



# National Capital Area SKEPTICAL EYE

1993

Vol. 7, No. 1

## Hollow Words

By Chip Denman

*"This little work is part of the skirmish line of the Army of Revolution. It shall never cease its influence until every vestige of the fallacies and evils of a perverted science and religion shall have been relegated to oblivion..."*

Koresh  
1898

The date above is *not* a typo. The passage was written by the original Koresh who, like his modern namesake in Waco, Texas, established a cult community where he preached his personal resurrection and divine revelation of his messianic mission to carry on the work of Jesus Christ. As this is written, the tragedy in Texas is still evolving; however there is reason to think that Vernon Howell (aka "David Koresh") may have been influenced by the Koresh of a hundred years ago.

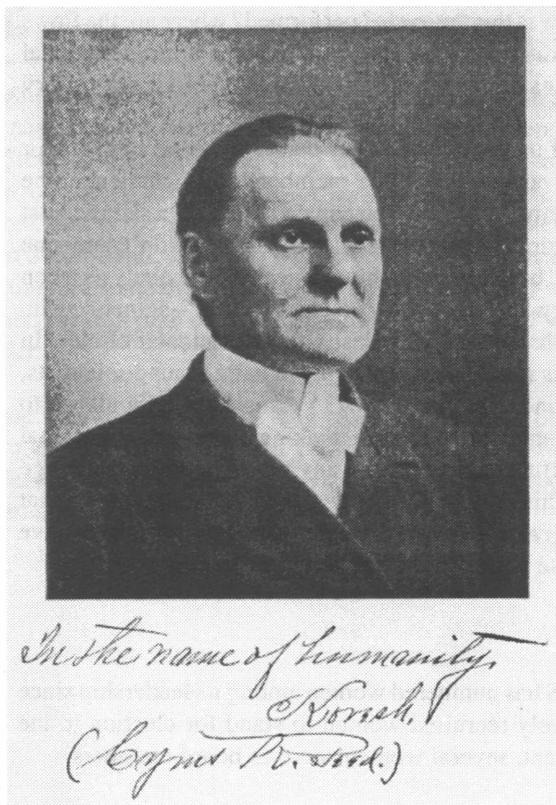
The first Koresh was born Cyrus Reed Teed in upstate New York in 1839—not far in time or place from the genesis of both Spiritualism and Mormonism. As a young man he studied medicine, and served in the Union Army Medical Corps for 15 months. In 1868 he returned to Utica, New York, where he began a practice in eclectic medicine, a school of medicine that borrowed from both regular and homeopathic medicine. He became interested in alchemy and the "electro-chemical" relationship between matter and energy. Just one year later he had his revelation, which provided the basis for the religio-scientific cult he led until his death.

According to Teed, who adopted the name "Koresh" as the Hebrew variant of Cyrus, Copernicus had it all wrong. The earth is a hollow sphere some 8,000 miles across with a golden rind, and we all live on the *inside*. Not only did this restore our world to its rightful place at the center of the universe, but it also implied that the universe is bounded and hence that the glory of God is knowable by mortal minds.

Teed laid out his peculiar form of religio-science as revealed by his vision of the "Divine Motherhood" in *The Cellular Cosmogony*, a work of enduring crankdom. It is a jumble of freewheeling biblical interpretation ("Who hath measured the waters in the hollow [concavity] of his hand...?" [Isaiah 40:12]) and diagrams that purport to explain the fallacies of perspective. There is experimental evidence, supplied by Professor U. G. Morrow, astronomer and geodist for the Koreshian Unity, in which the upward curvature of the earth is established by means of elaborate trestles and plumbs built off the coast of Florida. Glorious prose and illustrations account for day and night through the rotation of a half-dark sun powered by the Gigantic Electro-Magnetic Battery.

And through it all, there are rants against the scientific establishment and other deluded minds. Darwin and Copernicus are singled out for ridicule, but so are Schiaparelli, Tesla, and the theosophists. Teed frequently uses a rhetorical tactic often heard today: slamming scientific ideas because they are based on mere hypothesis. "A knowledge of the construction of the universe and its functions, with the laws and principles of life depending upon such knowledge, is too important a matter to be left to mere conjecture—mere hypothesis...[The Koreshian System] predicates nothing on guesswork." And again: "That which is founded upon hypothesis (assumption) is not science."

*continued on page 10*





encourages critical and scientific thinking

serves as an information resource on extraordinary claims

provides extraordinary evidence that skeptics are cool



## Letters

Dear Editor:

In my last letter to the *Skeptical Eye* (vol. 6, no. 4), I speculated on possible reasons why so few women belong to NCAS or go to skeptical conventions. Since then, recent events have made me aware of another possible explanation: analytically minded women may be skeptical of the "skeptics"!

I suspect that many women who have chosen careers in science, math, medicine, and other areas dominated by men, but also reputed to be the bastions of skeptical thinking, have encountered prejudice, discrimination, and harassment from their so-called open-minded colleagues. This has been in the news with the resignation of Dr. Frances Conley from Stanford over what she called a quarter-century of sexism, and the lawsuits filed by Dr. Maureen Polsby and Dr. Margaret Jensvold against their former employer, the National Institutes of Health (see the April 1993 issue of *Mirabella*), to name just a few cases. Those of us who did show math and/or science aptitude while growing up usually have our own stories, too: in my case, a chemistry teacher in high school who refused to take the three young women in the class seriously, and I had scored the highest grade in the class on the first test (a 96, I think).

Now you tell one of these women that there is a group of people, mostly men, who encourage critical and scientific thinking. Would it be surprising if the reaction is skeptical? even downright cynical?

I think that if NCAS, and the skeptical movement as a whole, wants to attract women into its membership, the leaders (currently male)\* will have to realize that they *do* have something to prove: that they are truly open-minded and not likely to prejudge a person's abilities on the basis of sex, age, race, or whatever, and that they are open to challenge--not just of things which can be safely kept at a distance (how is this "miracle" performed? where are the flaws in this account of alien abduction?) but also challenge of a more personal nature, such as "I found your statement to be offensive as I feel it is derogatory to women."

I believe that those of us who do consider ourselves to be skeptics, or "clear thinkers," owe it to ourselves and the membership to challenge one another. It is important to remember that you can call yourself a skeptic, just as I can call myself a fire hydrant. Does the label truly fit? Shouldn't someone who dons the label "skeptic" be expected to show logic and clear analysis when discussing *any* topic? Otherwise, he/she may just be a "poser"--someone who has learned the responses that are socially desirable in particular circles. In other words, how difficult is it to learn that when you hang around scientists, you make fun of astrology and alien abductions? Versus, how difficult is it to keep an open mind, prevent yourself from making knee-jerk emotional responses, and give thoughtful consideration to any new idea or to a challenge to one's cherished ideas? This is the goal, the ideal, and we need to make that understood to those who *agree* with us in principle, otherwise I think we have no chance of affecting those whose minds are already closed.

Toni Tumonis  
Silver Spring, Md.

*\*Editor's Note:* NCAS has numbered women among its leadership since its founding, and has actively recruited women to stand for election to the board of directors. At present, several women serve as board members.

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recycled paper

National Capital Area Skeptical Eye (ISSN 1063-2077) is published quarterly by the National Capital Area Skeptics, 8006 Valley Street, Silver Spring, MD 20910.

24 hour phone number: 301-587-3827

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By Chip Denman

This is my last byline in this column. Next issue our able new president Joe Himes will be in this space. I still intend to write frequently for the *Eye*, and I'll still be lurking behind the scenes as an assistant editor and designer.

When NCAS was started—I hesitate to say organized—in 1987, those of us on the early board felt very strongly that we wanted to try an experiment that differed from most of the local skeptics groups that had been created up until that time. We wanted to be a membership organization, and we wanted an elected board and officers which were dynamic. This would be our assurance that fresh ideas were always coming in.

I have been pleased to serve as president since our bylaws were ratified. I have been proud to see NCAS become recognized internationally as a voice for science and reason. I am tremendously happy that so many of our members have volunteered their time to make the *Skeptical Eye*, our regular programs, and our special projects truly outstanding. And I am equally delighted that Joe is willing and able to carry on as president. (The full board for this year is listed in the box on the facing page.)

The *Eye* is also going through a transition. Our editor Lys Ann Shore has her last Last Word on the back page. She and her husband (and former board member) Steve Shore are abandoning this pool of mud—oops, wrong story, see page 17—for Indiana where Steve will be Chair of the physics department at Indiana University at South Bend. Lys and I have worked on the newsletter together since the winter '90-'91 issue. Her hard work and professional editorial expertise have worked wonders.

The talents of our members never fail to impress me. No sooner had Lys Ann passed on her blue pencil to Elena Watson, but the *Virginian-Pilot* published a feature story on our remote viewer from the Tidewater area. It's going to be a good year for NCAS. □

## News Release Verdict in Byrd v. Randi Trial

On June 4 a federal jury in Baltimore exonerated James Randi from claims made by parapsychologist Eldon Byrd for more than thirty millions of dollars in damages. Byrd had claimed injuries to his reputation and community standing, humiliation, mental anguish and suffering. The suit stemmed from statements made by Mr. Randi in response to a heckler at a 1988 meeting of the New York Skeptics, and in an interview published in the now-defunct *Twilight Zone Magazine*. Though the jury of thirteen found that Mr. Randi's statements regarding Mr. Byrd were defamatory, they emphatically declined to award Mr. Byrd any compensation whatsoever.

Testimony adduced at the trial revealed that, in fact, Mr. Byrd had not been convicted of the crime of child molestation as suggested by Mr. Randi, but instead had been arrested for possession with intent to distribute obscene materials involving children, and had pled guilty to a reduced charge of possession with intent to distribute obscene materials. In addition, Mr. Byrd admitted during the eleven-day trial in Baltimore Federal court to having had a sexual relationship with a minor of whom he was legal guardian. Testimony also revealed that Mr. Byrd was a long-time associate of Uri Geller, a self-proclaimed "psychic" now living in England. In 1975, Mr. Randi wrote a book in which he showed that scientific tests of Mr. Geller's "psychic abilities" were not done as originally reported, and that Geller's claims were thus unproven. Mr. Geller has also brought several suits against Mr. Randi, one of which is still outstanding.

James Randi is the author of nine books, the latest being *Conjuring*, a comprehensive history of the art of magic. His other books deal mostly with paranormal, supernatural and occult subjects, of which he is today's leading critic.

Two separate and independent funds accept contributions to assist in these and similar legal battles.

To assist James Randi:

**The James Randi Fund  
c/o Robert Steiner, CPA  
P.O. Box 659  
El Cerrito, CA 94530**

To assist CSICOP:

**CSICOP Legal Defense Foundation  
Box 703  
Buffalo, NY 14226**

## New Developments in Parapsychology: Ganzfeld and Autoganzfeld Experiments

By Ray Hyman

Daryl Bem, a prominent social psychologist at Cornell University, and the late Charles Honorton, a parapsychologist noted for his ability to get successful results, recently submitted a paper to the *Psychological Bulletin* reviewing a series of ganzfeld and autoganzfeld experiments. The paper was accepted for publication after suggested revisions were made. Bem talked about this paper at the meetings of the American Association for the Advancement of Science (AAAS) held in Boston in February 1993. He has also issued press releases claiming a breakthrough. He believes that the results of the experiments reviewed in the paper justify the conclusion that psi has been demonstrated.

Some preliminary observations can be made that bear on the validity of Bem's claim.

First, although Bem is the senior author of the paper, he was not involved in the experiments that are discussed. The autoganzfeld experiments, which form the core of the paper, were carried out by Honorton and his colleagues and were published in the *Journal of Parapsychology* in 1990. The arguments presented in the Bem-Honorton paper were previously made by Honorton and his colleagues in 1990 and in a paper by the statistician Jessica Utts in *Statistical Science* in 1991.

Second, what is new is that Bem, a major social psychologist, has lent his name to the paper and that it has been accepted by a mainstream psychology journal. The parapsychologists have been seeking respect with as much fervor as they seek psi. The last time they got such respect from the scientific community was when Margaret Mead succeeded in getting the Parapsychological Association accepted as an affiliate of the AAAS. So I suppose it is natural to expect the parapsychologists to make the most of this sign of respect.

