

## REALLity Check

by David Bloomberg  
Poisoned, Naturally

Discover magazine had a couple of interesting articles in the past two months. Most recently (January, 1996), a Vital Signs article by Steven Markowitz and Alex Li discussed the case of a man who was poisoned by herbal medicine.

The man, Mr. Kim, had emphysema, and went to a Chinese herbal "doctor" for help (in addition to standard medicine). He was given a tea which, as it turned out, contained clamshell powder that had been massively contaminated with lead -- giving Mr. Kim a bad case of lead poisoning.

Now, defenders of alternative herbal "medicine" may reply by saying that it wasn't the entire field which is hurt by this case, because it was just a case of a contaminated ingredient -- and we know that there have been cases of contaminated drugs given out by those in standard medicine. In this, they would be partially correct. However, as the authors point out, "Mr. Kim's case is unusual, but his story is a cautionary tale. Alternative remedies are not regulated by the Food and Drug Administration, and their safety has not been established." They then go on to mention that this is not a one-time event. Indeed, last April, a woman died after drinking an herb tea from a fungus. In New York City, March 1994, seven people became ill from "Paraguay tea." Recently in Chicago a woman was forced to have a liver transplant because of severe inflammation due to chapparal, an alternative antiaging treatment. There have also been reports of chronic arsenic and mercury poisoning among people using Chinese herbal "medicine," according to the article.

Markowitz and Li conclude their discussion of this case by noting, "The hazards are not likely to go away. More and more people in the United States are turning to herbal remedies. ... And some groups are pressuring the FDA to be even more relaxed in its role as regulatory watchdog. The best doctors can do is to be aware that they might not be the only health providers prescribing medicines to their patients."

In that last sentence, I have to disagree. That is not the best doctors can do. Doctors can, and I think must, help to educate people about the risks of "alternative" treatments. And, of course, that is where groups such as REALL can also come into play.  
Poisoned? Not Necessarily.

The other interesting Discover article (December, 1995) also deals with the realm of medicine. This one is a feature about pathologist Nir Kossovsky, who believes that silicone breast implants can cause all sorts of medical problems for women, and who has testified to this effect in several lawsuits against the implant manufacturers; but where is the scientific evidence for his claims?

Usually, Discover tends to do features on scientists who have been working on something interesting, which they proceed to tell us about. In this case, however, they are doing something I have rarely seen them do -- going after a scientist who is apparently using rather unscientific methods. For this, I applaud them.

Briefly (the article is nine pages long), Kossovsky, says that silicone gets into the human body and becomes coated with proteins, which changes the structure of those proteins. This allegedly causes an autoimmune reaction, leading to a disorder in women with such implants. To test his hypothesis, Kossovsky came up with an experiment. However, when the experiment was run using double-blind conditions (blood was sent to him from the Autoimmune Disease Center at Scripps Research Institute), Scripps researchers said that his test failed to distinguish even women with autoimmune diseases and breast implants and those without either. Scripps rheumatologist Robert Fox said the analysis failed to provide evidence of Kossovsky's claims and that his research had "fundamental problems." He said the entire test run must be considered invalid.

Yet Kossovsky refused to admit that his test had any problems. According to Discover, "He seems to have believed in his test even before he had begun the collaboration with Scripps." Indeed, the double-blind portion of the test occurred in 1992, but Kossovsky had already testified in court as far back as 1991, citing preliminary findings from his study. When he drafted a paper on the work, he rejected the Scripps analysis. In turn, his paper was rejected by at least three journals before being published by one which had him as a member of the editorial board. Researchers who read the article noted numerous errors, including a major statistical problem with the small number of women studied, and the results he concluded from it.

According to John Butler, an immunologist at the University of Iowa, "He is basing his conclusions on the hypothesis itself." Indeed, this is something we here at REALL often see in the realm of fringe science, but not something we expect to see from somebody who acts as an expert scientific court witness.

