) hints that the relationship between our traditional two paranormalisms may be more complex than is admitted in the literature. In this study, a complex relationship existed between standing high on the Psi Scale (having had the experience of ESP, *déjà vu*, and clairvoyance) and dimensions of religiosity. With respect to traditional religion, people high on the Psi Scale manifested a "bipolar" distribution: Some were decidedly more "hopeful and religiously optimistic" than the sample as a whole, while others were "more skeptical and

agnostic." With respect to whether his "psychics" (respondents high on the Psi Scale) are more religious than the rest of the sample, Greeley responds by saying that "they are certainly not in terms of religious devotion, but perhaps they are in terms of fundamental world view, and at least some of them are substantially less religious than the general population" (15).

Greeley's findings suggest that more than one subdimension may be lurking beneath each of the two paranormalisms. Further, they suggest that rather than reducing one or more dimensions to overall scales or indices, perhaps the relationship of each measure or indicator should be determined separately and independently. Hudson (1987) suggests eight different and to some degree distinct categories of "cult beliefs" (all of which overlap heavily with one or another form of paranormalism).

Hence, rather than combining several questions into a composite scale or subscale, I decided to cross-tabulate responses to two questions, individually, one at a time.

The Study

In 1996, I constructed a 100-item questionnaire and distributed it to the 484 students enrolled in three undergraduate courses at the State University of New York at Stony Brook. Questions were asked about paranormalism, fundamentalist religion, political orientation, strictly factual issues on subjects such as science, geography, and politics, race, judgmental heuristics, and personal or autobiographical information. Here, I focus only on the intercorrelation between conservative or traditional religious beliefs and paranormalism.

I asked eight questions that tapped Christian conservatism, traditionalism, or fundamentalism, and eleven questions about a variety of paranormal beliefs. Respondents were asked to circle one of the options provided: Agree; Disagree; or Not Sure.

The four questions I selected that focus on the traditional or fundamentalist religious dimension were: "Angels exist who protect the lives of humans on Earth"; "There is a heaven where people who live good lives are eternally rewarded"; "The devil exists as an actual physical being"; "God created heaven, Earth, and all creatures on Earth, in six days roughly 10,000 years ago, as described in the Bible."

The five questions on paranormalism read as follows: "Many of the unidentified flying objects (UFOs) that have been reported are really space vehicles flown by intelligent beings from another planet"; "Some people have special psychic powers ('ESP') that cannot be explained by traditional science"; "Astrology is: Very scientific; Somewhat scientific; Somewhat unscientific; Very unscientific; Not sure"; "Some numbers are especially lucky for some people"; "An ancient curse on the tomb of the Egyptian pharaoh King Tut actually killed people."

Agreeing with these questions indicated belief in traditional religiosity, or paranormalism, respectively. (The questions in which the direction of agreement was reversed, that is, for which disagreement indicated belief, demonstrated the same patterns; I include only the agreement questions for the pur-

pose of consistency in the direction of the tables.) Once again, I did not combine questions into a composite scale or index, but cross-tabulated each one separately with the others. This produced a total of 20 tables. I used chi-square as my test of significance; three tests were used: Pearson, likelihood ratio, and linear-by-linear association. In all cases, I tabulated answers to the religious questions as the independent, and answers to the paranormal questions as the dependent, variable. (The same results would have been obtained had I reversed the process.) No implication of causal sequence is implied by this decision.

The Results

In general, the relationship between fundamentalism and paranormalism was positive and significant. For 18 of the 20 tables, respondents agreeing to the religion question were also more likely to agree to the paranormal question; likewise, for 18 of the 20 tables, respondents who disagreed with the religion question were also more likely to disagree with the paranormal question. In only three of the 20 tables was the .05 level of significance not reached (by the linear-by-linear test). In several of the tables, the level of significance was beyond .00000. This represents an *extremely* high level of significance. In other words, chance or random variation can be ruled out.

For instance, in table 1, we see that persons who believe in the earthly powers of angels are a bit more likely also to believe that many UFOs are alien space vehicles (22%) than are those who reject the earthly existence of angels (15%). At the other end of the scale, respondents who *disbelieve* in angels are 15 percentage points more likely to disbelieve that UFOs are alien space craft (54%) than respondents who *believe* in the reality of angels (39%). Even by the most rigorous test (the linear-by-linear association), this difference exceeds the minimal .05 level of significance.

Even more impressive is the difference between the respondents who believe in angels and those who don't (table 2): 80 percent of the angel believers are also ESP believers, while only a bit more than half of the angel *disbelievers* are also ESP believers (56%). Again, turning to the opposite end of the spectrum, a substantially lower proportion of angel believers *disbelieve* in ESP (7%) than is true of angel disbelievers (24%). In other words, belief in the existence of angels and belief in ESP are strongly and significantly correlated. Statistically, the relationship substantially exceeds any available test of significance.

The same generalization also applies to the relationship between belief in the earthly existence of angels and belief that astrology is scientific (table 3), belief in lucky numbers (table 4), and belief in the reality of King Tut's curse (table 5).

Perhaps the strongest correlation among these tables is manifested between belief in the devil as an actual being and belief that astrology is scientific (table 18). Two-thirds of the devil believers (69%) also believe that astrology is scientific, but only one-half of the devil *disbelievers* (53%) hold astrology to be scientific. At the other end of the continuum, only 15 percent of persons who believe that the devil exists *also*

Table 1
Angels Exist by Many UFOs Are Alien Vehicles

| UFOs Are Alien Vehicles: | | Agree | Not Sure | Disagree | N |
|--------------------------|----------|-------|----------|----------|-----|
| Angels Exist: | Agree | 22 | 39 | 39 | 209 |
| | Not Sure | 18 | 52 | 30 | 156 |
| | Disagree | 15 | 31 | 54 | 114 |

Table 2
Angels Exist by Some People Have ESP

| Some People Have ESP: | | Agree | Not Sure | Disagree | N |
|-----------------------|----------|-------|----------|----------|-----|
| Angels Exist: | Agree | 80 | 13 | 7 | 210 |
| | Not Sure | 72 | 19 | 9 | 155 |
| | Disagree | 56 | 20 | 24 | 112 |

Table 3
Angels Exist by Astrology Is Scientific

| Astrology Is Scientific: | | Agree | Not Sure | Disagree | N |
|--------------------------|----------|-------|----------|----------|-----|
| Angels Exist: | Agree | 68 | 10 | 22 | 206 |
| | Not Sure | 61 | 14 | 25 | 152 |
| | Disagree | 43 | 8 | 40 | 114 |

Table 4
Angels Exist by Some Numbers Are Lucky

| Some Numbers Are Lucky: | | Agree | Not Sure | Disagree | N |
|-------------------------|----------|-------|----------|----------|-----|
| Angels Exist: | Agree | 57 | 11 | 32 | 209 |
| | Not Sure | 34 | 31 | 35 | 156 |
| | Disagree | 30 | 10 | 61 | 114 |

Table 5
Angels Exist by King Tut's Curse

| King Tut's Curse Killed People: | | Agree | Not Sure | Disagree | N |
|---------------------------------|----------|-------|----------|----------|-----|
| Angels Exist: | Agree | 22 | 48 | 30 | 207 |
| | Not Sure | 14 | 52 | 34 | 153 |
| | Disagree | 14 | 22 | 64 | 114 |

Table 6
Heaven Exists by Many UFOs Are Alien Vehicles

| UFOs Are Alien Vehicles: | | Agree | Not Sure | Disagree | N |
|--------------------------|----------|-------|----------|----------|-----|
| Heaven Exists: | Agree | 20 | 43 | 37 | 259 |
| | Not Sure | 15 | 49 | 35 | 136 |
| | Disagree | 21 | 23 | 56 | 81 |

Table 7
Heaven Exists by Some People Have ESP

| Some People Have ESP: | | Agree | Not Sure | Disagree | N |
|-----------------------|----------|-------|----------|----------|-----|
| Heaven Exists: | Agree | 78 | 13 | 9 | 261 |
| | Not Sure | 69 | 24 | 7 | 134 |
| | Disagree | 56 | 16 | 28 | 80 |

Table 8
Heaven Exists by Astrology Is Scientific

| Astrology Is Scientific: | | Agree | Not Sure | Disagree | N |
|--------------------------|----------|-------|----------|----------|-----|
| Heaven Exists: | Agree | 68 | 10 | 22 | 260 |
| | Not Sure | 56 | 13 | 31 | 132 |
| | Disagree | 40 | 9 | 52 | 81 |

Table 9
Heaven Exists by Some Numbers Are Lucky

| Some Numbers Are Lucky: | | Agree | Not Sure | Disagree | N |
|-------------------------|----------|-------|----------|----------|-----|
| Heaven Exists: | Agree | 49 | 13 | 37 | 262 |
| | Not Sure | 43 | 27 | 30 | 136 |
| | Disagree | 23 | 14 | 63 | 81 |

Table 10
Heaven Exists by King Tut's Curse

| King Tut's Curse Killed People: | | Agree | Not Sure | Disagree | N |
|---------------------------------|----------|-------|----------|----------|-----|
| Heaven Exists: | Agree | 20 | 47 | 32 | 256 |
| | Not Sure | 16 | 40 | 44 | 134 |
| | Disagree | 12 | 31 | 57 | 81 |

Table 11
God Created World as in Bible by Many UFOs Are Alien Vehicles

| UFOs Are Alien Vehicles: | | Agree | Not Sure | Disagree | N |
|--------------------------------|----------|-------|----------|----------|-----|
| God Created World as in Bible: | Agree | 16 | 37 | 47 | 169 |
| | Not Sure | 15 | 54 | 31 | 145 |
| | Disagree | 25 | 35 | 40 | 161 |

Table 12
God Created World as in Bible by Some People Have ESP

| Some People Have ESP: | | Agree | Not Sure | Disagree | N |
|--------------------------------|----------|-------|----------|----------|-----|
| God Created World as in Bible: | Agree | 75 | 12 | 13 | 170 |
| | Not Sure | 69 | 25 | 6 | 144 |
| | Disagree | 70 | 16 | 16 | 160 |

Table 13
God Created World as in Bible by Astrology Is Scientific

| Astrology Is Scientific: | | Agree | Not Sure | Disagree | N |
|--------------------------------|----------|-------|----------|----------|-----|
| God Created World as in Bible: | Agree | 65 | 11 | 23 | 168 |
| | Not Sure | 64 | 12 | 23 | 145 |
| | Disagree | 51 | 8 | 44 | 154 |

Table 14
God Created World as in Bible by Some Numbers Are Lucky

| Some Numbers Are Lucky: | | Agree | Not Sure | Disagree | N |
|--------------------------------|----------|-------|----------|----------|-----|
| God Created World as in Bible: | Agree | 48 | 11 | 41 | 170 |
| | Not Sure | 47 | 25 | 27 | 146 |
| | Disagree | 34 | 16 | 50 | 161 |

Table 15

God Created World as in Bible by King Tut's Curse

King Tut's Curse Killed People:

| | | Agree | Not Sure | Disagree | N |
|--------------------------------|----------|-------|----------|----------|-----|
| God Created World as in Bible: | Agree | 22 | 47 | 31 | 166 |
| | Not Sure | 13 | 51 | 36 | 146 |
| | Disagree | 18 | 31 | 52 | 159 |

Table 16

The Devil Exists by Many UFOs Are Alien Vehicles

UFOs Are Alien Vehicles:

| | | Agree | Not Sure | Disagree | N |
|-------------------|----------|-------|----------|----------|-----|
| The Devil Exists: | Agree | 28 | 40 | 32 | 70 |
| | Not Sure | 17 | 55 | 28 | 128 |
| | Disagree | 18 | 35 | 47 | 271 |

Table 17

The Devil Exists by Some People Have ESP

Some People Have ESP:

| | | Agree | Not Sure | Disagree | N |
|-------------------|----------|-------|----------|----------|-----|
| The Devil Exists: | Agree | 77 | 9 | 14 | 70 |
| | Not Sure | 70 | 24 | 6 | 127 |
| | Disagree | 70 | 16 | 14 | 272 |

Table 18

The Devil Exists by Astrology Is Scientific

Astrology Is Scientific:

| | | Agree | Not Sure | Disagree | N |
|-------------------|----------|-------|----------|----------|-----|
| The Devil Exists: | Agree | 69 | 15 | 15 | 72 |
| | Not Sure | 71 | 17 | 12 | 127 |
| | Disagree | 53 | 5 | 42 | 268 |

Table 19

The Devil Exists by Some Numbers Are Lucky

Some Numbers Are Lucky:

| | | Agree | Not Sure | Disagree | N |
|-------------------|----------|-------|----------|----------|-----|
| The Devil Exists: | Agree | 47 | 14 | 39 | 72 |
| | Not Sure | 54 | 22 | 24 | 129 |
| | Disagree | 38 | 15 | 47 | 272 |

Table 20

The Devil Exists by King Tut's Curse

King Tut's Curse Killed People:

| | | Agree | Not Sure | Disagree | N |
|-------------------|----------|-------|----------|----------|-----|
| The Devil Exists: | Agree | 28 | 48 | 24 | 71 |
| | Not Sure | 14 | 57 | 29 | 128 |
| | Disagree | 17 | 34 | 49 | 269 |

disbelieve that astrology is scientific. But fully four out of 10 persons who disbelieve in the existence of the devil also disbelieve in the scientific status of astrology (42%). The strength of this relationship is such that it vastly exceeds the limits of all three of our tests of significance.

As I explained, 18 of these 20 tables manifest significant differences between believers and disbelievers in traditional Christian theology (all of which have a paranormal basis) and

belief in a range of conventionally understood paranormal assertions. As a general rule, persons who accept articles of traditional, fundamentalist Christian faith—again, restricted to those that violate tenets of scientific theory—tend also to accept a range of paranormal beliefs as well. Skeptics and disbelievers in Christian theology tend also to be skeptics and disbelievers of articles of paranormal faith. The polar ends of these two belief systems seem to be made up of many of the same persons.

In other words, in *almost every case*, respondents who believed in angels, heaven, divine creation, and the devil, *also* believed the reality of extraterrestrial vehicles, ESP, astrology, lucky numbers, and King Tut's curse. The percentage of respondents who agreed to the religion question were an average of 13.3 percent more likely also to agree with the paranormal statements than was true for respondents who disagreed with the religion questions. At the other end, the percent of respondents who disagreed with the religion questions were an average of 18.1 percent more likely also to disagree with the paranormal statements than was true for respondents who agreed with the religion questions. (See tables 1 through 20.)

Discussion

Unlike the findings of a number of surveys conducted by previous researchers, these data suggest a significant, strong, and positive relationship between certain measures of traditional or fundamentalist Christian faith and specific tenets of paranormalism. I did not combine items of either dimension into an overall scale, since it is entirely possible that *subdimensions* of both Christian faith and paranormal belief exist that are to some extent independent of one another within each dimension, as well as from one dimension to another. Still, these two separate dimensions did seem positively, and fairly strongly, correlated with one another.

Why the contradiction between my findings and those of past researchers?

A portion of Bainbridge and Stark's findings are based on an *ecological* relationship, not on differences in beliefs between and among individuals. That is, in areas of the country with strong religious beliefs, paranormalism tends to be weak, but where traditional religion is weak, paranormalism tends to be strong (1980, 26–29). In contrast, all of my findings are based on beliefs of individual respondents attending a single institution of higher learning. Could this explain the difference? Possibly, but Bainbridge and Stark's conclusions are also drawn from a survey of the beliefs of undergraduates at the University of Washington, a study not unlike my own.

Harrold and Eve's research is based on findings from three locales, one in Texas, a second in Southern California, and the third in Connecticut. Is it possible that in strongly religious areas—much of the South for instance—the specific *form* that strong fundamentalism takes denies most tenets of paranormalism, while in areas in which religious fundamentalism is weak—in the Northeast, for example—the two are more compatible? This might account for the difference between their

Texas sample and my New York sample, but not that between their Connecticut sample and my New York sample. Respondents in Southern California who manifest superficial adherence to religion (claim to be religious, for instance) often do not attend traditional religious services.

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Anna Eva Fay

The Mentalist Who Baffled Sir William Crookes

Between 1870 and 1874 the eminent scientist William Crookes conducted a series of controversial experiments with some of the most remarkable mediums of the age. One episode shows without a doubt Crookes's failure to detect open trickery. This happened when Crookes met Annie Eva Fay, an interesting personality, now largely forgotten, who deserves to be remembered.

MASSIMO POLIDORO

Between 1870 and 1874 William Crookes—the discoverer of thallium, inventor of the radiometer, developer of the Crookes tube, pioneer investigator of radiation effects, Fellow of the Royal Society, and later knighted—conducted a series of experiments with some of the most remarkable mediums of the age. D. D. Home, possibly the greatest medium of all, was studied by Crookes and declared genuine, as were Florence Cook, a young woman specialized in the materialization of a ghost named “Katie King”; Kate Fox, one of the originators of spiritualism, later self-confessed fraud; Mary Rosina Showers, another young materializing medium; and Annie Eva Fay, a vaudeville entertainer (Brandon 1984; Polidoro 1995).

There are some very strong doubts about the validity of these investigations; for example, it has been claimed that the married Crookes had a love affair with Florence, and that the experiments were just a ruse for their meetings (Hall 1984). Crookes's supposed complicity with the medium, or his inability to conduct reliable, scientific tests in spiritualism, are still debated today. There exists, however, at least one episode that shows without a doubt Crookes's failure to detect open trickery when confronted with it. This happened when Crookes met Annie Eva Fay, an interesting personality, now largely forgotten, who deserves to be remembered.

The "Indescribable Phenomenon"

Annie Eva Heathman was born in Southington, Ohio, in the 1850s (she preferred to keep the exact date to herself). She left home quite young and became interested in theosophy and mysticism. At one time she said that she became Mme. Blavatsky's pupil, living with her and helping her in her work. When she left, along with a handsome shawl presented to her by Mme. Blavatsky, Annie had to earn her own living and decided to go on stage as a mind-reader, a specialty she presented until her last performance in Milwaukee in 1924.

Her first public performance as a psychic entertainer took place in a schoolhouse in New Portage, Ohio. When she married her first husband, Henry Cummings Melville Fay, a self-proclaimed medium, they decided to work on stage as a couple and presented an intriguing performance.

Annie took her place on a stool in an open-front cabinet. A few volunteers, supervised by Melville Fay, would tie her to the stool. One tied her left wrist at the center of a long strip of cloth with many knots, one on top of another; a second volunteer followed suit with her right wrist. She held her hands behind her back as they bound the two strips together and knotted the cloth to a harness ring that was securely embedded in an upright post at the rear of the cabinet. Another piece of tape was tied at the back of the medium's neck, and the ends were fastened to a staple higher on the same post. One end of a long rope was lashed around her ankles; the other was held by a spectator throughout the performance that followed.