Bem and Honorton make the autoganzfeld experiments the centerpiece of their paper. These experiments were designed by Honorton to

meet the standards that were embarrassingly lacking in the original ganzfeld experiments. Honorton should be commended for meeting these standards. The 11 experiments conducted with the autoganzfeld setup, taken in combination, produce highly consistent and significant results. Bem uses these results, in combination with the previous ganzfeld findings, to declare that a communications anomaly has been demonstrated.

Taken at face value, the results do seem to show that something beyond chance is occurring. I could pick on some problematical aspects of the design and the results, but this would be nitpicking. Bem might be right. Something might be there other than simple artifact. But he is jumping the gun. Honorton and I both agreed that any such results would have to be replicated independently in different laboratories by different investigators using different equipment. This has yet to be done. The 11 autoganzfeld experiments were all done with the same equipment, targets, and procedures. They were all done in the same laboratory. So, like any other novel scientific claim, we have to wait for independent replication.

The 140-year history of psychical research should warn Bem that each time the parapsychological community believed it had finally found the Holy Grail, subsequent research could not confirm the find. Maybe things will be different this time. We can only wait and see. Bem and Honorton, however, imply that such replication has already occurred. They point out that the average hit rate in the ganzfeld and the autoganzfeld experiments is the same. But this is meaningless. The original ganzfeld experiments were highly heterogeneous. Some experimenters, such as Palmer, consistently got zero negative effects. Other experimenters, such as Sargent, consistently got positive effects. There were significant differences among the experimenters who got positive effects. Honorton and his colleagues, for example, consistently got larger effects than did Sargent. No such heterogeneity exists among the 11 autoganzfeld experiments.

Honorton and his colleagues used two types of targets in the autoganzfeld experiments. The static targets were simply still pictures, such as were used in the original ganzfeld experiments. The dynamic targets were video-clips of action scenes lasting for a few minutes. These dynamic targets were also accompanied by a sound track. The effect sizes were positive and significant only for the dynamic targets. The effects for the static targets were at chance.

Bem and Honorton claim that this difference between dynamic and static targets was predicted from the results of the original ganzfeld experiments. In those experiments the ones that used travel reels (with multiple slides of a single travel location) produced significantly higher effect sizes. Without more evidence, I do not see how a target consisting of a travel reel can be equated with a videotape of an action sequence. At any rate, the overwhelming majority of the ganzfeld experiments used static targets. The average effect size for the static targets in the ganzfeld experiments was positive and significant. The average effect size for the static targets in the autoganzfeld experiments was zero. This does

not seem to be a successful replication.

How should critics and skeptics react to the Bem-Honorton paper and its resulting publicity? In answering this question, I think we should keep some points in mind:

•CSICOP and local skeptical groups have no quarrel with parapsychologists—as distinguished from paranormalists in general. Parapsychologists claim to be investigating the possibility of psi using scientific procedures.

•Both CSICOP and parapsychologists share an interest in exposing fraudulent and erroneous paranormal claims. We differ, perhaps, in how we view the possibilities that remain after we have weeded out the spurious claims. The parapsychologists believe that after the weeding they will find a few true specimens of psi. The skeptics do not expect to find such true specimens.

•CSICOP and the skeptics are officially agnostic with respect to the existence of psi. We emphasize that most cases of apparent psi are due to human error and deception. We insist that claims for psi be based on acceptable scientific evidence.

•To the extent that parapsychologists try to collect data using good scientific procedures, we support them. In this respect, Honorton should be credited for his serious attempt to collect data according to standards demanded by his critics.

•At this time, I think the most honorable course for skeptics is to be patient. We should calmly point out that we must wait for independent and consistent replications of the autoganzfeld results before we can pass judgment.

•What if, against all odds, several independent laboratories successfully replicate the autoganzfeld results? At this point, hopefully, some skeptics will also conduct replications.

•If the anomaly persists, the search for an explanation would just have begun. Parapsychologist John Palmer has repeatedly emphasized that the establishment of such an “anomaly” does not prove the existence of ESP or anything paranormal. The anomaly could, after further study, turn out to be real but not paranormal.

•The effect size found in the ganzfeld experiments is several orders of magnitude greater than the effect size claimed in the random-number-generator experiments. So it is not clear that all psi experiments, even if they are getting at something real, are dealing with the same sort of anomaly.

•Even more of a problem is to show how the sort of anomaly being reported in the ganzfeld experiments is related to those spontaneous experiences, such as premonitory dreams, out-of-body experiences, possession, and the

like, that form the basis of what most paranormalists take as their subject. □

Ray Hyman is a psychologist at the University of Oregon, Eugene, and a member of the Executive Council of CSICOP.

## ganz' -feld

The term *ganzfeld*, meaning “total field” in German, comes from gestalt psychology and refers to a completely homogeneous visual field with no boundaries or distractions. Typically this is achieved for subjects in psychology laboratories by placing cotton and halved ping-pong balls over an individual's eyes while he or she rests comfortably and listens to the uniform hiss of ‘white noise’ through earphones.

Beginning in the 1970s, parapsychologists conjectured that such a ganzfeld condition where distractions from the normal senses were removed might be especially conducive to ESP.

In the typical *ganzfeld psi experiment*, a subject is in the ganzfeld condition while another agent concentrates on a target selected from a limited pool. At the end of the ganzfeld session, the subject is presented with the pool and is asked to identify the target.

In *autoganzfeld* experiments target selection and scoring is handled automatically by computer.

## Further Reading

Honorton, Charles, Berger, Rick E., Varvoglis, Mario. Psi communication in the Ganzfeld: Experiments with an automated testing system and comparisons with a meta-analysis of earlier studies. *Journal of Parapsychology*, June 1990, vol. 54 no. 2.

Hyman, Ray. *The Elusive Quarry: A Scientific Appraisal of Psychical Research*. Buffalo, N.Y.: Prometheus Books, 1989.

Utts, Jessica. Replication and meta-analysis in parapsychology. *Statistical Science*, Nov. 1991, vol 6 no. 4.

*In the following article NCAS board member Jamy Ian Swiss uses his expertise as a magician to reveal the inner workings of New York's infamous Three Card Monte scam. A New York native, Swiss recently returned to his hometown to live and work. He was called in as an expert to assist the city in its campaign to expose the Monte racket. This article first appeared in The Chesapeake Beat, a newsletter of the Maryland State Fraternal Order of Police, edited by Mike Scott. Scott, a police officer, reports that Three Card Monte is not--at least, not yet--a problem in the Washington area. Still, this exposé makes it clear that a skeptical attitude, like a credit card, is something we shouldn't leave home without. It's one thing to travel out of town, and another to be an out-of-towner!*

## Dangerous Diversions

By Jamy Ian Swiss

"Here's the game if you want to make money: five'll get you ten, ten'll get you twenty!" With these opening notes—or perhaps some other guileless serenade—the Three Card Monte operator begins to lure his flock. But beware: though his tune may seem breezy, the Monte Man is no innocent songbird. He is a bird of prey.

The game's ignoble history traces the movements of an adaptable but determined predator. Achieving its first infamy and fortune in the posh surroundings of the Mississippi riverboats and luxury train cars of the mid-nineteenth century, later relegated to the seedy carnival circuit, only to become a modern staple of the streets of large cities around the country and the world, Three Card Monte has been around now for more than 140 years. Yet no one—excepting the con men and women who run the game—has won yet.

On its face, the Monte is a harmless enough diversion. The dealer (also known in con game parlance as the "Broad Tosser"—a nonsexist term derived from the type of wide cards used in the early days of the game) mixes three cards on the available playing surface, and offers to pay a profit to anyone willing to wager their hard-earned on the location of the winning "money card." Most often the money card is a red ace, while the two losing choices are black spot cards. But the game is anything but harmless to the countless victims it entraps every year throughout the United States, from backroad carnivals to the streets of major cities. They call it a game of chance—it is in fact a game of "no chance."

### The Monte Capital of the World

New York City has been called the "Monte Capital of the World" by at least one noted expert in such street scams. The "Big Apple" has been my home for most of the past 40 years (except for a seven-year stretch in Maryland), and I watched the game return here in 1973 and quickly establish itself as a regular and visible part of city life. As a professional magician and an expert in sleight-of-hand with playing cards, not to mention a confirmed skeptic, I have been an interested witness to countless turns of the game on the city's streets, watching money change hands with lunchtime wanderers in Wall Street and wide-eyed tourists on the neon-encrusted sidewalks of Broadway's "Great White Way."

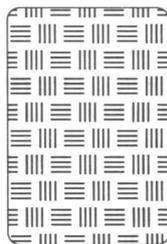
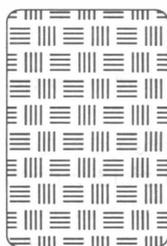
Recently the Times Square Business Investment District (BID) embarked jointly with the Office of the Mayor and the New York City Police Department upon "Operation Strong Hand," an attempt to clear the Monte and Three Shell Games out of the area. (BID is an organization funded by local businesses and concerned with cleaning up the image of the famous district, employing its own sizable security and sanitation staff along with an effective public relations operation.) Operating on the sound assumption that there is no better prevention than public education, BID has coated

the neighborhood with posters declaring, "Don't be fooled! Get Wise—Sidewalk card games are frauds. You can't win!" To kick off the effort, a press conference was held in the center of the famous "Cross Roads of the World," where, along with various official speakers, I was engaged to demonstrate and explain the game. This eventually led to my appearance, demonstrating and explaining the Monte, in a segment of CBS News *48 Hours* concerned with scams.

For the time being at least, Operation Strong Hand has been mostly successful. Only days ago I came across the first Monte game I have seen in the area since November 10, 1992, the day of the press conference. But being a mortal manipulator and not a wielder of supernatural capacities, I realize that the games will likely never entirely vanish. In fact, right now they are merely collecting unwary customers in other neighborhoods, notably the downtown financial district. Nevertheless, it is certainly welcome progress, if only of a sort.

As a professional conjuror—one who entertains with sleight-of-hand and illusion—I am compelled to point out an important difference between my own breed and the professional Monte worker.

As was suggested by Karl Germaine, a famed magician at the turn of this century, "the conjuror is the most honest of all professionals. He first promises to deceive you, and then does so." If I didn't tell you first, I'd be in advertising, or the National Security Council—or running a sidewalk con game. Further, although the skills required for the Monte are not easily mastered, they are narrow and limited. The Monte worker must learn only one sleight and one character role. Then he performs it over and over again for a lifetime of larceny. As a magician I must learn countless techniques, and what's more, my audience has been warned that I will use them.



## How It Works

The “how” of the Three Card Monte and similar street scams is a lot less important than the “why,” that is, the psychological manipulations by which the game’s operators induce the public to play. In this it is similar to magic, for the “how” of any given trick has less to do with the effectiveness of its performance than the “why,” namely, the theatrical force a performer brings to an illusion by way of his presentation, script, music, and other performance accompaniments. In the case of the Monte, the “how” consists of a single sleight-of-hand maneuver in which the operator can invisibly switch one card for another during the action of tossing it to the table surface.

The cards are bent lengthwise to facilitate the dealer’s picking them up from a hard surface. The hands turn palm-up in order to display the faces of the cards, one in one hand, two in the other. The money card is shown at the face of the two cards in, for example, the right hand. As the cards are tossed to the table, the bottom ace (the lowermost card) is first tossed from the right hand, then the single spot card from the left, and then the remaining spot card is dropped from the right. The cards are mixed upon the table, then grasped and displayed yet again in the position described. Eventually, in the final sequence of actions, the dealer secretly tosses the uppermost spot card to the table first, instead of the ace. After a brief final mix, the victim (or “mark” as he or she is known in the hustler’s vernacular) is asked to bet on the location of the ace. The results are a foregone conclusion. As the sign says: You can’t win! The dealer has mastered the skill of this secret toss (also known as “the hype” in grifter terminology) enabling him to invisibly toss *either* the bottom *or* the top card. This brief and illusive exchange lies at the core of the visual deception.

