



• encourages critical and scientific thinking • serves as an information resource on extraordinary claims • provides extraordinary evidence that skeptics are cool

Pseudoscience & Skepticism in Journalism

by Heather Keels

“The paranormal is of such vital public interest that it immediately becomes news,” wrote Paul Kurtz, Chairman of the Committee for Scientific Investigation of Claims of the Paranormal (CSICOP). “Reporters are constantly sniffing at the heels of the parapsychologists and are ever-ready to take the most slender shred of evidence or the mere inkling that something may be true, inflate it out of proportion to its tentative epistemological status, and proclaim it as proven scientific dictum” (Kurtz 357). This statement may be something of an exaggeration, but it’s clearly true that

pseudoscience often finds its way into print. Fantastic claims that appear to have scientific support make appealing news because they are amazing, exciting, and entertaining, and they often help fulfill our natural hunger for power and easy solutions. As Carl Sagan pointed out in his book, *The Demon-Haunted World*, “Pseudoscience is easier to contrive than science, because distracting confrontations with reality . . . are more readily avoided. The standards of argument . . . are much more relaxed” (14). Just because pseudoscience may be easier to sell than legitimate science doesn’t justify its prevalence in

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Cold Fusion

by John Mularski

On March 23, 1989, at the University of Utah, Dr. Martin Fleischmann and Dr. Stanley Pons shocked the scientific community by announcing that they had solved the problem of nuclear fusion. (4, Simon) Their experiment did not involve high temperatures and complicated containment methods like previous fusion reactions. They claimed to have created fusion inside of a jar in their laboratory at room temperature. They had discovered the “secret” of cold fusion. The claim, if verified, had the potential to

change all theories on nuclear fusion. However, this revolutionary research was not published through the normal scientific journal and peer review system. It was “published” by press conference.

Before the announcement of cold fusion by Fleischmann and Pons, all serious research in the field of nuclear fusion was concentrated on hot fusion. Hot fusion is the process that powers stars. Whether hot or cold, fusion is a process in which isotopes of hydrogen are brought close enough together that they bond to form helium and release energy at the same

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coming events

January 2005

Randi's "The Amazing Meeting" (TAM) More Amazing than Ever: Randi is holding the third annual TAM Jan 13-16, 2005. As usual there will be plenty of skeptical greats such as Penn & Teller, Dr. Michael Shermer, and our own Jamy Ian Swiss, as well as many others. *BUT*, what puts the *amazing* touch for me in this meeting is that Dr. Richard Dawkins, celebrated author, scientist, philosopher, humanist, lecturer, and educator from Oxford University will be the featured speaker. That alone makes this an extraordinary event. For details on how to attend, go to Randi's website at: <http://www.randi.org/tam3/index.html>

February 2005

AAAS annual meeting: The 2005 American Association for the Advancement of Science (AAAS) annual meeting, the "*largest general science conference in America*," is coming to Washington, DC, 17 - 21 February 2005. The meeting will focus on "The Nexus: Where Science Meets Society" and will be held at the Marriott Wardman Park Hotel and the Omni Shoreham Hotel. For more information: http://www.aaas.org/meetings/Annual_Meeting/02_PE/PE_09_Teachers.shtml

April 2005

April Fools Wanted! NCAS is planning an event for April 1, 2005 (a Friday) that could include the whole weekend, but needs your suggestions. We don't have the actual event set, and we need adequate time to plan and set it up, so send any ideas you have no later than the end of December 2004. Remember, the key is not only the theme (April Fools) but that it must actually be entertaining.

Send ideas by snail mail to:
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Or e-mail: ncas@ncas.org

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recycled paper

Dear Members,

NCAS is an independent, nonprofit, educational and scientific organization that promotes critical thinking and scientific understanding, with a focus on paranormal and fringe-science claims. Since its first meeting in March 1987, NCAS will soon be 18 years old. As an “adult” organization, can we say that we can take our place amidst other long-lived service organizations? To answer that, we have to answer several questions.

Are we serving our members?

It is my belief that this is a mixed success. The NCAS Board believes it is putting on an interesting series of public lectures that attracts 30 to 60 attendees each month. We are back at the Bethesda Library this year, which is near Metro. Since we have gotten little feedback on what to do differently, we believe we are going in the right direction. On the other hand, we often get many of the same people at these public meetings, and, as we have said over the past few “Eyes,” membership is dropping, so we are obviously not doing something right. Please let us know what you would like NCAS to do better in the future?

Are we serving the general public?

Again this is mixed. We have a successful website with the only availability of important documents such as the Condon UFO report. If asked, NCAS can provide a speaker on a skeptical topic to speak to your group, and we have done so in the past. On the other hand we organize a weekend workshop each spring on a skeptical topic—Millennium Madness and the Y2K issues in 1999, Ghostbusting in 2000, How do we know what is and isn’t so in 2001, Skepticism 2002 with James Randi, Psychic Readings with Ray Hyman in 2003 and Art becomes Reality in 2004. These we believe have been excellent and inexpensive

workshops; however, attendance is usually small with the same attendees. We are not enticing you to spend a Saturday with other skeptics to discuss a relevant topic while being entertained in the process.

What do YOU want?

So the common issue here is “you.” How do you want NCAS to evolve as it grows up? As a volunteer organization we need your help, support, and ideas. Our next weekend workshop begins Friday, April 1, 2005. What would it take to get you to come? Can you help organize it?

If you have any ideas, let me know. I can easily be contacted at marv@zelkowitz.com.

Marv Zelkowitz President National Capital Area Skeptics

Marv Zelkowitz is a Professor of Computer Science at the University of Maryland, where he’s interested in software engineering and technology transfer—how to get new technology in use for producing better computer software, validating claims of grand new technologies. Marv has been a professional skeptic for the last 33 years.



photo of Marv Zelkowitz by Helen Hester-Ossa

To date no fusion reaction has led to substantial positive power output because of the large amount of energy used to create the magnetic containment fields.

time. Since atomic nuclei are positively charged, it takes tremendous force to bring them close enough for fusion to occur. In hot fusion this is accomplished by having atoms with a high kinetic energy. These atoms then simply slam into each other. In the fraction of a second that they are in close proximity, fusion occurs. The high kinetic energy required is achieved by increasing the temperature of the atoms, since temperature is a measure of the average kinetic energy of a substance. The sun's core, where hot fusion is constantly occurring, reaches temperatures of 27 million degrees Fahrenheit. (Web Site, CPEP) At this temperature the hydrogen becomes plasma, which is electrically neutral but has charged electrons and nuclei freed from each other. Because of its high temperature, the plasma cannot be contained by any known materials, so magnetic fields are employed to contain the charged particles. To date no fusion reaction has led to substantial positive power output because of the large amount of energy used to create the magnetic containment fields.