After Annie appeared to go into a trance, Melville Fay would place a hoop in her lap and closed the curtain at the front of the cabinet. A second later he threw open the drape: the hoop now encircled Annie's neck. Removing the hoop, he placed a guitar on his wife's lap, closed the curtain and strumming sounds were heard. As soon as he would open the drape, the music stopped and the guitar fell on the floor. The same thing happened with other musical instruments. Other phenomena followed: nails were hammered into a block of wood and paper dolls were snipped from a piece of paper. Finally, a knife was placed in Annie's lap. Though the curtain was closed for only a few seconds, the spirits seemingly had time to sever her bonds. She stood up and came forward to take numerous bows (Christopher 1975).

The Fays billed their demonstration as "The Indescribable Phenomenon," never quite openly claiming spirit intervention. Actually, theirs was a typical magic performance, introduced first by Laura Ellis, following the steps of other similar

**Annie's claims adjusted to her audience:
When dealing with spiritualists, she
claimed mediumistic powers, and when
performing on the music-hall
stage she let the audience be the judge.**

performances, like the Davenports' "Spirit Cabinet" (Polidoro 1998), which combined escapology and spiritualistic themes. A perfect rendition of the "Indescribable Phenomenon" is still performed today by mentalists Glenn Falkenstein and Frances Willard. Annie was bold enough to feature tricks and illusions along her main act: a "Spirit Dancing Handkerchief," a "Rapping Hand," and a "Levitation" were included for years on her program.

At the time few in America considered their performance a real example of spiritualism. Emma Hardinge, a medium and historian of spiritualism, in her book *Modern American Spiritualism* (1870), had stated that Melville Fay's deceptions had been "openly exposed by the Spiritualists themselves"; John W. Truesdell, a skeptic of the time, agreed that Fay was a rascal. It seems clear that Annie's claims adjusted to her audience: When dealing with spiritualists, she claimed mediumistic powers, and when performing on the music-hall stage she let the audience be the judge, an attitude adopted by other mentalists of the time, such as the Piddingtons.

Scientists and Magicians

When the Fays reached London in June 1874, the advertisements for their performances at the Queen's Concert Rooms, Hanover Square, mentioned "entertainments comprising light and dark séances every day," "mysterious manifestations," and "series of bewildering effects"; however, there is no suggestion that they had any relation to spiritualism. This notwithstanding, Annie found herself hailed as a physical medium.

Immediately, she started receiving the attention of various psychical researchers; F. W. H. Myers, for example, later

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to be one of the leading founders of the Society for Psychical Research, had expressed interest in an "extensive investigation of Mrs. Fay's mediumship." William Crookes, however, had stated clearly that he wanted to be first in examining her.

In an interesting comment made in a letter by Myers to his colleague Sidgwick the former says, after mentioning Crookes, that "the lion will not let himself be robbed of his cub—nor the cub of her lion," suggesting that Crookes was trying to make Eva his personal protégée and that Eva was not averse to acting in such a role (Dingwall 1966).

It was about this time that John Nevil Maskelyne and George Alfred Cooke, two well-known British magicians who owned their own theatre at Egyptian Hall and had already exposed the tricks used by the Davenport brothers, added to their show "An Indescribable Séance," with Cooke, tied in the same way as the American, duplicating her feats.

It was possibly to counteract this exposure that Annie Eva Fay, a vaudeville performer who had found herself the center of a body of eminent literary and scientific men, being treated as a "medium" whom it was necessary to "investigate," succumbed to temptation and accepted her new role. If the psychical researchers were determined on her being a medium, then she would agree and cash in on it while she could, thus restoring her reputation and promoting public interest in her performances.

The most important of all the experiments conducted on Annie's "mediumship" were by far Crookes's "electrical tests," held at his own home in February 1875 (Crookes 1875).

For these séances, Cromwell F. Varley, another Fellow of the Royal Society, had provided an electrical control circuit, a slightly modified version of the one used by Crookes with medium Florence Cook. To make sure that the medium, seated in a curtained cabinet, could not slip her bonds, Crookes asked her to clench both handles of a battery, constructed as to interrupt the current if she let go of either handle, and send the meter to 0. Fay managed, somehow, to present her manifestations though the contact remained unbroken.

For a further séance, two of the guests were more skeptical than their host. When they inspected the electrical-control system, before the session began, they discovered that a damp handkerchief stretched between the handles would keep the circuit open. At the suggestion of one of these men, Crookes nailed the handles so far apart that a handkerchief could not span them. Apparently no one considered the pos-

sibility that a longer strip of cloth or some other type of resistor might be used.

Success at these experiments fueled Annie's tour of the English provinces; however, when she opened at Birmingham, in May, she was again described as the "Indescribable Phenomenon" and her show billed as an entertainment (Dingwall 1966). Apparently, at the end of her tour, her manager, dissatisfied with the fact that the scientists' investigations did not produce any money into his pockets, wrote to J. N. Maskelyne suggesting to arrange a public exposure of his ex-client. He offered to reveal

for a substantial sum of money how the Crookes experiments had been faked. Maskelyne declined the offer, so the impresario wrote again presenting him Miss Lottie Fowler, another pretty mystic who could do the Fay tricks and went on tour with the same routine when Annie left England.



Houdini and Anna Eva Fay.

Exposures and Confession

Exposures of Annie's performance appeared occasionally in the press. On April 12, 1876, Washington Irving Bishop, a former member of Fay's American troupe, later to become himself one of the greatest mentalists of all time, revealed to the *New York Daily Graphic* how her tricks were accomplished. Unruffled by the exposure, she continued her work with usual success and reinserted her mind-reading act in her program. Pads were distributed, and members of the audience were invited by her husband to write questions, sign their names, tear off the sheets and hold the pieces of paper folded in their hands. Later, Annie, blindfolded, divined correctly the content of the sheets of paper and answered to the questions written on them. She called this portion of the show "Somnolency," adapted from "Somnomancy," the name Samri S. Baldwin, "The White Mahatma," had given to the act that he had invented.

In 1906 H. A. Parkyn, editor of the magazine *Suggestion*, contributed a long article on the trick methods used by Miss Fay in her billet-reading tests, describing the preparation of the pads and the use of confederates among the audience. This "exposure" was hardly necessary, since it was at this time that she was stating in her program that credulous and foolish persons should not be influenced by her performance since she was "not a spiritualistic medium" and there was nothing "either supernatural or miraculous" about her performance.

In spite of the disavowals of any supernatural power, fur-

ther exposures occurred in February 1907, when Professor W. S. Barnickel described some of her methods and in January 1911, when Albini, the magician, exposed her "Somnolency" act; still, the public filled theatres where she was featured.

Her son, John T. Fay, married Anna Norman, one of the assistants of Eva's show, left home, and set up on his own with his wife, calling themselves "The Fays." When John died in 1908, his widow set up her own show and billed herself as "Mrs. Eva Fay, The High Priestess of Mysticism."

Obviously, Annie resented her using a stage name so similar to her own, but never took legal action to stop her.

In 1912 Annie visited Europe again and when she reached London, where she performed at the Coliseum, the spiritualists were still ready to marvel at her supernatural powers. One of them, J. Hewat McKenzie, claimed he had been able to discover Eva's secret: he said her manifestations were done by a small pair of materialized hands and arms, somewhat like those of a monkey, that protruded from her chest. He knew because he had been able to "smell the odour from the emanation of the psycho-plastic matter" during a performance. This same man would later claim he knew how Houdini performed his escapes: by "dematerializing his body," of course (Doyle 1930).

During her visit, psychic researcher and magician Eric J. Dingwall, who described her as "extremely prepossessing with a perfect complexion and sparkling blue eyes," was successful in getting her proposed and elected as the first Honorary Lady Associate of the Magic Circle (Dingwall 1966).

For another eleven years she continued to attract capacity crowds wherever she performed. Due to an accidental injury, she played her final engagement in Milwaukee in 1924. In July of the same year she received a visit from Harry Houdini.

Houdini considered her "one of the cleverest mediums in history" and noticed her "straw diamond white" hair and penetrating eyes, from which "great big streaks of intelligence would flash in and out." "It is small wonder," he observed, "that with her personality she could have mystified the great mental giants of the ages—not our age, but of the ages" (Silverman 1996).

They talked for hours and she revealed to him all her secrets. "She spoke freely of her methods," Houdini noted. "Never at any time did she pretend to believe in spiritualism." She told him how she had tricked Crookes at the electric test: She had simply gripped one handle of the battery beneath her knee joint, keeping the circuit unbroken but leaving one hand free to do as it wished.

A year later she announced her plan to leave the ten houses on her Melrose Heights property to destitute actors and actresses, but she died on May 20, 1927, before working out the final details of her project.

Annie Eva Fay's revelation to Houdini of the way she had gulled Crookes was confirmed years later when psychical researcher Colin Brookes-Smith found one of the galvanometers used by Crookes at the Science Museum in London. The

machine was repaired and brought to working order.

Brookes-Smith reports that "there was no difficulty at all in sliding one wrist and forearm along over one handle and grasping the other handle, thereby keeping the circuit closed through the forearm, and then releasing the other hand without producing any large movement of the galvanometer spot." In a second test, he "tucked both electrodes successively right down into my socks and let go so that my hands

She told Houdini how she had tricked Crookes at the electric test: She had simply gripped one handle of the battery beneath her knee joint, keeping the circuit unbroken.

were free without producing any large galvanometer spot excursions." In this way, not only did he confirm Eva's revelation but also "Houdini's 1924 footnote explanation (p. 102) that in 1874 Florence (Cook) could have detached one of the electrodes consisting of a gold sovereign and saline soaked blotting-paper pad from one wrist and held it under her knee" (Brookes-Smith 1965).

There is no more doubt, now, that trickery actually took place during Crookes's tests, exactly as described by Annie Eva Fay; what is unclear is whether he was a complete fool (unlikely) or a willing accomplice. In any case, one thing can't be denied: the great William Crookes had a special interest in attractive, young mediums needing a scientific pedigree and was willing to test them all, even if they were outright fakes like Eva Fay, in his own house, right under his wife's nose.

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The Pseudoscience of Oxygen Therapy

Many claims associated with the safety and efficacy of so-called "oxygen therapy" using hydrogen peroxide and ozone are unfounded and unlikely to be true.

JOHN M. ALLEN

Many health-related claims have been made in the popular literature, on radio talk shows, and on the Internet regarding so-called "oxygen therapy." Oxygen therapy as discussed in this article refers to such practices as oral ingestion (drinking) of hydrogen peroxide, administration of hydrogen peroxide enemas, and inhalation of ozone without appropriate medical supervision. These practices should not be confused with medically approved oxygen therapy, which involves administration of oxygen at elevated concentrations (hyperbaric oxygen) and medically supervised administration of hydrogen peroxide and ozone under carefully controlled clinical conditions, although even some of these medical treatments remain controversial.

Ostensibly, the rationale behind oxygen therapy is to provide the body with "healthful, life-giving oxygen" as a sort of pick-me-up for healthy people, and to provide an additional weapon of last resort in the medical arsenal against a variety of diseases including cancer and AIDS. Many claims regarding the safety and efficacy of oxygen therapy as a stimulant and for treatment of a host of illnesses are commonly touted by advocates of oxygen therapy. Visitors to oxygen therapy Internet sites read that "patients with cancer, AIDS, tuberculosis, arthritis, heart disease, and stroke are cured by therapeutic oxygen therapy almost without exception" and that "health sciences have been trying to find the primary physical cause of all diseases and the cure-all that this basic principle would yield. Now both have been found" through the use of oxygen therapy. Along with such health claims, the sales of concentrated hydrogen peroxide and ozone generators are frequently promoted.

Oxygen therapy, like many other popular health fads, is based upon a little bit of science, a little bit of charlatanism, and a whole lot of wishful thinking. Unfortunately, oxygen therapy may harbor dangers that are as yet unrecognized by the average person. This is largely due to the fact that proper scientific evaluation of oxygen therapy has not been conducted and is not likely to be conducted because medically unsupervised, in-home, do-it-yourself oxygen therapy is based upon a poorly conceived, poorly controlled, and fundamentally flawed approach.

Another interesting and characteristic aspect of the oxygen therapy fad is the notion that a conspiracy exists between the government Food and Drug Administration (FDA) and big drug companies; they have clandestinely banded together in order to prevent the good news about oxygen therapy from getting out. According to the oxygen therapy literature, this has occurred because "drug companies cannot patent hydrogen peroxide and ozone and their widespread use in oxygen therapy would reduce sales of antibiotics." As a further example, readers of oxygen therapy literature are informed that "the FDA fights a cynical battle against doctors who are determined that their patients will not die from diseases such as AIDS" that are curable by oxygen therapy. This is very similar to claims made by UFO enthusiasts that crashed flying saucers are stored under tight security at secret government installations.

I am not in favor of government regulation or prohibition of oxygen therapy; I merely wish to provide additional information for anyone who is interested in this subject.

Oxygen is Toxic

As strange as it may seem, oxygen is in fact toxic. This statement seems counterintuitive because oxygen is necessary to sustain life. How, then, can oxygen be both necessary to sustain life and toxic? The answer to this question lies in the fact that all aerobic organisms, including humans, derive the energy necessary to carry out their life functions by consuming food and combining

this food with oxygen. The resulting metabolic chemical reactions release energy that is harnessed to carry out such diverse functions as heart contractions that pump blood, leg muscle contractions that propel the body, and in mammals, regulation of body temperature. Aerobic metabolism is a wonderfully efficient way of extracting needed energy from food, but all aerobic organisms pay a price for this adaptation to Earth's oxygen-rich atmosphere; we are subject to attack from powerful toxins derived from oxygen. For a good introduction to this topic see *Free Radicals in Biology and Medicine*, Halliwell and Gutteridge, 1995.

Many of these toxins belong to a group of chemical species

An interesting and characteristic aspect of the oxygen therapy fad is the notion that a conspiracy exists between the government Food and Drug Administration and big drug companies.

called *free radicals*. More specifically, some of the free radicals derived from reactions involving oxygen are called *oxygen-centered free radicals* or *free radical oxidants*. Unfortunately, oxygen, which is present in the atmosphere as O_2 (oxygen molecules), is readily converted during the course of metabolic chemical reactions to a variety of powerful free radical oxidants (For an advanced discussion of oxygen chemistry and thermodynamics see Sawyer 1991). Free radical oxidants owe their toxicity to their ability to react with biomolecules (e.g., lipids, proteins, and DNA). Some free radical oxidants can react only with certain biomolecules while others can react with virtually all biomolecules (Halliwell and Gutteridge 1995; Kruk 1998).

Reactions between free radical oxidants and biomolecules frequently lead to alterations of the affected biomolecules that are quite harmful. When their concentrations are high, free radical oxidants can kill cells and destroy tissue. In fact, free radical oxidants are thought to be involved in such diverse phenomena as aging, heart disease, carcinogenesis, and Alzheimer's disease. All aerobic organisms have had to evolve sophisticated defense mechanisms against the continual onslaught of free radical oxidants. Advances in our understanding of their involvement in disease has prompted medical authorities to advise eating foods and taking dietary supplements that are rich in antioxidants.

Hydrogen Peroxide and Ozone as Sources of Toxic Free Radical Oxidants

Hydrogen peroxide (H_2O_2) is a familiar component of most home medicine chests. An examination of the ubiquitous brown bottle reveals that it contains a 3 percent hydrogen peroxide solution stabilized by a preservative. The preservative

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slows the gradual decomposition of hydrogen peroxide into water and oxygen. This dilute solution of hydrogen peroxide is a useful antiseptic and is frequently employed to rinse the mouth or to treat minor scrapes and cuts. Hydrogen peroxide at concentrations higher than 3 percent can be highly corrosive to tissues and cause severe burns. In addition, consumption of hydrogen peroxide may cause acute gas embolism and is a recognized genotoxin (substance that alters genetic material).

The hydrogen peroxide prescribed for use in oxygen therapy is at a 35 percent concentration—high enough to cause severe burns unless diluted. It is described by oxygen therapy enthusiasts as “good for a multitude of uses, internally and externally” because “our bodies are lacking in adequate hydrogen peroxide to function properly.” They go on to say that “if there is insufficient oxygen for the cell to burn it, sugar will be converted into carbon monoxide” and that “cells cannot become diseased if they are supplied with sufficient oxygen.” These claims, which undoubtedly sound scientific to the average person, are patently absurd.

It is further asserted by oxygen therapy advocates that 3 percent hydrogen peroxide solutions available in drug stores are unsuitable for oxygen therapy because of the added stabilizer and that the 35 percent food-grade hydrogen peroxide, available by them through the mail, is essential. Of course, no explanation is given regarding the mechanism by which the stabilizer reduces the efficacy of hydrogen peroxide in oxygen therapy.

As mentioned previously, hydrogen peroxide slowly decomposes to water and oxygen. However, it can also react rapidly, under conditions present in the body, to form a particularly powerful and very toxic free radical oxidant called hydroxyl radical. Hydroxyl radicals are composed of a hydrogen atom and an

oxygen atom that has an unpaired electron attached to it. The hydroxyl radical exhibits extraordinarily high reactivity towards almost any biomolecule and leads to changes that are similar to those caused by exposure to ionizing radiation.

Ozone is a gas at room temperature and pressure. It has a particularly strong, pungent, and irritating odor. This odor can occasionally be noticed after lightning strikes during particularly vigorous thunder storms or after operating electric motors. The electric discharge causes the splitting of an oxygen molecule (O_2 , two oxygen atoms bound together) present in the air into separate oxygen atoms. The separated oxygen atoms are very reactive and can attach to another oxygen molecule, forming ozone (O_3 , three oxygen atoms bound together). Ozone dissolves in water, forming several chemical species including hydroxyl radicals. Breathing ozone causes severe irritation of the lungs and mucous membranes and ultimately to changes in lung tissue that resemble exposure to ionizing radiation.

