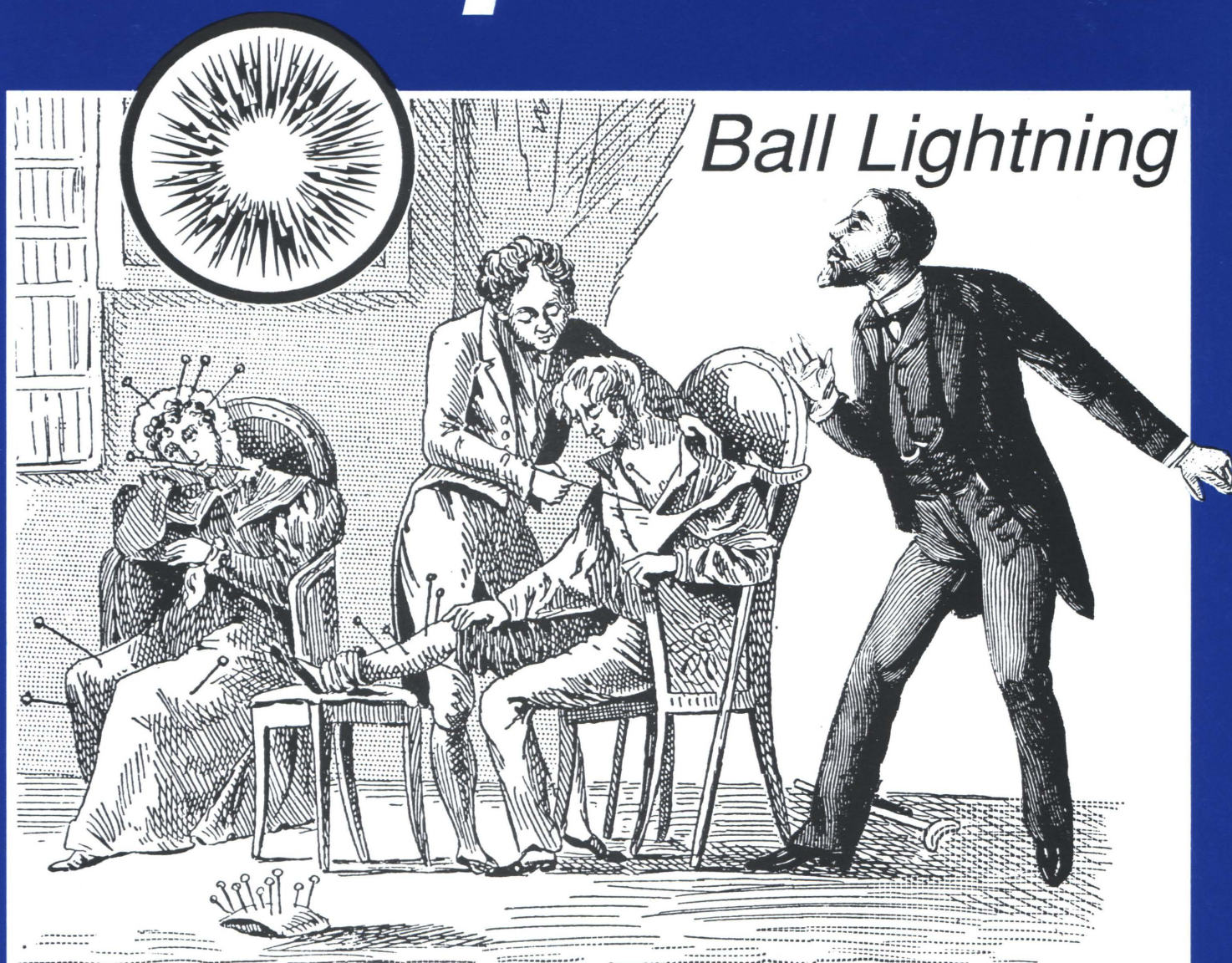


Volume 6 Number 6  
November/December 1992

# *The Skeptic*



*Ball Lightning*

## *Acupuncture: An Investigation*

Also in this issue:

*Cold Comfort for Cold Fusion*  
*The Fasting Woman of Tutbury*  
*Skeptics and Scoffers*

£1.85



# Hilary Evans' Paranormal Picture Gallery



To read the American UFO literature, you would think they invented the alien landing scenario. But the Italian case of Rosa Lotti, on 1 November 1954, anticipates all but a few of them, and offers an unsurpassed wealth of detail.

Since it was All Saints' Day, Rosa woke at 6.30 to go to early mass at Cennina church, carrying with her a bunch of flowers to offer the Madonna. She also carried her shoes and stockings so as not to soil them on the way. As she passed through a wood, she was surprised to see through the trees a strange object. Though she had no idea what it might be, she would probably have continued on her way if two little creatures, half the height of a normal man but perfectly human-like in appearance, had not suddenly appeared. They spoke to her in a language she couldn't understand, grabbed the flowers and stockings from her hands, deposited them in their 'rocket', and then produced a small tubular object which they pointed at her as if to photograph her. At this point Rosa began to feel uneasy, and started to move away. The creatures made no attempt to restrain or follow her. Looking back from a turn in the path, she saw them still standing by the object. Then she continued on her way and that was the last she saw of them.

A simple peasant, 40-year old Rosa was a respectably married mother of four. Investigators found no reason to suspect a tendency to hysteria or hallucination. It was her parish priest who, when she told him of her experience, associated it with 'dischi volanti' and suggested that the creatures she had met were 'i Marziani'. Whatever the explanation for her experience, it remains one of the most appealing, as well as one of the most enigmatic of 'encounter' cases. 'I hope that one day or another they manage to capture one of these beings', observed Rosa's husband in a 1977 interview, 'then we would know that my wife was speaking the truth'.

Sources: Case history: *UFO in Italia*; artwork: Walter Molino in *La Domenica del Corriere*, 14 November 1954.

Hilary Evans is co-proprietor of the Mary Evans Picture Library, 59 Tranquil Vale, London SE3 0BS

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# Hits and Misses

Steve Donnelly

## Body and Seoul

The world did not end at 4 pm (our time) on Wednesday 28 October. This may have caused little surprise amongst readers of *The Skeptic* but in South Korea, ten thousand or so religious believers went home rather disappointed when the day drew to a close without the world doing likewise. As reported in the *Observer* magazine three days before the apocalypse, many churches in South Korea were echoing the predictions of Tae-Young Kwon of the Tami church that the second coming of Christ was due to take place in Korea on that day. According to the *Daily Mirror* on 29 August, thousands of believers had sold properties and abandoned families, schools and jobs, confident that the Rapture was coming and that angels would come to lead the good into heaven (well 144,000 of them anyway). However, the rest of us should probably remain in weeping-and-gnashing-of-teeth mode a little while longer—Judgment day itself is not due until 6 pm on 6 December 1999.

## IQ pills

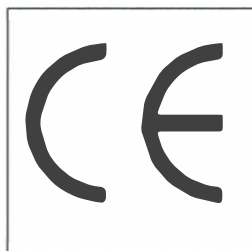
A BBC television programme in January 1988 put forward the idea that vitamin pills could boost the intelligence of children. QED reported on a study of 12 schoolchildren, some of whom had been given an eight-month course of vitamins and minerals, and compared them with a control group who had taken placebo tablets. The programme and related newspaper reports generated a considerable controversy at the time and the findings were rejected by many nutritionists. However, many parents did not stop to listen to the objections of the experts but, instead, immediately put their children on a course of vitamin and mineral tablets. According to the *Guardian* on 14 October, a brand of tablets by the name of Tandem IQ pills was selling 25 000 packets a week in 1988. These sales figures have now greatly

reduced as researchers have failed to replicate the original results, and on 13 October the health food firm that markets the tablets was fined £1000 plus costs of £35 000 over its claims that its product could improve a child's intelligence. The stipendiary magistrate who heard the case, which was brought about by Shropshire trading standards officers, made it clear that he believed that the company involved, Larkhall Natural Health Ltd, marketed the product in good faith but that the labelling on the packet misleadingly conveyed the impression that the Tandem IQ could improve the intelligence of most children, even those who were well nourished.

## Ouch!

Another health-related report in the *Daily Telegraph* on 7 October made my eyes water: a leading AIDS doctor in Kenya has apparently issued a statement that people who wash their genitals with battery acid after sex as a preventative are liable to achieve an end result that is 'even more disastrous'.

## (Deutsche)mark of the Beast?

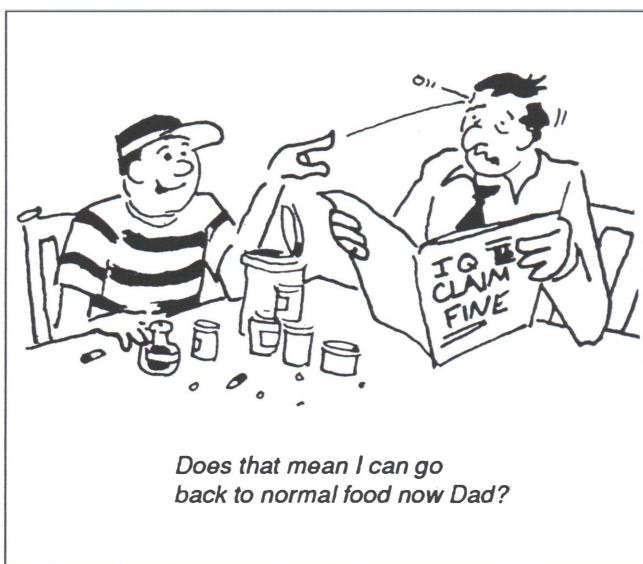


This symbol, the EC standards mark, is an increasingly common one and is found on a range of goods in shops all over Europe. For some so-called Eurosceptics it may serve as an irritating reminder of the increasing role that the EC plays in our lives but to members

of the Exclusive Brethren it is something altogether more sinister. Members of the sect, which is an offshoot of the Plymouth Brethren, have featured on these pages before, in connection with their belief that computers and videoplayers are the work of the Devil. For them this symbol may be the mark of the Beast referred to in Chapter 13 of the Book of Revelations. According to the *Times* on 1 October, the Brethren claim that the Beast, with its seven heads and ten horns, clearly represents Europe (with its twelve member states?) and the ubiquitous CE logo is the infamous mark. Any future EC legislation aimed at tattooing the logo onto our foreheads (perhaps in place of a European passport) should thus be regarded with great suspicion.

## A little late

Catholic astronomers can heave a sigh of relief. The Vatican, in a solemn ceremony on 31 October, has formally backed down and admitted that Galileo was correct in his espousal of the Copernican view that the sun, not the earth, is the centre of the solar system. This news comes a little late for poor old Galileo Galilei who was made to renounce his beliefs or face death by torture and who spent the last



eight years of his life under house arrest for having held and taught the Copernican view. According to the *Daily Telegraph* on 31 October, although the correctness of Galileo's view was obliquely accepted in 1820, the Vatican has never, until now, stated specifically that he was right and the Church was wrong.

## Organ of the Devil

Meanwhile, closer to home in St Michael's Church in Tuffley, Gloucestershire, the Reverend Tony Minchin was unconcerned when his church organist informed him that he was not a Christian. In a commendable spirit of tolerance he allowed Shaun Pickering-Merrett to continue accompanying hymn singers nonetheless. However, according to *The Times* on 16 October, when a new minister took over the church and discovered that Mr Pickering-Merrett was, in fact, a witch who worshipped naked in his own occult temple in a spare bedroom in his council house, a halt was called to his organ playing. Although 26-year-old Pickering-Merrett has resigned, he denies that he is a servant of the devil and claims that he simply worships a pre-Christian god and goddess and uses his witchcraft to help people. The new minister was unimpressed and has demanded that the church be exorcised.



Tim Pearce

## Christmas gifts

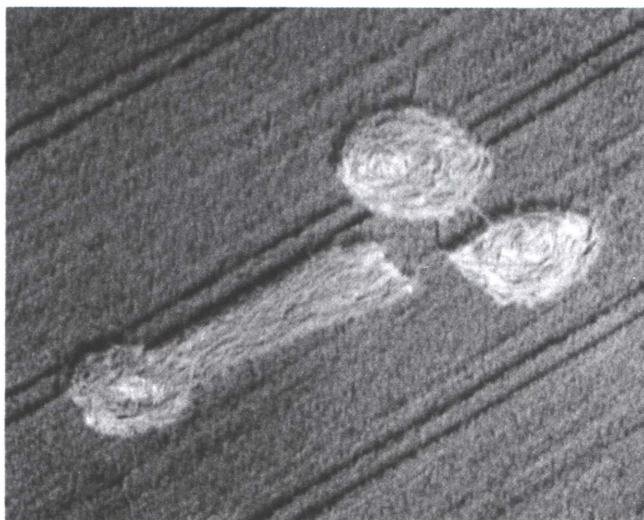
As an inveterate reader of the little booklets full of ideas for spending large amounts of money by purchasing gifts that no-one can conceivably want or need, I was intrigued by the catalogue that dropped onto my lap from *New Scientist* a couple of weeks ago. The *Modern Originals* catalogue undoubtedly contains something for every discerning reader of *New Scientist* as it includes such items as: a 'health giving Rayma Bracelet', an all weather lighter that 'defies gravity', a radiesthesia pendulum complete with exercises 'devoted to finding objects, minerals, water, individuals etc' and a cunning device called the Biopotenzor which when placed in one's pocket generates alternating magnetic fields 'which can have an amazing effect on sexual capacity and potency. You can actually see an increase in the duration and firmness of erection'. But my favourite (and why didn't I think of this) is a 'novel idea for everyone who'd like a speaking scale—without everyone hearing how much you weigh!'. The scale speaks your weight in French.