Fleischmann and Pons believed they had found a process that would allow them to do away with the magnetic fields and the large power input they required. Their device was much simpler and much smaller. It consisted of a palladium rod immersed in a glass beaker containing heavy water. Heavy water is similar to regular water, also referred to as light water, except that the hydrogen atoms each have one extra neutron in the nucleus. This form of

hydrogen is called deuterium (D). The experiment consisted of running an electric current through the solution to cause electrolysis. Electrolysis is the process that causes an electrolyte, such as water, to break down to its component elements. In the case of heavy water, this consists of deuterium and oxygen (O). According to Fleischmann and Pons, the deuterium is compressed inside of the chemical structure of the palladium rod. Their calculations showed that this should place the deuterium nuclei close enough together for fusion to occur. After running their experiment and analyzing the data, Fleischmann and Pons found that the test cell generated more energy than was put in. They could not explain the excess through any chemical means, so their conclusion was that a nuclear process had taken place. However, the process did not follow any that was currently known to physicists. An interesting fact to note is that neither scientist was a nuclear physicist; they were both electrochemists.

When experts in nuclear physics began to examine the experiment and its results, they immediately noticed one major problem with the data. If Fleischmann and Pons actually generated the amount of energy claimed, they would both be dead. Like fission, nuclear fusion releases large amounts of radiation. They claimed that they detected 100 million times less radiation than the formula for fusion predicts. (34, Huizenga) Fleischmann and Pons' response was that the newly discovered process of cold fusion did not follow the traditional chemical formula used in hot fusion that predicted the particle radiation. The traditional formula has been confirmed in laboratory hot fusion reactions and analysis of the sun and other stars. At the same time as Fleischmann and Pons, a researcher at Brigham Young University (BYU) performed a similar experiment. The results of this experiment were very different than that of Fleischmann and Pons. At

The study at BYU raised interesting questions about our knowledge of nuclear reactions, but showed no promise as a power plant.

BYU they recorded that energy was being released, but not nearly as much as in Fleischmann and Pons' experiment. The other major difference was that at BYU the radiation released was consistent with the traditional formula. The BYU study raised interesting questions about our knowledge of nuclear reactions, but showed no promise as a power plant.

When Fleischmann and Pons released their story to the public at the press conference in 1989, the media immediately picked up on all the benefits of the proposed technology. They assumed that since scientists at a reputable university were announcing it, the results must be accurate. The media concentrated their reporting on the benefits that made fusion and, in particular, cold fusion so attractive instead of whether the science was sound. Cold fusion as proposed by Fleischmann and Pons seemed to solve many of the world's power and pollution problems. Since they claimed the release of almost no radiation, there was no danger to having a cold fusion plant in populated areas. This also means there is no radioactive waste to store, a problem with current fission power plants. The fuel for fusion is heavy water, which can be easily extracted from the abundant normal water covering almost three-quarters of the Earth's surface. Enough heavy water can be extracted from the oceans to supply all the world's power for an essentially infinite time. (4, Huizenga) Cold fusion also releases virtu-

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ally no pollution. The only byproducts are oxygen, hydrogen, and heat.

Shortly after the press conference—before the basic concept of cold fusion had even been proven through a scientifically sound reproducible experiment—the National Cold Fusion Institute (NCFI) was formed at the University of Utah in March of 1989. In April of 1989, Fleischmann, Pons, and the University of Utah went before Congress to ask that funds be allocated for the further study of cold fusion. To assist them they hired Ira C. Magaziner, president of the consulting firm Telesis. Fleischmann and Pons presented technical arguments as to why Congress should fund cold fusion research, and Magaziner spoke from a business perspective. He warned Congress that they needed to invest in cold fusion now before another country became the leader in the technology and manufactured it cheaper like TVs and VCRs. His theory was that the risk of lost jobs and money was worth the gamble that cold fusion might turn out to be a false hope. (51, Huizenga) At the time many of the congressmen seemed inclined to fund cold fusion, but there were a few who had read the opinions of experts and had their doubts about the technology. To assist the government in its decision on funding, in April of 1989 the Department of Energy (DOE) formed a special panel of its Energy Research Advisory Board (ERAB) to study cold fusion. The panel was formed to analyze what direction, if any, the DOE should take in cold fusion research. The panel presented its final report in November of

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photo of John Mularski by Helen Hester-Ossa

Cold fusion is a great example of what happens when scientists are too eager to reap the benefits of a proposed technology.

1989 and concluded that there was no evidence that a useful source of energy would ever be found and that the DOE should not fund research that pursues such a source. The only merit found in the phenomenon by the ERAB cold fusion panel was the BYU study that was consistent with the traditional fusion formula, but had no hope as a future power source. They believed that some money should be allocated to prove or disprove the BYU study in the interest of scientific curiosity. (Web Site, ERAB)

Eventually Fleischmann and Pons published their paper in the *Journal of Electroanalytical Chemistry* in April of 1989. With the promise of unlimited clean energy seemingly close at hand, scientists rushed to try to replicate the experiment based on what they knew from the press conference and the published paper. Initially, many scientists across the nation and the world found positive results in similar apparatus to Fleischmann and Pons'. Many of these results were later retracted due to mistakes in the equipment or procedure. Two of these retractions happened at large prestigious research universities, Georgia Tech and Texas A&M. These two universities conducted experiments and published results just 18 days after the University of Utah press conference. Texas A&M researchers claimed to have produced 60 to 80 percent more power than was input into their experiment. The claim was later retracted when the result could not be reproduced in their lab. The earlier positive claim was reported as due to incorrect equipment related procedure. (40, Huizenga) Georgia Tech claimed to have detected neutrons, which are the easiest fusion byproduct to detect. The neutron detector was later found to be extremely temperature sensitive and the detected neutrons were actu-

ally just background radiation. In the rush to cash in on cold fusion, researchers conducted sloppy experiments and announced positive results before the results had been checked for errors.

After 1990, it becomes difficult to follow experiments related to Fleischmann and Pons' original experiment. The term cold fusion is now used in reference to a wide variety of experiments, including some that state that deuterium fusion from electrolysis does not occur. Some of these new experiments are not even related to power generation. There are theories presented at the International Conference on Cold Fusion (ICCF) that a form of cold fusion will be able to break down waste that is generated from current nuclear fission power plants into safe components. The ICCF is held almost every year to bring together all the current researchers in the field. One of the sponsors of ICCF-4 was the Stanford Research Institute (SRI). This was the same lab that published a study done on remote viewing in the journal *Nature*. This study was later found to have serious flaws. While it does not necessarily prove cold fusion to be false, it is an interesting fact to note.