Kossovsky went on to do several seemingly contradictory things. He later explained that his paper should not be taken all that seriously, but was just a preliminary work that suggested that something was going on with regards to silicone implants and autoimmune disorders. Meanwhile, however, he was advertising his test method as "a definitive answer as to whether subjects are experiencing an immune response to silicone." The FDA caught wind of this in 1994 and told Kossovsky to change his claims because the test did not have proven diagnostic ability.

There are numerous other little contortions to this story (like I said, it took nine pages in the magazine), including a discussion of what certainly seems to be rather poor laboratory recordkeeping procedures and, of course, a claim to be the only one who is right -- this claim seems standard in fringe science cases. Kossovsky insists that his small studies are right and that the much larger studies conducted over longer periods are all wrong. He compares himself to Galileo, as if that will replace the scientific evidence that he apparently lacks.

Discover perhaps sums it up best early in the article, when they say, "The chasm between Kossovsky's courtroom claims and the scientific evidence suggests that mainstream science and the legal system have parted ways, which would not be unusual. Good science requires time to reach reliable judgments, while the courts, in the interest of practical justice, are eager to establish guilt or innocence quickly." It appears, at least with the discussion from this article, that Mr. Kossovsky would do well to remember that he is supposed to be working primarily in the area of science.

#### Wenatchee Witchhunt, Part II

Some good news in the Wenatchee, Washington, child abuse conspiracy witchhunt (see REALLity Check, last issue). As you may recall, a detective has led a storm of allegations against more than 40 people who he claims are part of a conspiratorial ring of child molesters. The evidence? Claims by his foster daughter and a few others, but others have said that this girl made false accusations before, and that the detective has pressured the children into making accusations. Oh, you want to know about the physical evidence? None. Yes, it is very similar to the claims of satanic cults in day care facilities and ties into claims of repressed memories.

Anyway, I told you there was some good news in this case. A pastor and his wife were found not guilty on all 14 charges lodged against them. They are not the first to be found not guilty, but the detective and prosecutors seem intent on following through with their charges -- evidence or not. As I mentioned last month, the state (specifically the governor and state House Speaker) have asked for a federal investigation into this madness.

#### Gullibility Alert

Carl Sagan has a new book coming out (apparently in January), *The Demon-Haunted World: Science as a Candle in the Dark*, and an excerpt appeared as an article in *Parade* magazine (12/3/95). Between the title and the excerpt, I'm certainly going to be buying a copy!

In the *Parade* article, Sagan discusses UFOs and crop circles, emphasizing science and the search for evidence. "Everything hinges on the matter of evidence," Sagan says as he begins his discussion of UFOs. "No witness's say-so is good enough. People make mistakes. People play practical jokes. People stretch the truth for money, attention or fame. People occasionally misunderstand what they're seeing. People sometimes even see things that aren't there."

He goes on to show how "shoddy" the standards of evidence can be in UFOlogy by discussing crop circles. Most of the stories he relates are familiar to those of you reading this article, but they are still interesting and amusing. For example, he discusses the way "cerealogists" (crop circle studiers) would go to great lengths to explain these circles, and the hoaxers who made them would hear about those explanations and do something which contradicted them. But even with the admitted hoaxes and the obvious pranks, crop circles are still with us, and they will likely join the ranks of fringe science that never go away.

Sagan ends his article by explaining a bit about skepticism. "The tenets of skepticism do not require an advanced degree, as most successful used-car buyers demonstrate. The whole idea of a democratic application of skepticism is that everyone should have the essential tools to effectively and constructively evaluate claims to knowledge. All science asks is that we employ the same levels of skepticism we use in buying a used car or in judging the quality of analgesics or beer from their television commercials."

In other words, we're all skeptical to one degree or another -- people just need to recognize it and apply that same skepticism when they see any claim that purports to be scientific.

Anti-Evolution Alabama

Science reports that the Alabama State Board of Education voted in November to put anti-evolution "disclaimers" in all of their biology textbooks.

To show how scientifically they arrived at this conclusion, Governor Fob James "shambled" across the floor imitating an ape" at the meeting, and audience members wore badges that said, "Don't monkey with my children." Seems to me that they were too worried about apes and monkeys and should have noticed that they were making themselves look like another animal that I'm sure the Editor won't let me say here. (Hint: "Hee-haw, hee-haw.")