But as with the stage magician, there is much more going on than meets the eye, for the Three Card Monte is an elaborate theatrical production with many players and many parts, all of which add up to a compelling set of “why’s” that induce the sucker to give up his or her funds.

## Why It Works

The game is never—that’s *never*—on the up and up. Even the odds are dishonest, since the dealer only pays even money on what appears to be a one in three (two to one) chance. (Of course, the only way to have a truly one in three chance is to close your eyes and then bet, because the moment you watch the cards, your chances vanish entirely!) If the cards were merely tossed about the playing surface at random, no matter the speed or pattern, anyone short of those accompanied by a guide dog and a white cane would find themselves perfectly capable of locating the winning card. Contrary to myth, the hand is never quicker than the

eye. While sleight-of-hand provides the mechanism for secretly exchanging cards and hence fooling the victim’s eyes, the dealer has many more advantages with which to fool the mind and engage the emotions—and thereby the wallet.

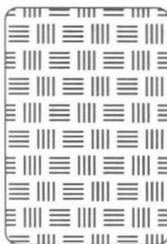
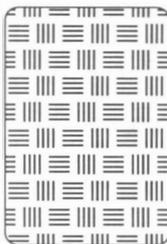
The dealer never—remember, that’s *never*—works alone. He or she is invariably assisted by one or more secret accomplices, known as “shills.” It is the job of these associates to aid in the deception and to induce the viewers to bet. The shills are surprisingly easy to identify, once you know what to look for. They are the only ones who ever win. The common myth that the Monte operator deliberately allows the player to win one time, in order to encourage confidence in the game, is probably responsible in and of itself for as many losses as any of the other more sophisticated strategic elements of the game. Make no mistake—anyone who is winning is playing with the dealer’s money!

Yet the public is most often unaware of the presence of the shill, no doubt deceived by the “mix and match” approach to the pairing of shills and operators. I have seen well-dressed women tossing the cards, with male shills dressed like street people. I have seen male operators and female shills, Caucasian shills with African American dealers, Latino operators in three-piece suits with “bag ladies” as accomplices. Only days ago I saw an African American operator dressed in jeans and a sweatshirt, flanked by three shills: one male Caucasian in a sporty leather jacket, along with two African American females wearing extravagant full-length fur coats. Costume design and character are all-important elements of the production.

Most often these days the dealer will set up a stack of cardboard boxes, the topmost of which is cut down into a tray form, with a few sheets of newspaper laid upon this playing surface. When the game begins, he and the shills make plenty of noise as they begin to play, in order to attract the attention of passers-by. At first the game is fast and furious, with money quickly changing hands between the shills and the operator. Shills “lose” as well as “win,” in order to create a balanced picture and help to conceal their identities. Most often, eventual victims do not initially intend to play. They are simply drawn by

the activity, and watch out of curiosity or perhaps the desire to be entertained, much as spectators gather around the tables in a casino. The operator tosses the cards in simple patterns, and the wins and losses of the shills serve as convincing evidence to assure the victim that he or she can follow the money card.

The first job of the scam artists is to get the mark to bring out his money. As long as it remains in his pocket, he is not likely to bet. Once it is in his hands, an avalanche of compelling events will serve to get it to the table. Perhaps the operator will now switch the cards in a crooked sequence, and the shills pass on this particular turn. Since no bets are forthcoming, the dealer will ask the mark to take a guess. It seems harmless at



first, the implication being that it's just for fun, without risk to the bystander. The moment the mark begins to indicate his choice, however, the dealer will change gears and fervently press the new player to show his money. "Just let me see that you've got it, you don't have to bet, just let me see it." The shills may encourage him to take this step as well. Often, this is enough to get the money out. If so, the player will make his choice, and then the shills go to work encouraging him to bet, assuring him that he has made a good choice and has a chance.

The results are predictable if he proceeds, but frequently he will hold back at this point. With his money in his hand, he wants to reassess his momentary confidence. In this case, and since no bet has been made, the operator will retrieve the cards, in order to begin again. If the potential player asks to see the cards, the operator may refuse outright to do this, claiming that he can't show them to someone who has not purchased the privilege with a wager. However, this gives the operator the excuse to handle the cards for an instant, rather than directly turning up the victim's choice. And in that moment, the dealer will secretly switch the cards back to the position that the victim was led to suspect they were in all along, flashing a brief view of the ace in order to confirm that the mark was correct all along! The shills might even jump in at this moment, chastising the victim for failing to follow through on his obviously correct choice. The victim is embarrassed. He scolds himself for missing his opportunity. But the dealer, ever the gracious host, offers him another chance.

The pressure builds. If the victim walks away now, he is still safe. But if he stays to watch again, he has most likely missed his last opportunity for escape. A quick round might be played again, in which a shill beats the victim to the punch and wins. It is important to note here that the handling of the cards is so deceptive that the shills cannot really follow the game. Instead, they rely upon a visual code from the operator, by which they are instructed where the ace actually is. This might merely consist of which hand the dealer holds his money in, or which side of his mouth his cigarette dangles from. The possibilities are endless, but this explains why even a person with knowledge of the manipulation will not try to put his skills to use, as he runs almost as great a risk as a green tourist of quickly losing his loot. (I confess I once went so far as to take an operator's money, just for the experience. But this is not only a bad idea, today it can also be dangerous—more on this point later.)

At this juncture the cards are deceptively tossed again, and the mark is offered a bet. Having embarrassed himself—perhaps repeatedly at this point—by missing the previous turns, the pressure is on for him to take part. His ego wins out. He loses.

But events rarely come to a close at this juncture. The mark is assured that he made a simple mistake. No one is

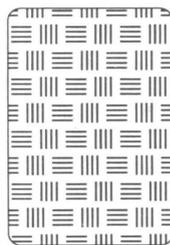
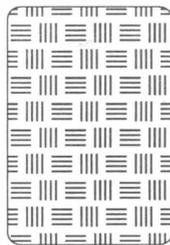
more regretful than the sympathetic dealer, much less the friendly and encouraging shills. Having just lost a quick ten or twenty dollars, the victim is part of the game now, and he wants to try to win that money back, if not show a profit. More often than not, he will bet again. At this point, the goal of the dishonest profiteers is to raise the stakes. There are many ways in which this may occur. One is to toss a pattern where the victim is confident that one particular card cannot possibly be the ace, but he is not entirely certain of the other two. The shill jumps in and bets on one of these two, and loses. Now the mark is confident, by process of elimination, and may in fact volunteer a bet. But the dealer is resistant: After all, the odds have changed, one card is already showing. He insists on a higher bet, perhaps twenty dollars, perhaps fifty if he thinks he can get it (another reason he wants the mark to put his cash in view at the outset is to see what funds are potentially available). The game may end here.

But perhaps not. Eventually, the cast of characters will move to the closing production number of their illicit playlet. It may happen any number of ways, but here is one example I've seen: the shill, upon losing, angrily throws the two spot cards to the ground, loudly expressing his frustration with the game. The operator turns to retrieve the cards, admonishing the shill not to damage the cards. In the instant he turns away from the table, the shill, or perhaps yet another shill, reaches out and slightly bends the corner of the ace. The operator returns to position, but does not notice that the card has been so marked. Perhaps he tosses the cards to the table so that one card "accidentally" overlaps the offending corner, thereby explaining away the operator's lack of observation. The shill bets on the card with the bent corner and wins. He nudges the victim, as if to say, "Come on, get in on this action with me, my friend. It's a sure thing." And here is the moment when by definition the game becomes a full-fledged "con game," in which the operator has gained the victim's *confidence* that he is in fact the one cheating the operator. The victim bets. He is invited to turn up the bent card. It is a spot card. The ace is elsewhere, and so is his money.

Even this rather detailed description fails to touch upon many of the variations available to the hustlers who rob their street-side patrons every day. But the outcome never varies. Be it a smartly dressed businessman on his lunch break, an elderly woman out shopping, or a young couple with backpacks just off the bus at Port Authority on their first trip to Manhattan, the bent-corner scam will get them every time. I have seen all of these and more lose as much as a hundred dollars on a single throw of the cards.

### A Game by Any Other Name

The Three Shell Game is almost identical in its formula for fraud. A variant of the magician's ancient "Cups and Balls" trick, it was first known as Thimble Rigging and



played with three thimbles, along with a small pellet. The player bets on which thimble is covering the pellet. Later, in the most famous of its incarnations, the game was played with a pea beneath any of three walnut half-shells. Today the game is most often seen with three plastic bottle caps and a tiny ball made of rubber or sponge. The psychology remains the same. The mechanical technique consists of the operator's ability to secretly steal the ball at any time from beneath any of the caps, and then just as stealthily introduce it beneath any other. Note that, as with the Monte, in a certain sense things are just what they seem. That is to say that in the case of the Monte there are in fact no additional cards used, and the money card is always somewhere on the table; despite common suspicion of the contrary, it is never somehow hidden in the operator's hand or on his person. Similarly, in the case of the Shell Game there is only one ball in play. But in the Shell Game it is true that the operator can briefly secrete the ball in his fingers, waiting to load it beneath another shell the instant the mark makes his choice.

There is, of course, no way to bend the corner of a cap or a shell. But in this game there is another powerful deception in the operator's arsenal. At times the victim will catch a glimpse of the ball moving from one shell to another. He is convinced of the accidental nature of this opportunity, never suspecting that the ball is deliberately revealed for the operator's, not the victim's, benefit. Be assured it will move again, this time undetectably, by the time the bet is made. It all looks so simple.

### There Ought to Be a Law

There ought to be a law, and there is. At very least, there is always the charge of public gambling. But in order to raise the legal ante, to charge the operator with larceny or the equivalent, the game must be proven to be dishonest. Hence, authorities will sometimes train law enforcement agents to be able to demonstrate the inner workings of the game to the court. Even then, to make the "bust" stick, the operator must be caught with the cards in hand, at the moment money is changing hands. This is often difficult to achieve. As well, the skills are almost impossible to arrest; how does one prove that they are not merely innocent passers-by playing with their own funds? And then there is another invisible actor on the Monte payroll as well: the "spotter." It is his job to watch out for the law. If he sounds the alarm, the boxes are kicked over and the cast instantly vanishes into the audience.

The spotter can serve other useful purposes as well. Perhaps an unhappy mark attempts to start an argument. The spotter shouts a false alarm, and everyone clears out. What's more, as if the game wasn't already sufficiently stacked in the con artist's favor, the game is generally operated (at least in big cities like New York) by "Monte mobs." The typical midtown mob meets in Times Square at about 11 in the morning. They divide up the territories between roughly 39th

and 49th streets, moving out before the lunchtime street traffic. (The games are far more prevalent—and apparently profitable—during the work week, rather than on weekends, evidence that much of the money made comes from local residents.) On some blocks there may be as many as three or four games. All of these are manned by coconspirators. The skills may float from game to game. The spotters are numerous and line the block. Recently, I saw a single game break up in the face of an angry mark. Moving quickly to curbside, I watched the flow from the block and counted no fewer than seven participants drift off and cross the streets at various locations, no doubt to rendezvous moments later out of sight of the unhappy victim. There may have been more I failed to spot, and this from a single game! And if some way, somehow, a mark manages to take some money off the table, he will most likely be mugged by the overwhelming numbers present, before he ever gets off the block. There is no honor to be had from thieves. Today, you risk your body as well as your wallet.

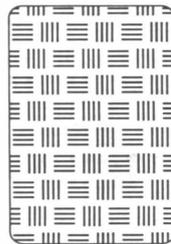
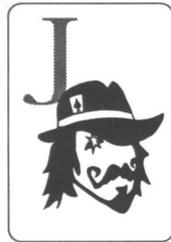
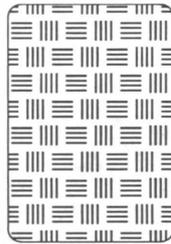
I have seen arrests in action. Plainclothes officers slowly and quietly surround a game, and at the critical moment one officer will seize the operator, evidence in hand, from behind. On one occasion when I happened to witness this, the (rather large) officer suddenly slipped his hands beneath the operator's arms and immediately locked him in a "full Nelson," cards and money in hand. But even then, I have heard tales from detectives of operators sitting in the lock-up, hands through the bars, tossing cards on the floor and taking money from law enforcement personnel. The game is indeed a persuasive deception to anyone lacking specialized expertise!