## Fishy story

The *Guardian* on 30 October picked up a report from the Chinese news agency Xinhua via Reuters that a monster sturgeon the size of a minibus had been caught in the Yangtze river and that scientists had estimated that the half-ton fish was more than 100 years old.

The *Guardian* carried the follow-up report, also via Reuters, that the previous day's story had been a hoax. An official of the Sturgeon Artificial Reproduction Institute in Wuham admitted that the story had been invented by a junior assistant. This is obviously a government cover-up and for all I know the incident may be related to UFO sightings. I ask you, which is more unlikely: the discovery of a monster sturgeon or an organisation with the name 'Sturgeon Artificial Reproduction Institute'?

## Alien communication



Fortean Picture Library

Despite a great deal of crop-circle activity in 1992 the question of who or what is responsible for crop formations has not yet been answered to the satisfaction of cerealists (despite Ernest Jackson's entirely plausible solution in the last issue). Undoubtedly 1993 will bring its own new crop of pictograms to grace the pages of our summer tabloids on days when the royal family commit no sexual indiscretions. However, the above highly significant crop formation, which appeared in Bratton, Wiltshire in August 1991, seems to have been entirely overlooked by experts. Just as we humans saw fit to include a picture of a man and a woman on the plaque carried by the Pioneer spacecraft to the stars, it seems entirely likely to me that aliens, using the cropfields of Wiltshire as their sketch pad, may also occasionally choose to convey information about their physical appearance in their normally cryptic communications. I therefore conclude that the aliens responsible for crop circles have two eyes (one slightly lower than the other) and a long, elephant-like trunk with a sort of knob on the end. Anyone seeing a creature with features resembling this formation should immediately report its whereabouts to one of the crop-circle groups. Merry Christmas.

Steve Donnelly is a physicist and a reader in electronics and electrical engineering at the University of Salford.



# Cold Comfort for Cold Fusion

Malcolm Glasse

*The unfulfilled promise of limitless energy*

**S**KEPTICAL PRINCIPLES are not always applied in science as rigorously as you might think. This is not usually a problem, because a lot of science involves filling in the gaps, checking that the predictions of theory really work. But when a new claim seems barely credible, almost paranormal, then the skeptical approach is exactly right.

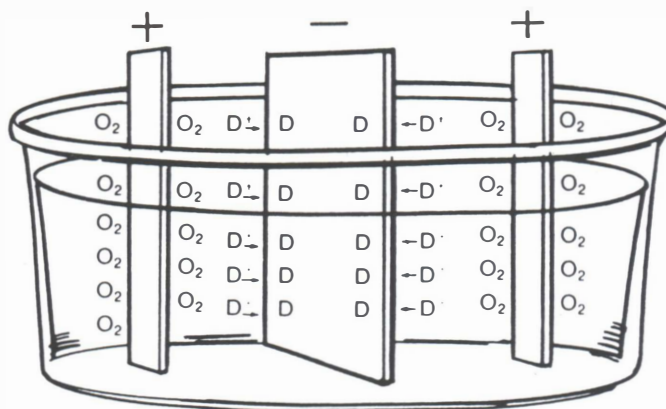
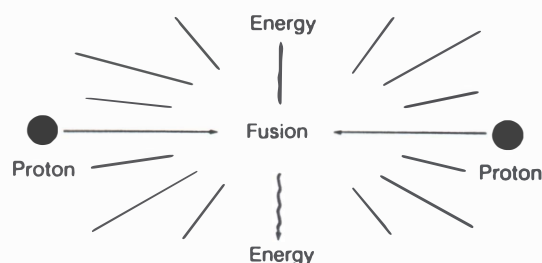
Over three years ago, a quick and easy way to cheap power was announced. Since then, the so-called discovery has been checked out, and generally discredited. Despite all the criticism, the original discoverers are still persevering. One of them, Martin Fleischmann, went to the annual meeting of the British Association for the Advancement of Science, the BA, to report on progress. The problem for scientists and skeptics is to know how to keep the door open for unlikely but useful discoveries, but how to close it when the subject has become a waste of time and effort.

It was in March 1989 that a British and an American scientist called a press conference to announce the discovery of the century. It had the potential to bring nuclear power without radioactivity. It could run from a gadget the size of a jam jar so that every home (perhaps every car) could have one; and best of all, it could run on water.

This was no hoax. The discoverers were two chemists with valued reputations at risk. Furthermore, they could point to a theoretical basis for their work. The only controversy at that time seemed to be the fact that they had found a cheap and easy chemical way of doing what physicists were spending millions of pounds trying to do, and failing.

Professor Martin Fleischmann came from Southampton University (the host for the BA meeting this year) and before that came as a child refugee from Nazism in Czechoslovakia. Stanley Pons was from North Carolina and then the University of Utah. They both (F&P) knew that nuclear fusion offered the best hope of cheap and clean power for the future. They also knew that a simple route to this involved fusing deuterium atoms together. Deuterium is a heavy form of hydrogen which can be isolated from sea water, given enough power, and they had found a way to get that power.

The conventional physical route to fusion, still being pursued, is to use intense magnets to crush the deuterium atoms together. F&P could see another way. They knew about palladium and its behaviour as a catalyst for reactions involving hydrogen. It seemed to soak up hydrogen,  $H_2$ , like a sponge, so it should soak up deuterium,  $D_2$ , too. In fact it



could soak up so much that the hydrogen or deuterium atoms must be partially inside the palladium atoms, tangled with their electrons.

With the hydrogen atoms so close together, and their positive nuclei surrounded by a negative soup, F&P reasoned that it might take only a slightly greater push to fuse the two positive nuclei. As electrochemists they could produce the  $D_2$  from  $D_2O$ , heavy water, and the palladium could double up as electrode and medium for the fusion. They also knew that electricity could create the same effect as very high temperatures. It might get the two nuclei to combine, and if those two nuclei were of deuterium then it would only take a few of them to bring about the solution to the world's energy problems.

At the BA meeting, Professor Fleischmann explained that the chances were low, but the implications of success would be tremendous. For about five years, the two had worked in secret. Then on 23 March 1989 they went public. They had seen their apparatus develop far more energy as heat than they had put in as electricity. On 27 August 1992 at the BA, the story was much the same. There were videos showing heavy water boiling in the tubes. Some showed the recent date of 23.6.92. F&P were still at work at a secret location with little progress to report despite all the publicity and criticism of the last three years.

During that time the excitement has largely died. One outcome of the 1989 press conference was that scientists throughout the world tried to repeat F&P's experiments. The first results seemed to support the claims. Perhaps only their supporters went public quickly. Those who failed to repro-

duce their results kept trying. Later came the reports of those who could not substantiate the claims or their implications. There are three important requirements: the production of excess heat, the emission of neutrons and the formation of tritium or helium. Not all experimenters were equipped to deal with all three, and some looked for just one. The more features that they looked for, the less these tied in with each other.

Eventually a consensus view emerged that this was not cold fusion. It might be something unusual, but it was not the answer to the world's energy problems. Those who had been investing huge sums of money in the development began to cut their losses and F&P disappeared from the news and the scientific stage. The general expectation of most interested scientists was that after a few months or years, one of them would come up with an explanation of where their 'excess' energy had really come from (probably stored up in some part of the setting-up process). There might be the odd reference to some accident which produced apparently supporting evidence. Then we could all forget about it.

All of this has been reported in detail in *Too Hot to Handle*, a readable account by a respected nuclear physicist, Frank Close. It was reviewed by Anthony Garrett in the March/April 1991 issue of *The Skeptic*. It came out in paperback (Penguin, £6.99) on the same day as Fleischmann's talk to the BA. This edition carries an epilogue to bring us up to August 1991, where we learn more of the personal passions but little more of cold fusion. Dedicated historians can find out more from over a thousand articles, tapes and disks in the *Cold Fusion Archive* collected by Bruce V. Lewenstein (Olin Library, Cornell University, Ithaca, N.Y.)

The planned talk to the BA might have been Martin Fleischmann's chance to set the record straight in some way. An estimated audience of 250 people came from a wide variety of scientific backgrounds. They were generally disappointed. Those who were looking for a rich scientific controversy saw little argument, just a few questions of the type 'Couldn't your results be explained by...' (to which the answer was 'no'). Those looking for the climb-down which would signal the end of the Cold Fusion Era received nothing. Finally, those hoping for the ultimate proof of the discovery of the century heard the same old assertions with just a few repeated experiments. Claims that others had done some of the confirmatory work were not clear, dramatic or numerous enough to carry conviction.

Extraordinary claims demand extraordinary standards of confirmation. These were required three years ago following the original announcement. Now that these claims have largely been disproved, the standards required of any supporting work must be increased. Dramatic demonstrations of that standard were simply not given.

There is a problem here for dealing with all extraordinary claims. It is relatively easy to specify general criteria for acceptance. It is more difficult to make them specific for any particular phenomenon, especially when the main supporters of the claim are the ones who do most of the testing. It is virtually impossible to decide who should be the final arbiter.

In one particular respect, the perseverance of F&P gives heart to one form of skepticism. You must have heard some version of the story which I know as 'the everlasting match'. This involves a minor invention that will make some aspect of life easier, such as one matchstick that can be struck as many times as you need a fire. Before the discovery is fully announced, the story goes, the inventor is bought out, even snuffed out in some versions, by commercial interests. The everlasting match story involves a consortium or conspiracy of match manufacturers, phosphorus producers and lumberjacks.

The cold fusion version would involve uranium miners, car engine makers, coal miners and, biggest of all, the huge oil companies. Clearly this has not happened. F&P are still working. The conspiracy theory fails, or must become much more subtle.

Scientists would like to think that the results of experiments are clear-cut and speak for themselves. With hindsight it can be easy to decide which results to believe, but not at first. It is not experiments but people who ultimately give their verdict. As often happens in claims of the paranormal, the supporters hang around to vote in favour, but the disbelievers drift away, unwilling to waste any more of their time on the issue.

Malcolm Glasse is a chemist at De Montfort University Leicester, who would have liked to believe in cold fusion.

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# Skeptics and Scoffers

Tad Clements

*Making sense... or making fun?*



A WOMAN I KNOW believes in the supposed prophecies of Nostradamus and Edgar Cayce, the esoteric teachings of Madame Blavatsky, psychic powers of diverse kinds, pyramid power, and the visitations of ancient as well as modern UFO aliens otherwise she seems quite rational and realistic—at least she doubts the infallibility of papal pronouncement.

Still having some optimism about the power of rational persuasion, I gave her a copy of Randi's book *Flim Flam!* (Prometheus Books) Since it is, in my opinion, one of the most persuasive and entertaining antidotes to most recent forms of paranormal nonsense, I thought her days of credulity were probably numbered. However, I underestimated the power of credulity.

After I had given her several weeks to assimilate Randi's work I telephoned, and in the course of small talk about insignificant things (world politics etc.) asked what she thought of the Randi book. Optimist that I am, I almost expected to hear her say she has seen the light and had become a born-again skeptic. Instead she said: 'I don't believe in any of Randi's claims—I don't like his attitude.' 'His attitude?' I asked, hardly able to hide the contempt in my voice. There was a moment of silence on her end of the phone, so I could not resist a bit of logician's pedantry: 'What has his attitude got to do with his conclusions or methods of investigation?'

Her reply was interesting. It showed that I had missed an important consideration, namely the importance of psychological impact, of rhetoric versus logic. She said 'Randi is merely a scoffer. He pokes fun at people and doesn't have an open mind.' All the logical considerations I was able to suggest were fruitless; her mind was made up and Randi had no place in it.

I found this interesting, because it suggests some considerations which may be important to those of us who consider ourselves to be rational skeptics. Our consideration is conceptual. What does 'skepticism', in the sense we intend we use it, mean? How does skepticism, in this sense, differ, if at all, from 'scoffing'? And, if they do differ, is there any necessary relationship between them? However, as interesting as such semantic considerations may be for those of us obsessed with language, there is another related consideration of greater practical importance to all of us: What is the most effective way to encourage critical thinking and to

weaken credulity?