This is Alabama's second recent shot at evolution. Last April, they revised textbook guidelines to emphasize that evolution is "only a theory." But that wasn't good enough for them, so now they will all have inserts that say evolution is "a controversial theory some scientists present as a scientific explanation for the origin of living things..." Besides the fact that they obviously don't know the meaning of the word, "theory," they also apparently don't understand the difference between the ORIGIN of life and evolution -- which is what happened after life began.

The disclaimer continues, "No one was present when life first appeared on earth. Therefore, any statement about life's origins should be considered as theory, not fact." Again they show their scientific ignorance. But wait, there's more. The insert asks four questions, including, "Why do major groups of plants and animals have no transitional forms in the fossil record?" Why don't they ask scientists these questions, instead of putting them in inserts for students? Are they afraid they might get an answer?

Eugenie Scott, Executive Director of the National Center for Science Education, notes that since the Supreme Court ruled in 1987 that creationism was religious, and therefore shouldn't be taught in public schools, creationists have been downplaying the religious aspects and trying to make it look more scientific by claiming there is evidence against evolution. She said that Alabama was the first major success for this strategy. What is perhaps even worse, in some ways, is that local Alabama schools can use anti-evolution textbooks donated by independent groups. This means that, as in Illinois, the fight has to occur at the local level as well. Obviously we don't have the problem that Alabama has now, but there are still local districts in and around Central Illinois who manage to either sneak in creationism or just drop evolution altogether. Neither is, in my opinion, any more acceptable than Alabama's anti-science stance.

I Spy with My Third Eye, Part II

Two months ago, I mentioned that a columnist reported that the CIA had still been using psychics to help the spy agency recently. This past month, the psychics hit the fan, as most of you have probably seen in newspapers, magazines, and on TV. I have articles from the State Journal-Register from the Associated Press (11/29), Newsweek (12/11), Science News (12/9), and Nature (12/7). Each contains essentially the same information.

First, some quick background. For over 20 years, the CIA and Pentagon have spent approximately \$20 million to study and employ numerous "psychics." They were supposed to help track down terrorists, find hostages, help anti-drug

activities, etc. Experiments were conducted on precognition, clairvoyance, and remote viewing.

The CIA asked two reviewers to evaluate the studies. One is Ray Hyman, a psychology professor at the University of Oregon, and a well-known skeptic (see Ray Hyman -- 'The Very Model of the Modern Major Skeptic' Vol. 2, Number 2, The REALL News, by Robert McGrath, and Proper Criticism Vol. 1, Number 2, The REALL News written by Professor Hyman). The other is Jessica Utts, a statistics professor at the University of California, Davis, who is a known advocate of parapsychology. Indeed, Nature (the only one of the four) notes that Utts had participated in some of the studies -- which, in my mind, raises the question of why she was selected to review those same studies.

As we would expect, Hyman and Utts disagreed on how the studies rated. While both agreed that the first "era of research was problematic," Utts says there is "a statistically robust effect" while Hyman notes that "there's no evidence these people have done anything helpful for the government."

So where does this leave us? Let's look more closely at the studies. Utts said the "psychics" were accurate about 15% of the time when they were helping the CIA. 15%? Is this supposed to convince us to pay them to help the United States government? Well, Utts says she thinks "they would be effective if used in conjunction with other intelligence." Well, my intelligence tells me that a 15% accuracy rating isn't much help no matter what it's used in conjunction with. Indeed, a former CIA technical director who monitored these programs said on Nightline that he wasn't aware of any significant results from the "psychics."

In one particular study on remote viewing, the "psychics" scored above the result expected from chance by getting the right answer approximately 33% of the time when there were four choices, which Science News characterizes as "a moderate increase over chance." But the judgment of success was determined by the project's director, who rated the similarity of each response to the target display and to other randomly chosen pictures (he did not know which videos or photos were used in specific trials). Hyman argues that these studies don't offer any insight as to why they might be scoring above chance -- it is just assumed that it must be psychic ability. He also notes that the accuracy ratings should have been done by independent judges -- not the project director -- and that none of these studies have yet undergone peer review.