An ounce of prevention is worth a pound of cure—or in this case, a "pounding of the beat." Nothing is better than a visible police presence, combined with public education, to keep the Monte operators at bay. Carnival games should be closely monitored by law enforcement personnel who possess specialized knowledge, for the Monte is but one of countless examples of the larceny and chicanery that can often haunt those grounds. But the game has been with us for roughly a century and a half. A hundred and fifty years hence, I doubt that it will show much sign of abating. Like the man said: there's a sucker born every minute. □

### Further Reading

- Ortiz, Darwin. *Gambling Scams*. New York: Dodd, Mead, 1984.
- Smith, Lindsay, and Bruce Walstad. *Keeping Carnies Honest*. Street-Smart Communications, 1990.
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## Koresh, continued from page 1

And the unassailable: "Modern science is doomed because truth is true."

Teed's fanaticism brought him into conflict with society. His medical practice withered as he devoted himself to his theology. In 1884 he was sued by Mrs. Charles Cobb who charged him with weaseling money from her and her mother under the pretense that he was the second coming of Christ. Meanwhile his own wife abandoned him.

In 1894 one of Teed's converts put himself into Teed's care and ceded him 320 acres in Florida. There Teed established a Koreshian community he called "The New Jerusalem." Today it is the town of Estero. An earlier Koreshian commune in Chicago relocated to Estero in 1903, bringing the total community in residence to around 150. The community included dormitories, a bakery, a school, and a print shop. He was credited with 4,000 disciples worldwide.

In the year he founded Estero *The Chicago Herald* described Teed as a man who "exerts a strange mesmerizing influence over his converts, particularly the other sex." Reportedly women made up three-quarters of his disciples. His mistress, Victoria Gratia, was referred to in the Koreshian hierarchy as the "Pre-Eminent."

In spite of ridicule from the press, Teed's community remained at peace with the surrounding area until 1906. Oddly enough, the controversy that erupted had little to do with Teed's peculiar science, but was rather a simple case of partisan politics gone awry. After several years of voting in a bloc with the local Democratic party, Koresh and company split and organized their own Progressive Liberty party with strong socialist ideas. Feelings ran high, and Teed was beaten up in an argument with the town marshal from Fort Myers, Florida. These injuries took their toll, and Teed died a year and a half later.

The blind devotion of Teed's followers was apparent. He had preached that he would be resurrected and escort the

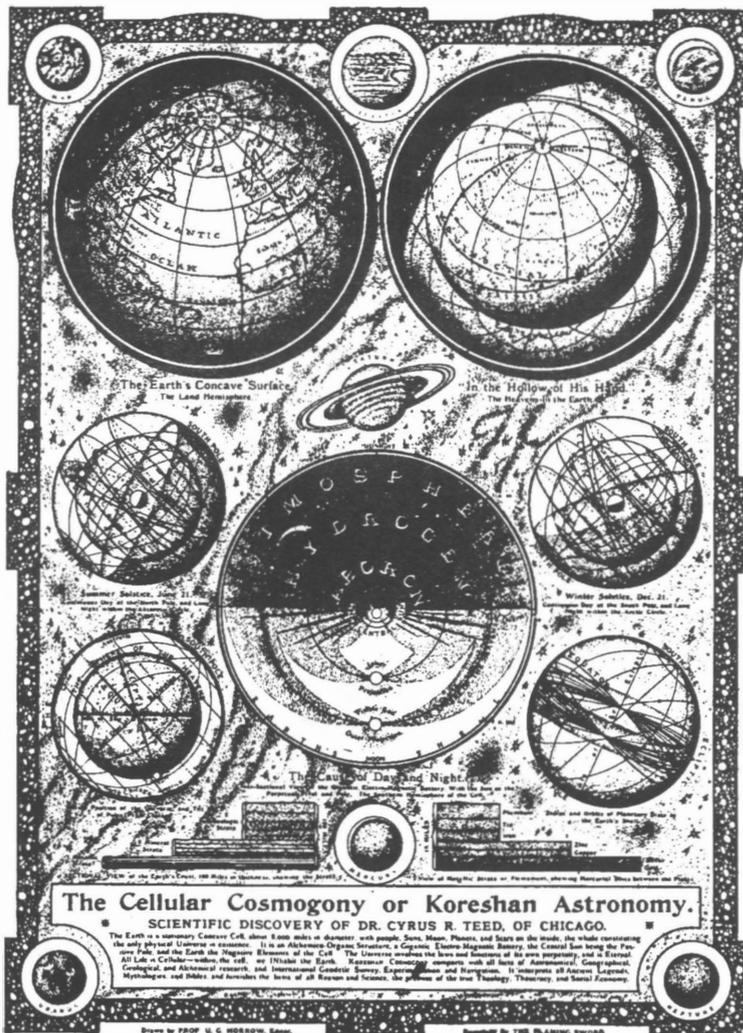
devout into heaven. Accordingly, his flock kept vigil over the body while they awaited his reanimation. Eventually health authorities forced the issue, and Teed was buried in a stone vault (destroyed by a hurricane in 1921). Without Teed's personal magnetism, the colony splintered. Cult members continued to publish *The Flaming Sword* until the printing plant was destroyed by fire in 1949. Today the site is Koresh Park; the trees planted by the colony outlast all of Teed's cosmology.

Not much is known about the individuals who followed Koresh. Reportedly they wore badges that said, "We live on the inside," a comforting-sounding phrase that echoed Koresh's cosmology as well as his insular congregation. This was the same era of expanding technology and scientific and religious exploration that fostered the spiritualists. Memories of the Civil War were still painful. A closed and finite universe must have seemed a comfort to minds reeling from social upheaval and change. A messiah offers protection instead of chaos and uncertainty.

Unlikely things *do* happen, and even unlikely prophets like Cyrus Teed and Vernon Howell can attract the insecure and the disen-

franchised. However, for those who value science and reason, uncertainty is not something to hide from, but an integral part of the thinking process. The real apocalypse of Koresh comes when we take too much comfort in unchangeable conclusions.

*The biographical information here derives from Martin Gardner's Fads and Fallacies in the Name of Science (Dover, 1957) and from Robert Fogarty's introduction to the 1975 facsimile edition of Teed's The Cellular Cosmogony (Porcupine Press, 1975) and from Teed's own words. Misinterpretations and errors are solely my own. - C.D. □*



# Blinded Justice: Weird Science in Court

By Walter F. Rowe

Despite highly questionable qualifications, many doctors who serve as expert witnesses have their testimony accepted by judges and juries in malpractice cases and product liability cases that result in large awards for damages. Practicing physicians have responded predictably to these awards by ordering more and more diagnostic tests for their patients. Their malpractice insurance carriers have also drastically raised their rates. These added costs of doing business are naturally passed on to that great cash cow, the American public. Manufacturers have withdrawn valuable drugs from the market, rather than face litigation. The American public are losers in another way as well: Increasingly, standards of medical practice and product safety are being dictated by those least qualified to do so.

Consider the ongoing litigation over the anti-nausea drug Bendectin, alleged to cause birth defects. In October 1992 the U.S. Supreme Court decided to hear the case of *Daubert v. Merrell Dow Pharmaceuticals*. The issue the Court will have to decide is whether or not the testimony of the plaintiff's expert witnesses should be required to meet the so-called Frye standard (explained below). This is the first of the Bendectin cases to reach the high court. Regardless of the Supreme Court's judgment, the litigation involving Bendectin has already entered the annals of twentieth-century pseudoscience.

Readers of Peter W. Huber's *Galileo's Revenge: Junk Science in the Courtroom* (Basic Books, New York, 1991; reviewed in the *Skeptical Eye*, vol. 6, no. 2, p. 22) will recognize the name of Dr. Alan K. Done. Dr. Done was one of eight expert witnesses whose testimony was to be proffered by the plaintiffs in *Daubert*. During the pretrial discovery phase, the plaintiff's attorney said Done's testimony would essentially be the same as he had given in an earlier case, *Oxendine v. Merrell Dow Pharmaceuticals* (506 A. 2d 1100 [D.C. App. 1986]). In that case, Dr. Done based his opinion that Bendectin could cause birth defects on a comparison of Bendectin's chemical structure with known teratogens,<sup>1</sup> along with some scattered laboratory test results and a 1982 rabbit study reported by William McBride and colleagues. He also claimed to have recalculated the published human data for Bendectin to show that the drug did indeed cause birth defects. Unfortunately, his results have never been published in a peer-reviewed journal. Although Done's credentials were described as "towering" by one of the attorneys presenting his testimony, the federal judge hearing one of the other Bendectin suits characterized Done's claims concerning his qualifications as "deliberately false" and more bluntly as "lies."

The other seven expert witnesses (a veterinarian, a developmental biologist, several biostatisticians, and several pharmacologists) who were to testify for the plaintiffs in *Daubert* were to offer their own unpublished reanalyses of the published epidemiological studies of Bendectin, as well as discuss the structural similarity between Bendectin and known teratogens. Confronted with this battery of scientific firepower, the U. S. District Court for the Southern District of California granted summary judgment for Merrell Dow Pharmaceuticals. Judge Earl B. Gilliam cut through the experts' verbiage to note that all of them acknowledged that none of the published epidemiological studies showed a statistically significant association between the use of Bendectin and birth defects (*Daubert v. Merrell Dow Pharmaceuticals*, 727 F.Supp. 570 [S.D.Cal. 1989]).

The U. S. Court of Appeals for the Ninth Circuit affirmed the District Court's dismissal of the case against Merrell Dow. Concerning the reanalysis of the published epidemiological studies, Judge Kozinski (*Daubert v. Merrell Dow Pharmaceutical, Inc.*, 951 F. 2d 1128 [9th Cir. 1991]) commented, "The reanalysis of epidemiological studies is generally accepted by the scientific community only when it is subjected to verification and scrutiny by others in the field. Plaintiffs' reanalyses do not comply with this standard; they were unpublished, not subjected to the normal peer review process and generated solely for use in litigation. It does not suffice that the expert's methodology meet *some* of the requirements imposed by the scientific community; it must meet *all* of the essential requirements" (emphasis in original).

The extensive Bendectin litigation also featured testimony by Australian physician William McBride (discussed by Huber). McBride claimed credit for alerting the world to the teratogenic effects of the infamous drug thalidomide. In 1982 he published a paper describing experiments that purported to show that Bendectin caused birth defects in rabbits. The coauthors of this paper later fault him for failing to use controls, misreporting drug dosages, and altering research results to conform to his pet hypothesis. An investigative committee headed by a former Australian chief justice concluded that "Dr. McBride was lacking in scientific integrity." McBride was also the target of multiple complaints of professional misconduct in his native Australia, involving charges of both scientific fraud and medical malpractice.

## Admitting Scientific Evidence

In the United States, two rules commonly govern the admission of scientific evidence in criminal cases: the relevancy standard and the Frye rule.<sup>2</sup> The relevancy standard is the more lenient of the two. John H. Wigmore, author of an influential treatise on evidence, espoused the most extreme form of the relevancy test for determining whether expert testimony could be offered on a particular issue: Could additional light be shed on the issue by a person with skill in the subject? This contrasts sharply with the more formal Frye rule, which is the basis for the

admissibility standards under the Federal Rules of Evidence.<sup>3</sup> This rule is named for a murder case tried in the District of Columbia in 1923 (*Frye v. United States*, 293 F. 1013, 1014 [D.C. Cir. 1923]).

James Alphonzo Frye was tried for the murder of a prominent African American dentist. He sought to present in his defense the results of a polygraph examination that purported to show that Frye was being truthful when he denied committing the crime. The trial judge ruled that the testimony of Frye's polygraph examiner was inadmissible. Frye appealed his subsequent conviction on the grounds that the polygraph test results had been improperly excluded. The D.C. Court of Appeals affirmed the conviction, remarking that "just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs."