The first group of questions—the conceptual ones—are not too difficult to answer, as long as we're satisfied with somewhat superficial answers. A good dictionary is probably adequate in this case. 'Skepticism' may therefore be defined as doubt directed toward any claims which seem to violate either well-established scientific principles or the canons of logic or both; a rational kind of doubt requiring extraordinary evidence for extraordinary claims. Using the lexicon as our guide, 'Scoffing' may be defined as making fun of someone or something, focusing on ludicrous aspects. Now, if these or similar meanings are adopted, then it seems clear that, logically speaking, there is no necessary connection between skepticism and scoffing—they are logically independent.

If, however, we shift our considerations from logic and semantics to human psychology, the questions are not as easily answered. This is why my credulous friend's rejection of Randi and his investigations is interesting. Her rejection, on psychological grounds, represents a phenomenon which should make us focus on the most effective way to encourage rationality.

Is my credulous friend fairly typical of credulous people? Does scoffing, or even the appearance of scoffing—of appearing to poke fun at superstitious belief and cognitive methods—turn most credulous people off? Or, on the contrary, is humour actually the most effective way to encourage rationality in credulous people?

I do not think there are any simple, universal answers to these questions. If we examine those who have been most effective in promoting rational criticisms—people like Robert G Ingersoll, John Dewey, Bertrand Russell, and Paul Kurtz—it is obvious that quite different mixes of humour and reason have been successful.

But perhaps it isn't a matter of humour (or scoffing) versus serious intellectual consideration that we should be thinking about. Perhaps what we need to aim for are approaches which manage to reveal the absurdity of positions without at the same time making the credulous person feel like an object of ridicule. However, I admit that I haven't succeeded in doing this very well myself.

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**Tad Clements** is emeritus professor of philosophy at the State University College at Brockport, USA.

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# The Fasting Woman Of Tutbury

Tom Ruffles

*A close look at a nineteenth century 'miracle'*

**A**NN MOORE was born in 1761 in Rosleston, Derbyshire, and had spent her working life firstly in service and later in the cotton industry. Early in 1807 she declared that she could live without food. At the time she was living in Tutbury, Staffordshire, and consequently became known as 'The Fasting Woman of Tutbury'.

## The first watch

Moore agreed to be subjected to a watch in order to prove her story, so in September 1808 she was taken from her own home to that of a local grocer, Mr Jackson. The event was supervised by a surgeon, Robert Taylor, but all inhabitants of the village were invited to help, and 80–90 participated. The fast lasted for sixteen days, though Moore was allowed some water on the first three days. Then she was taken home, having apparently succeeded in establishing her claim.

Taylor published an account of the proceedings, declaring that Moore had lived without food, liquid or solid, for thirteen days. Her window was always kept open, and the hypothesis was advanced by Taylor that she was somehow obtaining nutrients from hydrogen in the air. Other cases of people fasting for lengthy periods without ill effect were adduced.

The claim, now seemingly verified, was believed by many, and large numbers flocked to see her. They left gifts, ostensibly for her children, and these were estimated to amount to about 250 shillings in two years, and perhaps as much as 400–500 by 1813. Moore professed to be very religious, and would discuss theological matters with visitors, in order to add weight to a divine interpretation of her ability. But it was felt that this was a mask, as she was capable of 'virulent' language when challenged by skeptics. It was the case that prior to the advent of her fame she had been morally depraved; she had been separated from her husband for about twenty years, during which time she had lived in adultery with a man by whom she had borne two children.

From the time the watch ended, she claimed to have eaten nothing, a declaration which was clearly profitable. Indeed, she said that she had now lost the power of swallowing—if she attempted to do so, she would suffocate. As a corollary she had not urinated nor defecated during that time, neither had she slept.

Various causes were advanced by Moore as to why she had been afflicted (or blessed, depending how one looks at



ANN MOORE,  
*The fasting Woman of Tutbury*

it) in this way. To begin with she said that it had been caused by washing some clothes which had been used to bind the ulcerous wounds of a boy. Then, she said that it was due to extreme want. Latterly she stated that it had come on gradually, so that she ate less and less food, then took liquids only, then nothing at all.

## The Henderson report

As a result of hearing of Moore's fame, Alexander Henderson and two friends on holiday visited her at her home during 1812. They had previously canvassed opinions of the phenomenon, and found that whereas the medical community was skeptical, members of the general public were convinced of her sincerity, and pointed to the nine-day watch as definite proof.

On meeting her they gave her a full examination, and found her healthy. She was thin, though not abnormally so, and her stomach had not caved in as would be expected in a case of starvation. On the other hand the lower part of her body appeared to be wasted and paralytic. She produced

plenty of saliva, and her bed stank of urine. In addition to her ability to survive without food, she still claimed not to be able to sleep. She did doze, she said, but was always conscious. She also stated that she was subject to fits, had problems opening her mouth, and had lost the use of all but the index finger on her left hand. She said that she had lost all feeling in her lower limbs.

The party was not convinced and thought that she was fabricating her condition in order to 'excite wonder and compassion', in collusion with others. Henderson produced fourteen reasons in support of his contention that Moore was not telling the truth. Some were direct, others circumstantial, based on previous cases of lengthy fasting.

To begin with, there was the natural and healthy appearance of her face and the strength of her pulse, muscles and voice. Moisture in her mouth, nostrils, eyes and the surface of her skin did not indicate any desiccation. Her intellect had not been impaired. On a moral note, the dissolute conduct of her earlier life and the admission that she had once passed as religious for worldly gain did not inspire confidence in her probity. There was the vested interest she and her attendants had in perpetuating the deception, as well as the declaration that she had made that she thought that a time might come when God would restore her appetite. This would be a useful escape should she be caught eating.

Other factors militating against her were: evidence of the concealment of the evacuation of urine; her dread at a repetition of the watch; a general dread of experiments performed upon her; variations and contradictions in her statements, for example the date upon which she ceased eating, using a finger she had declared to be useless, and whether she did or did not perspire; the performance of actions which were inconsistent with her statements, such as drinking when she had declared that it caused her pain; and the fact that her bodily state was about the same as when she began her fast, yet case histories of starving people consistently found that physical deterioration occurred quickly.

Instances of similar frauds from across Europe were discussed by Henderson, and it becomes apparent that there was a tradition of women claiming that they had not eaten for extended periods. He cites various cases of women who, like Moore, had been convincing at first, but had later been caught cheating. In any case, he continued, the previous scrutiny of Moore had only lasted sixteen days, which was not the same as five years, nor had it been scientific.

### The second watch

Moore's claims were treated with skepticism by the scientific community, so she was invited to participate in a second watch which would be better controlled than its predecessor. It was reported in a pamphlet published, like Henderson's, in 1813. This was now six years after she first made claims of abstinence, and four and a half after the first watch. It was clear that despite these alleged privations she was still in good health. The Henderson pamphlet spurred her friends to encourage her to refute his allegations as quickly as possible.

This watch was to be more rigorous than the first, so only Church of England ministers, medical men and magistrates, upright citizens all, were to be allowed to participate. The committee was headed by Sir Oswald Mosley, Bart, of Rolleston. It met on 20 April 1813, and agreed that Moore should be watched for one month. She refused at first, but the medically qualified members were adamant that no shorter time

would suffice to test her adequately, so she was forced to agree.

To begin with she was weighed and was put on a new bed which had a weighing machine attached. Moore was dissatisfied with these arrangements, and said that she expected to lose 2-3 lbs. The bed had been inspected and filled with chaff. The bedding was searched, and the move from the old to new bed watched. Her person was examined, as was the room. Naturally she was kept isolated, except for the investigators.

At the end of seven days, an announcement was made that she had taken no food in that time. Moore's supporters were confident that she would last the entire month, though

AN  
ACCOUNT  
OF THE  
EXTRAORDINARY ABSTINENCE  
OF  
ANN MOOR,  
OF  
TUTBURY,  
Staffordshire,  
WHO HAS, SINCE JUNE 1807, LIVED ENTIRELY  
WITHOUT FOOD;  
GIVING  
*The Particulars of her Life to the present time,*  
AN ACCOUNT OF  
THE INVESTIGATION  
instituted on the occasion,  
AND  
Observations on the Letters of some Medical Men who attended it.  
ALSO OTHER SIMILAR CASES OF ABSTINENCE.  
*By a Gentleman living near Tutbury.*  
THE THIRD EDITION.

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UTTOXETER.  
Printed by R. RICHARDS, and sold by all Booksellers.  
1810  
(Price Ninepence)



it was clear to those observing that she was suffering, and had lost a lot of weight. She developed a fever, and asked for cloths dipped in a vinegar/water mixture with which she could wet her tongue and mouth. These were usually wrung out, but one watcher did not do so in order to see if she could swallow, despite her claim to the contrary. She swallowed the mixture avidly.

By the eighth day she was very distressed, and her pulse was registering 145 beats per minute. The day after she said that she had to give up the test as she was ill, and asked for her daughter to be sent for. The watchers were worried that she would die, and admitted the daughter. She, upon seeing her mother's condition, ran to a neighbour's house, but immediately returned, and it was supposed that she transferred a quantity of water from her own mouth to her mother's under the pretence of kissing her.

Moore was somewhat revived by these ministrations, and her daughter begged the team to leave the room, which they were loath to do. The daughter refused to assist her mother unless they did, and they felt that they had no choice as the doctors present opined that Moore appeared to have only a couple of hours to live. Her pulse was now 160 beats per minute in one wrist, and not discernible in the other. The watch therefore broke up, the daughter took charge, and Moore began to improve.

### The aftermath

Despite the failure of the test, Moore said that she wanted to make an oath that she had taken no food during the preceding six years. This she did, no doubt hoping to retain her credibility. She might have succeeded in this endeavour, but Mr Bott of Tutbury, one of the investigators, discovered linen concealed in her room which seemed stained with urine and faeces. Her blanket was also wet through. When confronted, Moore broke down and made a written confession, dated 4 May 1813. At last she admitted that she had eaten during the six years, and asked forgiveness of the people she had deceived, as well as of God. She drank some milk in the presence of witnesses without difficulty, though when water had been placed in her mouth when she seemed to be dying she had imitated the act of suffocation and had brought up blood.

Conjectures as to why she had succeeded during the first watch were put forward by the writer of this third pamphlet. One was the possibility that the huge number of watchers had included collaborators, although this had not been proved. Her linen had been brought and removed by one woman, and could have been used as a vehicle for food, but again nothing had been found when it was searched. The daughter could have helped, as she had visited every day and had been permitted to approach the bed. The conditions of the second watch ruled out this possibility.

Any urine discovered during the first test would not have been seen as significant, as she had been allowed to drink during the first three days; it was only after the test ended that she claimed to have lost the power of swallowing. During it she took snuff, and also pretended to have a cold, so that she used nineteen handkerchiefs in two days. These were washed in case they contained starch, but were

more likely used to absorb her urine. They would have been dried on her body before being returned, with the smell covered by the window always being kept open. She was also at first given hartshorn for a headache, the ammonia in which would have helped to disguise the smell of urine. This remedy was later withheld.

With all these loopholes in the protocol of the first watch, Moore must have been confident of succeeding in the second, and it is unlikely that she would have agreed to participate had she appreciated how rigorous it was to be. During the nine days the only assistance she received was the supply of wet cloths. She was so grateful to Mr Wright, who had not wrung out the cloth he had given her, that she promised him her body for dissection after her death.

The report acknowledged that people can survive on very little, and postulated that Moore, never a hearty eater, had been tempted to exaggerate this ability. Her daughter did admit that her principal source of sustenance was tea. The writer concedes that had she had access to water, she would probably have been able to survive the entire month. This admiration for her constitution is tempered with the declaration that Moore was an impostor, her deception made worse by its religious cover story. It had been impious of her to offer herself as a miracle.

It is interesting to speculate on why Moore should have chosen to make such a preposterous claim. Apart from the monetary gain, which came after she had passed the first trial, she found herself an object of interest and celebration. Medical men came to visit her, which must have been gratifying to somebody who would not otherwise have been found interesting. Starvation, with all the discomforts it entailed, was one of the few ways for a working woman to gain social and financial advancement.

It is possible too that the fraud got out of hand, so that something designed to impress the inhabitants of Tutbury blew out of proportion until it was a matter of national interest. On a larger scale, this was a time of uncertainty. The long war with France had created unrest and economic difficulties in the country, and industrialisation was affecting the cotton industry in which Moore worked. It is clear that fantastic claims flourish when times are hard.

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# Great Balls of Fire

Steuart Campbell

## *The controversial phenomenon of ball lightning*

**I** DEFINE BALL LIGHTNING (if it exists) as an electrical discharge phenomenon. I question the existence of corona discharges in mid-air and not necessarily the existence of other luminous phenomena.