There are still believers in the original form of cold fusion, such as Dr. Eugene Mallove, the Editor-in-Chief of *Infinite Energy* magazine, which prints articles on cold fusion and other free-energy research. His magazine's goal is to research and publicize alternate energy sources that are not accepted by mainstream scientists. As for the originators of cold fusion, in 1993 Fleischmann and Pons submitted a paper based on an extension of their original experiment that they called "Heat after Death." They claimed that when the electrolyte in their test cell is boiled off and the electric circuit is broken, they still record heat generation. Their theory is that the energy must come from a reaction inside the cell because there is no power being input. (122, Simon) In addition to this paper Fleischmann submitted two papers that were presented at the 2003 ICCF.

Cold fusion is a great example of what happens when scientists are too eager to reap the benefits of a proposed technology. The lure of clean, cheap, safe power generation



blinded many to the problems of cold fusion. Scientists were so excited by their results that they forgot to ensure the proper checks and controls were followed. They then released these results to the public, who rely on the scientists to ensure the accuracy of the data. Then when the public sees that the results have to be retracted, they start to lose faith in the scientific process. Cold fusion as seen in the BYU experiment may still prove to be true, but cold fusion will most likely never be used as a source of electricity generation.

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the media, however. Any news organization that seeks to preserve its credibility, the most highly valued commodity in the journalism world, must keep a careful watch on pseudoscience through scientific standards of editing, education of reporters, and careful attention to proper balance.

The root of the problem that allows so much pseudoscience to become mixed in with our news is a general lack of scientific training. A 2001 study by the National Science Foundation, which asked questions about the scientific method and basic science concepts, found that 70 percent of those participating did not understand the scientific process. Because many journalists come from broad, liberal arts backgrounds or specific journalism education, this lack of what is known as "scientific literacy"—the ability to think logically, draw conclusions, and make decisions based on careful scrutiny and analysis of the facts—pervades both the media’s reporters and their readership. This is a problem because, as B Rensberger pointed out in "The Nature of Evi-

dence," "Without a grasp of scientific ways of thinking, the average person cannot tell the difference between science based on real data and something that resembles science—at least in their eyes—but is based on uncontrolled experiments, anecdotal evidence, and passionate assertions . . ."

Even if journalists did possess acute scientific literacy, however, it would still be difficult to approach science appropriately in media directed toward the general public. According to Stephen Schneider, a professor in the Biological Sciences Department at Stanford University, a scientifically literate approach requires that three questions are addressed: "What can happen?", "What are the odds?", and "How do you know?" "And if



photo of Heather Keels by Helen Hester-Ossa

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The most important of these values, when it comes to preventing misleading pseudoscientific information from being falsely represented as fact in the news, is the idea not necessarily of objectivity, but of balance.

you intend to ask the third question, plan to have a pen and paper along and be willing to check references, for question three isn't a sound bite-length inquiry," he joked. In a media world where "sound-bites" are becoming increasingly important, this limitation is critical; most general news sources don't have the space or the readership interest to include the information and explanations that are essential to scientific accuracy.

Finally, a third problem that plagues the media is the prevalence of dangerous attitudes. In their attempt to make news interesting and sell more newspapers or attract more viewers, journalists and editors become laxer in their sense of responsibility for accuracy and balance. A common catch-phrase in the industry is "don't let the facts get in the way of a good story." While the statement itself is intended in jest, the attitude behind it is frighteningly common. Many stories are excused their paranormal tilt because they make such good entertainment, and readers are trusted to interpret them as such. A magazine journalist wrote in *Writer's Digest* in 1979:

You don't have to believe in ghosts to write about 'em. The angles in the occult market are endless: ghosts, ESP, metaphysics, astrology, demonic possession, witchcraft—anything that is supernatural. . . . Whether I, the writer, believe or doubt is unimportant. It's the percipient's word that counts. . . . I never state 'this story is true.' The reader must judge the truth for himself. I merely present the facts in a dra-

matic, fast-paced form. (quoted in Kurtz).

This writer, like so many others, was falling into the trap of the "guise of objectivity"—that is, that a story is acceptably objective as long as it includes only statements of fact—even if these facts are statements of opinion from people involved.

The interesting thing about the guise of objectivity is that objectivity is, itself, one of the fundamental journalistic values that ought to protect against pseudoscience. The highest of these values, as taught in nearly every introductory journalism course, is the idea of credibility. Credibility, a news source's greatest asset, represents trustworthiness and is developed over time through consistent attention to the other journalism values such as balance, accuracy, leadership, and accessibility.

The most important of these values, when it comes to preventing misleading pseudoscientific information from being falsely represented as fact in the news, is the idea not necessarily of objectivity, but of balance. Balance is often viewed as a seesaw in which each of two opposite sides must be given equal weight. This gives readers a back-and-forth sort of feeling, as in the *Washington Post* article "Homeopathy Looks Better Than Placebo In Mega-Study," which presents some background information and then alternates, line by line, graf by graf, between skeptics and believers.

Other times news is simply considered balanced when it allows each side to get a word in, regardless of how much weight it is given. This often occurs in sensational stories such as The University of Maryland *Diamondback's* Halloween feature on ghost hunting, which included only one brief statement from their token skeptic, Chip Denman, in a lengthy article about ghost hunting. Balance of this sort hardly ensures credibility, however, because it can be a misrepresentation of the issue as a whole.

To ensure credibility and reduce the amount of pseudoscience in the news, there are several things news organizations and educational institutions can do. First, to avoid poor news judgment from ignorance alone,



they can require a certain level of science literacy of their reporters and editors. This would include a solid foundation of basic science knowledge, an understanding of the scientific method, and an appreciation of critical thinking in all areas of life. Some have already considered or implemented such requirements, such as the Austin Society to Oppose Pseudoscience, which proposed in 1984 that the University of Texas College of Communication require all communication majors to take a pseudoscience class. If more universities and news organizations made this a requirement, the public could expect to see a considerable improvement in science coverage.