The Court of Appeals held that polygraph examinations properly belonged to the fields of psychology and physiology and that in neither of these disciplines had the use of the polygraph for the detection of deception gained general acceptance. With some modification, this test of admissibility came to be generally adopted in federal courts. It was ultimately codified in the Federal Rules of Evidence as Federal Rule of Evidence 703. The majority of states have adopted similar rules of evidence.

In its practical application, the Frye rule requires that when a new scientific procedure comes before a court, the court must hold an evidentiary hearing to explore the issue of general acceptability. During this so-called Frye hearing both sides can present evidence to the court to prove that the procedure does or does not enjoy general scientific acceptability. Such hearings are usually long, because both sides want not just to convince the trial judge but also to establish a record for the basis of the inevitable appeal of the trial judge's ruling.

The outcome of a Frye hearing in one trial court is not binding on another trial court, even one in the same judicial circuit. Consequently, it may be necessary to hold Frye hearings again and again on the same procedure, until one of the cases reaches the appellate or supreme court level. The series of Frye hearings in California on the admissibility of DNA profiling illustrates this problem. For several years, virtually every county whose district attorney wished to use such evidence was forced to hold a Frye hearing. The hearings occupied the attention of several attorneys for months, commonly took weeks to complete, and entailed the bringing in of expert witnesses (of which I have been one) from all over the United States at great expense.

Because rulings on admissibility in one state are not binding in another, attorneys can keep trying different jurisdictions until they get a favorable ruling. Here again,

DNA profiling illustrates what can happen. It has been accepted by courts in several states and implemented in crime laboratories across the country. Nevertheless, DNA profiling has been rejected by a trial court in New York and by supreme courts in Minnesota and Massachusetts. At present we have the anomalous situation in which the results of certain scientific tests might not be admitted in a criminal trial in Springfield, Massachusetts, but probably would be admitted if the trial occurred a few miles away in Hartford, Connecticut.

In both criminal and civil trials, medical witnesses have customarily enjoyed great latitude in expressing their opinions. In an article in *Science* ("Evolving Legal Standards for Admissibility of Scientific Evidence," *Science* 239 [25 March 1988]: 1508-12) Bert Black discussed the U.S. Supreme Court decision in *Barefoot v Estelle* (463 U.S. 880, rehearing denied 464 U.S. 874 [1983]), one of the infamous "future dangerousness" cases. He noted that "the deviation from scientific practice in *Barefoot* reflects the deference accorded medical doctors in American society, and the tendency of courts to place very little constraint on their testimony.... When the opinion of a medical expert is disputed, courts generally look to his or her qualifications, the kind of facts upon which the opinion is based, and the certainty with which the opinion is expressed."

The traditional phrasing used in questioning medical experts is "Can you state, within a medical or scientific certainty, that..." A witness who is willing to answer this question affirmatively will be permitted to render an expert opinion, even if this opinion contradicts the views of virtually all the other doctors practicing the same specialty. It is this laxer standard of admissibility that has given the world Drs. Alan Done and William McBride, along with all too many others of their ilk.

## Junk Science in Criminal Trials

Junk science is by no means limited to civil litigation. Regrettably, devotees of pseudoscience have not been absent from criminal trials. My colleague James Starrs has become a connoisseur of scientific flapdoodle dispensed by expert witnesses.<sup>4</sup> I present here two criminal cases in which pseudoscience figured prominently. The first is drawn from Starr's extensive collection of judicial outrages, the second from my own expanding files of preposterous scientific testimony.

***The Unquiet Dead.*** In the early 1970s Jack Kirschke was convicted of two counts of first-degree murder. According to the prosecutor, Kirschke, a deputy district attorney in Los Angeles, caught his promiscuous wife with her lover in the master bedroom of the family home. He terminated their tryst with a .38 revolver that he kept at bedside. In his defense Kirschke presented testimony that he was elsewhere when the victims were slain.

The prosecution was faced with several problems. According to its scenario, Kirschke had committed the murder and then left the scene in order to establish his alibi. Neighbors, however, had heard loud noises in the Kirschke home long after the murders supposedly had taken place. Even

worse, the lover's body was found lying face down on the floor beside the Kirschkes' round bed, but postmortem lividity was evident and fixed on the victim's back. This was a classic sign that the body had been moved after death. Once the heart of a dead person has ceased to pump blood, the blood pools in the lowest areas of the body. The pooling causes a very noticeable discoloration of the skin. Lividity can be seen 2-4 hours postmortem; after 8-12 hours it becomes fixed--that is, the pooled blood leaves the capillaries for the surrounding tissues. After this point changing the body's position will not cause the lividity to shift to the new low areas.

To explain this puzzling evidence, the prosecution presented the testimony of DeWayne Wolfer, a firearms examiner with the Los Angeles Police Department. Wolfer was already infamous for his (mis)handling of the firearms examinations in the Robert Kennedy assassination case. During the prosecution's case in which he testified that the bullets removed from the victims' bodies had been fired from Kirschke's .38 revolver. (Although the murder weapon was never found, Wolfer claimed to have matched the fatal bullets to bullets test-fired from the pistol in question during the investigation of an earlier case. According to police records, the pistol had been turned over to Kirschke upon resolution of the earlier case.) Wolfer was then brought back as a rebuttal witness. The trial judge permitted Wolfer to testify as an expert in acoustics and anatomy. The basis of his expertise in acoustics remains obscure; however, his extensive knowledge of anatomy was the result of an undergraduate course in which he claimed to have dissected a cadaver.

First, Wolfer speculated that the murder weapon was silenced with a towel or lawnmower muffler. This explained why the neighbors had not noted any unusual noises at the time when the prosecution asserted the murders had actually taken place. Next, he explained the lividity on the dead man's back by theorizing that the fluids in the body had settled, altering its center of gravity and causing it to roll from the bed (where it had lain supine until lividity had become fixed) and fall face down on the floor. The body falling was the noise heard by the neighbors.

To lend credibility to this tale, the prosecution had the bed brought from the death scene and enacted a skit worthy of *Saturday Night Live*. Two Los Angeles police officers (one male and one female) played the doomed lovers. As they lay on the bed, Wolfer described the trajectories of the bullets through the bodies. Then, obligingly the male officer executed a snap roll to land face down on the floor.

Kirschke appealed his murder conviction, alleging prejudicial errors in the conduct of the trial. Although the California appeals court found that Wolfer's statements regarding his expertise in acoustics and anatomy bordered on perjury and had been made "with a reckless disregard for the truth," the judges did not feel that these unsubstantiated claims of expertise justified setting aside the guilty verdict (*In Re Kirschke*, 125 Cal. Rptr. 680 (Cal. App. 2d. 1975)). It was apparently inconceivable to them that the jury would have reached any verdict other than guilty even if they had

known that the only prosecution witness whose testimony tied the defendant's pistol to the crime was both a liar and a fool. The jury might also have been interested to know that later examinations by court-appointed firearms examiners had failed to confirm Wolfer's claimed positive identification of the fatal bullets as coming from Kirschke's pistol. The photomicrographs proffered by Wolfer as demonstrative evidence during the trial also did not support his claim of having matched the bullets test-fired from Kirschke's pistol with those removed from the murder victims' bodies.

The Kirschke murders served as the basis for the made-for-TV movie *Indict and Convict* (1974). William Shatner played the defendant husband; George Grizzard and Ed Flanders portrayed the prosecutors; and Eli Wallach was the defense attorney. Even the Hollywood screenwriters lacked the audacity to have the testimony about the bullet trajectories, shifting fluids, and rolling body presented solely by the firearms examiner. In the movie, all of that testimony is initially given by the medical examiner during the prosecution's case in chief. Having recently viewed this film, I can say that the prosecution's reenactment of the deceased lover's toppling from the bed is every bit as ludicrous in the film as in the description I have given here.

***Humpty Dumpty's Day in Court.*** Last year I was asked to review trial transcripts in the case of *United States of America v Glendon Forbes, Jeffrey Penkala and Christian Martensen* (U.S. Dist. Ct. No. dist. Cal., Docket No. CR91-0087-VRW). Dr. Edward George Brown had testified for the defense at the sentencing hearing for Jeffrey Penkala on the results of his analysis of the "blotter acid" (lysergic acid diethylamide, or LSD, adsorbed on blotter paper) the defendants were selling. The issue was whether or not blotter acid constituted a mixture: If the blotter acid were a mixture, then the defendant's sentence would be based on the weight of the blotter paper plus the LSD; otherwise, the sentence would be based on the much lighter weight of just the LSD.

Dr. Brown described an experiment that he had performed on two squares of the blotter acid. He had placed the squares of blotter paper in contact with a strip of chromatography paper and carried out descending paper chromatography. After allowing the LSD to elute for two hours Dr. Brown tested the pieces of blotter paper for the presence of LSD. Finding no LSD, Dr. Brown expressed his opinion that the LSD on blotter paper did not constitute a mixture from a scientific point of view. He then provided the court with a definition of mixing from "Van Austren's Scientific Encyclopedia" (presumably *Van Nostrand Scientific Encyclopedia*):

A. Mixing is defined as "a random exchange of fluid parcels on any scale from the molecular to the largest eddy. The presumption of randomness implies that any conservative property within the area of mixing is equalized and the gradient thereof is destroyed. The process of mixing is thus irreversible."

Q. Why do you feel that the blotter paper you tested in this case was not a mixture?

A. I feel it was not a mixture because I was able to

remove the LSD simply by eluting it off with an eluant ....

This astonishing discussion of basic chemical principles prompts some comments. Neither the sixth nor the seventh editions of the *Van Nostrand Scientific Encyclopedia* have entries for either *mixing* or *mixture*. In fact, I have been unable to determine the source of Dr. Brown's arcane gibberish, despite searching entries in *Van Nostrand* such as *diffusion*, *fluid*, *fluid dynamics*, *irreversible process*, and *thermodynamics*. Dr. Brown is so fixated on the irreversible nature of mixing that he wrote in the report he prepared in this case: "Mixing is an irreversible process, meaning that once two substances are mixed, they cannot be eluted from the surface without a great expenditure of energy. I have shown in my experiments that LSD can be eluted from the surface of the paper just by the addition of methanol. No heating, or other form of energy was required to remove the LSD from this paper sample."

The term *irreversible* in this quotation is being used in a strict thermodynamic sense. In thermodynamics, a reversible process is one in which there is no entropy production; a cycle of reversible processes can be used to return all the systems involved in the processes to their original states. An irreversible process is one in which entropy is produced; no cycle of irreversible processes can return all of the systems involved to their original states. Real-world processes are necessarily irreversible; only ideal processes can be reversible--an important point that exposes the speciousness of Dr. Brown's whole argument. The concepts of reversibility and irreversibility are covered in the undergraduate physical chemistry courses that are required of all chemistry majors.

Certainly Dr. Brown had to search diligently for his definition of mixing (wherever he found it). Other commonly used reference books give slightly different definitions of mixture, such as this one from the *Concise Science Dictionary* (Oxford: Oxford University Press, 1984): "A system of two or more distinct chemical substances. Homogeneous mixtures are those in which the atoms or molecules are interspersed, as in a mixture of gases or in a solution. Heterogeneous mixtures have distinguishable phases, e.g. a mixture of iron filings and sulfur. In a mixture there is no redistribution of valence electrons, and the components retain their individual chemical properties. Unlike compounds, mixtures can be separated by physical means (distillation, crystallization, etc.)." A distinguishing feature of mixtures is that their constituents can be separated by physical means. Among the physical methods by which the components of mixtures may be separated is paper chromatography.

Having demonstrated experimentally that the LSD in the blotter acid can be separated from the paper by simple physical means, Dr. Brown concluded that blotter acid is not a mixture, within the scientific meaning of that term. He did not elucidate exactly what it is, although in chemistry the choices are not numerous. Blotter acid must be either element, compound, or mixture. If you are feeling some doubts regarding Dr. Brown's expertise in chemistry, let me point out that Edward George Brown received a Ph.D. in organic

chemistry in 1988 from the University of California at Davis for a dissertation entitled "Sterically Hindered 4-Pentenoic Acids, 1,6-Heptadiene-4-Carboxylic Acids, and Oxazolines: Their Synthesis, Analysis and Iodolactonization." Perhaps he was absent on the days when mixtures, mixing, and irreversible processes were discussed in his classes.