The existence of ball lightning is not certain. Scientists have to be careful not to claim certainty. Truth cannot be discovered and *nothing* is certain. In practice of course many things are believed to be very nearly true, or approximately true. In effect one may say that the degree of certainty is proportional to the quantity of confirmatory data available. But there are dangers in the interpretation of data. Before the acceptance of continental drift, the data were seen to confirm the view that continents do not move. After the paradigm shift, the data were seen to confirm drift and plate tectonics. In other words, data can be interpreted in various ways, depending on the beliefs of the interpreters. In the words of modern philosophers of science, 'perception is theory-laden' and even scientists can fall victim to their beliefs. Where hypotheses can be tested, erroneous beliefs can be exposed. However, belief in ball lightning is an example of a hypothesis that is hard to test. The data are sparse and inevitably open to various interpretations. In such a case it is most important to question the existence of the alleged phenomenon. (See article by Frank Chambers in *The Skeptic* 6.4)

It is important to point out that the existence of ball lightning is an *assumption*! This is not emphasised often enough (or at all). Consequently the fundamental question about ball lightning concerns not its nature but its existence. Scientists often ignore the null hypothesis, the hypothesis which states that what they seek does not exist. They especially ignore it if it is unwelcome. Someone who has spent his life looking for something will not willingly accept that it does not exist. However it is instructive to recall an earlier belief in the existence of an ether through which electromagnetic radiation could be propagated. In the 1880s, Michelson and Morley conducted an experiment which, although it ought to have detected the ether if it existed, found no evidence of it. Then in 1905 Einstein concluded that the ether did not exist and his view has been accepted.

Scepticism regarding the existence of ball lightning goes back at least to Faraday and Arago in the nineteenth century. In 1839, Faraday, while allowing that balls of fire might appear in the atmosphere, doubted that they had anything to do with lightning or atmospheric electricity. More recently (in 1973), K Berger reported that, in over 20 years' study as a meteorologist and lightning investigator, he had *never* observed ball lightning. He concluded that it did not exist. Other scientists have reached the same conclusion. Even James Barry allows that unbiased examination of reports

leads to the conclusion that a great percentage are highly questionable and could be interpreted in several ways. Among those ways is the persistence of vision theory proposed by Lord Kelvin in 1888. He claimed that the uniform size reported in many cases was ascribed to an illusion associated with the blind spot in the eye. Until a few years ago, most scientists agreed. Other sources of deception proposed have been will-o'-the-wisp and owls with luminous wings. Unfortunately, the existence of will-o'-the-wisp is as uncertain as that of ball lightning! I do not comment on owls.

This raises all sorts of other questions relating to the reliability of reports and the nature of the objects reported (if they are not ball lightning).

*Reports* of ball lightning (which do exist) suffer from defects inherent in the human perceptual and memory systems. Seeing takes place not, as many believe, in the eye, but in the brain. Because the



Mary Evans



brain (or rather the *mind*, the brain's operating system) processes the sensory input, what we perceive is not necessarily what the sense organs receive. In the case of vision, the mind does a lot of guessing. This can be demonstrated by various well-known optical illusions. Not all need a laboratory: one can be seen on any moonlit night. If there are clouds moving across the moon, it will be the moon that appears to be moving, not the clouds. This is because the mind *guesses* that backgrounds are usually stationary and it takes the moon to be an object moving in front of stationary clouds. It is difficult to overcome this particular illusion, even when you know that it is happening.

Distant stationary lights are subject to several movement illusions, all of which attribute movement to the light. The most famous is the *autokinetic illusion* (in which a stationary light will appear to move about at random).

The size and distance of a luminous object cannot be established by observers without additional information. Its maximum distance *can* be determined if it is seen in front of an object, the distance of which is known. However, where observers (mistakenly) place an object nearer than it really is, they may claim to have seen it in front of something when this was not the case.

Usually observers make a guess about either the size or the distance of an object and then determine the other parameter from their guess. In fact both can be wrong. Objects seen near the horizon can be subject to the *moon illusion* (in which an object appears larger than it really is). This illusion is commonly seen in the moon.

In general, observers cannot distinguish between change in size of an object and change in its distance from them. They are prone to interpret a change in size as a change in distance. A phenomenon called *size constancy* can interfere with size perception when either the size or the distance of an unidentified object is unknown. Estimates of altitude are similarly suspect; observers tend to exaggerate the altitude of objects near the horizon.

Even estimates of time-span can be unreliable. An observer who is fascinated tends to underestimate the duration of the observation. Estimates of brightness are meaningless since brightness is a relative term; it is the result of contrast differences. Observers may also make false associations,

drawing unwarranted conclusion from what they perceive. They may associate effects with the wrong cause. In short, human perception can be faulty and seeing is not *necessarily* believing. Take a look at Fig. 1. What do you see? An alien being peeping over a wall? Or perhaps a kneeling woman washing a floor, with her bucket beside her!

In the case of anomalous luminous phenomena, observers will try to identify them by reference to the models they carry in their minds. They can only identify such a phenomenon as ball lightning if they have heard of it. Conversely, they are likely to identify a phenomenon as ball lightning simply *because* they have heard of it, and for no other reason. We all tend to see what we want to see!

Nor is memory much more reliable than perception. Because memory is a process of reconstruction, it can be faulty. People who report ball lightning and who have heard of other reports may (inadvertently) draw on those previous reports for their own report. Tests show that reliability decreases with time, and it is strongly suspected that observers attempt to make facts fit theory. Consequently, anecdotal reports of ball lightning (supposing that they are genuine) must be regarded with suspicion. Observers are mostly unaware of the defects inherent in their perception and memory. Worse still, asking people if they have seen ball lightning begs the question of its existence and ignores their inability to distinguish it (if it exists) from other phenomena. The question plants a concept in the mind, a concept which will distort memory of any genuine perception (itself of doubtful reliability). Consequently such a question should not be asked and surveys based on it are valueless.

Proper identification of an aerial object (reported or recorded) depends on how many explanations the investigator knows. An investigator who knows many explanations will be able to explain the report or recording more satisfactorily than an investigator who knows only a few explanations. An investigator who believes in the existence of ball lightning is likely to overlook alternative explanations and believers are prone to ignore Occam's Razor.

Let me illustrate some reporting errors by example. Fig. 2 shows a drawing published by M W Haidinger in 1868. Indeed it was the first sketch of ball lightning to appear in a scientific journal. He claimed that it shows an



Fig. 1 An ambiguous figure. What is it?

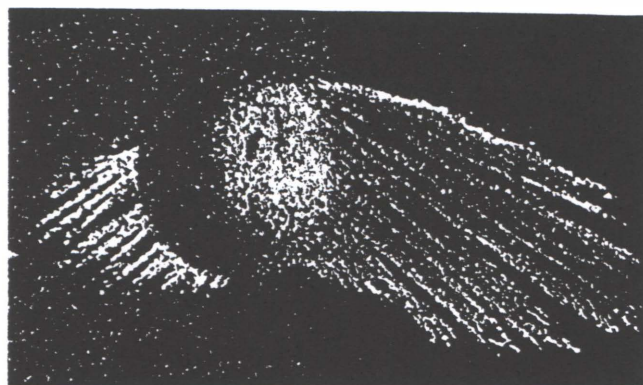


Fig. 2 Haidinger's sketch of 'ball lightning' (the original is coloured red).

'electric meteor' which he saw during a thunderstorm in Vienna at about 5:15 pm on 20 October that year [1]. The sketch is well known and is often used to illustrate ball lightning; Singer reproduced it in colour and his publisher used it on the book's dust jacket [2].

Of course one should be cautious in accepting a sketch, which may owe as much to the imagination of the reporter as to what he saw. However, there are other reasons for doubting that this shows ball lightning:

- Haidinger admitted that he *wanted* to see such a 'meteor' ever since he heard about them in 1845. Consequently he was prone to misinterpret other phenomena for the one he sought.
- It was seen for only 23 seconds and it did not move.
- It was not associated with a lightning stroke.
- Because he reported that he saw the moon in the same position (although later in the evening), it is clear that the object must have been seen in or against the sky, not in front of the house opposite.
- As a result of an announcement in a local newspaper, Haidinger discovered that he was not the only observer. At least two other people reported seeing a similar object *in the same direction*, but from different parts of Vienna. One saw a dazzling object in the south-west before the storm broke.

All this points to the object being astronomical, even though it was observed during daylight and during a storm (a gap in the clouds could have given a brief glimpse of the sky). As a student of astronomical mirages (these are images of astronomical objects enlarged and/or distorted by lens effects in the atmosphere), I can tell you that it has all the necessary characteristics, especially the two slanting beams. Because Haidinger gave estimates of altitude and azimuth (which agree with his claim to have seen the moon in the same position) we can look for the source. At approximately the azimuth he gives (although a little lower in the sky) I found the first magnitude star Antares, a *red* star! I know of many reports of similar objects, some evidently of stars seen in daylight. The stars (sometimes planets) are only visible because of the magnification involved. However this is not the place to discuss another unusual phenomenon. I conclude that the object is very likely to have been a mirage of Antares. In any case, it is not safe to conclude that it was ball lightning.

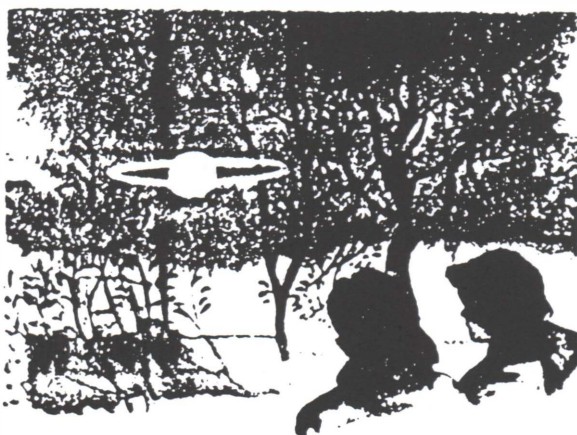


Fig. 3 The illustration which accompanies Mitrofanov's account of 'ball lightning' seen near Ryazan in 1974.

Many other reports of ball lightning may have a similar explanation. Indeed, I have explained one Russian report in this way. A Russian scientist reported that he and some friends from the Soviet Academy of Science saw the object shown in Fig. 3 early one morning from the bank of the River Oka near Ryazan. Since it appeared to be 70 metres away along the riverbank, they thought it was a torch. As they all stood up, it also rose up and appeared to come towards them, increasing in size. Then it slowly 'swam' horizontally and disappeared after 4 minutes. At its largest, a ring detached itself and vanished as it expanded. There had been no sound and there was no storm. Nevertheless, Mitrofanov reported the object as ball lightning, probably because he and his group had been testing Kapitsa's ball lightning hypothesis [3].

Because Mitrofanov gave his exact position, the exact time and the approximate azimuth of the object, I was able to test for an astronomical explanation. Venus was just rising on the horizon in the direction in which they had been looking. It appears that what they saw may have been a mirage of Venus. The fact that the object rose up as they did tends to confirm this hypothesis. Only a very distant object would appear to move in that way. Astronomical mirages are fairly rare, but then so are reports of ball lightning. Perhaps some reports of ball lightning are actually reports of another rare phenomenon.

Nor is mechanical damage reliable evidence for the existence of ball lightning.

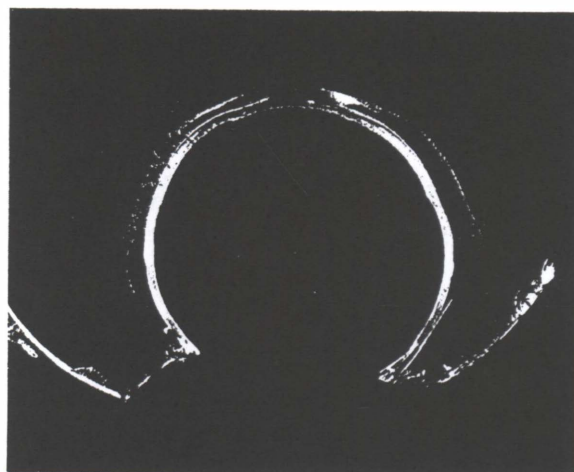


Fig. 4 Part of the hole in the window of the Department of Meteorology, University of Edinburgh.

In 1973, damage to a window in the University of Edinburgh (see Fig. 4) was reported (by the head of the Department of Meteorology) to have been caused by ball lightning, although he did not see the damage occur. He was misled by an illustration in a book published in 1921 which showed such a hole and attributed it to the effect of lightning (although not to *ball* lightning). He was also misled by having heard of ball lightning [4]. Detailed investigation showed that the hole was caused by mechanical damage. In this case the window was probably struck by a glass marble thrown by children. Indeed, I found a marble below the window!