The other important measure that must be implemented to ensure credibility is to rigorously and specifically define balance and accuracy, particularly for science reporting. An important first step was taken when the American Society of Newspaper Editors launched the Journalism Values Institute. This group made an important clarification in the definition of balance: balance was inseparable from the concepts of fairness and wholeness—that is, that it must represent sides of an issue in proportion to their importance to the issue as a whole. Applied to science reporting, this definition suggests that a balanced story should not force conclusions, should present as many “sides” as there are, and emphasize information in proportion to its newsworthiness and significance to the topic. If significant, legitimate, scientific research has been done on a paranormal claim, this research must be given appropriate weight, regardless of how exciting or bizarre the claim may be. Another clarification that would improve understanding of journalistic values would be to emphasize that a skeptical, scientific analysis of information is a critical part of accuracy. If these new definitions of balance and accuracy were applied to all news, the credibility of science reporting would improve drastically.

Finally, news media can keep their sales up and continue to satisfy the human desire to be amazed, shocked, and entertained without resorting to pseudoscience. One notable trend

in recent years has been to debunk, rather than promote, pseudoscience for entertaining stories. This sort of story is found everywhere from NBC Nightly News, which reported this Halloween on the optical illusions that make vortex “mystery spots” popular destinations, to the television show “Penn and Teller: Bullshit!” which entertains its viewers by disproving claims of magic and paranormal. According to Penn, sometimes it’s just a matter of finding a “nut” on the side of science who can be as loud as the paranormal nuts.

Through these three measures—the insistence on scientific literacy among journalists, the strict definition and application of balance and accuracy, and the use of real science to entertain—the news media can not only improve their own credibility, but provide a valuable service to the public by stopping one of the most common sources of false, misleading information and replacing it with attention to the truly fascinating world of true science. ☒

The other important measure that must be implemented to ensure credibility is to rigorously and specifically define balance and accuracy, particularly for science reporting.

The Toughest Questions About Intelligent Design

Why Do Intelligent People Believe Such Weird Things?

a review by Ken Finger

Review of *The Design Revolution: Answering the Toughest Questions About Intelligent Design*, by William A. Dembski, InterVarsity Press, Downers Grove, IL, 2004

"In ascribing the power to choose to unintelligent natural forces, Darwin perpetrated the greatest intellectual swindle in the history of ideas. Nature has no power to choose." Dembski, p. 263

". . . Dr. Dembski's book is further evidence of the critical need for students in our public school systems to learn what is really going on in the disputes at the cutting edge of science rather than having their understanding of the natural world veiled and distorted by the prejudices of the past." Written endorsement from Senator Rick Santorum, United States Senate, printed in the front of the book.

In the revised and expanded edition of Michael Shermer's book, *Why People Believe Weird Things* (Owl Books, 2002), the author adds a new chapter about why smart people believe weird things. In a nutshell, Shermer's premise is that "(S)mart people believe weird things because they are skilled at defending beliefs they arrived at for non-smart reasons." (p. 283, his emphasis) To be sure, William Dembski is smart. In fact, as I referenced Shermer's book for the above quote, I realized that I had forgotten that Dembski is discussed in some length in that chapter! He holds several degrees including (according to his book cover) Ph.D.s in mathematics and philosophy, as well as degrees in theology, statistics, and psychology. Tellingly, however, among the many degrees listed, evolutionary biology is not one of them. In any case, as I labored through his latest work, *The Design Revolution: Answering the Toughest*

Questions About Intelligent Design, it struck me time and again, after almost each "answer" given, that this the best example I have ever seen of a highly intelligent and educated person convincing himself (and, unfortunately, many others) of a weird thing.

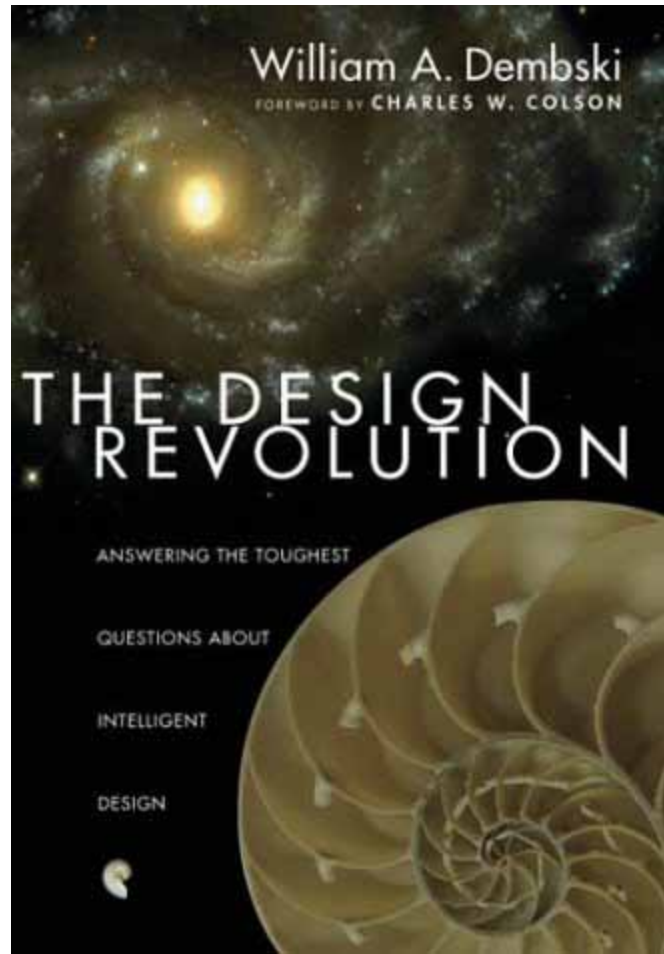
I must first confess that I am not a trained or "lettered" evolutionary biologist either. In fact, I approached the book as a layman. After all, the book is clearly aimed at defending intelligent design theory to the public, and so as part of the public, I feel it absolutely valid for me to critically assess the validity of the argument and to share that assessment. Layman or lettered, beware to those whose critical thinking caps are not securely fastened on this one. Dembski's defense is complex, often circular, and always buried deep in analogies, statistics, and probabilities that sure sound convincing. In fact, at times I felt as if he was laying on the erudition so thick for the sole purpose of simply burying the reader who will eventually cry, "Uncle! You win! I don't even understand what you're talking about anymore, so you must be right!" In the end, though, I found the arguments to be fundamentally flawed and came away from the book even more convinced that natural evolution is correct and that there is simply no merit to intelligent design.

A full rebuttal of the book, while certainly possible, is not feasible for the time and space allotted here. I'll leave that to the true pros in the field. What I can do here, though, is to try to give you the flavor of the work by citing a few examples of how Dembski's arguments work. Let me give a bit of overview first.