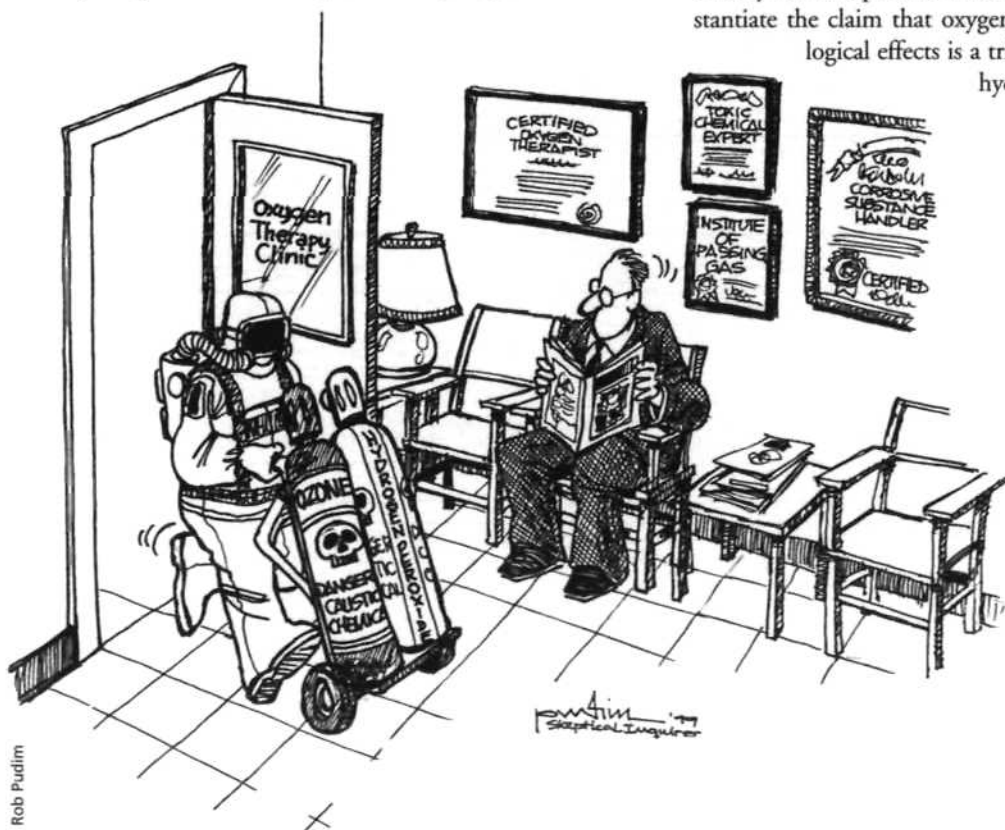
That hydrogen peroxide and ozone exposures cause changes in cells and tissue that are similar to exposure to ionizing radiation is not at all surprising. When living organisms are exposed to gamma radiation, the very energetic gamma photons are absorbed by water molecules, which gain so much energy that they split apart to form hydroxyl radicals.

Unsubstantiated “Scientific” Claims

Claims of psychological benefits from oxygen therapy are potentially valid but are unsubstantiated. If ingestion of hydrogen peroxide or ozone inhalation causes a beneficial psychological change such as stimulation or relief from depression, it may be entirely due to a placebo effect. What is needed in order to substantiate the claim that oxygen therapy has beneficial psychological effects is a trial in which volunteers are given

hydrogen peroxide or ozone and placebo along with subsequent quantitative psychological evaluations. Such an experiment may not be ethically permissible, however, since there is evidence to suggest that ingestion of hydrogen peroxide and inhalation of ozone both pose a risk of adverse health effects.

This situation is somewhat reminiscent of the claims made many years ago concerning the psychological benefits of consuming radium water. Near the turn of the century, many older men were convinced that they felt more vigorous (particularly with regard to sexual performance) after a suitable regimen of radium water consumption.



Rob Pudim

Unfortunately, radium water was found to cause particularly horrific side effects, including destruction of bone tissue in the jaw and skull, and is (hopefully) no longer considered to be a healthful tonic. However, any future medically supervised study of the psychological effects of consuming radium water is not likely given the well-documented gruesome side effects.

Some oxygen therapy advocates claim that hydrogen peroxide consumption and ozone inhalation are "completely safe." This is clearly unlikely. It has also been claimed that ingestion of hydrogen peroxide is "every bit as safe as taking a bath or putting gasoline in your car," but the accuracy of this claim is impossible to assess. There is certainly some drowning risk associated with taking a bath and there is undoubtedly a health risk associated with putting gasoline in your car as a result of exposure to volatile aromatic hydrocarbons via inhalation. Finally, the oxygen therapy gurus advise that "you may experience nausea, sleepiness, unusual fatigue, skin eruptions, diarrhea, colds, infections, boils, etc." and that "these are natural cleansing processes." These symptoms are, in fact, much more likely to represent some of the toxic effects of oxygen therapy.

Another fallacious tactic used by oxygen therapy advocates is to invoke the argument that "if there were any truth at all to claims that oxygen therapy is harmful to humans, the evidence would have been clear forty years ago." This is akin to taking the position that a statement which cannot be disproven must therefore be true. This of course represents a philosophy that is the antithesis of the scientific outlook put forth by "experts" representing themselves as "scientific."

Much scientific evidence exists in support of the claim that hydrogen peroxide and ozone are capable of destroying a wide variety of disease agents. The hydroxyl radicals derived from hydrogen peroxide and ozone are fully capable of killing cancer cells just as they are fully capable of destroying the AIDS virus. Unfortunately, hydroxyl radicals are also fully capable of altering and killing normal, healthy cells.

The Fundamental Flaw in the Oxygen Therapy Approach

The fundamental flaw in the oxygen therapy approach is that it completely ignores the need to exploit the substantial toxicity of free radical oxidants selectively. In other words, an attempt must be made to limit, as much as possible, exposure of normal, healthy cells to free radical oxidants. Oxygen therapy proponents argue erroneously that "enzymes present in the body are fully capable of protecting against any damage inflicted by free radical oxidants to healthy cells" during oxygen therapy. This is untrue even with regard to naturally occurring free radical oxidant concentration levels and is certainly untrue when the body is deliberately swamped with free radical oxidants during oxygen therapy. Oxygen therapy proponents claim that "disease organisms are of primitive evolutionary origin and thus

require less oxygen and can only survive in low oxygen environments." This is more pseudoscientific nonsense.

Other Approaches with Real Promise

Many selective approaches for killing cancer cells and viruses are already being widely exploited by medicine. For example, in one therapy tumor cells are selectively exposed to gamma radiation from a cobalt-60 source. As much as possible, the exposure is limited to diseased tissue. Put simply, the aim is to kill a much larger number of tumor cells than normal cells. Other modern approaches have included removal of blood from the body and treating the blood *in-vitro* (outside the body) with oxidants such as ozone to kill the virus responsible for AIDS.

Hydrogen peroxide and ozone exposures cause changes in cells and tissue that are similar to exposure to ionizing radiation.

Other highly successful cancer treatments such as photodynamic therapy (PDT) have involved shining light on cancer cells after the administration of a dye that is taken up by cells. The light causes the dye to form powerful oxidants from oxygen molecules that attack and kill nearby cells (Marcus 1992). In some approaches, the difference in the rate of release of the dye by cancer cells versus healthy cells is exploited in order to time the light exposure. Healthy cells have been found to release certain dyes more rapidly than diseased cells. It is thus only necessary to wait until the dye has cleared from the healthy cells, while still remaining in the cancer cells and then switch on the light, selectively killing the cancer cells and leaving the healthy cells essentially unaffected.

The safety and efficacy of oxygen therapy, as described in the popular literature, is based upon unsubstantiated claims and is not likely to be safe and effective as a rejuvenating tonic or as a treatment for cancer and infectious diseases. Furthermore, the promotion and use of powerful chemical oxidants such as hydrogen peroxide and ozone without proper medical supervision is dangerous and irresponsible. It is my hope that individuals tragically stricken with life-threatening diseases will consult with a competent health care practitioner before embarking on any course of home treatment. Safer and more effective treatments are constantly being developed by rigorous scientific studies and are offered in clinics throughout the world.

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Confessions of a (Former) Graphologist

A first-hand report of one man's entry into the field of graphology, his later deep involvement with the practice, and his subsequent disillusionment. Along the way he encountered a continuing lack of scientific validation and a refusal of graphologists to face graphology's validity problems.

ROBERT J. TRIPICIAN

Around 1972 I happened upon a magazine article describing handwriting analysis. The article got my immediate attention as it showed a sample of handwriting that closely resembled that of a co-worker. The personality factors described in the analysis of this sample appeared to match the co-worker's personality very closely. This piqued my interest.

After retirement I pursued the study and practice of graphology rather heavily, even becoming a Certified Professional Graphologist. I soon found that while texts on the subject are in general agreement regarding the meaning and interpretation of individual handwriting features, none of them describe an orderly approach to developing a com-

plete profile. Indeed, developing profiles is described as an esoteric and intuitive process. Furthermore, none of the texts describe an orderly method of recording notes.

I subsequently developed a computer database to automate the note-taking process and eliminate the need for memorizing the meanings of hundreds of handwriting features. This system also contains automated scoring routines that score each personality factor. Needless to say, I was quite pleased to see the comments of Beyerstein and Beyerstein (1992), Dawes (1994), and many others regarding the superiority of equations over human judgment in such scoring.

In 1992 I learned about the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) and the SKEPTICAL INQUIRER. It proved to be a gold mine of information and was my introduction to research by such authorities as the Beyersteins, Dawes, Gilovich, Hyman, Sagan, and others. This was the catalyst needed to solidify the doubts that I was beginning to have about both the validity and reliability of graphology.

As a result, I began a new appraisal of graphology from a different viewpoint, based largely on the works of the Beyersteins, Dawes, Gilovich, Sagan, et al. and investigated other sources of information. Here are some of the conclusions I came to.

Problems Encountered

The following problems, pitfalls, and fallacies are typical of the difficulties in graphology.

Problem 1: The meaning of individual handwriting features and the origin of the meaning of same. Examples of this problem are:

a. A lower case letter *a* which has an open top (figure 1) is construed as meaning that the subject cannot keep confidences and is overly talkative. This is supposedly because the open top is like an open mouth and therefore the writer has one too. Beyerstein and Beyerstein (1992) discuss the origins of such beliefs in their chapter titled "The Origins of Graphology in Sympathetic Magic."

b. A capital letter *I*, with an arrow to the left (figure 2) is construed to mean, according to one school of graphology, that the subject has ill feelings toward the mother figure. In another school of graphology this form indicates ill feelings toward the father figure. Neither meaning has been validated and it is quite possible that both are incorrect. Note that this style was actually taught as the standard formation in the Mills penmanship system. Are we to assume that people will hate either their father or mother because of the way that they were taught to write?

c. Ovals, i.e., lower case letters *a* and *o*, which have stabs in them (figure 3) are construed to mean that the subject is sarcastic. This is based on the belief that any downward stroke

with a sharp point denotes a sharp temper.

d. A lower case *p* with a spike at the top (see figure 4) is interpreted to mean that the writer is argumentative. However, as in the case of the capital letter *I*, this formation was taught in both the Mills and Palmer Method systems as the standard.

Problem 2: The requirement for demographic data is deemed a necessity by most graphologists. The following references are from well-known graphological experts Amend and Ruiz (1980):

"When the writer or someone who knows him well is present for the analysis, be sure to jot down whatever personal information you receive as you progress."

And from Nezos (1986):

"Before starting work on a writing, establish the age and sex of the writer and whether he is left or right handed. Other useful information concerns nationality, level of education, profession, etc."

The problem with using demographic data is that the analysis usually degenerates into a "cold reading" as described by Hyman (1977). In this light, it is easy for the analyst to (perhaps unintentionally) read the content and interpret the subject's personality from the context, grammar, etc.

Problem 3: Many professional graphologists openly admit that the development of an analysis is subject to the interpretation of the individual analyst. For example, Amend and Ruiz (1980) state:

"Both fundamental knowledge and interpretive skill have their importance in an accurate handwriting analysis sample, and all interpreters unavoidably bring their own personal shadings and colorings to the portrait. The realm of the mind is a subjective area of study. Any kind of psychological diagnosis or therapy presents the

same problem of subjectivity. Handwriting analysis is not infallible."

And from Nezos (1986):

"Every graphologist can develop his or her own method of practicing or teaching according to his skill, taste, character and temperament."

Problem 4: False claims made by various graphology organizations have (rightfully) alienated the scientific community. For example, the July 29, 1992, issue of the *Phoenix (Arizona) Gazette* contained an article entitled "It's In The Script." This article stated:

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Figure 1

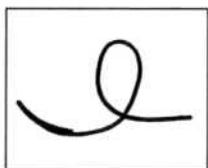


Figure 2

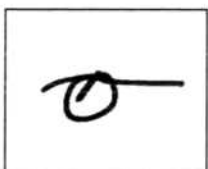


Figure 3



Figure 4

"According to the American Psychological Association, handwriting analysis, when done by computer, is especially good at offering clues to characteristics such as honesty, judgment, and emotional stability."

I sent a copy of this article to the American Psychological Association and received the following reply: "The writer of the article in the *Phoenix Gazette* was mistaken: The APA has *not* taken a position on handwriting analysis, when done by computer or otherwise."

Problem 5: Sweeping claims are made regarding the efficacy of graphology to detect lying. Mention of the subject of false positives to graphologists brings violent denials of even a remote possibility of such a problem. Lilienfeld (1993) discusses the false-positive syndrome at length while Ford (1996) discusses the prevalence of lying throughout the population. (Unfortunately, most graphologists likely don't read these sources!)

Problem 6: The only evidence graphologists present to support the validity of graphology is anecdotal and quite suspect. I could elaborate on the problems of validity and reliability, but instead refer the reader to the chapter titled "The Bottom Line: The Effect Size" in the Beyersteins (1992) book. The closing remarks of this chapter report that a meta analysis of more than 200 graphological studies shows that graphology is neither valid nor reliable enough to be useful. Those slight positive effects in validity which are noted are attributed to content, not graphology.

Problem 7: This problem concerns the computer-based scoring system mentioned earlier. Theoretically, this system should have solved a problem with "inter-rater" reliability, i.e., each analyst should arrive at exactly the same conclusion. However, noting that the results of analysis of the same sample would vary between analysts, I soon found that the graphologists were molding the input data to suit their preconceived conclusions. Furthermore, the lack of validated interpretations of the various letter forms shed doubts on the validity of the whole process.

Philosophy and Viewpoints

As I mentioned earlier, considerable impetus and support for my desertion of graphology came from my re-analysis in light of skeptical criticism. Here are some pertinent quotations:

- Professor Dawes's book, *A House of Cards* (1994) speaks to

the psychological community. However, I found that much of his thinking can be applied to the graphological community. Two quotations are: "... to assess psychological harm, the evidence consists of the behavior and self report of the victim, and the intuitive art of the examining psychologist or psychiatrist."

"That's the antithesis of the 'only I can tell and I can't explain how' approach of much expert testimony in court settings."

- Gilovich's (1991) work is quite applicable. Two quotations regarding the role of representativeness are: "We expect effects to look like their causes: Thus we are more likely to attribute a case of heartburn to spicy rather than bland food, and we are more inclined to see jagged handwriting as a sign of a tense rather than a relaxed personality."

"The naturalness with which we base judgments on representativeness should lead us to be particularly concerned with beliefs that conform to the principle of like goes with like."

- Carl Sagan (1995) notes:

"At the heart of some pseudoscience (and some religion also, New Age and Old) is the idea that wishing makes it so."

"Our perceptions are fallible. We sometimes see what isn't there. We are prone to optical illusions. Occasionally we hallucinate. We are error prone."

Why Do People Study Graphology?

The motivation to study graphology apparently stems from a desire to possess esoteric powers. As I have personally observed many times, this gives the graphologist a feeling of power over



Rob Pudim

the subject. Sagan (1995) refers to this phenomenon in his statement:

"Pseudoscience speaks to powerful emotional needs that science often leaves unfulfilled. It caters to fantasies about personal powers we lack and long for (like those attributed to comic book superheroes today, and earlier, to the gods)."

The large national graphological associations are very well organized and turn out very presentable newsletters as well as offering correspondence courses, seminars, local chapter meetings, etc. They might well have been patterned after Pratkanis's (1995) description of how to sell a pseudoscience. Ford's (1996) discussion of "group think" also fits the situation.

I should add that one large graphological organization tells its members to validate their results by asking the subject whether or not he or she agrees with the results of the analysis. Personal validation is inadequate for two reasons: First, the self-report method of validation has long been discredited by Anastasi (1988), Forer (1949), and others; second (and equally important), as Gilovich (1991) notes, people are reluctant to disagree with others in order to avoid conflict in social situations.

Graphology has its staunch adherents as do astrology, numerology, palmistry, chiromancy, phrenology, etc. As Gardner (1996) says: "My own opinion is that the gullibility of the public today makes the citizens of the nineteenth century look like hard-nosed skeptics."

Conclusion

I seriously doubt that graphology can survive as a legitimate science, especially after rigorous testing under rigidly con-

trolled laboratory conditions. Obviously, the problems of validity and reliability must be solved before any use can be made of the practice.

In closing I cite Gardner's (1996) quite apropos quotation from physicist Wolfgang Pauli regarding a "far out" theory:

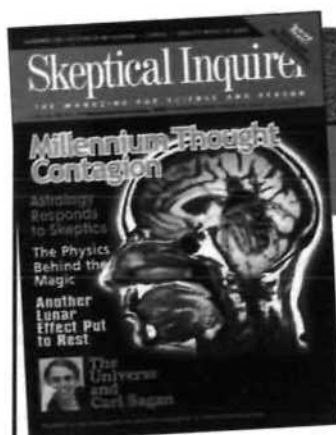
"It was so far out that it's not even wrong!"

Acknowledgment

I heartily thank Dr. B. Beyerstein for his helpful comments.

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Don't Think About Pseudoscience...

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Why Do We Often Fear the Wrong Things?

GRANT JEWELL RICH

The Culture of Fear: Why Americans Are Afraid of the Wrong Things. By Barry Glassner. Basic Books, 1999. ISBN 0-465-01489-5. 276 pp. Hardcover, \$25.

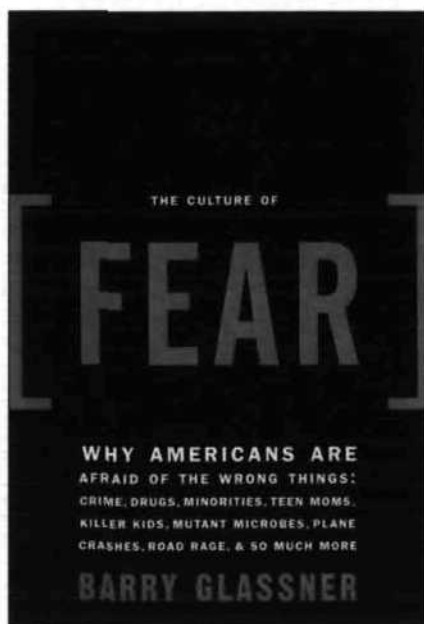
Each day Americans are bombarded by a barrage of media messages. At the supermarket checkout we can't help but read tabloid headlines that announce what appears to be the umpteenth teen mother tragedy. Each morning, talk shows seem to feature yet another victim of some rare disease. On the car radio we hear the details of what seems to be the latest in a string of ever more serious youth crimes. Television newscasts will spend weeks discussing the latest plane crash.