I found many similar examples, some where the hole was the only damage. In all cases the missing disc of glass





Fig. 5 Barry's photograph of burning low-density propane at atmospheric pressure.

was found lying where it fell, usually inside the window. What many took to be glass fused by the heat of a lightning stroke (or the heat of ball lightning) was in fact a nearly circular crack propagating around a weak spot in the sheet. I have never seen any evidence that such holes in glass have been caused by lightning and I do not believe reports that ball lightning passed through closed windows [5].

Reports of extensive damage such as fires or explosions may just as easily, if not more easily, be explained as the result of ordinary lightning strikes. Such reports are not clarified by the popular conception that lightning strikes are the result of something called a thunderbolt. Some may believe that what we call ball lightning is in fact what they call a thunderbolt.

I have defined ball lightning as an essentially electrical phenomenon. Consequently I allow the existence of chemical phenomena that have a spherical shape. In this way I can accept that a Smethwick housewife did encounter a luminous ball in her kitchen in August 1975 [6]. It was only described as ball lightning because it occurred during a thunderstorm. However, that appears to have been coincidental; there was no evidence of a nearby lightning strike. More relevant was the fact that she had been attempting to light a gas ring and that the 'ball' appeared directly over the ring. Barry published a photograph of a long-lived illuminated ball phenomenon produced by the spark-initiated combustion of low-density hydrocarbon gas at atmospheric pressure (see Fig. 5) [7]. In the Smethwick case, the gas was methane. My guess is that the housewife had used a spark-type gas igniter and that she had operated it above the ring where some methane had escaped [8].

In 1979 I investigated a report from Crail in Fife that ball lightning had appeared on a crowded beach 11 years earlier. There were many witnesses; I had reports from five, all in different parts of the beach area, one in a house in the town. All agreed that there was a loud noise like an explosion. The main witnesses were in their beach café, where (so they alleged) the ball passed over a gas cooker; this was later found to be cracked [9]. In fact the ball may have emerged from the cooker and may have been a low-density gas combustion ball. Research should be conducted to establish



Fig. 6 Jennings' photograph which was thought to show ball lightning (it is a trace of a street lamp).

whether or not such gas balls can exist in the open. It may explain some reports of ball lightning.

Photographs alleged to show ball lightning are as suspect as anecdotal reports and sketches. The camera cannot lie, but what it shows can be misinterpreted and the *photographer* can lie. Until the early 1970s, Fig. 6, a photograph taken in 1961 at Castleford in Yorkshire, had been interpreted as showing the path of ball lightning. Indeed *New Scientist* described it as the 'Path of a Thunderbolt' (without even adding a question mark). Like Haidinger's sketch, the picture was commonly used to illustrate ball lightning. In 1972 Davies and Standler claimed that it might show the pulsed trace from the street light visible in the picture [10].

In 1981 I demonstrated that Davies and Standler were correct. Furthermore, I showed how the picture came to be taken. The pulses were due to the periodic discharges of the lamp (100 times a second) and the shape of the track was caused by movement of the camera. The camera shutter was slow to close on release of the operating button [11]. It is quite easy to obtain such a trace and I have seen many other examples.

A Russian photograph has the same explanation. Fig. 7 shows a picture taken by B V Davidov in Kharkov in 1957, allegedly during a thunderstorm. It was published the following year with an endorsement by Professor I S

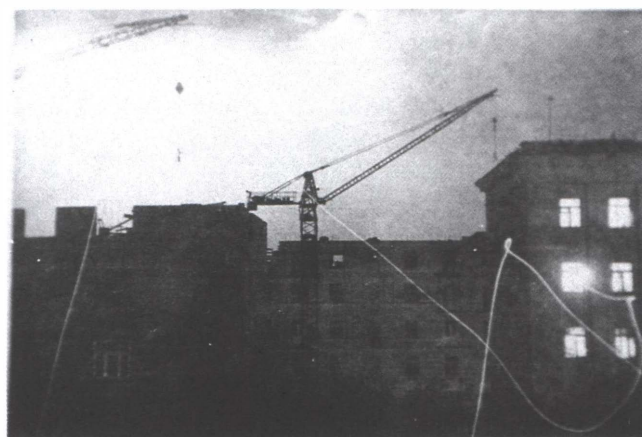


Fig. 7 Davidov's photograph of 'ball lightning'.

Stekolnikov of the Soviet Academy of Science [12]. His conclusion (that it showed ball lightning) was based on having seen similar pictures in a 1939 US journal [13]. The traces in the picture can be shown to have been caused by the light from stationary lamps tracking across the film. The two traces are identical; they have the same shape and orientation. One light source was in a room in the building opposite (here). The second source must have been some distance away on the right at a lower level. The lack of pulses shows that both lamps were incandescent. Evidently these traces were caught (again) because of slow shutter closure. The photographer moves the camera believing (mistakenly) that the shutter is closed. Considering that he drew attention to the constant width of the trace, it is surprising that Professor Stekolnikov did not see the simplest and obvious explanation—that the sources were at a constant distance from the camera. Misled by his photograph, Davidov went in search of evidence for ball lightning, and thought he had found it on a window of the block opposite. He found charring and soot which were more likely caused by a painter's blowlamp. Misled by the American article, Stekolnikov drew the wrong conclusion. In fact, all the pictures in the article he saw appear to be traces of various lamps, some caused by movement of the camera, one by movement of a torch in front of a stationary camera! [14].



Fig. 8 Childerhose's UFO picture (thought by some to show ball lightning).

Some ball lightning photographs are deliberate fakes. Indeed, some of those identified as showing lamp tracks may be fakes. But a more subtle fake was produced in 1966 by a former Canadian Air Force pilot. Fig. 8 was alleged to show a UFO, but since it was taken over a thunderstorm, an American editor of *Aviation Week and Space Technology* (who also writes sceptically about UFOs) suggested that the bright object was a giant plasma or ball lightning about 15 to 30 metres in diameter. He described it as 'a phenomenon not yet catalogued by science' and his publisher used the picture on the dust jacket of one of his books [15].

I discovered many inconsistencies regarding the circumstances in which the picture was alleged to have been taken and that the pilot involved had a reputation for pranks. His former flight commander admitted that he had let him 'have his fun'. It appeared that the pilot (R J Childerhose) had constructed the picture (perhaps by double exposure) to



Fig. 9 A still from Peter Day's ciné film.

illustrate an article on flying saucers which he wrote for the *Montreal Star* [16]. Many other pictures are probably faked.

Although it is fairly easy to take a photograph (or to fake one) which many mistakenly interpret as showing ball lightning, it should be less easy to produce a film or video sequence that could fool anyone. Moving image sequences contain so much more information. However, Fig. 9 is a still from a film sequence taken in 1973 by Peter Day near Aylesbury in Buckinghamshire. A bright ball of light moves steadily across the horizon for 23 seconds until it suddenly vanishes. Because it was reported as a UFO, the film has been shown many times at UFO conferences and has featured in the BBC programme about UFOs called *Out of This World*. However, it was also thought that it might show ball lightning and the film was shown to a group of interested scientists. All agreed that it did not show ball lightning. However they did not know what it did show.

I have been able to demonstrate that the object is a mass of burning fuel from a damaged F-111 fighter-bomber. The jet was dumping fuel after taking off from Upper Heyford Airbase and the fuel was ignited by the jet's exhaust. This is a permitted procedure, although it is not often used. The aircraft (invisible in the film, and unheard by Peter Day) was at least 6 kilometres away from him. It later crashed near Bedford [17].

So much for ciné films. Videos fare no better. Bergstrom and I have recently explained a video recording taken by

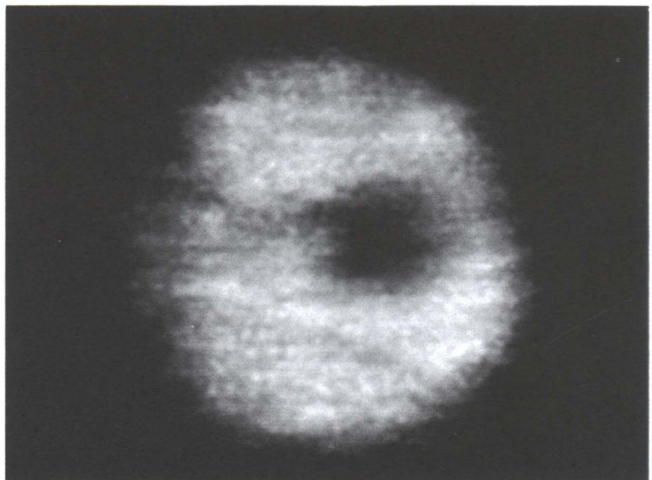


Fig. 10 The object in Ray Cahill's video which was thought to be ball lightning.



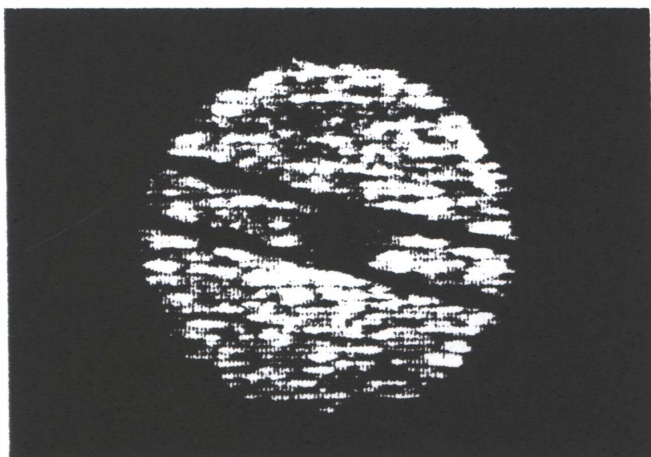


Fig. 11 The stop plane in Cahill's video recorder illuminated by a distant motorway light.

Ray Cahill in Kent in 1989. He videoed lightning seen during a thunderstorm and, although he did not see ball lightning, he later noticed the object shown in Fig. 10 on the recording. It moves across the screen from left to right in about 1.5 seconds. Apparently Cahill had heard about ball lightning and thought he had caught it accidentally. Some scientists (including Professor Roger Jennison of the University of Kent) agreed, and for a time it was accepted that the video did (uniquely) show ball lightning. It was shown on television in the south-east of England.

I was not convinced, and attempted to locate a light or lamp that could have been caught accidentally as Cahill swung the camera across the scene. I found that the only lamps bright enough to show on the video were those of a motorway junction some 300 metres away and that one of these had been caught. Crucial to finding the right explanation was an understanding of the operation of the video camera, especially its autofocus mechanism. This defocussed the lens during the critical moments when the anomalous image was caught.

However it was not just a matter of videoing a lamp out of focus. In video cameras, there is an extreme out-of-focus situation where a distant object evenly illuminates the stop plane, the latter being focussed sharply on the picture plane. Because the stop plane usually contains a small shield that is not usually seen because it is completely out-of-focus, an image of this shield can be recorded. Fig. 11 shows an image of the shield and its support wires in Cahill's video recorder. It is illuminated by one of the motorway lamps. Clearly this is the object which Cahill and others thought was ball lightning. The more complex the equipment used to record alleged ball lightning, the more careful we need to be in analysis of the results [18].

If we ignore anecdotal evidence because of the perceptual and memory problems involved, we have to rely on instrumental evidence for the existence of ball lightning. After all, if it really exists, *some* instrumental evidence must be available. In fact there is *none*! There is no photograph, film, or video recording which can be accepted unreservedly as showing ball lightning. This in itself points to the null hypothesis. We then observe that no theory exists which

can explain all the reported characteristics of ball lightning and that no-one has been able to create ball lightning in laboratory conditions which simulate those in the open. These facts can be explained most simply by proposing that ball lightning does not exist!

Perhaps I am influenced by the fact that all the cases which I have investigated have (or could have) a prosaic explanation. However there is no reason to suppose that my own experience is untypical or that I have not examined a representative sample.

I do not claim that ball lightning does not exist; I merely propose the null hypothesis. Someone ought to advocate it, if only to keep a check on the believers. If you like, regard me as a Devil's Advocate. I may be proved wrong, but the onus of proof is on those who advocate ball lightning's existence.