Defendant Jeffrey Penkala received a significantly reduced sentence. Instead of the 10-year minimum sentence that he might otherwise have received, he was sentenced to less than seven years. The Department of Justice, however, successfully appealed what it viewed as an overly lenient sentence. However, Dr. Brown's testimony lives on: Transcripts circulate among defense counsels (my original source of the transcript in this case). Dr. Brown recently testified in a sentencing hearing in Maine, and in this case I had the distinct pleasure of providing a copy of my evaluation of Dr. Brown's testimony in the *Penkala* case to the assistant U.S. attorney trying the case.

### Symptoms of Pathological Science

These examples show that judges need to recognize the characteristics of pathological science (see sidebar). Not all of the symptoms are present in every case of pathological science, but several are to be found in every rigorously investigated instance of pathological science. Richard Feynman coined the expressive term *cargo-cult science* to illuminate a common feature of pseudoscientific theories: the adherence to the forms of scientific research and discourse without any of the substance.

The President's Council on Competitiveness has recommended as a part of its tort-reform package several measures that would rein in the proliferation (one would like to say metastasis) of junk science in courtrooms. For instance, the council has advocated the adoption of the so-called English rule, according to which the losers in a tort action must pay the legal fees of the winners. This rule would have significantly deterred the plaintiffs in the Bendectin cases from litigating their claims. The English rule, however, would also deter those with more legitimate cases from suing major corporations.

The council did not adopt the frequently advanced proposal that courts should appoint their own experts, on the grounds that this would lead to favoritism. (A recent conversation with a forensic scientist from Italy, where such arrangements are commonplace, suggests to me that judges are no better than the average person at selecting qualified scientific experts.) The Council on Competitiveness did recommend that judges should more closely scrutinize the credentials of expert witnesses and determine if the expert's opinion accords with the generally accepted theories in his profession. The council did not explain exactly how judges should do this.

A number of problems confront any judge trying to determine whether a given scientific theory has general acceptance. First of all, the judge must decide on the appropriate scientific community. To see how hard this can be in

## pathological science

The term *pathological science* was coined by Nobel laureate Irving Langmuir (General Electric Technical Information Series, No. 68-c-035, April 1968; see also "Pathological Science," *Physics Today* [October 1989]: 36-48). Langmuir listed six symptoms of pathological science, which bear repeating:

1. The maximum effect that is observed is produced by a causative agent of barely detectable intensity, and the magnitude of the effect is substantially independent of the intensity of the cause.
2. The effect is of a magnitude that remains close to the limit of detectability, or many measurements are necessary because of the low statistical significance of the results.
3. There are claims of great accuracy.
4. Fantastic theories contrary to experience are suggested.
5. Criticisms are met by ad hoc excuses thought up on the spur of the moment.
6. The ratio of supporters to critics rises up to somewhere near 50 percent and then falls gradually to oblivion.

practice, suppose that a judge wanted to decide if the phenomenon of cold fusion had general scientific acceptance. If she had queried the analytical chemistry community immediately after the first publication of the work of Fleischmann and Pons, she probably would have found widespread acceptance of the reality of the cold fusion phenomenon. On the other hand, she would have found almost complete rejection of the possibility of cold fusion by nuclear physicists.

Scientific journals are one possible source of generally accepted facts and theories. Unfortunately, even very reputable journals may publish articles that are based on falsified data or that contain pathological science. Further, proponents of pseudoscience can indulge in forum shopping. If top-flight scientific journals reject their manuscripts, maybe lesser journals will publish them. In the words of Drummond Rennie, deputy editor of *The Journal of the American Medical Association*, "there seems to be no study too fragmented, no hypothesis too trivial, no literature too biased or too egotistical, no design too warped, no methodology too bungled, no presentation of results too inaccurate, too obscure and too contradictory, no analysis too self-serving, no argument too circular, no conclusions too trifling or too unjustified, and no grammar or syntax too offensive for a paper to end up in print."<sup>5</sup> Every working scientist is aware of this hierarchy of journals.

When all reputable scientific journals refuse to publish pseudoscientific research, the pseudoscientists may band together to publish their own journals. The editors of these fringe journals may even carry their cargo-cult science to its ultimate absurdity by having the submitted manuscripts

peer-reviewed. Outwardly, publications like the *Journal of Sympathetic Vibratory Physics* look like real scientific journals. Only someone knowledgeable in modern science would be able to recognize the articles for what they are: the effusions of perpetual-motion cranks.

### A Very Modest Proposal

I have some modest suggestions of my own to reduce the likelihood that expert testimony will support pseudo-scientific theories:

•Judges should apply the principle of *cui bono* (who profits?). Expert witnesses (such as Drs. Done and McBride) who earn a substantial portion of their income from testifying on a particular controversial issue clearly have a vested interest in establishing the validity of that theory. Their unsupported testimony should be rejected out of hand. Judges should also reflect that the originator of a new theory has a strong psychological interest in its acceptance, even if he or she stands to receive no monetary reward whatsoever.

•Judges need to understand that it is replication of results that establishes a scientific fact--not replication by the original discoverer, but by others. What separates real science from pseudosciences is that the results of experiments in real science have been duplicated repeatedly by many different investigators. After all, replication is the best safeguard against acceptance of totally fraudulent results, since other investigators commonly experience difficulty in replicating nonexistent phenomena. The requirement of replication of results is just the Frye rule's "general acceptance" test under another guise.

•Even if the expert claims that his or her new procedures

merely extend existing scientific techniques, the results may be candidates for rejection by a court. It is commonplace in scientific research that new methods may be subject to interferences unsuspected by their developers. Only when other experimenters have had the opportunity to try the methods do problems begin to emerge. The nature and extent of the expert's validation of his or her methods then assume critical importance for the judge deciding whether to permit testimony based on novel procedures.

•Unpublished studies such as Dr. Done's should of course be dismissed out of hand. However, judges need to understand that the mere publication of an experimenter's results is no guarantee of their accuracy. That a manuscript has successfully passed peer review means its contents meet minimum tests of internal consistency, consistency with accepted scientific principles, and formal adherence to the norms of scientific procedure. A scientific journal may publish a paper on an important topic even if its editors believe it to be wrong (as *Nature* has done) in the hopes of eliciting a thorough consideration of the matter. Scientific journals should be seen as the record of dialogues conducted between members of the scientific community.

•Judges should not accept testimony from scientists on matters beyond their professional expertise. The typical chemist has scarcely any better grasp of the principles of toxicology than a layperson. A forensic scientist whose primary duty is the examination of firearms likely has no significant expertise in acoustics or anatomy.

In deciding *Daubert* the Supreme Court has the opportunity to dam the flood of pseudoscientific sewage flowing through America's courts. But I am not going to bet the farm

just yet. The justices of the Supreme Court have no more than a layperson's understanding of modern science; several justices, most notably Rehnquist (author of the Court's decision in *Barefoot*) and Scalia, have in past cases displayed a preposterous lack of scientific knowledge.

## Notes

<sup>1</sup>Done's crude structural comparisons ignored the fact that subtle changes in chemical structure can significantly alter biological activity. For example, benzidine is a potent carcinogen, while 3,3',5,5'-tetramethylbenzidine is not.

<sup>2</sup>Readers familiar with Huber's *Galileo's Revenge* may be puzzled by this discussion of admissibility standards. Huber's presentation of these issues is wrong in almost every particular.

<sup>3</sup>Remarkably, the U. S. Supreme Court has never been called upon to rule on the Frye rule itself. It is possible that in its decision in *Daubert* the Court will repudiate the Frye rule and establish a new standard of admissibility for scientific evidence in federal courts.

<sup>4</sup>See James E. Starrs, "In the Land of Agog: An Allegory for the Expert Witness," *Journal of Forensic Sciences* 30/2 (April 1985): 289-308; and "Mountebanks among Forensic Scientists," in *Forensic Science Handbook*, ed. Richard Saferstein (Englewood Cliffs, N.J.: Prentice-Hall), vol. 2.

<sup>5</sup>Quoted in Andrew Skolnick, "The Maharishi Caper: JAMA Hoodwinked (But Just for a While)," *Skeptical Inquirer* 16/3 (Spring 1992): 254-59. □

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## Baltimore Radio Program on Pseudoscience Recognized for Excellence in Science Journalism

A half-hour documentary "Pseudoscience: On the Edge of Reason" was honored with the AAAS-Westinghouse Science Journalism Award at the American Association for the Advancement of Science (AAAS) annual meeting in Boston. The program, part of the Soundprint series produced for National Public Radio at the Johns Hopkins University, focused on the claims put forward at Robert Jahn's Princeton Anomalies Research (PEAR) Laboratory as well as traditional water-dowsing and astrology. Skeptical commentary was provided throughout by NCAS's then-president Chip Denman, a statistician at the University of Maryland.

The show came about following the show's producer/reporter Larry Massett introduction to NCAS during the seminar series "Science vs. Pseudoscience: Mysteries of the Mind" organized by Denman and co-sponsored by NCAS and the Johns Hopkins Continuing Education Program last spring in Baltimore. The program originally aired on May 27, 1992 and was recently rebroadcast this April.

A tape and a transcript of this program are in the NCAS archives. Members may borrow this and other archive material. Contact Gary Stone at 301-470-1530 (evenings before 9) or via CompuServe 74435,1756.

## Vault Update

Just when we thought we had heard the last about Sir Francis Bacon and his supposed vault of many writings, a new search for the vault may begin. The target this time is in Canada: Oak Island, Nova Scotia.

As reported in *The Newport News Daily Press* (April 16, 1993), a group of Baconians, organized by Norfolk playwright Paula Fitzgerald, met in Richmond to discuss other possible sites for the vault. (Remember, no vault was found in the excavation at Williamsburg.) An invited guest was Canadian journalist D'Arcy O'Conner, the author of two books about the so-called mystery of Oak Island. O'Conner claims that searchers have found evidence of a network of underground tunnels in which the wood supports date to the sixteenth century. A group of Canadian and American business executives, not necessarily Baconians, are financing a \$10 million search of the tunnels this summer.

Various theories are offered about the tunnels, said to be 237 feet underground. Some attribute them to Sir Francis Drake, others to pirates. O'Conner thinks the Spaniards built them. Fitzgerald agrees with this, but also says, "I totally believe there is a Bacon vault on Oak Island." She also still believes there is a vault at Bruton Parish churchyard.

O'Conner said the Bacon association with Oak Island is not new and dates back to the 1930s. "Actually," he told the *Daily Press*, "Sir Francis Bacon's vault is one of the saner theories." Others have suggested it was a UFO base or home to a colony of leprechauns.

-Elena Watson

## Just Joking

How far (out) will colleges go in the quest to recruit students? Judging by a letter that appeared in the "Ann Landers" column for February 16, 1993, the answer is "pretty far." Written by the mother of two high school seniors, the letter described a college brochure the family had recently received. Along with information about scholarships, grants, and other forms of financial aid, the brochure included this suggestion: "Send a letter to 200 people promising them good luck if they return two bucks and send the letter to 10 of their friends....Remind them that bad luck will come their way if they don't act within five days." The woman asked Ann Landers, "What do you think of any institution that would send such material?"

Landers's staff contacted the college in question, which turned out to be Western Maryland College in Westminster. Said the college admissions office, "It was meant as a joke. Of the 1,400 brochures we sent out, only one person took it seriously." □

## Concerned about Crime? Relax, the Maharishi Is on the Job

The Transcendental Meditation movement pulled out of the nation's capital two years ago, moving its offices to Fairfield, Iowa, where Maharishi International University is located. But the movement's leader, Maharishi Mahesh Yogi, hasn't given up on Washington. According to the *Washington Post* (February 4, 1993), a nonprofit group with links to the Maharishi was conducting a \$25,000 advertising campaign in the *Post* and other Washington papers. Placed by Citizens for a Crime-Free D.C., the ads called for a "crime-free Washington" and asked Mayor Sharon Pratt Kelly to "do something about it."