According to Dembski, intelligent design is "the science that studies signs of intelligence." (p. 33) He goes on to say that, "intelli- ➤

gent design’s central claim is that only intelligent causes adequately explain the complex, information-rich structures of biology and that these causes are empirically detectable. . . . Intelligence leaves behind a characteristic trademark or signature—what I call *specified complexity*. (sic) An event exhibits specified complexity if it is contingent and therefore not necessary; if it is complex and therefore not readily repeatable by chance; and if it is specified in the sense of exhibiting an independently given pattern.” (pp. 34-35) Well enough, but after reading a while one realizes several distinguishing characteristics about the arguments for ID that, to me, sink it.

First, there’s too much reliance on us recognizing intelligent designs because they simply look designed. As archeologists, for example, we can distinguish an artifact from a naturally occurring item because it exhibits characteristics that are clearly designed. For Dembski, it’s not just an analogy to compare an archeological artifact to a biological system, it’s an identical comparison: “. . . the specified complexity in artifacts is identical with the specified complexity in biological systems.” (p. 124) He doesn’t limit his analogies to artifacts, but runs the gauntlet of scrabble pieces, Shakespeare, Liszt’s Hungarian Rhapsody, and more. Like these examples, if biological systems are sufficiently complex as to exhibit design, then they are designed. But what is sufficiently complex, and how do we know that the complex system didn’t happen by natural processes? The answer is that, “the specification to which it (the biological system in question) conforms corresponds to an event that is vastly improbable with respect to all material mechanisms that might give rise to the event.” (p. 96) So the claim is that for certain systems, all known and unknown mechanisms couldn’t have happened upon this design without a guiding intelligence. But how do they know that they accounted for every possible natural explanation, and thus eliminated the one(s) that may have caused the alleged design? “Specified complexity can dispense with unknown material mechanisms provided there are independent reasons for thinking that explanations based on known



material mechanisms will not be overturned by yet-to-be-identified unknown mechanism.” So if they can’t currently think of a natural explanation, they also get to assume that they’ll never be able to identify one, and so there must be design.

The second and more troubling problem for me is the idea of the probability of an evolutionary arrow hitting the biological target on the wall. “An arrow shot randomly at a large blank wall will be highly unlikely to land at any one place on the wall. Yet land somewhere it must, and so some highly improbable event will be realized. But now fix a target on that wall and shoot the arrow. If the arrow lands in the target and the target is sufficiently small, then chance is no longer a reasonable explanation of the arrow’s trajectory.” (p. 116) For specified complexity to work, the biological target must pre-exist on the wall. In fact, I began to think of specified complexity

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as prespecified complexity. Dembski's favorite example of a specified biological system is the bacterial flagellum. "One way to see this," Dembski argues, "is to note that humans developed bidirectional motor-driven propellers well before they figured out that the flagellum was such a machine." So because humans by coincidence happened to invent a machine that shares characteristics with a biological system, the biological system must be designed because the boat motor is designed. (Dembski doesn't address why this designer would supply such a superlative design on the *E. coli* bacterium.) Or stated another way, "(T)he No Free Lunch principle states that if you have some naturalistic process whose output exhibits specified complexity, then that process was front-loaded with specified complexity." (p. 257) So ID proponents apparently get to find specified complexity through dubious methods in the first place, and then insist that they were front loaded that way—the target already fixed on the wall before the arrow is shot.

The final specific example I'll cite is Dembski's answer to the God of the gaps or argument from ignorance objections. Essentially, these objections state that ID is simply filling the gap in our knowledge about direct evolutionary pathways that could result in biological systems with a designer. Since we don't know how something got here, it must've been designed. Dembski's answer to

this charge is almost comical, in my opinion. He states that proponents of this objection are missing a crucial point in the design argument, and that "(W)e know that intelligent agency has the causal power to produce systems that exhibit [specified complexity] (e.g., many human artifacts exhibit SC)—*this is the crucial connecting premise.*" (p. 219, emphasis his) So again, we know that biological systems are designed because we recognize items of design by humans. This seems oddly circular.

At another point, Dembski explains that, "(I)t might be a fact about nature that Mount Improbable [referring to Richard Dawkin's book *Climbing Mount Improbable*] is sheer on all sides and getting to the top from the bottom via baby steps is effectively impossible. A gap like that would reside in nature itself and not in our knowledge of nature. (It would not, in other words, constitute a god-of-the-gaps.)" (p. 278) I found this premise to be totally arbitrary and unsatisfactory, reminiscent of Platonic forms existing in the ether somewhere.

Generally, the biggest problem I had with Dembski's approach is that he seems to get everything. He gets to keep Darwinian processes, but also gets to inject design where he sees it. "Naturally occurring systems can exhibit specified complexity, and nature operating without intelligent direction can take preexisting specified complexity and shuffle it around." (p. 36) He gets intelligent design

Generally, the biggest problem I had with Dembski's approach is that he seems to get everything. He gets to keep Darwinian processes, but also gets to inject design where he sees it. . . . He gets intelligent design from a supposedly disembodied entity that can simply think its designs into the natural world without exerting any energy into the system, yet this same very nonhuman designer is mysteriously constrained by typically human concerns in that it can't be expected to provide "optimal" design.

from a supposedly disembodied entity that can simply think its designs into the natural world without exerting any energy into the system, yet this same very nonhuman designer is mysteriously constrained by typically human concerns in that it can't be expected to provide "optimal" design. "Whereas optimal design demands a perfectionistic designer who has to get everything just right, intelligent design fits our ordinary experience of design, which is conditioned by the needs of a situation, requires negotiation and tradeoffs, and therefore always falls short of some idealized global optimum." (p. 59) And when theological or philosophical questions come up as to why a designer would do certain things, Dembski gets to back out on the grounds that ID doesn't claim to answer questions about the nature of the designer, but only detects the evidence of design in biology. This one designer is also somehow compatible with all major religions and theological beliefs. "To be sure, the designer is compatible with the creator-God of the world's major monotheistic religions, such as Judaism, Christianity and Islam. But the designer is also compatible with the watchmaker-God of the deists, the Demiurge of Plato's *Timaeus* and the divine reason (*i.e., logos spermatikos*) of the ancient Stoics." (p. 44) Is there anything this designer can't do? Oh yeah, design "optimally."