An interesting note in this regard is that "psychics" interviewed by CIA evaluators said the program worked well as long as it was run by those "who accepted the phenomenon." Sorry, guys, but objective scientific results shouldn't depend on who's running a study!

Both the State Journal-Register and Newsweek reported anecdotal stories that have been used in support of this program (it is interesting to note that neither scientific publication did -- only the ones from the popular press). One of these stories is that a "psychic" predicted that an American official would be kidnapped on a certain day in 1981, and Gen. James Dozier was taken that night. As Hyman notes, though, "these are nice tall stories that can't be evaluated." As with all "psychic" reports of this type, there is too much missing information. What, specifically, was the prediction? When was it made? When was it recorded? Had this psychic made other such predictions that did not come to pass? There are simply too many unanswered questions. The stories told in the State Journal-Register mostly came from one of the "psychic spies" himself, but I would never suggest that a "psychic" would tell tall tales in order to promote himself...

Newsweek also reported that, as if the early years of the program weren't bad enough, it became even worse in the mid-1980's. A senior general would call subordinates together for spoon-bending sessions. One "psychic" wrote a long paper predicting a huge air attack on Washington during a Reagan State of the Union speech. The program offered several suggestions about capturing Saddam Hussein during Desert Storm, and all of them proved utterly useless. And one of the "remote viewers" left the army because he was convinced there was a Martian colony beneath the New Mexico desert.

The Newsweek article, in addition to relating these anecdotes, went on to compare "psychic spies" to "psychic detectives," saying, "Advocates point out that flummoxed police sometimes call on psychics to help find missing children or identify serial killers." Apparently, this is from the "two wrongs make a right" school of thought. They did end the article by noting, "Defenders admit that psychics are wrong about 80 percent of the time, but say the other 20 percent can be really helpful." Sorry, but I don't consider a 20% success rate to be all that great. Think about it -- this

means that 80% of the time, police (or spies) are wasting their time and resources on incorrect information. We're supposed to be happy with that?

Why does it seem so difficult to have an objective, scientific experiment to look at claims of psychic power? Why do we always hear anecdotal tales about the great successes of "psychics," which, all too often, turn out to be exaggerated, misleading, or even completely untrue? I wish I could answer these questions, but for now we can only address each claim as it comes up, and hope that eventually some good science can triumph over bad stories.

The Newest Cure-All

You've probably seen the books and heard some of the hype. Yes, there is a new cure-all in the stores: Melatonin. The State Journal-Register (SJR) (11/20) featured an article about this wonder-drug in their Health and Fitness section. I must admit that it took me a long time to actually read the article -- I saw it and assumed it would be a story in the lowest tradition of the Chicago Tribune Tempo section. Was I ever pleasantly surprised to be reminded that the SJR is not the Tribune!

Tony Cappasso, a writer who is soon joining the SJR staff (he may have already by now), wrote a good article about yet another substance claiming to "prevent cancer, boost immunity, combat aging and improve sleep." Melatonin, the substance in question, is a hormone produced by the pineal gland but is now being sold in many "health food" and similar stores.

The sales are being promoted by two books claiming various health benefits. One book, written by Russel Reiter, Ph.D., a professor of neuroendocrinology at the University of Texas, claims on its cover that melatonin can "increase immune response dramatically, greatly improve existing treatments for cancer and AIDS, lower cholesterol and blood pressure, prevent free radical damage that underlies aging, and more!" However, when Cappasso talked to Reiter on the phone, Reiter demurred a bit and said he doesn't have much control over what goes on the book cover. Ah. Of course. But Reiter is definitely a believer in the power of melatonin -- which he's been studying for almost 30 years. He says melatonin grabs up free radicals better than other previous cure-alls and therefore helps prevent all sorts of diseases that free radicals supposedly cause.