The "something" in question was to allot \$6 million to offer TM training to youths living in poverty. Citizens for a Crime-Free D.C. claimed that the program, called TM Sidhi, could "reduce city crime 20 percent in two months, save the lives of at least 90 youths, and create a more positive environment for President Clinton to make policy decisions." The group's spokesperson, Kaman Sunev, told the *Post* the program would more than pay for itself by permitting the young people "to cope more effectively with stress while developing more of their full creative potential."

Where would the financially strapped District find the \$6 million? Not to worry. Said Sunev, "The money would come from wherever the city government's money comes from."

Apparently the District was not so easily convinced. In a follow-up article (June 9, 1993), the *Washington Post* reported that the TM organization secured limited cooperation from the city government in obtaining crime data, but that the TM organizers have put up \$4.2 million of their own money for a pilot study. If the pilot program is successful in their stated goal of reducing crime in the District by 20 percent during the month of July, the TM officials plan to petition the city for an additional \$5 million to institute a permanent program.

TM meditator Steve Schulte was quoted as suggesting that meditators were responsible for President Reagan's popularity. No explanation was offered as to why the Maharishi urged his followers to abandon Washington and "flee this pool of mud" in 1991. □



## A Skeptic's Response

This feature of the *Skeptical Eye* is designed to provide skeptics with brief, logical answers to questions that may arise in conversation. Do you have a question--or a response--that should be shared with other skeptics? Send it to the Eye.

### Unorthodox Medicine: Homeopathy

By Alfred Baer, M.D.

In 1796 Samuel Hahnemann (1755-1843), a German physician, ingested some quinine and thought that it caused the symptoms associated with malaria, which it was supposed to cure. This notion was tested but could not be confirmed by others. Nevertheless, Hahnemann was so taken by his "discovery" that he tested other drugs and natural substances in the same light. At that time the only sensations that could be directly investigated were ones that did not lend themselves to measurement, such as malaise, pain, nausea, and cramps--many of which are nonspecific symptoms of being unwell rather than of a particular disease. It's not surprising, then, that Hahnemann had no problem in obtaining what he considered to be good results. His theory was not well received by his colleagues, but it was snapped up--as it still is today--by an unorthodox and uncritical minority.

*Similia similibus curantur* (like cures like) became the watchword for this creed, which Hahnemann named *homöopathie*. The homeopathic pharmacopeia quickly expanded, incorporating virtually every plant and many chemical toxins as well. It was Hahnemann's idea that a therapeutic effect, unlike a toxic effect, could be achieved only by

endless dilutions. Thus 1 drop of laudanum was dissolved in 99 drops of alcohol, of which 1 drop was again diluted in 99 drops of alcohol, and so on, often up to 30 times.

Those familiar with Avogadro's law will realize that there remains virtually none of the original solute in the final dilution. It is clear, from a therapeutic standpoint, that any success obtained from using such "medicine" can only be the result of a placebo effect--and, as would be expected for a placebo effect, there were many successes among fervent adherents of this method. To give an example: *tarantula hispanica* was thought to cause the symptoms of a bite from a black widow spider. Its diluted toxin was held to be curative of neurosis, Parkinsonism, erotomania, masturbation, vaginal itching, and so forth. (The skeptic may wonder whether some people, learning of this, may have exposed themselves to black widow spiders for the undiluted toxin.)

For many years it was extremely difficult to organize randomized double-blind experiments to test the claims of homeopathy, due to the opposition and noncooperation of homeopathic organizations. At long last, in 1988, an experiment was carried out in France using dilute opium, dilute extract of radish (*raphanus*), and a placebo in the treatment of abdominal pain. The response was the same in all three groups of patients.<sup>1</sup>

#### Further Reading

(compiled by *Skeptical Eye*)

For a historical summary, see Martin Gardner, *Fads and Fallacies in the Name of Science* (New York: Dover, 1952, 1957), pp. 186-91. Writing in the 1950s, Gardner felt confident enough to conclude that "from 1900 on, the movement declined....In the United States, homeopathy is still declining."

To see how homeopaths present homeopathy to the public today, consult Stephen Cummings, MD, and Dana Ullman, MPH, *Everybody's Guide to Homeopathic Medicines* (Los Angeles: Jeremy P. Tarcher, 1991). The book features a foreword by James S. Gordon, MD, of the Georgetown University School of Medicine, who states, "I believe the renaissance of homeopathy will continue....Interest among young physicians and medical students is increasing." Part 1 of the book is devoted to "understanding homeopathic medicine," while part 2 proceeds illness by illness to outline "home care with homeopathic medicine."

A very readable overview of modern homeopathy published in the January, 1987 *Consumer Reports* clearly states the position that "[Consumers Union's] medical consultants believe that any system of medicine embracing the use of such [homeopathic] remedies involves a potential danger to patients..."

For a detailed discussion of the Benveniste "water memory" affair, see the special report in *Skeptical Inquirer* (vol. 13, no. 2, Winter 1989), pp. 132-46. Included are articles by Martin Gardner ("Water with Memory? The Dilution Affair") and James Randi ("The Case of the Remembering Water"), and a bibliographic "Guide to the 'Dilution' Controversy."

## Americans Try Out "Alternatives"

In the same year *Nature*<sup>2</sup> published a paper by Jacques Benveniste, a French biologist, purporting to prove that a highly dilute solution of IgE (an immune reagent) was biologically active. His conclusions were attacked by colleagues who suspected fraud, improper methods or controls, or sloppy technique. A commission including magician James Randi and Walter Stewart of the National Institutes of Health was dispatched to France to observe the experiments. While no one seemed to accept Benveniste's implausible conclusions as to how this end result, which was totally at variance with all previous experience, could have been reached, there was no unanimity among the many interested scientists as to what had actually happened.

In certain countries, particularly France and Germany, homeopathic medications are uncritically accepted by a large segment (about 40 percent) of the population. This is not surprising, considering how many minor illnesses are self-limited or "functional," that is, having no organic basis. In this country as well, many of the most widely advertised homeopathic remedies are intended for just such illnesses, such as the common cold. However, in illnesses that respond to specific drugs or early surgical intervention, homeopathy may well cause a tragic delay in proper care. Although for many years it seemed to be on the decline in the United States, the popularity of homeopathy has been growing in recent years. Along with other forms of quackery, homeopathy has benefited from the New Age bias against science and the medical establishment. Nearly a century ago, its founder was honored with a monument in the nation's capital. Erected in 1900 by the American Institute of Homeopathy and designed by Charles Niehaus, the Hahnemann memorial still stands at Scott Circle in northwest Washington, D.C.

<sup>1</sup>*The Lancet* 1988, pp. 528-29.

<sup>2</sup>*Nature* 333 (1988), pp. 816-18. □

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Homeopathy, chiropractic, massage, herbal medicine, biofeedback, acupuncture, and hypnosis were among the unconventional or "alternative" therapies included in a recent survey designed to measure the extent of use and the cost of alternative medicine in the United States. The survey results were published in the *New England Journal of Medicine* for January 28, 1993, and reported in the *Washington Post* the same day. The 25-minute telephone interviews on which the survey was based included questions about 16 alternative therapies and were conducted in 1990. More than 1,500 English-speaking American adults were interviewed.

The survey indicated that about 10 percent of Americans consulted practitioners of alternative therapies, while some 30 percent used some sort of unconventional therapy (often without consulting a practitioner). The alternative treatments were most often used for back problems (36 percent), anxiety, headaches, chronic pain, and cancer (24 percent). Of those who used the alternative therapies, 70 percent did not tell their medical doctors they were doing so. On the other hand, of the participants who reported having a "principal medical condition," only 4 percent saw an alternative practitioner without also seeing a physician. And none reported seeing *only* an alternative practitioner for conditions such as cancer, dia-

betes, high blood pressure, urinary problems, lung disease, skin disease, or dental care.

More than half the treatments were not paid for by health insurance, and almost all were undertaken without a doctor's recommendation. Dr. David M. Eisenberg, who directed the study, told the *Post*, "One can't help being surprised at these results, even those of us who have been paying attention to the use of unconventional therapy by patients, friends, and family members." □



Samuel Hahnemann's statue sits at Scott Circle in downtown Washington. The inscription states one of homeopathy's laws: "Like cure like."

## From Grimoires to Success Books

By Richard A. Dengrove

We like to think we live in an enlightened age, but I often wonder how much we've really progressed. For instance, consider the magical guidebooks called grimoires, written between the fourteenth and eighteenth centuries. Grimoires were manuals to guide the would-be sorcerer in conjuring demons. Now consider the success books of our own era. Although success books have been around since the sixteenth century, they reached the apex of their popularity in the 1980s. These handbooks for financial success tell a person how he or she can make a bundle. Two genres seemingly could not be more unlike. Grimoires are the product of superstition, while success books are products of the modern era.

But the two genres actually resemble each other in several ways. For one thing, both have the objective of accumulating wealth: success books by succeeding in business, the grimoires by locating treasure. (The grimoire's objectives could also include revenge, seduction, and fortunetelling, but the main objective was financial gain.)

Furthermore, both grimoires and success books normally claim a false pedigree. Grimoires traced themselves back to Solomon, Moses, and Faust, when they were actually written by some shady scribbler, likely an itinerant priest. Most often these books were attributed to Solomon: the *Testament of Solomon*, written around the time of Christ; the

*Key of Solomon*, perhaps written in the fourteenth century; the *Lesser Key of Solomon*, dating to the seventeenth century. Modern success books have an equally false pedigree, only in reverse. Forward-looking rather than backward-glancing, they present their bromides as the latest findings when in fact they often date back a century or more.

Both grimoires and success books use the magic appropriate to their era. The grimoires were based on a cosmic hierarchy. The highest creatures, the angels and God, and the next highest, the star spirits, were used to control lower creatures, the demons. To control the angels and God, in turn, the grimoires prescribed the rituals of the Church, especially exorcism, and a smattering of name magic from the Jewish Cabala. To control the star spirits, the grimoires relied on astrology and astral symbols.

Modern success books, on the other hand, rely on our source of magic, the mind. Many people are willing to believe the human mind has untold powers, even if not to the extent of controlling matter. These powers are believed to come from the exercise of will, which lies beyond cause and effect. The success books claim that we can unleash this free will, through public speaking, viewing the world cynically, thinking positively, building muscles, or increasing our vocabulary. Rarely, these days, do they preach hard work or virtue. In short, success books claim to know the causes that will change our uncaused free will.

Thus, both genres are based on a contradiction. The grimoires claimed that although the angels and God would not help people obtain treasure, they would be perfectly willing to cajole the demons into doing it. The success books claim that we have free will and that they know the cause that will unlock it.

Neither success books nor grimoires give sound proof for their nostrums. The grimoires were written during an age of authority, when citing Solomon or Faust sufficed. The success books have been written during a factual age. Fortunately for their authors, readers don't necessarily demand solid facts. At best, such books bank on endorsements and examples drawn from the life of Lincoln, Washington, themselves, or their favorite disciple. I do not have to tell



NCAS members how sound endorsements are as proof.

At bottom, however, the nostrums of the success books do not need proof anyway. When they fail, promoters use the shell game: They pull a switch, and the causes that move free will suddenly disappear. They scold that we are not thinking positively enough or cynically enough or charmingly enough, and that is why we failed. In short, we did not use our willpower enough, our *free* willpower.

There is one important difference between success books and grimoires: Success books offer accepted magic, while grimoires offered unaccepted magic. Grimoires relied on demons, a method unacceptable to the Church. Any attempts to control demons were considered vain and an illusion; the demons would ultimately triumph and damn the magician's soul. Success books, on the other hand, are acceptable to mainstream society. They rely on worldly entities to make people rich: business ownership, promotions, the stock market. That is why success books are rarely questioned. In this respect, the powers promoted by success book differ from psi powers, which violate the canons of science: bending spoons or reading minds without the intervention of worldly entities.