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*This article is an edited version of a paper read to the Fourth Conference of the Tornado and Storm Research Organisation held on 11 July 1992 at Oxford Polytechnic.*

# Quackupuncture

H B Gibson

## A question of medical ethics

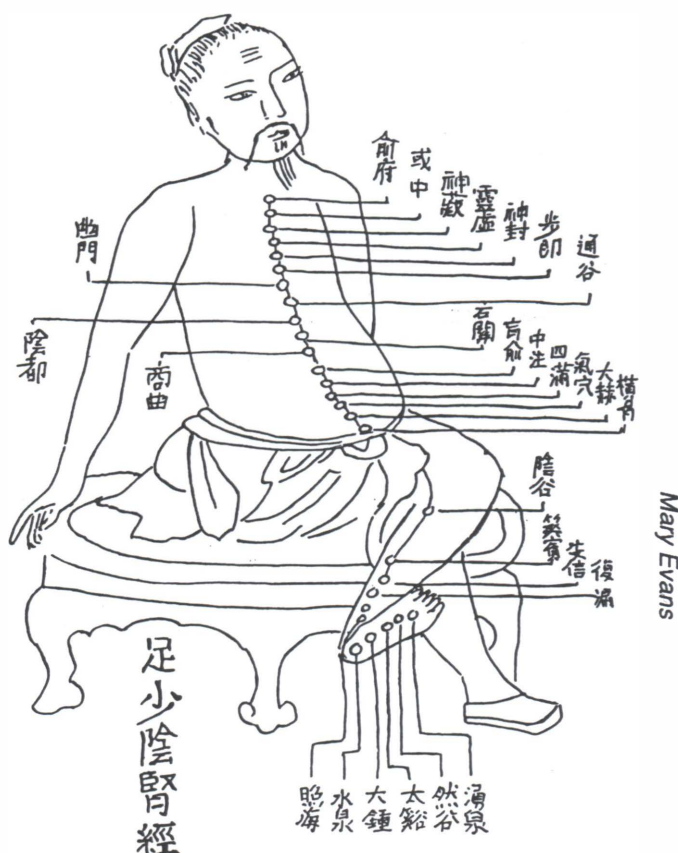
**A**LTHOUGH ACUPUNCTURE continues to be practised all over the world by some medically qualified doctors, I had thought that at last in the 1990s the practice was beginning to be abandoned by the medical profession in the U.K. A sort of epitaph for it was recently published in *The Lancet*:

Whilst careful scientific research can never entirely exclude the possibility that a dwarf is hiding in the corner of the room, many western researchers may now conclude that the existence of the dwarf approaches asymptotically to zero (Editorial, 1990)

This editorial article examined the evidence for the therapeutic efficacy of acupuncture that had been published in more recent years, and found it sadly flawed. Western medicine has indeed had several periods of dabbling in acupuncture during the past two centuries, but in the last half century scientific method has elbowed its way, against some powerful opposition, into medicine, and acknowledgment of the placebo effect has now attained official recognition. It was with some surprise, therefore, that on visiting my GP recently I found a folder marked 'Acupuncture' on display in the waiting-room for patients to consult. This medical group-practice has the policy of providing its patients with a wealth of popularly written books and folders in the waiting-room which present all sorts of guides to healthy living, and discussion of such topics as asthma, contraception and constipation.

I looked at the 'Acupuncture' folder expecting it to give an informed and balanced account of acupuncture. Not a bit of it; all that the folder contained was material that was simply a glowing puff for acupuncture, such as might be issued by any commercial advertising agency. Uninformed lay people might well suppose that acupuncture is a tried and tested technique approved by the British Medical Association, and therefore they should be as prepared to spend their money on lay acupuncturists, just as they might on any orthodox private medical practitioners. The folder contained three leaflets, plus a list of 'Useful Addresses': *Acupuncture in the UK Today*, published by the British Holistic Medical Association (BHMA); *Introductory Leaflet on Acupuncture*, also published by the BHMA; and *Traditional Acupuncture*, published by the Traditional Acupuncture Society. I will describe these three leaflets individually.

*Acupuncture in the UK Today* is by Richard James, Director of the Isis Centre for Holistic Health. He has genuine medical qualifications, but he also writes some



letters after his name that presumably refer to qualifications in acupuncture. He informs his readers that 'Acupuncture is now established as a profession independent (*sic*) of medicine in the UK'. The leaflet tells us that:

a growing number of doctors are doing very short courses (one weekend) and then taking up the practice of acupuncture. They are then entitled to become Full Members of the British Acupuncture Society (MBAS) whose list is circulated to Family Practitioner Committees with the recommendation that GP's (*sic*) should refer to acupuncturists on this list and no other.

Thus, if Necromancy is a profession independent of medicine in the U.K. (as I'm sure it is) any G.P. who wants to earn a little extra income can take a weekend course in it, and thus join the profession, write B. Nec. after his or her genuine medical qualifications, and then practise it in the surgery.

The leaflet goes on to inform us that:

This exclusivist position has been pursued aggressively, to the extent of refusing membership to doctor acupuncturists who associate with 'Quackupuncturists'. The BMAS membership list is also available directly to the public, something for which the BMAS has severely criticised the BAAR in the past.

The BAAR is apparently the British Acupuncture Association, to which non-medical acupuncturists belong, and which touts for custom, as they are entitled to do, along with iridologists, rediethetists, reflexologists, naturopaths etc., etc. It is significant that they are being labelled as 'Quackupuncturists' by the weekend-course doctors, perhaps to make it quite clear that they, the medical acupuncturists, are not 'quacks', as some people might suppose.

The second leaflet, entitled *What is Acupuncture*, sets out to inform lay people of the nature of acupuncture in very few words, and gives addresses of societies, both medical



and non-medical, where they may apply for treatment. The third leaflet is issued by the Traditional Acupuncture Society, which is non-medical, and sets out to explain the nature of Chinese Medicine. It makes the point that:

The Traditional Acupuncture Society requires members to have achieved a comprehensive understanding of the theory of Chinese Medicine and a high standard of clinical competence before beginning to practice as members of the Society.

It does not outline how students receive their training, but presumably those who apply to its Registrar (whose address is given) receive details of how they may set about their studies in order to be accepted as members, and entitled to write various letters after their names. Here is a clear bid to set up the profession of Chinese medicine in the West as an alternative to that which has grown up here over the centuries, and has its roots in Greek and Arab science.

The leaflet that I obtained from my local GP surgery is over printed at the foot with the address of the local Traditional Acupuncture Clinic, and gives the names of the four non-medical persons who are its staff. Presumably my local doctors pursue a policy of friendly co-operation, instead of outlawing these people as 'Quackupuncturists'.

### Recent history

The resurgence of medical interest in acupuncture in the UK was strongly associated with Dr Felix Mann's book *Acupuncture: The Ancient Chinese Art of Healing* (Mann, 1962) which was published at a time when various forms of alternative therapy were attracting attention, and the medical profession was concerned about its status. A considerable boost to acupuncture was given by those interested in pain control, for even though such oddities as diagnosis by means of 12 separate pulses could be dismissed as mere fantasy, it appeared that acupuncture actually could inhibit pain, and this was of considerable theoretical importance. Researchers such as Melzack and Wall were striving to get their new-look gate control theory of pain (Melzack and Wall, 1965) accepted in the face of the conservative opposition of those who favoured the old specificity theory of pain that still featured in most medical text-books (Schmidt, 1972). Pain-control by means of acupuncture seemed to fit in very nicely with many of the new ideas, and Melzack in a series of publications (Melzack, 1973a; 1973b; 1973d) gave it new respectability among many scientifically oriented people, and with the lay public. His colleague, Patrick Wall, was not so keen to relate acupuncture to gate control theory, and in the course of an article in which he confused mesmerism with hypnosis (a very common confusion) he gave his opinion:

Let us turn from the traditional acupuncture treatment of general disease, for which we have as yet no proof of therapeutic advantage, to examine acupuncture as a method of anaesthesia in surgery. We have now all heard evidence that it is dramatically successful. My own belief is that, in this context, acupuncture is an effective use of hypnosis (Wall, 1972).

The evidence that acupuncture is 'dramatically successful' in producing anaesthesia or analgesia, raises some hollow laughs today. Felix Mann, who bears much responsibility for originally promoting acupuncture in the medical world, has been obliged to recant on much of his earlier work, and after 20 years he wrote:

Acupuncture anaesthesia (really analgesia) works only, in my experience (though others who are experts disagree) in the hyper-strong reactor. In 1974 I reported the results of a hundred experiments in acupuncture analgesia and came to the conclusion that it worked reasonably, though not perfectly, in 10% of patients. Since then I have come to the conclusion that the criteria I used were a little optimistic, and the figure should be revised to a mere 5% (Mann, 1983, pages 44-45).

When Melzack and Wall jointly revised the former's book (Melzack, 1973a) and issued it as *The Challenge of Pain* (Melzack and Wall, 1982), they made no mention of the two articles I have cited earlier (Melzack 1973b, 1973c), and they admitted that:

It became evident that the use of acupuncture to produce analgesia for surgery is relatively rare and undependable. In China, it is used for no more than five to ten per cent of surgical operations, and it is carried out on selected patients who have been thoroughly exposed to acupuncture methods (Melzack and Wall, 1982, p. 322).

In contrast to the acceptance of acupuncture analgesia as a valid field for study by scientists such as Melzack and his colleagues, and by many clinicians who were less scientifically orientated, there was outright rejection of it by others. In the USA Sweet (1981), after a careful review of the available evidence, dismissed acupuncture as clinically worthless. Skrabanek launched an outright attack on acupuncture, stating:

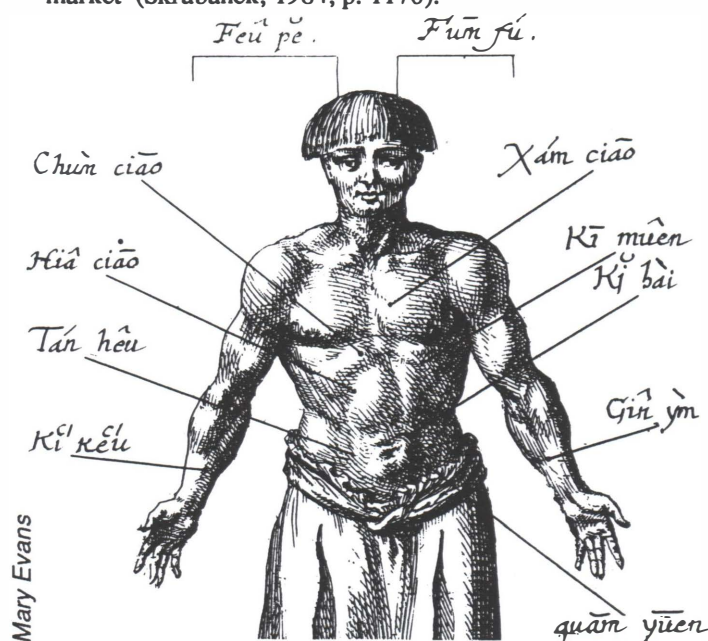
By 'rediscovering' the five vital principles of Chinese Medicine (equivalent to the four humours of the ancient Greeks) and Chinese acupuncture (equivalent to European bloodletting) we degrade medicine to shamanism. If we can now treat obesity or smoking addiction with a staple in the ear, why not a copper bracelet or red flannel for rheumatism next? Let us leave quackupuncture to quacks and let us tell the misinformed patient the truth, so that he or she can choose (Skrabanek, 1984, p. 1171).

With regard to what evidence there is that acupuncture can sometimes inhibit pain, Skrabanek points out that there is nothing new, or foreign to Western medicine, in the practice of needling to produce analgesia. It was known and written about in the nineteenth century by doctors who had no interest in Chinese medicine. In modern times the gate control theory of pain would explain it by the fact that if a large-diameter non-nociceptive sensory nerve fibre is stimulated, it will have an inhibitory effect on the different neural messages that produce the perception of pain. The same is true of ice-massage, transcutaneous electrical stimulation, and other methods that Melzack and Wall refer to as hyperstimulation analgesia, and are not related to the theory of acupuncture. In addition to the physiological effect of such methods, what they all have in common is the placebo effect that any impressive method will have on a patient in pain.

We may ask why medical journals such as *The Lancet* still trouble to print articles and letters that mention acupuncture. Occasionally there are angry protests from correspondents such as Dr Day who writes: 'Having read *The Lancet* for 60 years, I feel I have a right to criticise your editorial on acupuncture... I am sorry that you dignify this charlatanism by an editorial' (Day, 1987, p. 387). Occasionally there are letters in the medical press that treat the whole matter as a huge joke, a source of fun that lightens the serious world of medicine. One such lighthearted letter treats acupuncture as though it were a form of witchcraft:

Sir—I am surprised that some of your correspondents still feel compelled to assert the efficacy of acupuncture... Not only does it work, but it works at a distance. During the 1950s the senior medical staff of a hospital with which I am acquainted kept in secret a small wax image of the then group secretary, into which from time to time sharp needles were inserted and waggled about. This practice was abandoned when it became clear that its only observable effect was to keep the so-and-so in the best of health (Zuck, 1984, p. 175).

But Skrabanek is serious, and makes an outright attack on the mercenary motives of his colleagues who persist in claiming that acupuncture is of general therapeutic value in the treatment of diseases, including 'viral hepatitis, malaria, hereditary ataxia, infantile paralysis, hydrocephalus, mammary hyperplasia . . . deafness . . . schizophrenia.' He writes that, 'since the popular demand for acupuncture is great, it is not surprising that medically qualified acupuncturists are afraid of "non-professional" competitors in the lucrative market' (Skrabanek, 1984, p. 1170).