In his wonderfully written new book, Barry Glassner reminds us again and again that frequently our fears are grossly exaggerated given the actual frequency of these rare events.

Glassner, a sociology professor at the University of Southern California, uses persuasive logic and well-chosen statistics to demonstrate the infrequency of such events as "road rage" and the rarity of such criminals as "cyber-predators." Our almost pathological fears do serve some function, however. News media may use these fears to earn higher ratings, politicians may play on our fears during elections, and perhaps, in a sense, even lobbyists for special interest groups may exchange fear for increased fund-raising.

In a chapter detailing "dubious dangers on roadways," Glassner notes the

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discrepancy between the perception and reality of road rage. Popular media outlets tend to exaggerate the extent of road rage; for instance, an Oprah Winfrey show featuring road rage seemed to indicate that anyone at any time may be a likely victim. She warned, "We've all been there. It starts with the tap of the horn, and angry gesture . . . this is a show that affects so many people. . . ." A *Los Angeles Times* story exclaimed, "Road rage has become an exploding phenomenon across the country" and the Pacific Northwest was "plagued by a rise in road rage." Readers impressed by this hyperbole would have been surprised to read later in the story that only

five people were victims of road rage in the area in the past five years. Glassner also cites revealing statistics from a 1997 study by the American Automobile Association. The report noted that of the 250,000 people killed in auto-related deaths between 1990 and 1997, under one in one thousand could be directly attributed to "road rage." Americans clearly have other things more worthy of worry than road rage.

In a particularly powerful chapter, Glassner demolishes irrational fears about airplane safety. While the airline traveler may feel uncomfortable when turbulence is encountered, or when recalling that she is many thousands of feet over ground in a flying, metal tube with wings, fears of crashes, collisions, and death are greatly exaggerated. As Glassner notes, "In the entire history of commercial aviation . . . fewer than 13,000 people have died in airplane crashes. Three times that many Americans lose their lives in automobile accidents in a single year. The average person's probability of dying in an air crash is about 1 in 4 million, or roughly the same as winning the jackpot in a state lottery." One reason the general public may continue to fear flying is that journalists often confuse incidence for rates. In recent years, more flights fly, and there have been more accidents, but while the total number of flights has increased, the accident rate has declined. Reporting a

given year as "the deadliest in aviation" takes on new meaning when the claim is placed in the context of an increased overall number of flights, the vast majority of which land safely. Another improper skewing of reality occurred in a front-page 1994 *USA Today* story that warned to "steer clear of commuter planes with fewer than 30 seats." Fortunately the Federal Aviation Administration responded with information that when Alaskan bush flights, air taxis, and helicopters are removed from analysis, commuter flight accident rates are nearly identical to major carrier accident rates. Airplane crashes often make headline news while car crashes often do not, in part because airline crashes are relatively infrequent and tend to result in a greater number of simultaneous deaths than do auto crashes. What is newsworthy does not always make sense statistically.

Later in the book, Glassner turns to a discussion of youth violence. In the wake of the terrible school shooting tragedy in Littleton, Colorado, many policymakers are rushing to correct what has been viewed as an epidemic of youth violence. Are public fears of a new generation of monster youth unfounded? The media, at least, are fond of reporting youth violence stories. Footage relating to the horrible Littleton event has been played and replayed. One study Glassner cites found that 48 percent of all reports about children on the CBS, ABC, and NBC evening newscasts concerned crime and violence, while only 4 percent of the stories concerned children's health and economic issues. Are "killer kids" a growing threat to our cities, suburbs, and rural areas? Probably not. Glassner cites data from criminologist Vincent Schiraldi indicating that "youth homicide rates had declined by thirty percent in recent years, and more than three times as many people were killed by lightning than by violence at schools."

This is a beautifully written and thoughtfully argued book. In addition

to the rich explorations of youth crime, road rage, and airline safety, Glassner turns his talents to discussions of our overblown fears concerning such phenomena as teen pregnancy, racial stereotypes, pedophile priests, crack babies, rare illnesses, and cyberporn.



The Alien Abduction Puzzle: Solved!

Robert A. Baker

The Abduction Enigma: The Truth Behind the Mass Alien Abductions of the Late 20th Century. By Kevin D. Randle, Russ Estes, and William P. Cone. Tom Doherty Associates Inc. New York, NY. 1999. ISBN: 0-312-86708-5. 416 pages. Hardcover, \$25.95.

This book, along with the SKEPTICAL INQUIRER anthology *The UFO Invasion: Alien Abductions and Government Coverups* (Prometheus 1997), should convince even the most dedicated believer in aliens and alien abductions that he not only has been badly misinformed over the past five decades but also been sorely misled by the popular press, the abduction researchers, and even by the abductees themselves.

In their introduction Randle, Estes, and Cone mislead the reader into thinking they, too, believe in the reality of alien abductions by asserting that they are convinced ET visitations to Earth have taken place. The remainder of the book is a brilliant, step-by-step analysis of how this pernicious myth of people-snatching was given birth, then amplified and repeated and reinforced by folklorists, propagandists, media-mavens, and pseudo-therapists as well as hundreds of alleged victims. Eventually this monstrous modern myth was so well anchored in our cultural ethos that many people now take "alien abductions" as an established scientific fact.

In chapter after chapter the authors

systematically dismantle each argument the champions of alien abductions (AA) have made since the Betty and Barney Hill triggering incident in the 1950s. In Part I the alleged "interrupted journey," the Travis Walton escapade, and other early cases of claimed contact and bedroom encounters are examined in detail and found wanting. Part II, "The Common Threat," covers the manner and motives underlying the need many people have to create and support an alien folklore as well as the way in which pop culture invents and perpetuates such strange beliefs and delusions. Of particular salience is the authors' explanations for other social and psychological mechanisms that invigorate and sustain the "abduction scenarios."

Part III, one of the better sections of the book, is devoted to a scathing, and at times hilarious, analysis of the "abduction" researchers themselves and the madness of their methods. While most of the investigators are by no means as deranged and deluded as Marshall Herff Applewhite ("Bo") or Bonnie Lu Nettles ("Peep"), all fail to

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meet the minimum standards of scientific expertise and/or experimental competence in studying behavior. The AA researchers examined include Richard Boylan, John Carpenter, James Harder, Budd Hopkins, David Jacobs, John Mack, and the alien-hunter and implant-collector Derrel Sims.

In Part IV the authors show in clear and precise detail how this foolhardy search for aliens and alien abductors parallels other popular myths of widespread satanic ritual abuse, past lives reincarnation, and recovered memories of childhood sexual abuse. Also discussed here are sleep paralysis (SP) and hypnagogic and hypnopompic hallucinations, which undoubtedly cause many people to believe they are being abducted. In this regard, the authors remark:

Is there a valid scientific reason to reject sleep paralysis as an explanation for some cases of alien abduction? No, clearly it suggests a solution for some of them. . . . To move this classic manifestation of sleep paralysis into the realm of alien abduction, hypnosis is necessary. Without the hypnosis there would be no tale of alien abduction. That should provide the researcher with a clue about the cause of these tales of abduction, but they seem to have missed it (306).

Also discussed at length are the reinforcing and belief-determining effects of the various social support groups that have grown up around the abductee claimants and their investigator gurus such as Hopkins and Mack. In no way do they help or heal.

Part V is devoted to all the so-called "physical evidence" that supports the "reality" of the alleged abductions as well as that primary tool employed by every AA investigator: hypnosis. Again, the authors blow gaping holes in evidential claims, showing in example after example that scars can be and frequently are self-made; that implants turn out to be made of bits of plastic and glass and other earthly materials; that the alleged alien fetuses can never be found; and the claimed pregnancies

due to alien sperm are never proved. As for the value and reliability of hypnosis, Cone, a licensed and well-qualified expert, says in unequivocal terms: "What you see is what you get," i.e., hypnosis is no royal road to truth. It is, instead, a royal road to fantasy-land and the person being hypnotized can easily be manipulated by the AA investigator into believing anything and everything. As the authors note:

Without the UFO researcher, without the use of hypnosis, and with a basic understanding of sleep paralysis, hundreds if not thousands of so-called abductees could sleep easily at night. They would not have to worry about alien creatures invading their bedrooms. Instead, they could learn that sleep paralysis is the cause of their visitation. Without the abduction researchers to misinterpret sleep paralysis a large number of people would be happier and healthier (306).

The conclusions of the book summarize and emphasize that the entire alien abduction scenario constitutes an elaborate logical paradox and is "a modern horror story in every sense of the word." Many of the abductees are not only highly imaginative but some are even "fantasy prone," while others suffer from boundary disorders, i.e., their boundaries between dreams or fantasies and reality are very fuzzy. Anxiety and depression also seem to be common factors in the background and makeup of many of the claimants. In this regard, the authors note on page 72, "When Sherry, an alleged abductee, started taking Prozac all the strange stuff stopped." However, one should not assume that *all* abduction claimants are deranged or psychologically ill. Most claimants are—as the AA researchers insist—quite normal and come from all walks of life. It is also true that many so-called "normal" people are also deluded, i.e., they also harbor many false and irrational beliefs.

In a particularly poignant yet penetrating paragraph at the end the authors observe:

For too long we have been persuaded by 'authorities' who will tell us that alien abduction is real. They present case after case, demanding that we prove that the abduction isn't real. But that isn't the way science is supposed to work. The researchers who claim the abnormality are required to prove that it exists. They have failed to do so (363).

And the final question they are compelled to ask is the same one skeptics have been asking for years. Have we been witnessing "alien abductions" or merely "therapist seductions"? The evidence for the latter is massive.

While reviewing *The Alien Enigma* I came across another gem of this genre titled *The Alien And The Scalpel: Scientific Proof Of Extraterrestrial Implants In Humans* by Roger K. Leir, DPM (Doctor Of Podiatric Medicine) published by Granite Publications, Columbus, NC, 1998–1999 (ISBN 1-893183-01-7, 231 pps., Paper, \$18.95). This "scientific" classic has a foreword by Whitley Strieber and the book is sponsored by the Robert Bigelow Foundation. Leir claims the alien implants he has excavated from a number of abductee victims are not of this planet but are truly artifacts from "a galaxy far far away." As Randle, Estes, and Cone observe, however,

Each time implants recovered by any researcher have been analyzed by reputable independent labs and scientists, they have been found to be organic matter or slivers of glass and other completely terrestrial debris. Nothing has been discovered to suggest they were any kind of mind control device or that they had any detectable function (257).

The authors also report that another abduction researcher, Darrel Sims of Houston, Texas, carries with him a box of these alleged implants he claims came from abductees. He says some are from aliens but others are from the CIA. Unbiased observers report that, to them, they look like bits of common metals with an occasional sliver of plastic or glass.

Overall, the book is a comprehensive and illuminating exposé of the alien abduction hoax and its perpetrators. Despite its being aided and abetted by the media, folklorists, and incompetent pseudo-psychotherapists, the alien abduction claim has failed to make a rational, consistent, or scientifically credible case.

Although most of *The Alien Enigma's* arguments are on solid ground the most glaring weakness of all is the authors' failure to credit and provide references for those skeptics whose earlier work provides the basis for nearly every criticism and exposed weakness in the alien abduction agenda. Why earlier work such as Phil

Klass's *UFO Abductions: A Dangerous Game* (Prometheus Books, 1989) and the previously mentioned *The Alien Invasion* (Prometheus, 1997), edited by Frazier, Karr, and Nickell, which covers much of the same territory, was never mentioned is yet another enigma. The reviewer also wonders if *Enigma's* three authors were now to sit down and read the book they have written would they still maintain—as they say in their introduction—that “each believes that ET visitations have taken place”? Nevertheless, Randle, Estes, and Cone are to be congratulated for providing another well-driven nail in the coffin of the bizarre modern myth of alien abductions.

Bronfenbrenner, Jerome Kagan, Leon Kamin, and Edmund Gordon. Many of these chapters were originally assembled as a response to the 1969 publication in *The Harvard Educational Review* of a notorious paper by Arthur Jensen called “How Much Can We Boost IQ Scores and Scholastic Achievement?” In that paper, Jensen argued that intelligence is genetically determined, African-Americans have less of it than do whites, and that “compensatory education has been tried and it apparently has failed.” The scholars in Montagu's book argue against these assertions, dismantling the concept of race, questioning the validity of the construct of IQ, and offering a mountain of evidence indicating the importance of the environment for optimal development.

While Montagu's book does delve into great detail in its dismantling of the race concept, one set of findings is easily presented in a review. Data from a 1985 survey by Lieberman, Stevenson, and Reynolds may surprise some people. The scholars found that, among faculty at Ph.D.-granting anthropology departments, 52 percent of cultural anthropologists and 42 percent of physical anthropologists reject the notion that there are biological races within the species *Homo sapiens*. If there is no consensus that race even exists, how can writers such as Jensen argue that social policy should be changed to respond to supposedly fixed, innate racial differences?

Elsewhere in the book, we are reminded of the horrific history of intelligence testing. While creators Alfred Binet and Theodore Simon merely viewed their intelligence “scale” as a “first crude approximation” of mental “level,” later writers seemed to view intelligence as some immutable quality that was set in stone at birth. Early intelligence testing and the eugenics movement played a large role in the 1924

**Ashley Montagu died November 26, 1999, as we were going to press.*



The Persistence of Man's Greatest Myth?

GRANT JEWELL RICH

Race and IQ: Expanded Edition. Edited by Ashley Montagu. New York: Oxford University Press. 1999. ISBN 0-19-510220-7. 486 pp. Hardcover, \$35.

At ninety-four years old*, anthropologist Ashley Montagu has firsthand experience with virtually the entire century. In his latest effort, he crystallizes a lifetime of learning into a thoroughly revised, expanded, and updated edition of his 1975 collection of essays on the race and IQ debate. A public intellectual in the best sense of the term, Montagu has written a plethora of books over his lifetime on such varied topics as touch, love, education, human development, women's superiority, and aggression. He is perhaps best known, however, for his work on race. In *Man's Most Dangerous Myth: The Fallacy of Race*, first published in 1942, a time when Nazi theories of racial superiority flourished, Montagu took aim at a variety of racial myths, such as J. Phillip Rushton's perverse claim that an inverse correlation

exists between brain size and race and penis size and race, the myth that intermarriage leads to degeneration, and the myth that blacks and whites have different body odors. In 1999, over fifty years later, one need look no further than Rwanda or Kosovo to see that violent racial and ethnic misunderstandings continue. Montagu's latest book offers powerful ammunition to scholars, activists, and others who desire to equip themselves with the necessary intellectual armament to debate the arguments made by such writers as Jensen, Shockley, Herrnstein, and Murray that some races are genetically superior to others.

The contributors to the volume comprise a virtual who's-who of the race and IQ debate, with chapters by such luminaries as Stephen Jay Gould, Richard Lewontin, Urie

Immigration Restriction Act, which restricted entry to the United States by non-Europeans and southern and eastern Europeans; horribly, many would-be immigrants scored poorly on intelligence tests simply because of a poor knowledge of English or a poor knowledge of U.S. culture.

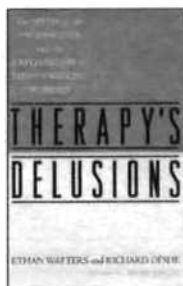
This volume also responds to another disturbing shortcoming of the race and IQ literature: Montagu's contributors argue that writers like Jensen and Shockley fail to consider the nuances of the human environment when proclaiming that their work shows a large genetic and a small environmental component of intelligence. Several of the contributors to the present work note that behavioral genetic research has not yet employed psychometric instruments sophisticated enough to quantify, say, the subtle and the not-so-subtle differences in experience that two children growing up in the same household encounter. Socioeconomic status is currently measured by examining variables such as the mother's educational level or the household income only; such bare-bones measures can hardly account for such environments as the family in which one twin is the favorite, or the family in which one sibling attends a different (perhaps better) school than the other.

The 1994 publication of Richard Herrnstein and Charles Murray's *The Bell Curve: Intelligence and Class Structure in American Life* created social furor in the U.S. In many ways the book is simply a retelling of the Jensen paper in expanded 845-page format. Like Jensen's paper, the best-selling *The Bell Curve* argues in part that intelligence is genetically determined and that African-Americans have less of it, on average, than do whites. The book was debated for months in newspapers, on television, and in academic circles. Five full chapters of Montagu's book specifically aim to counter the arguments set forth in *The Bell Curve*. Charles Lane offers an especially interesting critique of the "tainted sources" of the book;

Lane examines the work cited in the bibliography of *The Bell Curve* and finds that a number of the citations refer to work that was funded by the Pioneer Fund, a New York foundation established by a textile magnate who was an early Nazi sympathizer and advocate of "repatriation" of African-Americans to Africa. Other work cited in *The Bell Curve* was published in *Mankind Quarterly*, a journal whose founders included a leader of fascist Italy's eugenics movement. The other chapters that critique *The Bell Curve* offer a variety of powerful arguments concerning what Alan Ryan calls the book's "bad science" and "worse politics." Leon Kamin, after delineating numerous arguments concerning the confusion of correlation and causation by Herrnstein and Murray, seems to have even less patience than Ryan. He

cites *New York Times* columnist Bob Herbert's response to *The Bell Curve*. It "is just a genteel way of calling somebody a nigger." As a distressing side-note, none of the early, book-length critiques of *The Bell Curve*, such as Kincheloe, Steinberg, and Gresson's 1996 book *Measured Lies: The Bell Curve Examined* or Fraser's 1995 book *The Bell Curve Wars* have become best-sellers; in contrast, *The Bell Curve* had over 400,000 copies in print just two months after its publication.

Race and IQ is not always an easy read, but this does not mean it should not be read. Given the persistence of "man's greatest myth," and the continuing racial violence and misunderstanding that plague the world, one hopes the reader will have the persistence to struggle through the book's more difficult chapters. It's worth the effort.



Dangerous Delusions

Martha A. Churchill

Therapy's Delusions: The Myth of the Unconscious and the Exploitation of Today's Walking Worried. By Ethan Watters and Richard Ofshe. Scribner, 1999. ISBN: 0-684-83584-3. 287 pages. Hardcover, \$25.00.