In the end, I was left with more questions than answers. For example, if this designer is compatible with Christianity, and thus one would assume that we humans were a target on the wall (as a complete end product, as opposed to certain parts that were later shuffled around by Darwinian processes), and if this designer has the power to think complex systems into existence without the necessity of step-by-step processes (through the manipulation of DNA without inserting any energy into the system), then why did it take so long for us to get here? And were all the evolutionary dead ends mistakes or practice runs? If this designer can design some things, why not design all things? Why use a mechanism like DNA at all, if the designer can just think its will on us? Using DNA would seem to be a crude mechanism for such an ad-

While I'm glad I read the book, I'm left with more confidence than ever that natural evolutionary processes are the only mechanisms capable of explaining the world around us. Dembski's arguments, while advanced, were neither convincing nor logical to me.

vanced entity—a mechanism susceptible to manipulation by us, the creation, not just the creator. And just how do all those religions reconcile anyway?

There is much more to object to than cited here, but time and space are limited. While I'm glad I read the book, I'm left with more confidence than ever that natural evolutionary processes are the only mechanisms capable of explaining the world around us. Dembski's arguments, while advanced, were neither convincing nor logical to me. He relies almost exclusively on analogies (targets on the wall, scrabble pieces, coin tosses, musical scores, human artifacts, etc.) and I found this to be mainly an advanced version of Paley's watchmaker argument with a healthy dose of the God of the gaps. It's a good, if difficult, read if you want to educate yourself on ID claims, but I doubt that I'll be picking up the next release by William Dembski. This one was quite enough. ☒

Ken Finger recently discovered and joined NCAS. According to Ken, "My background is fairly normal, but I guess I've always had the tendency to sit back and wonder why people believe certain things and wonder what's really going on with this claim or that strange belief."

Ken's interests range in subject matter (psychics, UFO abductions, cryptozoology, creationism/ID, celebrity worship, and so on), "but to me it all comes down to a fascination with the mechanics of human belief and with the value of critical thinking as applied to almost anything."

the write stuff



skeptical correspondence

Ike & the ETs

by Jim Giglio

On Thu, 19 Feb 2004, Garold Stone wrote:

For all y'all's convenience, here is the email address of the author of that article [on Ike & the ETs] in today's *Washington Post*, Style staff writer Peter Carlson: carlsonp@washpost.com

Here's what I wrote. He responded within the hour, expressing appreciation for the kind words and indicating that Salla had in fact been influenced by Greer:

"Your article on Prof Salla was well-done—objective, but with sufficient information to make it quite clear that Salla is far out in left field. I especially liked this quote:

"They were afraid we might blow up some of our nuclear technology," Salla says, "and apparently that does something to time and space and it impacts on extraterrestrial races on other planets."

From this statement it would appear that neither Sallah nor the aliens have noticed a rather large, nearby, and constantly-exploding nuclear furnace, the sun. That furnace emits the energy of many thousands of nuclear weapons every second, yet somehow fails to affect these "extraterrestrial races on other planets" as much as a handful of 50s-era test shots.

BTW: Did Salla indicate that he's acquainted with Steven Greer? In case that name doesn't ring a bell, he's the UFO promoter who put on a splashy "Disclosure" event at the National Press Club back in May 2001. Joel Achenbach wrote a scathing review of the event."

NCAS board member Jim Giglio headed the project to put the 1968 Congressional UFO symposium report on the NCAS web site. The symposium report was added as a companion to the extremely popular Condon report.

More Friday the 13th HiJinks

by Scott Snell

To commemorate February's Friday the 13th, NCAS hosted a "superstition social" at Mayorga's coffee shop in Silver Spring. Fourteen participants (at least one of whom was not an NCAS member) attended.

Mayorga servers, who place prominently mounted numbers on tables to identify orders with customers, were unable to find "13" when we requested it as a humorous conversation piece over dinner. But otherwise the evening was without mishap.

Rather than present results of research on details and history of common superstitions

(which anyone can Google to their heart's content), the evening centered on the (perhaps) unrecognized prevalence of superstitions in the lives of anyone, even skeptics.

For example, while preparing for this event, I was unable to think of any personally active or even vestigial superstitious beliefs or behaviors, but NCAS President Marv Zelkowitz challenged me to continue my superstition self-audit. No, I don't say "bless you" anymore to sneezers, having purged myself of that oddity (while keeping "gesundheit" for the sake of politeness), but later I realized

I sometimes still make a wish before blowing out birthday candles. I also remembered last summer, when I asked a young lady of my fancy to make a wish after I caught a windborne seed, before she blew it back into the breeze from my fingertips. Occasionally I “knock on wood” as a joke after discussing the sterling reliability of a crucial system or component. I called “Jinx!” when a coworker and I spoke the same word simultaneously, just in the past couple of weeks. I’d never paid such close attention to little irrational and ingrained behaviors before. It was a surprising experience to find so many unexamined “leftovers” from my childhood.

At Mayorga’s, participants described colorful superstitions they’d heard of or picked up early in their lives:

Things happen in threes.

Matronal spinal injury may follow from a careless footstep on a sidewalk crack.

A rabbit’s foot or a four-leaf clover can bring good luck.

The list seemed endless. Personal anecdotes about strange events and how they were interpreted were also presented.

Pending further research, the curious may wonder about the origins of some superstitions. Presumably at some point a correlation was made between completely or mostly unrelated events, or some analogy was made that would seem, at first blush, sensibly applied to other cases. Perhaps esteemed or powerful individuals personally promoted some of these superstitions, giving them a fighting chance of birth and long life in the competitive world of beliefs, regardless of their falsehood. Sometimes I lament that our ancestors didn’t have some superstitions that would’ve made life better. Instead of throwing spilled salt over the left shoulder, how about “Wash your hands before eating a meal” or “Wash your hands before surgery?” Instead, many died or suffered until Lister made the connection. (Hand washing before meals was an ancient Jewish tradition, but Matthew 15:20 probably didn’t help perpetuate it.)

Most of the Mayorga participants seemed unconcerned with “purging” themselves of any remnant superstition, enjoying the charm

or color of folk belief. Before the evening concluded, there was brief speculation about the nature of new superstitions, ones that may be emerging even now and might persist in the long term. New technologies, like personal computers, might generate superstitions among users who don’t fully understand them and (falsely) perceive cause and effect in troubleshooting, for example.

Later, I felt somewhat sullied after having slogged through so many unfounded and implausible beliefs. It was almost as if treading through some poorly-constructed, unfinished structure, recalling case after case of untested or untestable claims, some with significant consequences attached. I suppose CSICOP conducts uncontrolled experiments for every Friday the 13th public event in which they exuberantly smash mirrors or stroll under ladders, but how many otherwise intelligent people make decisions, perhaps even important ones, based on the spurious patterns of superstition? This may be an interesting self-scrutiny for the skeptic, as well.