Is it all a financial racket then, in which mercenary doctors conceal the known truth from their patients, and con them into spending money on a useless treatment? It is not as simple as that.

First, we must consider that no-one likes to admit to having been duped. The propaganda for acupuncture that emanated from Maoist China was sufficiently impressive to induce serious Western doctors to make the long journey East and visit their hospitals. Not all doctors are very good scientists, or adept in observing phenomena with the careful eye of a sceptic, so that sincere doctors such as Brown (1972) reported that perhaps as high a proportion as 90 per cent of Chinese patients underwent surgical operations depending solely on acupuncture analgesia. Now they are licking the egg off their faces, but naturally maintain that, still, there must be something valuable in Chinese medicine that the West could learn.

Again, the charge of being moved by mercenary motives can hardly be levelled at the doctors in the practice I attend who actually advertise the local Traditional Acupuncture Clinic, where none of the staff is medically qualified. What is the truth of the matter? I shall attempt, as a non-medical man, to sum up the attitude of a sceptical doctor who

permits, even encourages, the odd patient to try acupuncture for his ill-defined disorders:

'We live in an age of unreason where the public at large are sold on all sorts of superstitious ideas, and there is really nothing much we doctors can do about it. They come to us expecting miracles and refusing to accept the plain fact that we don't know what's wrong with a lot of them, and probably never will know, for many of their ills are engendered by their imagination, and the silly way they conduct their lives. We would like to operate within the bounds of rational medicine, but they demand that we act as shamans and priests. Medicine has done wonders for the population at large, but they want the impossible—always to be free of all pain and sickness. A lot of them privately sneer at the limitations of conventional medicine and want something better, hence their ignorant demand to have their Ch'i manipulated, and their yin balanced with their yang. They have read about it in some magazine. Well, if they want acupuncture, let them have it—and pay through the nose for it. If we keep it to ourselves, and discourage patients from going to lay acupuncturists, at least our medical colleagues will operate with aseptic needles and not give them hepatitis, AIDS or some other filthy disease. Also, they will be better able to diagnose when patients are really suffering from some recognisable disease, and not try needling them for miliary tuberculosis. But if we pursue this policy, then we are accused of pursuing restrictive practices, and selfishly stopping patients from receiving the benefits of all these lay acupuncturists who prattle on about yin and yang, feeling their twelve pulses, and calming the 'triple warmer'. Perhaps a middle course is better; to shunt off all these hypochondriacal bores that clutter up our surgeries with nothing much wrong with them to local quack acupuncturists and let's see whether the placebo response can help them. Meanwhile, we will get on with our proper job of promoting the health of those we can help.'

Well, what is an ethical course for the honest doctor to pursue in a society that is riddled with superstition?

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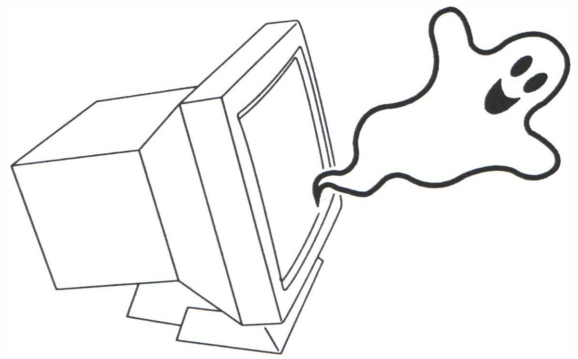
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# Psychic Diary

Toby Howard

*The ghost story that never was*



**T**HE DEPARTMENT OF COMPUTER SCIENCE at the University of Manchester is not the sort of place you would expect to feature in reports of the 'paranormal'. Last week, however, I had a very odd experience. I was passing an office, opposite which were a few visitors' chairs. As I walked along, preoccupied with reading a memo, suddenly out of the corner of my eye I saw a man, wearing a brown suit, sitting, slightly stooped, in one of the chairs. Less than a second later, I turned my head to look at him. The figure had vanished. In an instant, I had clearly seen a man appear and disappear. And I'm supposed to be a skeptic.

So what was it? Was it a ghost? This is of course *possible*—but in the belief that everyone's Swiss Army Knife should have an Occam's Razor attachment, what other explanations might there be? (I hadn't touched a drop all day, by the way—that bottle of sherry in my desk is for visitors only, you understand). I saw what I saw out of the corner of my eye, which is reportedly often the case with sightings of 'ghosts'. Perhaps this is because the light-sensitive 'rod' cells which predominate in the periphery of the retina are sensitive to low-levels of illumination. Perhaps the particular patterns of light and shade I observed were mistakenly interpreted by my brain, or since I was wearing my glasses, perhaps a fleeting image of someone nearby, out of my direct line of vision, was temporarily reflected into my eyes from my lenses, somehow adding to the illusion.

Whatever, I decided to tell some friends and colleagues about my 'sighting', without mentioning anything related to the 'paranormal', and their responses were interesting. Absolutely no-one seemed to think I was making it up. No-one questioned that I had undergone a personal experience for

which I had not a *scrap* of evidence. Some felt it was entirely possible that I had seen a ghost. It occurred to me that, should I wish, I was in a perfect position to start a ghost story—*The Brown Man of the Second Floor*, perhaps. In the following days, I found my tale had passed from person to person in the Department, and for the first time I felt a real sense of what we all know to be a common factor in folktales, and stories of the 'paranormal': the attention the teller receives, the 'fame', the feeling of (for want of a better word) 'power'; to be there at the genesis of a story that might still be told, and wonderfully embellished, for years to come. But starting a ghost story was the last thing I wanted to do!

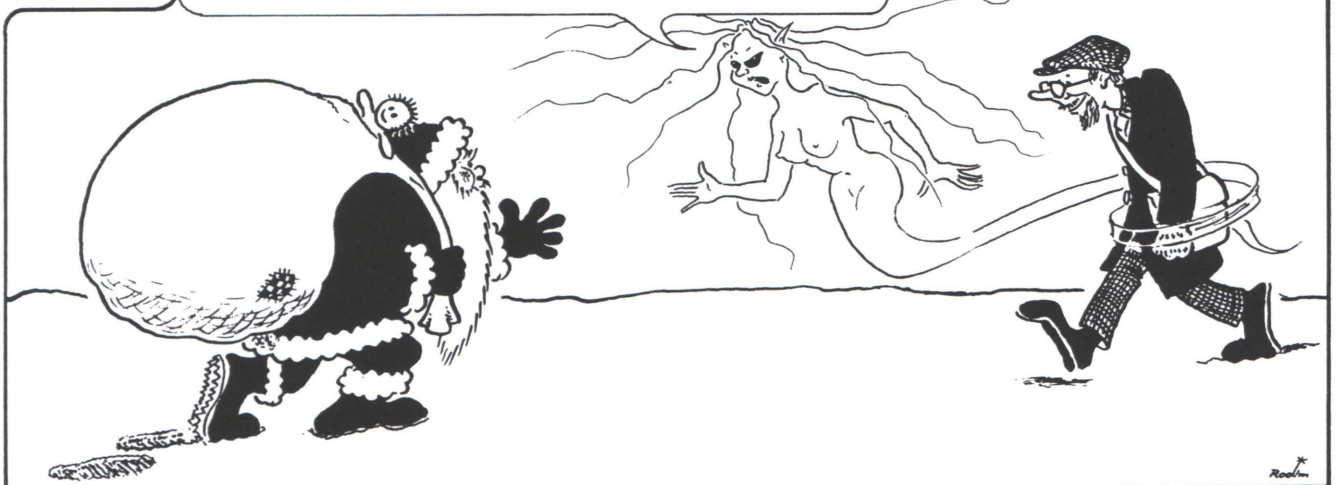
So, if you're actively skeptical of unsupported claims of paranormal goings-on, and you have a strange experience—what do you do? Do you immediately tell others, in a spirit of open enquiry, and risk reinforcing paranormal stereotypes? Or do you keep shtum, try and find out what happened in terms of accepted scientific knowledge, and then present your experience as an open-and-shut case? Maybe you can't find a definitive explanation. How should a skeptic trying to be fair-minded handle such a situation without unnecessarily boosting belief in 'the paranormal'?

There's no doubt in my mind that I had the experience but I can't prove it to anyone, of course. I'd like you to believe me, but why should you? If I'd said frogs had fallen from the ceiling, or the Master Aetherius and Santa Claus had whispered in my ear, would you believe that too?

Actually, I did meet Santa Claus once, when I was nine. Do you believe me? Merry Christmas.

**Toby Howard** is a lecturer in computer graphics at the University of Manchester.

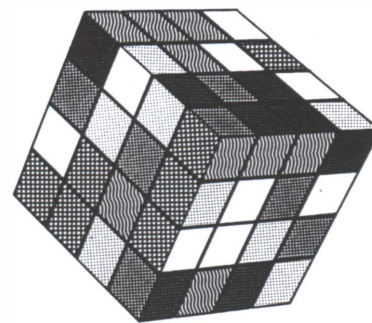
**SPRITE** You're wasting your time, friend. He won't believe in you, either.



# Skeptic at Large

Wendy M Grossman

## *Notions of belief*



**I** FIRST HEARD ABOUT Richard Dawkins' notion of 'memes' from a collector of computer crime statistics in California that I interviewed for the magazine *Personal Computer World*. At the time, I found it hard to believe: my computer crime expert sounded as if he were suggesting that ideas had some kind of supernatural power to take over a 'host', and I found it hard to believe that such a respected scientific thinker as Dawkins would come up with such a theory.

The reality is a bit different, but it's easy to see how the misunderstanding comes about: Dawkins talks in metaphors, but never admits it. We do the same thing when we talk about computer viruses: we use the epidemiological model to explain how these bits of software work. We are not saying they are real viruses—although some anti-virus software suppliers say they do occasionally get people asking them if they can catch the viruses from their computers. So with Dawkins: he uses epidemiology and the workings of computer viruses to explain the transmission of religious ideas.

On 6 November 1992, Richard Dawkins appeared at London's Conway Hall to deliver the British Humanist Association's 1992 Voltaire Lecture, entitled 'Viruses of the Mind'. During his talk, he spent some time developing this theme. All sorts of things are viruses: look, for example, at childhood crazes, which he described as 'a form of behaviour that owes more to epidemiology than to rational choice'. Yo-yos, Hula hoops, pogo sticks (and, he might have added, the Rubik Cube) sweep through schools and leap from school to school. And so with religion—Dawkins argued that it's clear that most people do not examine all the world's religions and then make an informed choice; instead, most follow their parents' religion.

As skeptics, we generally don't argue matters of faith; we stick to things that can be tested. What makes Dawkins' argument suitable for discussion here is his ideas about the mechanism of belief (or 'symptoms', as he calls them). Faith that flies in the absence of evidence is more seen (to the infected) as more virtuous. Mystery, similarly, is thought of as a good thing—and the more mysterious the better. To quote Dawkins, 'Any wimp in religion could believe that bread *symbolically* represents the body of Christ, but it takes a real, red-blooded Catholic to believe something as daft as the transubstantiation.'

As skeptics, we run into these arguments all the time. Why, we are often asked, should we seek to destroy someone else's harmless belief in astrology? I usually say something about truth being important for its own sake. The

people who ask this question then generally extrapolate from this that skeptics are so cold and devoid of imagination and any sense of fun that we wouldn't allow a child to enjoy the fantasy of Santa Claus.

I have several problems with Dawkins. The first is that he personifies exactly the skeptic the questioners in the last paragraph dislike so much. His viral description of irrational beliefs strikes me as mechanistic and cold; he makes no allowance for the human need for a community to belong to and the approval of that community. Most children follow their parents' religion? I was raised an agnostic; does that make agnosticism (which is the absence of belief more than anything else) a virus, too? After all, I didn't examine all the world's religions and make an informed choice either.

Second of all, besides the social aspects of religion, which Dawkins ignores entirely, he focuses his argument on essentially harmless beliefs. It hurts no one if Rabbis spend their time checking whether Chinese menthol is kosher. I don't care if Catholics believe in the transubstantiation: it's harmless. What's harmful is the Pope going to Mexico, which suffers desperately from overpopulation, and preaching against the government-sponsored contraception program. The difference is a precise line that's drawn at the point where source of the belief—be it religious, political, social, or paranormal—starts interfering with your right to decide your own life. But Dawkins makes no differentiation of this kind.

Dawkins frequently talked about 'gullible' children. This goes against most skeptics' experience: not all religious beliefs are formed in childhood, and most paranormal beliefs are not. In any case, children aren't gullible; you just can't make that kind of blanket statement about people. Children are inexperienced, and have no context against which to judge what they are told; adults, when faced with unfamiliar phenomena are similarly inexperienced. That does not make them fools.