The sordid history of psychoanalysis comes brilliantly to light in *Therapy's Delusions*, by Ethan Watters and Richard Ofshe.

Psychoanalysis has never produced a single effective cure for mental illness. What's more, it has harmed many of those who sought its help by blaming almost every symptom on bad parenting.

During the postwar years, kids with asthma were supposedly victims of "asthmagenic" mothers. Oppressive parenting left unresolved conflicts, and hence, a child's breathing problems, according to the American Psychoanalytic Association.

Thanks to psychoanalysis, schizophrenia was considered the fault of bad mothering. Renowned psychiatrist John Rosen subscribed to that theory, and actually beat a patient to death while advising other therapists to "make up for the tremendous deficit of love" in the schizophrenic patient's life.

Contempt for science is the root problem of psychoanalysts, according to this book. Relying on intuition, and even spiritualistic ideas, the practitioner leaps ahead with a theory and then pressures the patient to conform.

Martha A. Churchill is an attorney in Milan, Michigan, who studies false memory syndrome and other forms of mass hysteria.

The authors have an excellent track record for exposing the skeletons in the mental health closet, having earlier written *Making Monsters* (Scribner 1994). The earlier book explains the spread of recovered memory charlatans, who implant ideas of child rape and even witchcraft in the minds of unsuspecting patients.

Richard Ofshe is perhaps best known for his role in uncovering the Paul Ingram scandal in Olympia, Washington, where police badgered Ingram into confessing to hideous sex crimes against his daughters. The raping and cannibalism supposedly took place in secret satanic rituals with half the town's leaders, according to police. Ofshe, a sociology professor at the University of California at Berkeley, was called in to advise police investigators about the apparent satanic cult. Instead, Ofshe uncovered ignorant therapists, as well as clergy, suggesting outlandish plots to a suggestible and easily-hypnotizable man.

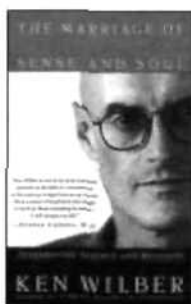
The new book displays the big picture, how the mental health professions have encouraged endless, wasteful sessions on the couch, or, worse yet, harmful "treatments" like recovered memory therapy, all without a shred of objective evidence in support of their techniques. Psychoanalysis is not a science. While its adherents wrap themselves in diplomas, heavy textbooks, and impressive-sounding certifications, one school of psychotherapy is little better than another.

Therapy's Delusions is worthwhile for its colorful history of Freudian theory and its insight into the way social, religious, and political trends interact with psychoanalytic theory. This book is a real eye-opener for its insightful comparison of psychoanalysis to religion. These therapists merely stand on the sidelines while other medical specialists, such as geneticists and psychopharmacologists, create the truly worthwhile treatments for persons with severe mental illness.

The book's only shortcoming is its failure to credit scientifically based cog-

nitive behavioral therapists. These professionals rely on double blind studies to develop interventions for those suffering from certain dysfunctional behaviors, with good results. It is unfortunate that the stubborn and irrational thinking that pollutes psychoanalysis

may have sullied the reputation of psychologists offering valid treatments. This exposé of useless and harmful psychoanalytic therapy is long overdue, but readers should be informed that pills are not necessarily the only psychiatric treatment that can work.



Can There Be a Science of Spirituality?

Jeff Miner

The Marriage of Sense and Soul: Integrating Science and Religion. By Ken Wilber. Broadway Books, New York. 1999. ISBN: 0-7679-0343-9. 225 pages. Paperback, \$13.

Deepak Chopra's glowing blurb on the cover of *The Marriage of Sense and Soul* made me more than a little wary, but the book was a pleasant surprise—at least in part. Wilber's ambitious goal is to reconcile science and religion in a way both can accept. He claims to offer a "science of spirituality" which can produce verifiable knowledge about "higher levels of reality." Although Wilber falls short of this goal, his thoughtful effort will interest skeptics for many reasons.

First of all, Wilber is an admirer of science. "Science is clearly one of the most profound methods that humans have yet devised for discovering truth," he writes. "Within the scientific skeleton of truth, religious meaning attempts to flourish, often by denying the scientific framework itself—rather like sawing off the branch on which you cheerily perch." He rejects solipsistic New Age thinking, religious fundamentalism, and anti-science postmodernism for the same reasons skeptics do, showing that even a skeptic and a mystic can share common ground.

One of Wilber's key ideas is that the essence of religious belief is not this or that piece of mythology (Moses parting the Red Sea, for example), but the belief

that the universe is composed of many levels of reality: matter, life, mind, soul, and spirit. All the world's religions—as well as philosophers from Plato to Popper—subscribe to some form of belief in this "Great Chain of Being," Wilber says. He asserts that both an individual's subjective reality, through which he experiences God, and a collective "intersubjective reality," from which we derive our morals, are as real as the objective physical world that science examines.

At this point a skeptic will say, "Those supposed realities can't be measured or observed, so science can't say anything about them." But Wilber proposes to heal the science/religion rift with a stunning idea: that repeatable experiments that produce verifiable knowledge about these inner or "higher" spiritual phenomena are possible.

In fact, certain mystics—practitioners of Zen Buddhism and other Eastern meditative traditions—have been doing

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just that, Wilber claims. Their meditations, governed by specific techniques, are really spiritual experiments. Anyone who follows the same practice, although it might take years, will have the same kind of mystic experience. The reality of these experiences, and the knowledge they generate, can be verified by checking with the community of experts who have done the experiments, thereby weeding out the unauthentic or idiosyncratic.

"It then becomes perfectly obvious that the real battle is not between science, which is 'real,' and religion, which is 'bogus,' but rather between real science and real religion, on the one hand, and bogus science and religion, on the other," Wilber writes. "Thus, real science and real religion are actually *allied* against the bogus and the dogmatic and the nonverifiable and the nonfalsifiable in their respective spheres."

Some of the arguments Wilber puts forth in support of spiritual science are, if not exactly compelling, at least thought provoking. He notes that science makes use of *interior or subjective phenomenon* that can't be measured empirically, including logic and mathematics.

"For the enduring strength of science—the reason it can indeed plop a person on the moon—is that it always attempts, as best it can, to rest its assertions on *evidence* and *experience*. But sensory experience is only one of several different but equally legitimate types of experience, which is precisely why mathematics—seen only inwardly, with the mind's eye—is still considered scientific (in fact, it is usually considered extremely scientific!)."

However, Wilber doesn't seem to grasp that the models of physical reality generated by logic and mathematics are tested against observations of the physical world before they are accepted as valid by scientists, and that these tests weed out individual and group bias. As Jonathan Rauch, author of *Kindly Inquisitors*, points out, designating the objective world outside of us as the final authority on what's true or not ensures that no individual or group can

arbitrarily concoct and promote its own "truth."

Wilber proposes no such safety mechanism for his spiritual science. He implicitly accepts the reality of mystical experiences, and it is sufficient for him that his scientific mystics test their internal experiences against nothing more than each other's internal experiences. How this would eliminate group bias or error is not discussed.

Wilber still might convince me if he could point to a reliable body of knowledge accumulated by spiritual scientists. In other words, if he demonstrated that spiritual science "works." You'd think that, having hundreds—if not thousands—of years head start on science, spiritual scientists would have some pretty impressive discoveries to relate.

But on this topic Wilber doesn't have much to say. He does note some different kinds of experiences all mystics have, such as *savikalpa*, which produces "expansive states of deeply felt love and compassion, and profound motivations to be of service to others." But he gives no indication that there's a body of knowledge out there about "higher" realities that is in any way comparable to

the scope and depth of scientific knowledge. Students of spiritual science, such as they are, must walk their campuses unencumbered by heavy textbooks.

Wilber also has very little to say about morality and ethics, although his arguments imply there should be scientific knowledge aplenty in these areas as well. He notes that many philosophers and psychologists agree roughly on the stages of an individual's moral development, but where are the precise rules that tell us how to behave toward one another, the instructions for how to live the good life? Wilber doesn't acknowledge that work in this area has failed to produce much in the way of practical, universal truths.

Still, it is hard to dislike Wilber. His effort is thoughtful and sincere, and his writing is always clear, well organized, and refreshingly free of the pontifications, careless generalizations, and self-admiration indulged in by other writers. It seems to me that devotees of Wilber—supporters of science and critical thinking in their quest for spiritual truth—would be a group of people that skeptics could, if not quite embrace, at least live alongside very easily.



The Real Stuff

NADA MANGIALETTI

This New Ocean: The Story of the First Space Age.

By William E. Burrows. Random House, New York, 1998.

ISBN 0-679-44521-8. 646 pp. Hardcover, \$34.95.

As a skeptic, I spend so much time reading about what isn't so that sometimes I need to remind myself to read more about what *is* so. *This New Ocean* does not debunk nonsense about outer space and spacecraft but gives a richly detailed account of the real thing. It is a one-volume encyclopedia of the history of space flight, starting with the mythical longings of the ancients and prescientific attempts at flight and quickly moving to nineteenth- and early twentieth-century rocketry

experiments in Russia and the United States. It gives a dramatic account of how both the United States and the Soviet Union stole Nazi technology and Nazi scientists after World War II, with the Yankees stealing some of it right out from under the Soviet Union's collective nose. A large portion of the book is about the subsequent Cold War space race with the

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Soviet Union, which was the driving force behind the moon landing. Also covered is the founding of NASA, the fight over which branch of the armed forces—Army, Navy or Air Force—would be in charge of outer space, and the development of spy satellites. The book chronicles practically every Russian and American mission ever flown, including Sputnik, Soyuz, Phobos, Mariner, Gemini, Apollo, the development of the shuttle program, the Voyagers' tour of the galaxy, the Mir space station, and the American Strategic Defense Initiative.

This New Ocean is a book to savor a little at a time, or else be overwhelmed with the level of detail and the cast of thousands. Don't be discouraged if you can't keep all the names and acronyms straight, or feel like giving up after hitting the forty-fifth one in ten pages. Everyone who was anyone in the history of space flight is immortalized forever in this book. Whatever you want to know about man's attempts to leave Earth, it's here. Just sit back, relax, and sip from this fountain of knowledge, as you would a fine wine. Burrows, a veteran science reporter and author of four other books on aviation and space, did his homework and knows his material.

Throughout the book, he drives home the disturbing but inevitable joined-at-the-hip relationship between space flight, war, international politics, and the military. From the early rockets that stayed up for a few seconds before nose-diving into the ground to the powerful megaton behemoths that today blast off with frightening reliability, rockets have primarily been valued, not for their ability to unveil the wonders of the universe, but for their potential to deliver bombs to far-off places.

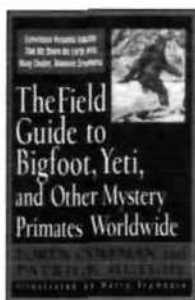
"While going to space brought a scientific windfall and science was used as a justification for the trip, most scientists knew that their participation was basically a respectable cover for dark objectives," Burrow writes in the last chapter.

Yet Burrows also peppers the saga with delightful and sometimes shocking surprises. Did you know that the tales of

Jules Verne and other science fiction writers inspired and anticipated many actual technological developments in space? That the father of American rocketry, Robert Goddard, was a recluse who jealously guarded his discoveries with secretive suspiciousness? That the early rocketeers were considered "crackpots" and that their rockets were no bigger than today's toy models? That Edwin Land, inventor of the Polaroid-Land camera, beloved by American families, was actually the head of an intelligence group during the Eisenhower administration and designed a spy camera that could see objects the size of basketballs from thirteen miles up? That neither John F. Kennedy nor Nikita Khrushchev had the slightest interest in space exploration per se and that the shoe-banging Russian leader had never even attended a launch? That the early space suits had no accommodations for urinating, necessitating that the first American in space, Alan Shepard, do it in his pants?

The subtitle of *This New Ocean* is

The Story of the First Space Age, which Burrows considers to have ended with the demise of the Soviet Union. With no Evil Empire to worry about and no opposing team to challenge and motivate the American space program, the second space age rose from the ashes of the Challenger shuttle explosion and the Chernobyl nuclear plant explosion. Space exploration today is being driven by commercialism—the selling of information, communications systems, and possibly the harvesting of resources from other planets, instead of by political machismo or international paranoia. The new players in the second space age come from the private sector, instead of from NASA, the military, or other government bodies. And although the pursuit of science or knowledge for its own sake still takes a backseat, at least this time, the front seat is occupied by people trying to make a sale, not by people trying to drop a bomb.



The Flawed Guide to Bigfoot

BENJAMIN RADFORD

The Field Guide to Bigfoot, Yeti, and Other Mystery Primates Worldwide. By Loren Coleman and Patrick Huyghe. Avon Books, New York. 1999. ISBN 0-380-80263-5. 207 pp. Softcover, \$12.50.

The *Field Guide to Bigfoot* is prefaced with a quote by George Bernard Shaw: "All great truths begin as blasphemies." The implication, of course, is that scientists and others regard claims of the existence of Bigfoot as heresy, and that the truth will out. But, as Robert Park of the American Physical Society wrote recently (in a similar context), "Alas, to wear the mantle of Galileo it is not enough that you be persecuted by an unkind establishment, you must also be right."

The guide is an odd book indeed. Although purporting to be a field guide,

it is really more of an illustrated catalogue of anecdotes of encounters with mysterious primates. The authors have created a classification system encompassing about fifty reports and sightings. They have grouped them into nine categories: Neo-Giant, True Giant, Marked Hominid, Neandertaloid, Erectus Hominid, Proto-Pygmy, Unknown Pongid, Giant Monkey, and Merbeing.

The entries are largely culled from previous books on cryptozoology, with

Benjamin Radford is managing editor of the SKEPTICAL INQUIRER.

few original sources cited. In nearly every entry, not enough details are given to judge the credibility of the account. Coleman and Huyghe make much of the fact that native peoples have various words for wildmen and other elusive, possibly mythical creatures. But just because a creature has a name does not imply that it actually exists: dragons, pixies, elves, and leprechauns can be described, drawn, and classified too.

Interestingly, the book's premise is at variance with longtime Bigfoot researcher Grover Krantz, who, as the authors admit on page 10, does not see "any compelling evidence for more than one type of hairy biped" and finds "no reason to think it has anywhere near a worldwide distribution."

The creatures Coleman and Huyghe catalogue have between three and five toes, and fail to account for alleged Bigfoot prints that show two and six toes. They apparently ignored evidence that didn't fit their categories. Or perhaps they assumed all tracks showing two or six toes are hoaxes. If so, by what criterion? Why are three- or four-toed primate footprints any more credible than two- or six-toed ones?

Early in the book, the authors decry a "lumping problem," that is, that myriad sightings are collected together under homogenous names such as "Bigfoot" or "Yeti." This, they say, is a problem because it "hides a larger truth, lumps considerable differences, and just plain confuses the picture."

There is indeed a lumping problem that confuses the picture, but that's not it. The problem is that the authors group eyewitness accounts, folklore, legend,

footprint finds, and depictions in native art together as if all have equal weight and credibility. Sources for the field guide include an alarming number of third-hand sources, stories by young children, unnamed, long-dead eyewitnesses, and even the English poet who wrote Beowulf.

Yes, *The Field Guide to Bigfoot* includes Beowulf, a thousand-year-old poem, as a credible source for an account of an actual mystery primate that may be alive today. For those a little shaky on early English literature, the poem tells the story of the Danish king Beowulf who slew an ugly, hairy giant named Grendel. On your next trip to Denmark, be sure to take this guide so if you see Grendel you'll correctly identify it as a member of the True Giant class!

Even the infamous Minnesota Iceman, a fair exhibit shown in the late 1960s and claimed to be a frozen Bigfoot, appears in the book. It's touted as a real creature, despite strong evidence that it was simply a rubber creature designed by a top Disney model-maker. As Jon Beckjord, director of Project Bigfoot, wrote in the Summer 1982 issue of *SKEPTICAL INQUIRER*, "I'd like to point out that nobody who is involved in Sasquatch investigations has ever felt that this frozen dummy was a Bigfoot. . . ." That doesn't stop Coleman and Huyghe, who quote one cryptozoologist's bizarre theory that "it was a Neandertal killed in Vietnam during the war and smuggled into the United States in a 'body bag.'"

The best thing about the book is the illustrations by Harry Trumbore. He does an admirable job of coming up with

slight variations on large, hairy bipeds. Accuracy doesn't seem to be a high priority; with one creature, the Tano Giant (p.98), the account clearly states the creature had no thumbs. That apparently didn't sit well with the authors, who note, "perhaps its thumb was simply small relative to the rest of its hand," and depict the creature with thumbs anyway.

Along with the individual entries, maps depict the range of each class of creature. My personal favorite is the Merbeing ("water creature") map. According to it, these aquatic creatures roam no less than five deserts, including the Atacama (in Peru), the Mojave (U.S.), the Great Sandy (Australia), and the Sonoran (Mexico).

Over a dozen accounts claim that the creatures were killed. Yet no bones, skeletons, or preserved bodies exist today. This elicits visions of hunters saying to themselves, "Wow! We killed a wild, man-like creature! I've never seen anything like it before! Let's throw it away!"

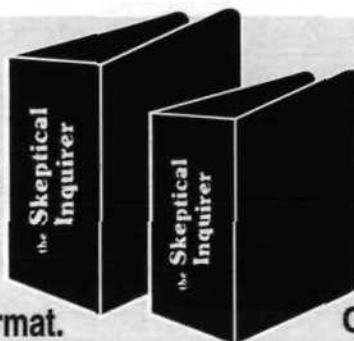
It's clear that mystery mongering is at work here. In several places, the eyewitnesses themselves admit that it's possible they misidentified an ordinary animal, such as a bear, spider monkey, or baboon. But as long as there's a hint of doubt, Coleman and Huyghe are happy to claim it a mystery, treat it like a real animal, and lump it in with accounts from folklore and poems.

The authors have also written other entries in this peculiar field guide series, including guides to extraterrestrials, UFOs, and ghosts. I suspect the same lax scholarship evident here bedevils those as well. □

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Gardner's *Whys & Wherefores*. Martin Gardner. Prometheus Books, 59 John Glenn Drive, Amherst, NY 14228-2197. 1999. ISBN 1-57392-744-9. 275 pp. Softcover. \$18.95. A new edition of a collection of essays and book reviews that was originally published by the University of Chicago Press in 1989, most written in the 1980s and here updated in a brief preface. Is there a common thread? "If so," says Gardner, "I think it is an unbounded respect for science and reason, combined with an overwhelming emotion of awe over the fact that a universe exists and is so intricately ordered."