As the evening ended, I asked one of the Mayorga employees if anything bad had happened to her that day. She said no, and I replied that I’d been spared too. But when I laughed at the foolish notion of bad luck focusing on a particular weekday and day of month combination, she made the chilling speculation that our benign day was only the result of the evil force secretly moving into some other weekday and day of month, vacating Friday the 13ths!

Remain alert! Perhaps it’s Friday the 4th or Wednesday the 27th we have to fear now!

(Note to skeptics: she was kidding.) ☹️

Scott Snell is a charter member of NCAS and serves on its board of directors. He received his Bachelor of Science degree in physics from the University of Maryland. He is employed as a flight software engineer by Computer Sciences Corporation at NASA’s Goddard Space Flight Center, tending the onboard computers of several Earth orbiting astronomical satellites.

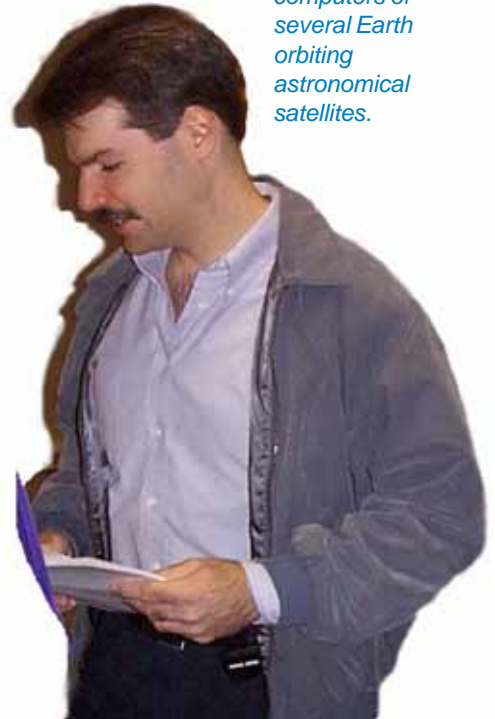


photo of Scott Snell by Helen Hester-Ossa

H.G. Wells and the Alien Grey

by Richard Dengrove

The most popular extraterrestrial these days is the Alien Grey or Gray. They are named for their gray skin and come in many different shapes and sizes. However, the Greys' typical characteristics are large heads, very thin and weak bodies, no ears, long thin fingers, large eyes.

Jim Giglio and Scott Snell told us how proto-Greys entered the flying saucer mythos from science fiction, and ultimately became "the Greys." (*Skeptical Eye* vol. 16, no. 1, 2004 "The UFO Evidence: Burdens of Proof").

But how did the proto-Greys enter science fiction? For their story, we have to go back to end of the 19th century. The people then had firm ideas about what a Martian should look like: they resembled white Europeans, because white Europeans were thought to possess the maximum reason possible. All planets developed toward that type and stopped.

With regard to extraterrestrials, this attitude goes back to the 17th century. Christian Huygens and Johannes Kepler had it. In the late 19th century, this attitude was more attractive: the imperialist era was reaching its height. This was the rationale for why white Europeans should hold sway over Africans and Asians.

As prejudiced as we consider this, we have to admit it worked very well in satiating Western European egos.

The resemblance of Martians to us did not mean there would be no progress. The belief

was that we would still develop our reason culturally. Mars was thought to be an old planet, and the Martians far older than humans. Thus, they

were thought to have developed their reason far beyond ours.

This progress was not seen as an unmitigated good. The Martians had scanted their emotions. They may have developed universal language, planet wide cooperation, and such marvels as the telephone and the movies. However, they had degenerated in their morals, their self-control, their compassion, or their motivation. In short, the Victorians already had doubts about imperialism and the imperialist attitude.

These views were reflected in proto-science fiction, four Mars novels, where there was contact between Martians and humans.

H.G. Wells not only had doubts about the direction of Western civilization, but its racial superiority as well. His doubts ultimately tore down the system. Always cynical of ideals, he felt that white, Western European man fell far short of the maximum reason possible.

He had a weapon at his disposal too. He had been a biology instructor and a self-proclaimed disciple of Thomas Huxley's. He knew many of the possibilities of evolution.

Wells developed his ideas on Martians in an 1893 essay that appeared in the *Pall Mall Gazette* and the *Pall Mall Budget*. It was entitled "Man of the Year Million." Also, an illustrated poem on that topic appeared in *Punch* around that time.

In addition, he developed his ideas further in the *War of the Worlds* (1898). When describing the Martians in that novel, Wells refers the reader to his 1893 essay. To us, this might be puzzling: one concerns man in the Year Million and the other concerns Martians. Given the belief in parallel development, however, they would have been considered interchangeable. ➔

photo of Rich Dengrove by Helen Hester-Ossa



Richard Dengrove is the librarian for the Food and Nutrition Service, Department of Agriculture. He lives with his wife, Heidi, in Alexandria, Virginia. His ambition is to write a history of occult magic one of these days.

There were some differences between the two. In *War of the Worlds*, Wells decided to scare his readers, and make his Martians even less human. He added elements of the octopus and the vampire to them, both creatures that aroused fear in the Victorians.

Wells' creature, far more rational than we, had an enormous head for increased reasoning. In addition, he had well-developed hands and eyes for manipulating and acting on his reason. The rest of the organs, associated with emotions as they have been, were shrunken from disuse. In the novel, the head wears a machine body just like we wear clothes.

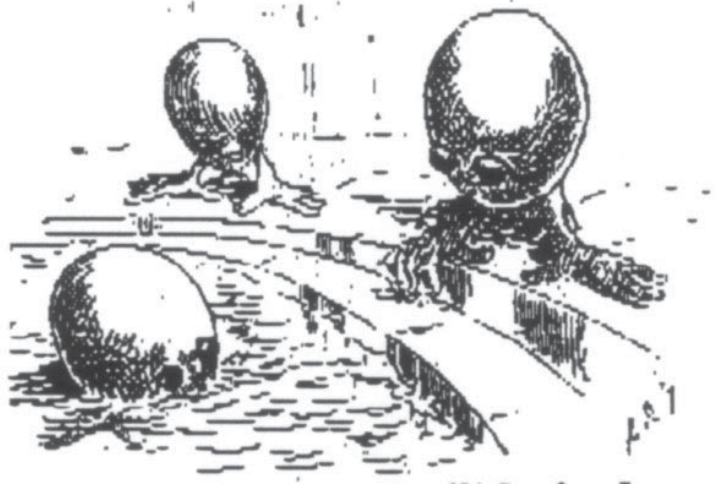
Also there is a difference in emphasis. In the essay, the emphasis is on the utter impoverishment of lives without emotions. In the novel, the emphasis is on identification with humans. The Martians have none; they consider us cattle or vermin.