Dr. Ray Sahelian, author of the other book and a physician in California, however, says "the only thing there's good scientific evidence for is that it aids in sleep." Specifically, he has seen benefits for 80% of the patients for whom he's prescribed the hormone. But he advises against taking it if a patient is pregnant, diabetic, using blood pressure medication, etc. I wonder if melatonin bottles in the "health food" stores have warnings like that. At least one store in town suggests customers read a posted review of Sahelian's book, but a store clerk noted that most didn't bother.

Even if they did read it, most customers aren't aware that, like other "nutritional supplements," melatonin does not have to meet FDA standards, so it isn't very well-regulated as far as content and quality control (see above, "Poisoned, Naturally"). Also, because it isn't well-regulated, it doesn't necessarily have to do what people claim it does.

So, what is the science behind the stories? Frankly, not much. We know that the pineal gland produces melatonin, and that it could be the hormone responsible for regulating our internal clocks. We also know that melatonin production slacks off after puberty. According to the article, a few small studies have shown that insomniacs who took melatonin showed improvement, and that it can suppress some types of breast cancer cells in laboratory situations. But, as Dr. Romesh Khardori at the Southern Illinois University Medical School notes, "Most of the research done on melatonin has been done in test tubes and on hamsters and rats, ... and you just can't apply those findings to human beings." He said that the few studies done on humans have been interesting, but certainly not conclusive. He also told Cappasso, "There's been a lot of talk about free radicals and their health impact, but very little proof."

So, as we so often have seen, there are a lot of claims, but not much in the way of scientific evidence. Of course, that pretty much sums up almost the entire field of alternative medicine.

From the Editor

Bob Ladendorf

As we wrap up another year and welcome in the new, you will notice that our special year-end issue features an extended version of Chairman Bloomberg's regular column that monitors the media reporting on paranormal and pseudoscientific claims. REALL is an educational and scientific organization that has as one its goals the dissemination of information to its members and the public.

We at REALL hope that we have made a difference to both groups. By monitoring the media, too, we will be constantly vigilant to those instances of non-vigilance, as well as patting on the back those who bring critical thinking skills to their articles.

As we start our fourth year of existence, I look forward to another year of thought-provoking articles as we work to improve the range of articles and enhance the design of The REALL News. Without our loyal readers and members, though, this newsletter could only be a pipe dream. You have continued to make it REALLY happen.

May you have a good year in 1996!

/s/ Bob Ladendorf

From the Chairman

David Bloomberg

The weather and season turned out to be our enemy as REALL's lunch meeting in December was held on one of the coldest days of the year, and apparently also one of the busiest. Still, eight or so brave souls, including a new member, converged on Shakey's to discuss skepticism and REALL. As usual, a good time was had by all who made it. Next lunch meeting will be in better weather, I promise.

Speaking of meetings, our next one resumes our regular first-Tuesday-of-the-month schedule at the Library. Yes, folks, that's January 2, by which time most New Year's hangovers should be but a dim memory.

January's meeting will feature another Skeptics Society videotape -- this one on The Use and Abuse of Statistics in the 'Real World'. Featuring Dr. Judith Grabiner, the video provides critical thinking tools to analyze opinions and data in the real world, such as opinion polls; advertising and marketing; and "facts" in the field of psychology and sociology. It should be interesting!

On a completely different subject, I'd like to take this opportunity to welcome two new REALL Patron members: David Gehrig and Rev. Charles Hanson. As our Nod to Patron Members, below, says, REALL couldn't continue without their generosity. Thanks to all of them and everybody else who has helped to support REALL this year and into the future!

/s/ David Bloomberg

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Purpose

The Rational Examination Association of Lincoln Land (REALL) is a non-profit educational and scientific organization. It is dedicated to the development of rational thinking and the application of the scientific method toward claims of the paranormal and fringe-science phenomena.

REALL shall conduct research, convene meetings, publish a newsletter, and disseminate information to its members and the general public. Its primary geographic region of coverage is central Illinois.

REALL subscribes to the premise that the scientific method is the most reliable and self-correcting system for obtaining knowledge about the world and universe. REALL not not reject paranormal claims on a priori grounds, but rather is committed to objective, though critical, inquiry.

The REALL News is its official newsletter.

Membership information is provided elsewhere in this newsletter.

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