***How We Believe: The Search for God in an Age of Science*. Michael Shermer.** W.H. Freeman and Co., 41 Madison Avenue, New

York, NY 10010. 1999. ISBN 0-7167-3561-X. 302 pp. Hardcover. \$24.95. A new study of God, faith, and religion explores how and why humans put their faith in a higher power even in the face of scientific skepticism. Divided into sections on God and Belief and Religion and Science. Shermer discusses such topics as how we believe, why people believe in God, attempted proofs of God, the evolution of religion, the relationships of religion and science, the return of the Messiah myth, millennialism, the search for meaning in the age of science, and what it means to study religion scientifically.

***The Meme Machine*. Susan Blackmore.** Oxford University Press, 198 Madison Avenue, New York, NY 10016-4314. 1999. ISBN 019-850365-2. 264 pp. Hardcover. \$25.00. A "meme," a term originally coined

in 1976 by Richard Dawkins, is now included in the Oxford English Dictionary as "an element of culture that may be considered to be passed on by non-genetic means, esp. imitation." Cognitive psychologist Susan Blackmore explores in detail this "powerful idea, capable of transforming our understanding of the human mind." Is the analogy between memes and genes a useful one? Blackmore shows that it is, and in doing so she confronts deep questions about ourselves: the nature of the inner self, the part of those that is the center of our consciousness, feels emotions, has memories, hold beliefs, and makes decisions. In her view, this "inner self" is an illusion, a creation of the memes for the sake of their own replication.

—Kendrick Frazier

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Top Ten Best Sellers in San Francisco

- | | |
|---|---|
| <p>1 <i>Faster</i> James Gleick Pantheon</p> | <p>6 <i>Tigers and Ice</i> Edward Hoagland Lyons Press</p> |
| <p>2 <i>The Elegant Universe</i> Brian Greene W.W. Norton</p> | <p>7 <i>The Undiscovered Mind</i> John Horgan Free Press</p> |
| <p>3 <i>Mapping the Mind</i> Rita Carter University of California Press</p> | <p>8 <i>The Five Ages of the Universe</i> Fred Adams and Greg Laughlin Free Press</p> |
| <p>4 <i>Life in the Treetops</i> Margaret Lowman Yale University Press</p> | <p>9 <i>What Counts</i> Brian Butterworth Free Press</p> |
| <p>5 <i>The Clock of the Long Now</i> Stewart Brand Basic Books</p> | <p>10 <i>ENIAC</i> Scott McCartney Walker</p> |

By arrangement with New Scientist magazine, September 1999.
See Planet Science at <http://newscientist.com> for more reviews.
Some books also available at the Planet Science Shop.

Anderson, Katharine. "The Weather Prophets: Science and Reputation in Victorian Meteorology." *History of Science*, 37(116):179-216, June 1999. A detailed review of early English meteorology from the almanac writers to the Board of Trade. Anderson says that the field's roots in astrology have been ignored by historians.

Bartholomew, Robert E. "The Medicalization of Exotic Deviance: A Sociological Perspective on Epidemic Koro." *Transcultural Psychiatry*, 35(1):5-38, March 1998. Bartholomew argues that the common practice among psychiatrists of labeling epidemic koro as a mental disorder is false. He says this belief is a classic example of the medicalization of "exotic" deviance. Koro is a Malay word defined as, "cases of perceived genitalia shrinkage or retraction and accompanying panic." He states that there is no evidence to categorize this disorder as a mental disease and thus argues that it should be reclassified as a "sociological phenomenon involving mass social delusions."

Bartholomew, Robert and Simon Wessely. "Epidemic Hysteria in Virginia: The Case of the Phantom Gasser of 1933-1934." *Southern Medical Journal*, 92(8):762-769, August 1999. Bartholomew describes for the first time in scientific literature the epidemic hysteria in Virginia in the early part of the twentieth century, which involved a "phantom gasser." After studying newspaper accounts from this period, he concludes that this incident (and many others) coincided with a growing awareness of environmental pollution, which triggered exaggerated or imaginary contamination threats.

Beardsley, Tim. "Truth or Consequences: A Polygraph Screening Program Raises Questions About the Science of Lie Detection." *Scientific American*, October 1999, pp. 21, 24. The spying fiasco at Los Alamos National Labs prompted the Department of Energy to mandate polygraph screening of employees at three national nuclear laboratories. David T. Lykken, professor of psychology at the University of Minnesota, argues that there is no proof that polygraph screening will detect spies. He says that a real spy can learn to fool the test, and points out that Aldrich Ames, who spied for Russia, passed routine screening exams. Lykken argues that while polygraph screening is useful for guilty-knowledge tests, it is not useful for this type of mass screening, which relies on assumptions.

Frey, Hillary. "Weird Science." *Lingua Franca*, 9(6):18-21, September 1999. A report on the International Society of Cryptozoology which searches for Bigfoot and his brethren but also hunts for "cryptids," animals thought to be extinct, and animals outside of their known habitats. Mentions Loren Coleman's new book *Cryptozoology A to Z*.

Glanz, James. "Science Vs. The Bible: Debate Moves to the Cosmos." *The New York Times*, October 10, 1999. P.A1. Scientists worldwide are shocked over a recent vote by the Kansas school board to remove not only evolution from its curriculum, but also teaching the science of the cosmos. Heavily influencing the decision was a local group of scientists known as the "young Earth creationists" who theorize that the universe is only a few thousand years old based on a literal reading of the Bible. This belief contradicts the Big Bang theory, "the central organizing principle of modern astronomy and cosmology," which dates the universe at fifteen billion years.

Holt, Jim. "Higher Superstitions: The Case For Astrology." *Lingua Franca*, 9(6):72, September 1999. Holt uses astrology as a case study of the difficulty of distinguishing science from pseudoscience. Astrology's roots are in magical thinking, but so are chemistry's. Astrologers can't explain the mechanism by which distant planets influence Earth, but neither could Newton when he described gravity, and so on. Paul R. Thagard argued that the lack of progress in the field since Ptolemy proves astrology a pseudoscience.

Larson, Edward, and Larry Witham. "Inherit an Ill Wind." *Nation Magazine*, 229(10):25-29, October 4, 1999. Larson and Witham argue that the Kansas school board vote to remove evolution from its science curriculum seventy-five years after the famous Scopes trial "arose from forces that are national in origin and scope." The authors state that this incident combines a Berkeley professor's "new anti-evolution crusade" with "old-style biblical creationism." Due to the history leading up to the event, the 6-4 conservative victory favoring the teaching of creationism came as no surprise.

Lilienfeld, Scott O., et al. "Dissociative Identity Disorder and the Sociocognitive Model: Recalling the Lessons of the Past." *Psychological Bulletin*, 125(5):507-523,

1999. The authors favor using the sociocognitive model (SCM) when determining the cause of dissociative identity disorder (DID). Lilienfeld et al. argue that "the SCM conceptualizes DID as a syndrome that consists of rule-governed and goal-directed experiences and displays of multiple role enactments that have been created, legitimized, and maintained by social reinforcement." They argue that previous research in this area underemphasized the role culture plays in DID, and they suggest further research involve looking at the history surrounding DID in order to fully understand it.

Lilanich, Jerald T. "Much Ado About A Circle." *Archaeology*, 52(5):22-25, September/October 1999. Archaeologist Milanich describes the Miami Circle, an artifact of holes cut in limestone that have attracted "New Agers and more traditional cranks." He thinks it is probably a drain for a 1950s septic tank.

Nussbaum, Emily. "Faith No More: The Campus Crusade for Secular Humanism." *Lingua Franca*, 9(7):30-37, October 1999. This article introduces a younger following to Paul Kurtz's secular humanist movement: the Campus Freethought Alliance (CFA). This group was founded in 1996 and now includes more than one hundred campus organizations. Members believe that, "secular humanism can be more than just the rejection of religion . . . it is the affirmation of a life philosophy, offering moral direction, and intellectual toolkit, and a call to political action."

Raimer, Mark A. "The War of the Words: Revamping Operational Terminology For UFOs." *Etc. A Review of General Semantics*, 56(1):53-59, Spring 1999. Raimer, a self-described UFOlogist, suggests replacing the term UFO—Unexplained Aerial Phenomenon—because many Unidentified Flying Objects, once identified, turn out to be neither flying in the usual sense (such as Venus), nor objects in the usual sense (such as light reflections).

Sheldrake, Rupert. "Opinion Interview." *New Scientist*, August 28, 1999, pp. 42-45. "Scientist turned science outcast" Rupert Sheldrake is interviewed about his claim that animals (dogs, birds, humans, and even termites) are telepathic. He has interviewed many animal owners and trainers, and says that many categories of animals carry "morphic fields," which are bonds between species.

—Jodi Chapman and Robert Lopresti

GUIDE FOR AUTHORS

The *SKEPTICAL INQUIRER*'s subtitle is "The Magazine for Science and Reason." We encourage science and scientific inquiry, critical thinking, and the use of reason and the methods of science in examining important issues. We critically examine claims of paranormal, fringe-science, and pseudoscientific phenomena from a responsible, scientific point of view and provide a forum for informed discussion of all relevant issues. The readership includes scholars and researchers in many fields and lay readers of diverse backgrounds.

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The *SKEPTICAL INQUIRER* must be a source of authoritative, responsible scientific information and perspective. The Editor will send manuscripts dealing with technical or controversial matters to reviewers. The authors, however, are responsible for the accuracy of fact and perspective. It is good practice to have knowledgeable colleagues review drafts before submission. Reports of original research, especially highly technical experimental or statistical studies, are best submitted to a formal scientific journal; a nontechnical summary may be submitted to the *SKEPTICAL INQUIRER*. Studies based on small-scale tests or surveys of students will be considered only if they establish something new, provide a needed replication of some important earlier study, or test some new theoretical position.

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ble-spaced typewritten pages). Longer manuscripts will be returned. Articles should be organized around one central point or theme. Be succinct. Remember, Watson and Crick reported the discovery of the structure of DNA in just over one page in *Nature*.

Articles should have a title page. Begin with a succinct, inviting title followed by a concise, 20- to 30-word statement of the article's main point or theme. This "abstract" will be published in display type on the first page of the printed article and used as a summary on the Contents page. The title page should also give the name of the author(s), full addresses, and the lead author's office and home telephone numbers, fax number, and e-mail address, and a word count. At the end of the manuscript, include a suggested author note of one to three sentences that gives relevant affiliations and credentials and an address for correspondence. If you do not want your address included in the author note, please say so. The manuscript should be accompanied by a brief cover letter stating that the article has not been submitted elsewhere and providing any other essential background for the Editor.

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News and Comment: News articles from 200 to 1,000 words are welcome. They should involve timely events and issues and be written in interpretative journalistic style. Use third person. The news sections of *Nature*, *Science*, *New Scientist*, and *Science News* are excellent models. Balance, fairness, and perspective are important. In reporting on controversies, seek and include comment and perspective from the various opposing parties.

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Letters to the Editor: Letters to the Editor are for views on matters raised in previous issues. Letters should be no more than 225 words. Due to the volume of letters received, they cannot be acknowledged, and not all can be published. Those selected may be edited for space and clarity. Authors whose articles are criticized in the letters column may be given the opportunity to respond in the same issue.

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upon acceptance (see below).

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Smith, John. 1994. *A Skeptical Book*. New York: Jones Press.

Sample journal-article entry:

Smith, John, and Jane Jones. 1994. A skeptical article. *The Journal* 5(1): 7-12.

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The Ghost in My House: An Exercise in Self-Deception

BERTRAM ROTHSCHILD

For a while, I (almost) believed a ghost occupied my house. Before I confess all, however, you need to know something about me. First, I'm approaching (not there yet) my dotage; second, I'm a clinical psychologist; and third, I was a skeptic well before I knew the word, much less its meaning. If asked about ESP and the spirit world, I would laugh and wonder about what kind of idiot could believe such things. *The arguments I've had with believers*

find something and then leave, again shutting the door. You must understand: this is a decades-old pattern, one with which I am quite familiar. Well, as I lay there, I heard her footsteps approaching the door. I saw the door open with exactly the same speed as always, and it opened to the same distance as usual. I expected to hear her footsteps coming into the room, but there was no such sound. (As I write this, I realize that I did not hear her footsteps. It was an

crossword puzzle. Although the circumstances convinced me it could not have been her, I asked. She denied having anything to do with the door that had mysteriously opened and went back to the puzzle. Although she has at times been a trickster, she would always give me a clue about her intent to tease me. Without a triumphant grin on her face, she clearly had not tried to disconcert me.

When I described the door's peculiar behavior she jokingly asked if I thought it were a ghost. I snickered at her and returned to bed. A ghost? Ridiculous. I soon fell asleep. The next morning, dozing in bed, I became aware of the noises—and she did too. One of us said: "Perhaps it was the ghost." We both laughed, but we both listened for more strange sounds. And, of course, they were there.

That evening, in the den watching television, we both heard sort of a combined clink and thud clearly indicating that some hard object had fallen to the floor. I examined the area and could find nothing to account for the sound. Were we disquieted? You bet. The noises continued over several days, and we jokingly got into the habit of evoking the ghost as explanation . . . and I started to take that explanation seriously. As a consequence, the hairs on my arms would stand up when I could not find an explanation for some sound or event.

At the same time, I resisted the "ghost" explanation and wondered about my willingness to accept the possibility. The noises, after all, were really nothing new, just the creaks and groans of the house. They had always been

I had made the same error that humans have made since our cave-dwelling ancestors roamed the earth. When rational explanation failed to settle the matter, they invoked spirits and magical events.

sometimes almost led to blows, though in my later decades I decided that keeping my mouth shut was wise. But, with further maturity, I concluded that the wisest course of action would be to focus my skepticism on issues of public concern.

Here's the story: I lay in bed one evening, half dozing, with the bedroom door shut. My wife gets to bed later than I do, but sometimes she'll come in to

Bertram Rothschild is a recently retired clinical psychologist with twenty short stories published. Some of his recent essays have appeared in the Humanist and Freethought Today, and one will appear in Living Humanism.

after-the-fact embellishment obviously supportive of the ghost theory.)

My first assumption was that she had changed her mind, but two considerations suggest otherwise. First, she would have closed the door, and second, there were no footsteps leading away. Okay, it wasn't her so it must have been a puff of wind. But the night was calm and no window was open. The puff of wind hypothesis dissolved.

Now in some consternation, I arose and looked for her. She was not in a nearby room, not anywhere on the bedroom level. I walked further to the little balcony that overlooks the downstairs area and there I saw her, with a bowl of cereal and thoroughly ensconced in a

there, but rarely the focus of my attention. Either every house I'd ever visited had a resident ghost (possible, but surely unlikely), or house noises were commonplace, not the production of invisible spirits. But the door incident remained on my mind. I realized, finally, that my mind, operating out of awareness, *demand*ed an explanation of the door's behavior. It wasn't the wind; it wasn't my wife. What the hell was it? I *had* to know; but only the ghost hypothesis remained.

Because of my training as a Rational-Emotive Behavior Therapist (REBT) I had learned to challenge the notion of *demandingness*. After some mental work on that I finally realized that I didn't *have* to know what prompted the door to open; once I achieved that, I stopped fixating on the damned (no irony intended) event. I had made the same error that humans have made since our cave-dwelling ancestors roamed the earth. When rational explanation failed to settle the matter, they invoked spirits and magical events. Any explanation would be better than chaos and, if one could invoke the spirits, it implied power over ugly reality. And we are the genetic inheritors of what worked for survival.

Albert Ellis (the creator of REBT), a highly esteemed psychologist, has suggested that human beings 1) have a strong tendency to be irrational, and 2) have a strong tendency to ignore data contrary to their beliefs. However, this can be overcome by training in critical thinking. That is the essence of his psychotherapy, teaching people how to think about their beliefs regarding reality. We need to teach our children how to think and reason at the earliest age possible, a process that should be ongoing.

No, I don't believe that a ghost opened the door, but that I had entertained the possibility continues to astonish me. Without an understanding of the event, my brain simply created a magical explanation despite my years of looking at the universe in a rational way. We all do that. Our brains fill in the blanks, and without considerable debunking effort we fall prey to such "explanations." Children do this all the

time; and for many people nothing changes with age—they continue to explain events with their idiosyncratic construction of explanations that have nothing to do with reality.

When I was a child, I asked my mother to tell me how lightning and thunder are produced. She explained that clouds bumped into each other, producing a spark and noise. I won't tell you how old I was before I figured it out. But, how many more subtle explanations have I (or you) lived by, never noticing their absurdity?

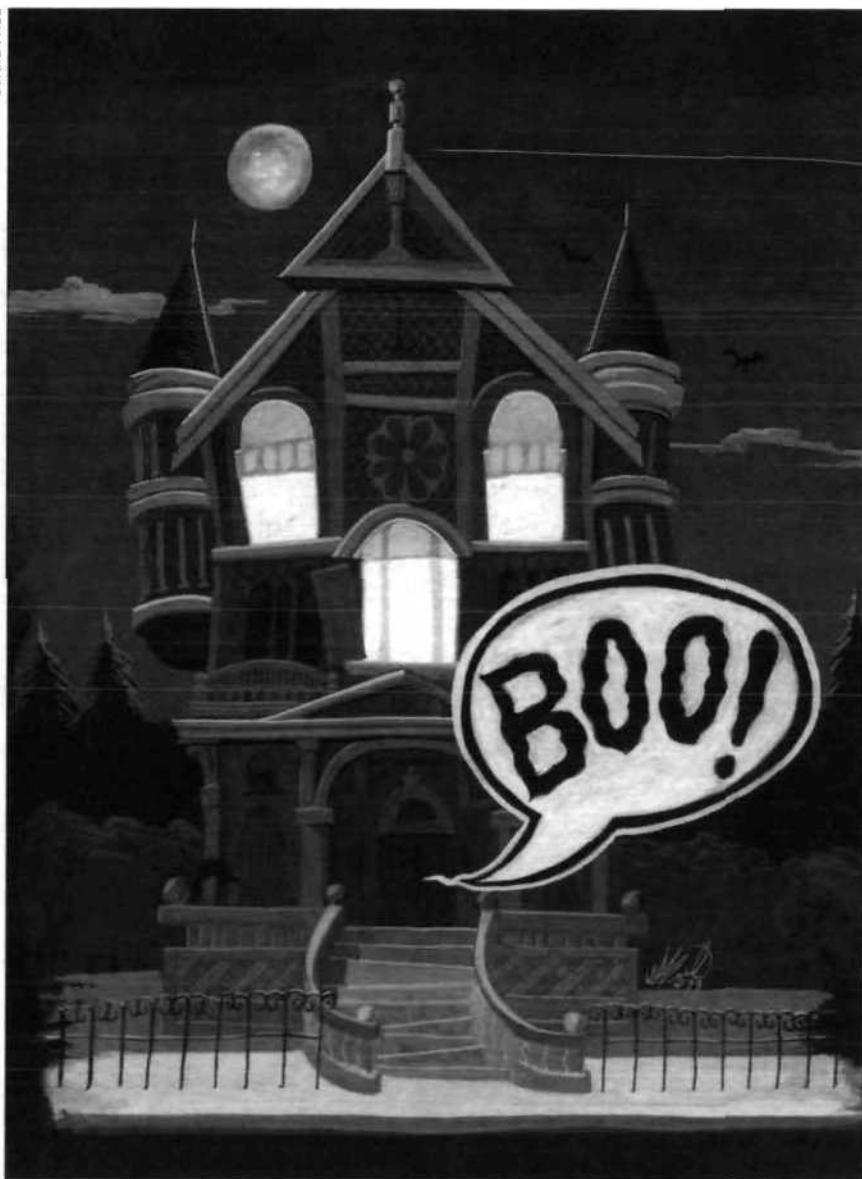
If we embark on such an enterprise, educators had better anticipate a negative reaction from parents. Many parents would become enraged with children

who come home and puncture their beliefs. Enraged parents become profoundly interested in their school boards, and school boards often cave in to placate them. An example occurred not so long ago in Colorado. A town put up a library with gargoyles on it as ornaments. Upset parents demanded that they be removed because gargoyles "represent the devil." Explanations of the churchly history of gargoyles did not change their minds and the gargoyles came down.