One school of success books, however, comes very close to violating the canons of science. That is the New Thought school of success, which has been wildly popular since the 1890s. It has gone through numerous incarnations, each author acting as though it was his discovery. Norman Vincent Peale's "positive thinking" belongs to this unacknowledged line. A few years ago it was resuscitated as a New Age gimmick, the "abundance philosophy." The idea here is that if we could change our poor thoughts into rich thoughts, we would automatically become rich. *Think and Grow Rich* is the title of Napoleon Hill's book, which founded the school. Maybe the arrival of these riches would appear to accord with science, but this is an illusion: it is the thoughts that would do all the work. Here we approach the border of science, and many would say we had crossed it. □

### Further Reading

- Butler, E. M. *Ritual Magic*. London: Cambridge University Press, 1949.
- Huber, Richard M. *The American Idea of Success*. New York: McGraw-Hill, 1971.
- Waite, Arthur Edward. *The Book of Ceremonial Magic: A Complete Grimoire*. Secaucus, N.J.: University Books, 1961 (1911).

*Editor's Note:* For more on the New Thought school, see Wendy Kaminer, *I'm Dysfunctional, You're Dysfunctional: The Recovery Movement and Other Self-Help Fashions* (New York: Vintage, 1993), chapter 3, "Don't Worry, Be Happy: Positive Thinking to est."

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## Remote Viewing

### Weirdness by Mail

By Elena M. Watson

In a desperate attempt to find a topic for my column this issue I decided to bravely venture through the rotting heap of debris mounting on what I assume is still my desk. The following, among other things, are what I found:

•A huge advertisement for the Association for Research and Enlightenment (ARE) announcing, "At last...Edgar Cayce's Complete Readings at Your Fingertips." Yes, after five years in the making, all 14,000 "readings" of America's favorite dead psychic are now available on CD-ROM, "word for word." This valuable home resource costs only \$500! Call toll-free, 1-800-723-1112, to order or to request further information.

•A clipping from the February issue of *Port Folio Monthly* about Norfolk's Jeff Levin, professor of family medicine at Eastern Virginia Medical School. Levin has recently received national attention for his research on the effects of spirituality on health. He claims that social and health surveys on the matter show that the more religious the person, the healthier he or she tends to be. Last year, Levin received a five-year, \$350,000 National Institutes of Health award for a project on religion, health, and psychological well-being in the aged. Although he denied the label "New Age," Levin did give *Port Folio* some interesting quotes, such as, "I float, I Rolfe, I'm probably the only person in the area who regularly hangs out in the libraries of the A.R.E. and Regent University [formerly CBN]."

Levin also stated, "Western medicine prides itself on being based on the laws of science. It's ironic, because the laws of science have changed. Modern physics has outdated the mechanistic view traditionally favored by science." If this is true, how come the stuff on my desk still goes from an ordered state to a disordered one? Haven't those pesky laws of thermodynamics been outdated? Anyway, Levin did say there were "any number of explanations" for a positive relationship between health and religion, such as stress reduction, the placebo effect, and social support--but, curiously, none of these explanations was discussed at length. Instead the article ends with the following quote from Levin: "Activities such as meditation may engage some kind of force, power or energy. Mainstream medicine denies that such things exist. I happen to believe they exist." Is it just me, or does that sound sort of New Age?

•From New Age to Space Age, the next series of clippings were devoted to the movie, *Fire in the Sky*, based on the alleged alien abduction of Travis Walton. UFO expert and NCAS member Phil Klass spent many months investigating this case, which occurred back in 1975, and he

believes it be a hoax. He devoted several chapters to it in *UFOs, The Public Deceived*, an account probably more entertaining than the movie, which has gotten lukewarm reviews. Of course this didn't stop the Paramount publicity bandwagon from hyping the March opening. The film was highly promoted as a "true" story, and the real Travis Walton was paraded about on the talk show rounds.

One wonders, however, just how far the film makers believe Walton's story, considering some of their public statements. In the April issue of *Cinefantastique*, in which both director Rob Lieberman and scriptwriter Tracy Torme admit to being UFO buffs, Lieberman says, "I am completely convinced there is other life in this universe." But he goes on to say that "how prevalent they are in terms of visitation, I'm not certain." In an Associated Press story (March 17, 1993) Torme, who admitted to believing about "5 percent" of UFO cases, hedged even more in referring to Walton: "There is no hard evidence beyond polygraphs to show what happened." And so, even though Torme claimed he believed Walton "is being truthful..., I will not say, and cannot say that happened to him."

Even more interesting is Torme's explanation (*Virginian-Pilot*, March 8, 1993) as to why the alien ship and aliens in *Fire in the Sky* look different from the descriptions in the book, *The Walton Experience*. "When Travis Walton reported the incident in 1975, his story was ground-breaking. But in 1993, the aliens are in Miller Lite commercials. We had a real dilemma in trying not to show the same thing people have seen for free on television and in other movies." Apparently, what they came up with wasn't good enough. After a strong start, *Fire in the Sky* quickly fell off the weekly list of the top ten highest-grossing movies.

And now from the bizarre to the ridiculously bizarre: my secret shame, *The Weekly World News!* Yes, I'm one of those people who can't resist buying the tacky tabloid when such campy headlines as "Big Game Hunters from Mars Killed Our Dinosaurs," and "Mom Gives Birth to 7-LB Eyeball" appear. And who can forget the lovable "Bat Boy Found in Cave" or the "King Kong Kitty"? So when I saw the story about *WWN* in the March 19 issue of *Entertainment Weekly* I was delighted. It seems the tabloid that brought Elvis back to life, which *Entertainment Weekly* accurately describes as an "old-time carnival side show," began in 1979, as a spinoff from the *National Enquirer*, which had shifted to color. *WWN* inherited the *Enquirer's* old black-and-white press, and also the sensationalized freak-show stories the *Enquirer* no longer ran. Today, the staff of 19 still occupies a small corner of the *Enquirer* building in Lantana, Florida. The tabloid sells about 700,000 copies a week, and of that, managing editor Sal Ivone estimates about 30 percent are sold to the young, hip crowd (like NCAS members?) he encourages. But editor Eddie Clontz prefers the trailer-park crowd, saying, "I'm not college educated or anything like that." Maybe not, but at least he's savvy enough not to get sued. As *EW*

puts it, "writers and editors [of *WWN*] never name identifiable people as sources for stories they'd be likely to deny."

And what about the tabloid's ever popular columnists, Ed Anger, Dear Dotti, and America's sexiest psychic, Serena? It must have been their day off. Although, after talking to Clontz's brother Derek, the assistant managing editor, "you'll find he has an almost supernatural bond with Dotti and Serena." Likewise, "spend time with Eddie....and you'll see Ed Anger spring to life before your eyes." Somehow all of this would be funnier if I could just stop wondering about that other 70 percent of the readers. □

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**National Capital Area Skeptics  
Financial Report for Year ending December 31, 1992  
(Rounded to nearest dollar)**

<b>Starting Balance</b>	2,862
<b>Income</b>	
Membership Dues and Donations	5,525
Interest Income	26
Book Receipts	397
<b>Total Income</b>	5,948
<b>Expenses</b>	
Taxes and Fees	343
Printing	2,238
Telephone	274
Postage	1,094
Program Expenses	1,432
<b>Total Expenses</b>	5,381
<b>Ending Balance</b>	3,429

Program expenses include, travel expenses, books provided as prizes at area science fairs, speaker's expenses, reimbursements to members for expenses incurred on NCAS' behalf.

NCAS is an organization exempt from Federal Income Tax under Section 501(c) (3) of the Internal Revenue Code.

This statement was prepared by Grace Denman, Treasurer.

## Update: Science Fraudbusters

A year ago, NCAS hosted a program featuring the celebrated science fraudbusting team from the National Institutes of Health (NIH), Walter Stewart and Ned Feder. Stewart discussed some of the cases they have investigated, most notably that of Nobel prize-winning medical researcher David Baltimore and his former colleague, Teresa Imanishi Kari.

Today, the embattled investigators are taking desperate steps to regain their lab and work. Stewart ended a 33-day hunger strike on June 11. During that period his health was monitored by Feder, a nonpracticing physician. Stewart began the hunger strike to draw public attention to a dispute with NIH, which shut down Stewart and Feder's lab. The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), where the pair worked, locked up their files and transferred both men to other positions in April. Stewart was assigned to study proteins; Feder, to review grant applications. Both were on leave in early June.

A spokesperson for NIDDK told the *Washington Post* (June 2, p. A14) that Stewart and Feder's research "had just gone too far afield." An NIH spokesperson told the *Post* that "they were not doing their jobs" and expressed regret that they had "resort[ed] to publicity stunts."

Stewart and Feder had recently investigated the work of noted historian Stephen B. Oates, and had accused him of plagiarism in his biographies of Abraham Lincoln, Rev. Martin Luther King, Jr., and William Faulkner. Oates complained about the use of NIH facilities and funding for such an investigation.

Stewart told *Post* writer Joyce Murdoch, "The purpose of a hunger strike is to draw people's attention to what one regards as a moral issue. The idea that this [plagiarism research] is not relevant to the work of NIH is manifestly untrue."

Although Stewart ended the strike at the urging of Sen. David Pryor of Arkansas, he and Feder remain on administrative leave with pay. According to the *Post* (June 23, p. D7), officials from the Department of Health and Human Services which oversees the NIH have indicated that they are willing to talk with Stewart and Feder about resolving the controversy. □

## In Search of:

NCAS would like to find possible facilities for future events. Can you suggest locations? Rooms of different sizes are sought which could accommodate 75-500. Metro accessibility, parking, audio-visual equipment, and weekend availability are all factors which need to be considered. Please phone Joe Himes at 703-280-2503.

## Keep Your Eye Open

Send your articles, letters, and original artwork for future publication in the *Skeptical Eye*. Contributions should be short (500-1000 words maximum, or two to four double-spaced pages) and typed, not handwritten. If you use a computer, please send hard copy along with your floppy disk (5.25" or 3.5", WordPerfect or ASCII). Please be sure to include your name, address, and telephone number. Send all contributions to *Skeptical Eye*, 8006 Valley Street, Silver Spring, MD 20910.

## Time to Renew? Time to Join?

Check the date printed on the mailing label on this issue. If you are looking into a past-life, then it must be time to renew your membership in NCAS.

Yes, I want to \_\_\_\_\_ join NCAS. \_\_\_\_\_ renew my membership.

Single: \_\_\_\_ @ \$20 Double (2 members at same mailing address) \_\_\_\_ @ \$30 Full-time student\* \_\_\_\_ @ \$10

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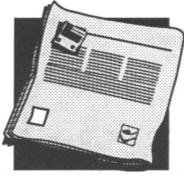
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# The Last Word

## Role Reversal

By Lys Ann Shore

With this issue of the *Eye* I reach the end of my rope—sorry, the end of my term—as NCAS newsletter editor. Reluctantly I give up the perks of editorship (my very own nametag! the chance to attend, but not to vote at, long-drawn-out board meetings! the opportunity to edit deathless prose!) in order to take up new duties as a humble columnist.

In a clever case of role reversal, the *Eye's* editor and chief columnist are changing places. With the next issue, Elena Watson, whose "Remote Viewing" columns have made her well known to readers of this newsletter, takes over as editor. And from my new home in the Midwest, I'll be the "remote viewer." Both changes are made possible by the wonders of modern technology: e-mail and faxes.

In spite of the changes, there will be some constants.

Chip Denman will continue to contribute his outstanding design skills, which have made the *Eye* the best-looking newsletter of any of the local skeptics' groups in the nation. Grace Denman will continue to proofread with a critical eye. And most important, the members whose writings have graced these pages will continue to devote their time, energy, and expertise to keeping us all enlightened, informed, educated, and up to date on the manifold, often complex issues that concern skeptics. My thanks to all of them for their contributions. And in the last words of this "Last Word," let me urge the many members who *haven't* yet gotten around to writing for the newsletter to sit down at the keyboard and *write* that article you've been turning over in your mind for so long. We want your voice to be heard. □

### ***An apology to our members:***

No, you haven't missed an issue of the *Eye*. Our production schedule has slipped badly. We heartily apologize.

The next issue is already in the works under the new editorship. It will ride in on the back of the summer stampede of dinosaurs and will feature articles on genetics, dino footprints and creationism, the mathematics of chaos, and more.

If there are other topics you would like to see covered in upcoming issues, drop us a line.

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