In any case, the main assumption of the Mars novels, that Martians would be very like white Europeans, was completely undermined.

Later, many science fiction writers based their future man and aliens on Wells' ideas. They had a different purpose, however. Wells dehumanized his Martians completely, to show the creature with maximum reason had nothing in common with European whites.

On the other hand, these writers wanted a cautionary tale we could identify with, about what happens when reason takes over too much. For that reason, the proto-Greys kept their bodies no matter how small and weak.

Otherwise, the proto-Greys have been guilty in one tale or another of all the vices of Wells' Martians, and of the Martians of the Mars novels. They have been cold, calculating, and brutal; and they have lacked motivation. In addition, the writers came up with a new problem associated with too much reason—the inability to reproduce.



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media notes

JUST PLAIN HARRIS (#199)
James Randi vs. Sylvia Browne
March 2, 2004

James Randi took on Sylvia Browne today on my KTRS radio show. He came right out and called her a liar.

Browne is one of the self-proclaimed psychics who claim to be able to speak to the dead. Of course, she has never offered any definitive proof, because she can't. She did agree, three years ago on CNN, to take Randi's Million Dollar Paranormal Challenge, but has never lived up to that promise. Instead, she's been spreading lies about Randi, who has been holding his tongue, but has now decided to fire back at her. On Friday, Randi's going to publish even more details about Browne. When it's online, I'll post a link to it on HarrisOnline.com. In the meantime, listen to my conversation with Randi at <http://www.harrisonline.com/audio/listings/jamesrandi.htm>

Randi is one of my heroes. Known as The Amazing Randi during his years as a magician, he's long been the top advocate for rational thinking and debunking psychic and paranormal claims. My wife and I have supported the James Randi Education Foundation for years, both on and off the air. The world needs more people like him.

Unfortunately, people like Sylvia Browne, John Edward, James Van Praagh, and others have taken so much money from their many victims (Browne charges up to \$200 to see her "talk to the dead" and around \$700 for a telephone reading!) that their side is very well-funded. Our side, the side of reason, has to struggle to get the word out.

My show is one of the few media outlets for the voice of skepticism. Johnny Carson

used to give Randi a platform on the old "Tonight Show," Penn & Teller express it on their Showtime series "Bullsh*t," (which returns on 4/1), John Stossell goes after it on "20/20," and there a few others. But there are far too many other shows—particularly on radio—that accept these paranormal and psychic claims as fact, just because it's good for their bottom line.

It's one thing for a magician to deceive you for entertainment, because you know you're going to be deceived going in. That's the fun of it, and you're enriched by the entertainment experience. It's another thing to have someone exploit your beliefs in order to deceive you and enrich only themselves. Shame on the law enforcement community for doing nothing about these frauds—psychics, faith healers, etc.—who prey on the emotions of their victims to make a cheap buck.

Ironically, if these paranormalists really had the powers they claim to have, they could make a million dollars just by proving it. The James Randi Educational Foundation continues to offer that big money prize to anyone who can prove, under carefully observed conditions, that they have psychic, paranormal, or supernatural powers. But just saying it and making a heavily-edited TV show isn't enough. As Randi says, "extraordinary claims require extraordinary proof."

A couple of years ago, I was talking about this on my radio show, and a man called to say that he was a psychic who gave readings for many people. I asked him if he wanted to go for the million bucks. He said no, money wasn't important to him. I asked him if he charged his clients, to which he replied that he did (interesting, since money's not important to him!). So, I suggested that he try for the prize and, if he could prove his ability but didn't care about the money, give the million dollars to a worthwhile charity—Children's Hospital, for example. He mumbled something and hung up. I've never heard from him since.

Randi tells me this is not uncommon. Logic, it appears, is the enemy of the psychic.

You'll find details about the million dollar prize at the JREF website (<http://www.randi.org>). While you're there, if you're



photo from <http://www.HarrisOnline.com>

Randi vs. Browne continued from previous page

with us, please consider donating to and supporting the James Randi Educational Foundation. Your brain will feel better.

Listen to THE PAUL HARRIS SHOW weekdays 11am-2pm CT on The Big 550 KTRS/ St. Louis and worldwide via TRS.com <http://www.HarrisOnline.com>

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Protest Submitted for CNN Report on Astrology Prediction for U.S. Presidential Election

by Garold Stone

On October 29, 2004, I entered the following protest to CNN Headline News and CNN NewsNight via the CNN.com web site:

Please register my outrage that CNN Headline News, in the middle of a NEWS segment, used valuable time to report an astrologer's prediction about the U.S. presidential election. CNN NewsNight put that

same item in its crawling text at the bottom of the screen. Whose editorial misjudgment was THAT?

Chuckling news commentators aside, that item was NOT Cute. It panders to those who would actually consult the occult to make a voting decision, and trivializes the importance of the Presidential election.

I turn to CNN for NEWS, NOT NON-SENSE. If I want nonsense, I'll go to Fox News. Please don't emulate FOX NEWS. Please Don't waste my time. Don't insult my intelligence. Don't abuse your journalistic responsibilities.

Please reply.

Thank you
Garold Stone

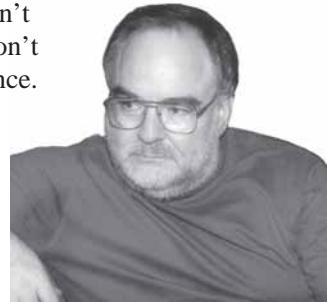


photo of Gary Stone by Helen Hester-Ossa



media notes

Gary Stone has served in many capacities in NCAS over the years, most recently as vice president of the board of directors. Gary often will be seen videotaping the monthly NCAS presentations for posterity.

Don't be mystified.

Yes, I want to: _____ join NCAS.
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Bits and Pieces

- *The Shadow*, NCAS' monthly calendar, can be sent to you via email! Send an email request to ncas@ncas.org to be added to the eShadow list.
- NCAS has a low-volume electronic mailing list, *ncas-share*, where members can share news items and other things of interest. Send an email request to ncas@ncas.org to be added to the *ncas-share* mailing list.
- Visit the NCAS website to find the Condon UFO report online and many other resources at www.ncas.org
- Because NCAS is a 501c(3) nonprofit organization, all donations you make to NCAS are fully tax deductible!

What would YOU like to see in the *Skeptical Eye*? Write us at

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