So, yes, let's see if we can't get the schools to provide some training in how to think and reason. That it will be a difficult battle is of no consequence.

(Shh! I'm trying to figure out what happens to socks that disappear in the dryer. Can it be . . . ?)

Gerald Fried



A Not-Very-Loudly-Sung Hero

RALPH ESTLING

I think it was George Orwell (though I could be wrong about that) who wrote that thousands among the learned, intellectual class would go to their deathbeds in the firm, and mistaken, belief that a vomitorium was the little room decadent ancient Romans would retire to in order to throw up in, so that they might then return to the banquet and eat some more. Orwell (if it was Orwell) was drawing a distinction between the vulgar, common errors of most people, and the much higher class of error that only the well-educated could hope to achieve, and he hit upon vomitoria as an example of this. (Alas, even *New Scientist* wasn't immune; see "Gluttony," 28 March 1998, p.29.) If you happen to have a set of the unabridged 20-some-odd volumes of the *Oxford English Dictionary* lying about somewhere handy, look it up.

I thought of this error of the learned while reading yet another account of Einstein's Special Theory of Relativity. There seem to be an awful lot of educated, scientifically knowledgeable people, some of whom even write books on physics, who have convinced themselves that it was Einstein who discovered that time was the fourth dimension. He didn't. It was Hermann Minkowski.

As a teenager Einstein was a math pupil of Minkowski's and Minkowski gave him a mediocre grade for being "a lazy dog." Ten or so years later Einstein redeemed himself in the eyes of his old math teacher by publishing within one year three brilliant scientific papers, the most renowned being his Special Theory of Relativity.

Ralph Estling writes from Ilminster, Somerset, England.

The Special Theory can be summed up very simply: Two events occur that appear to be simultaneous to an observer located halfway between them, but to another observer who is nearer one of the events, that event appears to happen before the other. That is all the Special Theory is; the rest is exegesis.

Hermann Bondi once wrote to me that "Perhaps one day you might make propaganda against representations that try to make relativity look mysterious." An awful lot of physicists have tried, and are still trying, to make relativity look mysterious. Part of the reason is that they don't seem to know what Einstein meant the word *relativity* to signify. What, precisely, is being relative to what?

It was Minkowski and not Einstein who pointed out that events occur in spacetime and spacetime is absolute, not relative. It took Einstein four years, from 1908 to 1912, to grasp the significance of what Minkowski had said. Einstein at first dismissed the idea as "pedantry," remarking that certain "Göttingen mathematicians" would make relativity impossible for physicists to comprehend. When Einstein did understand the vitally important point that Minkowski had made, Einstein had the good grace to apologize to his old math prof, but unfortunately Minkowski was dead by then.

The significance of Minkowski's spacetime is that it tells us that there exists an objective, external, universal time which combines with space and that we can (and should) bear in mind that all observers' "times" are subjective, that is, created by them as a result of the observers' particular coordinate system, their motion through space. Therefore what is "relative" is one observer's sense of time compared to some *other* observer's

sense of time, when their motions are different. But these individual "times" do not mean that the universe has no time of its own, that before there were observers, on Earth or elsewhere, time did not really exist in the universe.

By the early 1920s Einstein was writing that he wished he had never called his two theories "Relativity" but instead the "Theory of Invariance." This would indeed have been the better title because the real importance of what Einstein is saying is that light speed is invariably the same regardless of who measures it, and therefore events occur in the absolute sense that Minkowski's spacetime demands.

In his book *Time and Space*, published in 1907, Minkowski writes that relativity makes it necessary to take time into account as a kind of "fourth dimension," neither space nor time existing separately but fused into "spacetime." Einstein adopted this idea only in 1912 and went on to develop it in his General Theory; you will find no mention of it in the Special Theory. The point is, it was Minkowski who thought of it first. "Henceforth, space by itself, and time by itself, are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent reality" are the words of Hermann Minkowski, not Albert Einstein. And only the well-educated, and totally misinformed, among us have the capacity to make this fundamental error and attribute the words to Einstein.

Minkowski died ninety years ago at the age of forty-four. We can hope that it will not take another ninety years for our intellectuals and *illuminati* to come to realize his legacy to us, and our debt to him.

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Backward-Masking Kalamazoo?

Sometimes the Messages Are Hilarious

FREDERICK V. MALMSTROM

It was decades ago as a laboratory psychologist that I got bogged in the backward-reading tar baby. It was my seemingly bright idea that if people could read words or sentences as easily backward as forward, I'd become forever famous by proving something-or-other about the origins of dyslexia. You know, that thing that kids are supposed to have when they make spelling mistakes by reversing and substituting "was" for "saw" or "draw" for "ward."

Determined to go one step beyond the experimentalists, however, many of my fringe colleagues were downright suspicious that unintentional word-reversal somehow reflected (no pun intended) an unconscious desire for dyslexics to express their forbidden desires. In other words, some pop psychologists insist there are cryptologic, "backward-masked" messages hidden in our seemingly straightforward language.

My Search-For-The-Double-Helix experiment was a deserved dud, but I was thereafter cursed with the useless Scavenger-Hunt's Syndrome. I continue to search for hidden meanings in reversed words. Today, I have an untreated compulsion to read street signs backward. When I go to psychology conventions and start pronouncing people's name tags back-

ward, they're deceived into thinking I'm fluent in Swedish. (Regretfully not, despite my surname.) My son, who mercifully outgrew this reversal phase years ago, now finds polite excuses

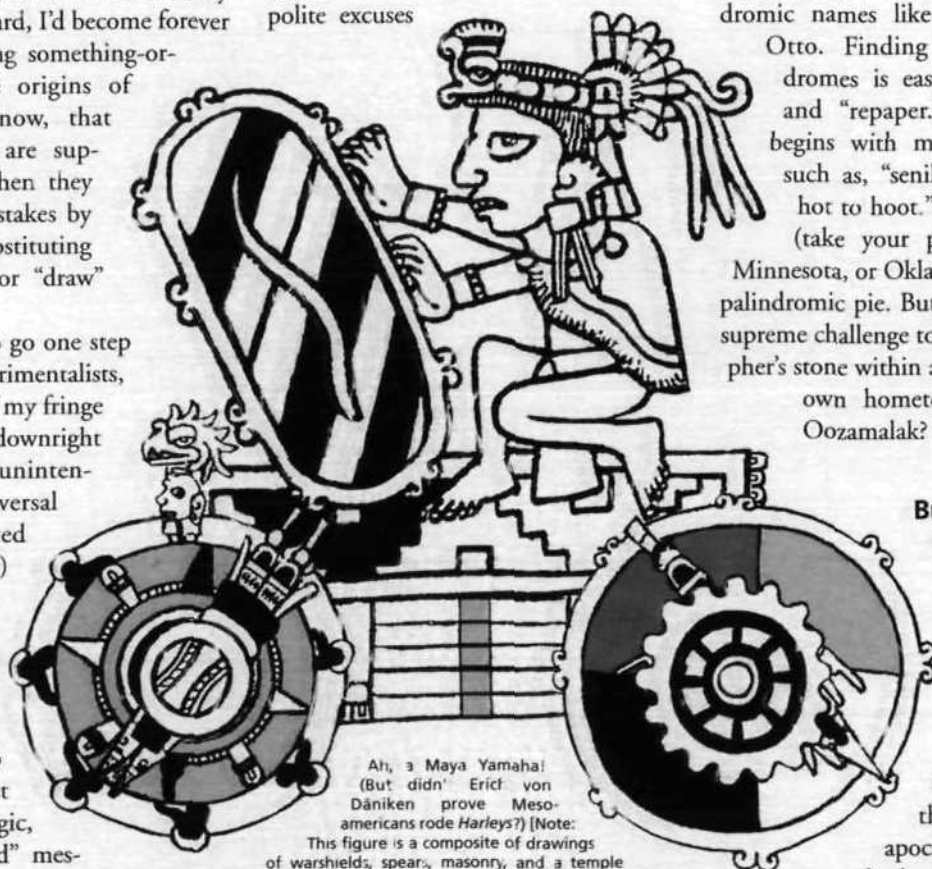
invented the art of *palindromy* (not to be confused with palimony). A palindrome is a word, a phrase, or a sentence which reads the same backward as forward. To begin simply, some of us have palindromic names like Bob, Anna, and Otto. Finding one-word palindromes is easy—"toot," "radar," and "repaper." The frustration begins with multiple word ones such as, "senile felines," or "too hot to hoot." The towns of Ada (take your pick of Michigan, Minnesota, or Oklahoma) are pieces of palindromic pie. But wouldn't it be the supreme challenge to reveal the philosopher's stone within a palindrome of my own hometown Kalamazoo—Oozamalak?

Building Boring Palindromes

Probably the most basic and bonehead way to create palindromes is to use the "family" method. Start with the famous but apocryphal Napoleonic palindrome, "Able was I ere I saw Elba," and you now have the starter kit for an infinite-size family of palindromes. Note that you can fill in the end "Able ... Elba" blanks, and

"... was I ere I saw ..."

When not being derf, Fred is a visiting scholar at the U.S. Air Force academy. He is also a retired clinical psychologist from Ohio. Oi? Ho!



Ah, a Maya Yahua!
(But didn't Eric von Däniken prove Meso-
americans rode Harleys?) [Note:
This figure is a composite of drawings
of warshields, spears, masonry, and a temple
priest, taken from the Aztec Codex (circa, A.D. 1519)]

to exit the room when I ask him if he's been shopping at Regork, Sraes, or Yennep. Better I should send him to the Yreka Bakery. Or the Yale Relay.

Want a Challenging, Useless Hobby?

Many centuries ago, language scholars with too much free time on their hands

can now become, in quickly boring fashion,

| | | |
|----------|------------------|--------------------|
| Stressed | was I ere I saw | desserts. |
| Trebled | was I ere I saw | Delbert. |
| Sore | was I ere I saw | Eros. |
| Zeus | was I ere I saw | Suez. |
| Derf | was I ere I saw | Fred. ¹ |
| Ogre | was I ere I saw, | ergo. |

Armed with this elementary bit of instruction, we can now begin the search for backward-masked, hidden messages.

Is Backward Masking Sinister?

Over past decades, our poetry constabulary have accused the popular music industry of seeding seemingly sinless stanzas with satanic scripture. These verse vigilantes swore, for example, that convicted murderer Charles Manson received backward-masked subliminal instructions from a Beatles song played forward. Convenient as it might be to agree with them, I believe John, Paul, George, and Ringo to be blameless, and here's why.

Alas, it's my professional opinion that those who search for sinister messages by analyzing song lyrics in reverse simply worry too much. Psychiatrists have names for people like that. I find it difficult enough to understand rap, hip-hop, and reggae lyrics when they're played forward. Besides, might these hidden messages be also harmless or else hilarious? Otherwise, I'd be rich. If you really believe in subliminal "backward-masking," then try walking up to a bank teller and whisper suggestively, "Yenom ruoy lla em evig." Carefully document your teller's reaction.

Must Palindromes Make Sense?

Making sense of palindromes depends upon the beholder. Finding meaning in most palindromes is as mentally challenging as finding meaning in a Jackie Collins novel. It sometimes helps to pretend you're listening to only one end of a telephone conversation. Then, you settle back and fantasize. Hopefully, some preposterously creative image or scene will come to your mind's eye. Oftentimes, it becomes one of those you-hadda-been-there situations. Visualize some palin-

dromes like, "A dog! A panic in a pagoda!" or "Refasten Gipsy's pig-net safer," or "O gnats, tango!" Or, "Ah, a Maya Yamaha!" (see figure 1).

Kalamazoo Deserves Backward Masking Recognition!

Not all names of cities lend themselves to palindromes. Take "San Francisco." Unless there is somewhere a Naval Air Station by that name, the reverse yields a quite meaningless "Ocsicnarf Nas." Sing about *that*, Tony Bennett. On the other hand, "Kalamazoo" is a quite promising city because her name is full of single consonants separated by lots of vowels. Here are some of my geographical favorites. Seven of them were my creations, but not necessarily my discovery. I've since discovered several of them already in the public domain, but absolutely none of them yet utilized

"Kalamazoo." So, Kalamazoo, here's your fifteen minutes of fame. Hence, I hereby offer a professional opinion to unmask hidden messages in the names of twelve cities. And, because an understanding of palindromes requires some mental imagery stage-setting, I offer modest municipal explanations with each (see table 1).

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Note

1. Webster's 3rd New International Dictionary defines "derf" as Scottish for "bold" or "daring." □

Table 1: Backward-Masked Municipalities or Dyslexic Destinations?

1. Pure Boston'll not sober up.
(Relax. It's our St. Patrick's Day legacy.)
2. Sir, a Plate Metal Paris.
(A French heavy metal group? What's wrong with ABBA?)
3. Wan, I gas nine men in Saginaw; I maim nine more hero-men in Miami.
(From the Chevy Chase movie, *Serial Killer Vacation*.)
4. "Not New York!" Roy went on.
(Oh, must this carping continue?)
5. Anne, I vote more cars race Rome-to-Vienna.
(Good grief. Aren't our freeways frantic enough?)
6. A slut was I ere I saw Tulsa.
(But that was *before* Oral Roberts lived there.)
7. Regale Pamela's Salem ape-lager.
(The beer that made Milwaukee Zoo jealous.)
8. Stop Spam! Was Los Angeles a base leg? Na, Sol saw map spots.
(Non-kosher airline snack upsets pilot!)
9. Ya, Pernod. No London repay.
(Why we Swedes love those English pubs.)
10. Name Kalamazoo? I O Oz, am a lake man.
(I'm no snitch. Take a hike—down the Yellow Brick Road.)

Origins of Life

I enjoyed Massimo Pigliucci's fine look at "Where Do We Come From?" in the September/October issue of SI. It was especially timely coming on the heels of the Kansas Board of Education's comical decision to ban the teaching of evolution in public schools. Is it just me, or does anyone else find it ironic that if you live in Kansas and want your children to learn about the origins of life and the universe without a creationist bias, you now have to send them to Catholic school?

Paul Giglia
Berea, Ohio

"Where Do We Come From?" by Massimo Pigliucci was quite unique and interesting. However, there is one critical mistake that I noticed. Pigliucci seems to give religious, speculative, and pseudoscientific explanations for the origin of premordial life equal weight to the scientific evolutionary theory. I admit that there may be weaknesses in the scientific explanation of premordial biology, but the general evolution of life on Earth remains a fact; it's the explanation of that fact which results in a scientific theory. Yet not all explanations for evolution are equally plausible and empirically evident.

Tom Wong
Los Angeles, California

Pigliucci methodically discussed each of these other approaches, in order, before discussing the scientific evidence, but he did not imply that they have scientific weight.—ED.

New Age Anthropology

As an anthropologist, I share Martin Gardner's disdain for the gullibility and irrationality of some of my colleagues ("Carlos Castaneda and New Age Anthropology," September/October 1999). The Society for the Anthropology of Consciousness deserves all the derision that Gardner can heap upon it. At last year's annual meeting of the American Anthropological Association, I attended a session devoted to "The Spirit Hypothesis," sponsored by the Society, during which several panelists argued that the reason so many people around the world believe in the putative phenomenon

of spirit possession is that *many people around the world are in fact being possessed by spirits*. It made me embarrassed to be an anthropologist.

Gardner describes Joseph K. Long's edited volume *Extrasensory Ecology: Parapsychology and Anthropology* as "ludicrous." I couldn't agree more. In an article entitled "Science, Religion, and Anthropology" that appeared in the book *Anthropology of Religion* (Greenwood Press, 1997), I characterized *Extrasensory Ecology* as "one of the most regrettable examples of the irrational approach to the paranormal within cultural anthropology," and I observed that "Long's gullibility and flagrant disregard for rational principles of evidential reasoning are egregious."

Unfortunately, the field of anthropology includes many who subscribe to Long's illogical and delusory thinking, and an alarming number of them are affiliated with the Society for the Anthropology of Consciousness. Fortunately, however, most anthropologists have a much better understanding of the principles of rational inquiry and the nature of objective reality.

James Lett
Palm City, Florida

Although she was born in Southern California and speaks excellent English, the wife of a late friend of mine is so thoroughly Mexican in background that he had to learn not only Spanish but Nahuatl if he wanted to talk with some of his in-laws. After reading one of Castaneda's books, she remarked to me that, whatever Don Juan might be, he was certainly no Yaqui.

Poul Anderson
Orinda, California

Hayseed Stevens' Oil

Reading the article about Hayseed Stevens and oil in Israel by Donald U. Wise in the September/October issue reminded me of an Andy Rooney column in which he quoted Isaac Asimov as saying: "Moses must have been an idiot. If he wasn't an idiot, how come he led the Jews to the only country in the Middle East that doesn't have oil?"

Richard J. McKenna
Fairfield, California

As a sometime listener to the Prophecy Club I was familiar with Hayseed Stevens and his biblically directed search for the world's largest oil field, which he claims is in Israel and which will ultimately dry up all the other oil fields in Saudi Arabia, Iraq, and Iran along with Kuwait.

It is difficult to believe in this day and age anyone would believe such nonsense, but once you invoke the name of God and the Bible that automatically motivates the True Believers to support you financially in every way. I doubt that any reputable oil company would pay the slightest bit of attention to such a hair-brained scheme. The Prophecy Club claims to research and study biblical prophecy; however, it seems to be more of a vehicle to dispense ultra right-wing and fundamentalist propaganda. It also seems to be a money-making scheme for its founder, Stan Johnson, who constantly peddled books and TV tapes. They also preach that the year 2000 will bring about the complete collapse of the world economy. The Club is also selling dehydrated foods for when the stores will be empty of all food.

Dick Nelson
Dallas, Texas

Subliminal Hostility

To find out whether subliminal images can elicit hostility, the obvious experiment would be to give the experimental group subliminal glimpses of hostile images, such as angry scowling faces, and show the control group friendly images, such as smiling faces.

But the experiment cited ("What Every Skeptic Should Know About Subliminal Persuasion," September/October 1999) elicited hostility by showing faces of black people, with faces of white people as the controls, providing evidence, not only that subliminal stimuli can excite hostility, but also that the particular experimental group were subliminally racist. Why did the experimenter think the subliminal sight of black faces might make them hostile?

The experiment suggests a new method of discovering unconscious attitudes. Is some identified group subliminally hostile to men but not to women, to men with long hair but not to men with short hair, to one Presidential candidate but not to another? The method might become a standard tool of social psychological research.

Donald Rooum
London, England

The article "... Subliminal Persuasion," mentions an experiment where participants were subliminally shown pictures of black or white faces, and those shown black faces were more hostile. Were all of the participants white, or did black participants also show more hostility after seeing black faces? My assumption is blacks would subconsciously be more hostile after seeing white faces, but it would be an interesting commentary on racism if they reacted with hostility to black faces just like whites do. Which is correct?

David Holwick
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Nicholas Epley responds:

In the experiment cited by these readers, all participants were white. Would black participants respond with more hostility when presented with white faces? We don't know, but it seems unlikely. The reason that whites respond with more hostility is that "aggression," unfortunately, is a commonly known component of the African American stereotype. When a white person is presented with a black face, it automatically activates this knowledge structure (i.e., the commonly known stereotype), regardless of whether the stereotype is actually endorsed by the person or not. The findings in this study are not produced by any kind of unconscious hatred or racism between whites and blacks, but rather because a stereotype has been activated that can influence subsequent judgments and behavior. In order for black participants to respond with more hostility when presented with a white face, hostility or aggression would need to be a component of the Caucasian American stereotype. To our knowledge, it is not.

Validity vs. Reliability

Regarding Scott Lilienfeld's article ("Projective Measures of Personality and Psychopathology") in the September/October 1999 issue, it's a common (well, as common as things get in statistics) misconception that validity requires reliability. This is not the case. Any test will necessarily cover only a fraction of the total domain of possible questions. All items may probe what you want to probe, but because of the limited subset in use, you may not get a complete enough picture to get high reliability. In other words, every part of the test is individually valid, but the test is not broad enough

in scope to be reliable.

A classic example would be the World Series in baseball. It is a pretty valid test for the quality of a team ... the winner is probably the best team in baseball that year, or at least one of the best. However, because it takes a year to administer this "test," and because the subjects change during that time, it has low reliability. To wit, the Florida Marlins win the Series in 1997 and live in the cellar in 1998. With good face validity (at least) and pretty low reliability, the World Series is thus a counter-example to the proposition that validity requires reliability. You can argue that there are better measures of a team's quality, and there are. Such "better measures" tend to have both validity and reliability, which is why they are better. But to suggest that the results of the World Series have no validity? Well, be careful who you suggest that to ...

Dave Van Domelen
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Premature News of Demise

In his (September/October 1999) review of a 1988 book on honey bees (1995 paperback), Ian Maione accepted both the Gould and Gould dismissal of four decades of our research on honey bee foraging behavior, as well as their rationalization that our experimental challenge of the famed dance "language" hypothesis had failed.

However, Maione seems unaware of much that has happened on this topic since 1988; the challenge to that exotic hypothesis is not dead. Consider a few relevant facts: 1) In its half century of existence, the bee language hypothesis has provided no practical benefit to beekeepers; 2) Apparently no one has been able to repeat Gould's experiments and obtain his results (a requisite before one should accept such results); 3) Language proponents no longer seem able to phrase a concise scientific statement (one with predictive power) of their favored hypothesis, a necessary condition for future quality research; 4) Much evidence has accumulated that sharply conflicts with the original 1946 Karl von Frisch interpretation (Wenner, A.M. and P.H. Wells 1990; Kak, S.C. 1991; Vadas, R.L. Jr. 1994); 5) A 1937 von Frisch interpretation about odor search behavior has more validity than the highly touted language notion (Wenner, A.M. with K. von Frisch 1993).

The dance language controversy thus remains an exciting episode in the nature of scientific inquiry but in a manner far different than assessed Maione. This episode may instead remind readers of similar sidetracks in science, including N-rays, polywater, water with a memory, and cold fusion (Wenner 1998). Hypothesis proponents in each case, as with the notion of bee "language," relied heavily upon "supportive" evidence and ignored contrary facts as they struggled to keep belief systems intact.

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'ID' Would Wrack Biology

I find the remarks of "intelligent design" proponent Jonathan Wells reported in the News and Comment section of your magazine ("Society for Scientific Exploration Tilts Wildly at Paradigms," September/October 1999) quite revealing. Here is an instance that the "intelligent design" movement has displayed its true and anti-scientific and obscurantist colors. "Intelligent design" is of course nothing more than a spinoff of "scientific creationism." It is a pseudoscientific rehash of the "argument from design" apologetic of the eighteenth century theologian William Paley. Unfortunately for Wells, "intelligent design" propagandist Phillip Johnson, author of several anti-evolution potboilers, and their right-wing patrons, nothing in biology makes sense except in light of the evidence of evolution. The "intelligent

design" movement is driven by right-wing politics, especially that of the religious right. Surely, biology would benefit from consideration of "intelligent design," like biology in Russia under Stalin and his favorite quack scientist, Trofim Lysenko, or physics in Germany did under Hitler and his relativity detractors. Biology would suffer greatly with "intelligent design" in the driver's seat. It would stagnate and decay. Wells's insistence that scientists stop wasting their time looking for natural causes in problems such as the origin of life shows that "intelligent design" proponents rejected in advance the possibility of natural explanations for the origin and evolution of life. "Intelligent design" theory is devised in such a way that it precludes any meaningful tests of its claims, or opening new avenues of research.

Jerome N. Cragle
Mifflinville, Pennsylvania

Military Operatives Posing as Alien Abductors

Robert Sheaffer's "Psychic Vibrations" column in the September/October 1999 issue, "Aliens Follow Their Leader," ridiculed CSETI leader Steven Greer for believing that some claims of UFO abductions "are due to a military program using crafts that look like UFOs, in which people actually are abducted," and noted that that had been the plot of a recent episode of *The X-Files*.

That 1996 *X-Files* episode, entitled "Jose Chung's From Outer Space," was one of their most humorous, filled with sight gags at the viewer's expense (the opening scene, appearing to be a spaceship gliding through the stars, turns out to be a close-up of the underside of a cherry picker) and retroflexive verbal jokes. However, as with many *X-Files* plots, the idea was not original but derived from current topics in the scientific or literary news.

To give credit where it is due, the fictitious idea of military operatives masquerading as alien abductors first appeared in astrophysicist Jacques Vallee's 1986 French novel *Alintel*, which he published in English as *Fastwalker* with the collaboration of Tracy Tormé in 1996.

Bruce Greyson
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Source of an Urban Legend?

I appreciate having the first-person report of a 1981 ATM shooting in Florida from James S. Holley (Letters, September/October 1999, p. 68). If indeed this was the source of the legend that I started hearing about in 1985, it is fascinating to notice how the story changed in the re-telling. I agree with Holley that in this instance truth is stranger than legend.

Instead of a drunken paraplegic man who entered the wrong PIN and who first beat the machine with the arm off his wheelchair, the usual legend form of the story describes a somewhat dim-witted individual who feeds *hold-up notes three times into the ATM* and then opens fire on the machine when it fails to give him cash. Sometimes it is stated or implied that the man belongs to a racial or ethnic minority, and the story is always localized to the teller's area of the country.

I was about to make something of the threefold repetition in the legend, but I note that even in Holley's experience the person made three tries before losing his card and *attacking the machine*. Maybe that's how ATMs work (I don't know); if so the programmers have selected a properly folkloric number.

Of course, it's possible that the legends have no close relationship to the Florida incident, but are simply invented versions of the "dumb-crook" tradition. It's also possible that other people at other times have shot at ATMs, but this is the first direct report I have received.

Another ATM story I've heard is about a woman who finds a lost cash card lying in the street one night and decides to turn it in via an ATM. She inserts the card and punches in some numbers at random, expecting the machine to keep the card. Against all odds, she hits the right combination and the screen obligingly flashes the message, "How much do you wish to withdraw?"

Jan Harold Brunvand
Salt Lake City, Utah

Responding About Snuff Films

In response to several letters in the September/October issue about my article "The Snuff Film: The Making of an Urban Legend," (May/June 1999), first, I want to

thank everyone for the positive feedback on my article. As Jan Brunvand stated in his introduction, I am not a folklorist, and my merits as a professional journalist are few and far between, so I am happy that my article was received as well as it was. I would like to clarify a few points, though.

Steven Cushing reports that a theater in Boston was not egged, nor did they receive any bomb threats. The reports I read concerning these incidents did not specify the exact locations, or the precise numbers of theaters that did file such complaints. It is unwise to say that, since it didn't happen to one particular establishment, that no other theater was the site of similar occurrences. Granted, the media sensationalized the situation, but there is no indication that such attacks did not befall a small number of theaters as claimed.

To John F. Moffitt, I agree that my final definition of snuff films is a bit vague, but I do state that the snuff film is "a specific genre of filmmaking where the actors are supposedly killed *for the benefit of the viewer*." This automatically excludes documentaries because of their lack of premeditation by the filmmaker concerning the intent to kill an actor. I should have also appended my statement with the statement that snuff films "usually stage such murders with forethought that the production would be sold to interested parties." (Thus excluding what amounts to occasional "trophy" films made by serial killers, as those are intended solely for personal use.)

And to Les Cole (and especially Robert Bloch, a writer whom I much admire), a big apology is in order. The original version of this article was written three years ago, and I made the mistake of transferring this particular "claim" without double-checking my sources. (I managed to locate the sources for all of the other facts, but whatever article or book that supplied me with this erroneous claim still eludes me.) The proper thing to do would have been to drop the quote altogether; to keep it intact without proper references was bad journalism on my part.

Scott Stine
Everett, Washington

According to an April 21 report carried on the *Wireless Flash* by reporter Mike Leidig, two German men were sentenced to life imprisonment for their role in a woman's death while allegedly making a snuff film. The woman's death was apparently accidental, as she died before the video was completed; a second woman

was abducted but escaped. The snuff film was never made nor distributed, the victim did not die on camera, and no verified evidence that a "snuff film" industry exists was presented at the trial. —ED.

More on NAGPRA and Science

The article by Geoffrey Clark (May/June 1999) sparked a variety of vehement responses in the September/October 1999 issue that I enjoyed reading. However, in all that discussion, which involved concerns about the relation of science to religion, etc., no mention was made of what has seemed to me is a practical solution. Recent burials should be respected. "Recent" should include the past few thousand years. As one outside the disciplines of archaeology and anthropology, I leave it to those specialists to specify the appropriate millennia. Anything beyond that threshold should be available for scientific research. The idea that all these burials must be of Amerinds because, supposedly, Amerinds originated on this continent, is an idea that gives myth the power to prevent scientific investigations of matters quite important to students of the humans populating our continent. This should be treated separately

from the exhumation of remains that appear, according to the stratum in which they occur, to be most likely related to present Amerind tribes. Why must this question be treated as an "all or nothing" one?

Laurence G. Wolf
Cincinnati, Ohio

What impressed me about the exchange between Peter T. Noyes and G.A. Clark regarding the advisability of NAGPRA, the legislation that would give Native Americans more control over archaeological digs in lands they once inhabited, was how completely the two were talking past each other.

Noyes was replying to Clark's article decrying NAGPRA. I saw him refer often to how terribly disrespectful it was to Native American culture to disinter the dead, and how we must respect "norms, morals, values" and the like by keeping prospective digs undug. Meanwhile, Clark spent his time talking about how "norms, morals, values" and the like are just the kinds of things that need studying and emphasized the value of archaeological digs in the search for truth.

The thing is that Noyes never contended that truth would be served by suppressing archaeological digs on sacred lands. In fact, he seems tacitly to admit that NAG-

PRA would result in less being learned about the cultures the regulations are set up to protect. He argues that out of respect for Native American culture, there is information about it that we should make an effort not to learn. Observing social taboos, he says, is more important than knowledge. In these circumstances, ignorance is better than learning.

So when Clark replies that only by continuing to investigate archaeologically can we learn important information about these ancient cultures, he is failing to address the point. Terrifyingly enough, Noyes knows this and doesn't care.

Daniel H. Bigelow
Cathlamet, Washington

The letters column is a forum for views on matters raised in previous issues. Letters should be no more than 225 words. Due to the volume of letters not all can be published. Address letters to Letters to the Editor, SKEPTICAL INQUIRER. Send by mail (preferred) to 944 Deer Dr. NE, Albuquerque, NM 87122; by fax to 505-828-2080; or by e-mail to letters@csicop.org (include name and address).



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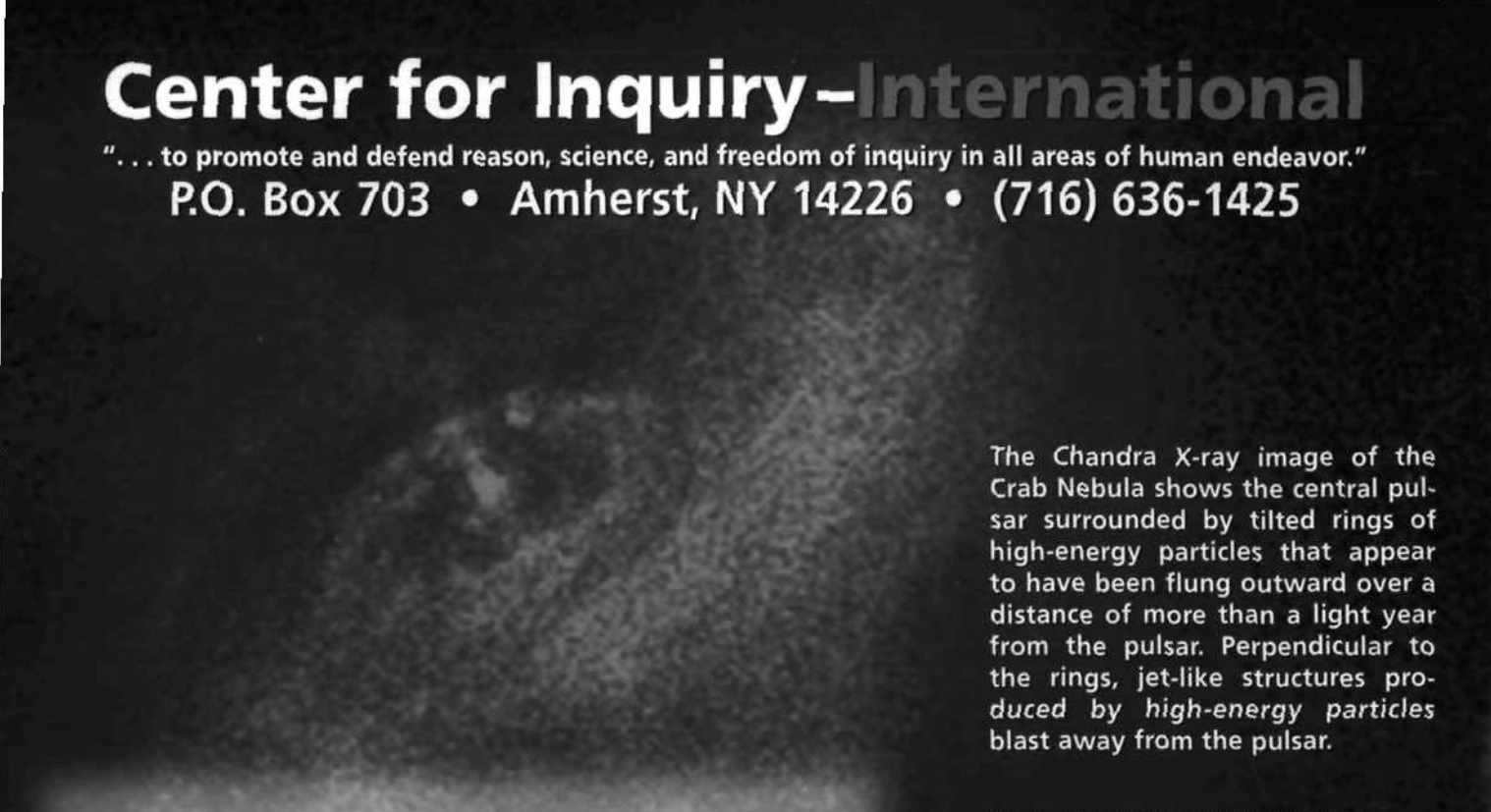
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The Chandra X-ray image of the Crab Nebula shows the central pulsar surrounded by tilted rings of high-energy particles that appear to have been flung outward over a distance of more than a light year from the pulsar. Perpendicular to the rings, jet-like structures produced by high-energy particles blast away from the pulsar.

Photo Credit: NASA/CXC/SAO

THE COMMITTEE FOR THE SCIENTIFIC INVESTIGATION OF CLAIMS OF THE PARANORMAL

The Committee for the Scientific Investigation of Claims of the Paranormal encourages the critical investigation of paranormal and fringe-science claims from a responsible, scientific point of view and disseminates factual information about the results of such inquiries to the scientific community, the media, and the public. It also promotes science and scientific inquiry, critical thinking, science education, and the use of reason in examining important issues. To carry out these objectives the Committee:

- Sponsors publications
- Conducts public outreach efforts
- Maintains an international network of people and groups interested in critically examining paranormal, fringe-science, and other claims, and in contributing to consumer education
- Encourages research by objective and impartial inquiry in areas where it is needed
- Convenes conferences and meetings
- Conducts educational programs at all age levels
- Does not reject claims on a priori grounds, antecedent to inquiry, but examines them objectively and carefully

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