Dawkins has no suggestions for change; he doesn't see that as his role. But as skeptics, it's generally clear to us that the most important thing we can do is to spread information to help people make up their own minds. Describing any sort of belief as a virus—and remember, we have no medical cures yet for viruses—disempowers us all, skeptics and belief 'sufferers' alike.

*Copies of Richard Dawkins' talk are available for £2 from the BHA, 14 Lamb's Conduit Passage, London WC1R 4RH.*

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# Reviews



## Has the Emperor lost his clothes?

Fritjof Capra, David Steindl-Rast, Thomas Matus, *Belonging to the Universe: New Thinking about God and Nature* (Penguin, 1992, 217pp, pbk, £6.99)

Many people have read *The Tao of Physics* by Fritjof Capra. Now he is back with two co-authors in a book which aims to explore the relationship between the 'new science' and the 'new theology'. Capra grew up as a Catholic but then became attracted to eastern religions. He also gained a PhD from the University of Vienna and has done research in high-energy physics. Now he is becoming interested in Christianity once more, and it is this interest that has led to *Belonging*. David Steindl-Rast started out as an artist and then followed his interests in psychology and anthropology, becoming a monk along the way. He has also become interested in eastern religions, and performed a mixed Christian-Buddhist christening for Capra's daughter. Thomas Matus was raised as a Baptist, but knew from the age of 16 that he wanted to be a monk. His only problem was in deciding whether to go for a Buddhist or Catholic monastery. He eventually chose the latter, but was disappointed that as a novice he was not allowed to study eastern religions.

According to Capra, the new science is the modern holistic approach to nature found in chaos theory and quantum physics, as opposed to the old reductionistic Newtonian/Cartesian/Baconian view of the Universe. Steindl-Rast's new theology views Divine Revelation as an ongoing process rather than the delivery of a set of axiomatic commandments. The authors feel that these two changes are related, and are trying to explore the relationship between these new perspectives of the universe.

I found the book to be frustrating and disappointing. Rather than laying out their ideas in a logical fashion with a gradual exploration of their thesis, the authors have chosen to transcribe and lightly edit a series of verbal discussions. In each one Fritjof introduces a point for debate, each speaker presents a view, and there is a rambling discussion. What is missing is any attempt to draw conclusions, or even to extract the main points of the debate. Often one feels that the authors are simply making speeches to a tape recorder. This book would have been much improved had the authors tried to write joint essays with a logical structure instead of expecting their ideas to shine through the fog of everyday conversation.

I am a scientist rather than a Catholic theologian, and so I cannot comment on the 'new theology' (although it sounds suspiciously like Gnosticism, with an emphasis on internal

'knowing' rather than on accepted gospels), but I find that the 'new science' as presented in this book is mostly a bunch of labels and straw men. I tried to discover what the labels mean and found myself lost in a maze of words. For instance we are told that the new science needs the epistemology of theories to go hand in hand with the theories themselves. During the discussion of this point the three authors seemed to be talking their way towards the solipsist idea that the 'universe' is just a joint hallucination. Then Capra rejected this idea and stated that there is a real universe, but that we all perceive it differently. The other two then agreed with him, and added that we all create God in the same way. This seemed rather less than profound to me, and throughout the book the statements made by the authors varied from trivial to incomprehensible without ever passing through meaningful.

The more I read this book the more I longed to shout out that the Emperor has no clothes: there is nothing deep about this 'new science', and I suspect the same applies to the 'new theology'. Chaos and quantum mechanics have introduced new ideas which modify the old determinism of Newton, but this has not changed the nature of science as an exploratory and descriptive endeavour. Both quantum mechanics and chaos have provided rich new ways of understanding and describing the world, but they do it within the existing framework of scientific knowledge and research.

Anyone who has read and enjoyed *The Tao of Physics* would be well advised to leave this book on the shelf. In *The Tao of Physics* both modern quantum physics and Taoism were carefully explained and the fundamental beliefs laid out plainly. One could learn a great deal about both subjects by reading the book, even if one did not agree with the parallels drawn by Capra between the two world-views. However, one learns very little about either science or theology by reading *Belonging*.

—Paul Johnson

## Leys and landscape

Philip Heselton, *The Elements of Earth Mysteries* (Element, 1992, 130pp, pbk, £4.99)

This well-written book is part of a series of introductions to various New Age topics. The study of Earth Mysteries is founded on ley lines: straight lines connecting ancient sites such as stone circles. Primitive Man formed them, but he was instinctively following natural channels of 'energy' (lines of force), to link up natural foci of the stuff (power centres). Ley lines may once have functioned as roads, but

now they function as a link with a past which is being obliterated by capitalism. You too can find a ley—all you need is a ruler and a map.

People still have strange experiences at the sites. Is this modern folklore? Of course. It's part of an *ad hoc* spontaneous oral culture, preferable to *Ninja Turtles* or English Heritage. Sites have been associated with 'ghosts, giants, fairies, dragons, the devil and visitors from outer space'. What are standing stones really? Musicians who played too fast? Maidens who danced all night instead of going to church? Heselton tells a good legend, but his explanation for it all is that sites give off 'energy'—not nearly so much fun as the White Cow of Mitchells Fold.

'Energy' is not clearly defined. All the usual suspects are rounded up and thrown into the cauldron—od, prana, Wilhelm Reich, auras (visible through Dr Kilner's aura goggles), chakras, Gaia, feng shui, sacred geometry, mazes, labyrinths, Andy Goldsworthy, maypoles, dowsing, yin, yang, left brain, right brain—and taken as read.

How do we know all this? He's defensive and contradictory. 'My emphasis is not to prove anything', he says, hauling in Edward de Bono. Hooray words (flow, creative, fruitful, unorthodox, risks, holistic) are opposed to Boo words (scientific, mechanistic, materialist, step by step, detached, observer). When you find his recommended research method is to touch a standing stone, let your imagination run riot, and say the first thing that comes into your head, you can see why he's defensive. (Captain Bartlett was already doing it in 1908 with automatic writing at Glastonbury Abbey.) A search for anomalies in physical energy (ultrasound, radiation, magnetism) at Rollright showed undramatic results. Never mind—direct experience is much more fun. Go out into the countryside, strip off, feel the wind on your skin...

After all this, you'd think the whole of Britain would be pulsating with magic—but look out of the window and you see the same old dreary streets. So find your own zodiac in the landscape, and don't worry if you're making it up—it's poetry, it's art. 'These poems in landscape give an identity to a place, a personality which may be lacking in the urban wasteland...' So it doesn't matter if it's real or not. This is a flimsy argument, but people deserve something better than that wasteland. On the other hand it's all very self-indulgent—there's no suggestion of getting your hands dirty preserving footpaths or digging up Bronze Age boats.

—Lucy Fisher

## Scientists fight back

Peter Hogan (Editor), *Creationism: Scientists Respond* (Australian Skeptics, pbk, available from PO Box 1555P, Melbourne, VIC, 42pp, 3001, Australia)

This booklet contains analyses of ten pamphlets published by the the Australian-based Creation Science Foundation (CSF). The reviews have been written by a number of geologists, and they subject the pamphlets to a rigorous critique. The CSF is a Christian fundamentalist organisation which promotes the literal interpretation of the Genesis creation story as a means of understanding the Earth's ori-

gins. The reviewers in this book became concerned that many of their students had been affected by the teaching of the group, and believe that such views require active opposition. The alternative might be that by ignoring the claims, the CSF's case might be accepted by many by default. Some of the reviewers are themselves practising Christians. However, their criticism is formulated from a scientific rather than a theological perspective.

The booklet covers a number of themes, such as dating, dinosaurs and early man, by reprinting selected creationist pamphlets, and then analysing them. Various shortcomings are exposed including the setting up of straw men, false claims and interesting leaps of logic. I found it very useful to have both the original creationist source document and the rebuttal side by side, since all too often one only gets the original in selected eviscerated chunks. The CSF documents deal with topics from tabloid-like claims to small essays. The reviewers treat them seriously (they are after all worried about their influence) and attempt to prove that a complex world requires more than these superficially simple solutions.

I did find the booklet useful as a convenient collection of responses to creationism, and the trotting out in CSF literature of the Piltdown man and the Texan 'Paluxy tracks' (which are claimed to prove that dinosaurs and humans lived at the same time) were depressing. However, I would have found it interesting for a further debate to have taken place, and to read the CSF's response to these reviewers. Maybe this is a forlorn hope, but in order to understand their way of thinking, an indication of their openness to response would have been fascinating.

—Robert Marshall

## Bridging the gap

Milton A Rothman, *The Science Gap* (Prometheus Books, 1992, 254pp, hbk, £15.95)

The more scientists seem to know about how things work the less the public at large seem to accept. This, at least, is Milton A Rothman's starting point. Look, he says, at any bookstore: lots of mystical books; very few science books—and what science books there are aren't always scientific.

In this book, Rothman examines some of the most common public myths about science. Some of these seem to invalidate science: nothing is known for sure; nothing is impossible; whatever we think we know now is likely to be overturned in the future; scientists don't have any imagination; scientists are always making false predictions. Some overestimate science's capabilities: all scientists are objective; advanced civilisations will have the use of forces unknown to us in the present; all problems can be solved with computer modelling; more technology will solve all problems. Then there are a few that are simple misconceptions: scientists create theories by intuition; all theories are equal; science is finite but truth is infinite. And finally, there's the big one: myths are good for us, or at the very least harmless.

Each one of the propositions gets a chapter of refutation to itself. Some material will be familiar, such as Rothman's coverage of experimenter bias (in the chapter on scientists'



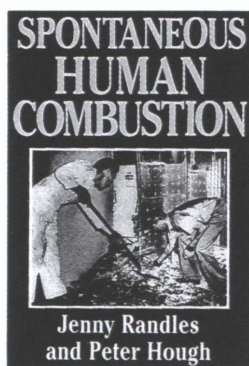
objectivity) or the discussion of good and bad myths (a good myth is fun; a bad myth is a defence against reality). I particularly liked Rothman's assessment of the arguments about fossil fuels versus renewable energy sources—if we don't slow down population growth, he argues, which of those we choose isn't going to make much difference. You may disagree—but first check his calculations.

This is a good and enjoyable book. Rothman is right when he says that people at one and the same time distrust science and yet have a touching faith in it. As skeptics, we see that duality all the time.

—Rachel Winston

## SHC: smoke without fire?

Jenny Randles and Peter Hough, *Spontaneous Human Combustion* (Robert Hale, 1992, 224pp, hbk, £14.95)



The blurb on the inside cover describes this as a book in which the authors 'have explored the entire subject rationally from within' and 'assess the evidence in an objective manner and pose searching questions that have never been asked before'. I would have to differ with the 'reviewer' responsible. The authors appear to regard all and any unusual (or, preferably, *mysterious*) events involving death or injury of a human

being by fire, as potential cases of the so-called SHC phenomenon, and deal with all of the supporting evidence with a credulity I found, frankly, amazing.

The tone of the book is expressed quite well from the beginning by the lurid description, given in the prologue, of the events surrounding the unexplainable complete destruction of the (presumably still living) body of an elderly man. The authors neglect to mention at first that this particular passage is fiction. It is not until several pages later, in the introductory chapter, that they reveal that it is quoted, with permission, from a novel. This pattern continues in the opening sections of the book where the first chapter of the first section, supposedly detailing 'the evidence', tails off into a description of how prevalent the phenomenon is in fiction—as if this is evidence of the actual existence of the phenomenon.

However, the authors do appear to have taken great care over their research of the 'actual cases', and provide much detail of the events leading up to the incidents, the subsequent inquiries made and the conclusions drawn at the time. These are described at great length in the first half of the book. Despite their claim that this is a rational and objective work of real research, the authors appear willing to accept, often without question, any story told to them and any conclusion, no matter how poorly supported by the evidence, proposed by any of the self-proclaimed experts with whom they have been in contact.

Having dealt with 'the evidence', the authors move on to a discussion of some of the supposed possible causes of this

(questionable) phenomenon. Many interesting theories, drawn from numerous branches of science, are described, but the authors appear to have made little attempt either to understand the science of the mechanisms under consideration or to fit the theories to the multitude of cases which they have previously described. In the course of this set of chapters they merrily propose theories based on the production of improbable gaseous and chemical mixtures being formed within the body, strong electric fields being generated by some (unknown) biological means (they refer to eels as providing 'good grounds to feel that biological and perhaps environmental reasons exist as to why [the normal electrical systems of a human body] can run riot once in a while'), lightning strikes and 'ball lightning'. They contemplate the possibilities of strange energy fields (which they link with that other well-proven natural phenomenon the 'crop circle') and, somehow, with the so-called 'Philadelphia experiment') which may be formed by any number of means both internal and external, and, finally, consider the potential explanation provided by the existence of 'Kundalini', an 'untapped reservoir of energy [which] lies within the "astral" body' known within the tantric tradition of Hinduism and (normally) accessible only through the use of the 'Kundalini Yoga'.

In their concluding chapter, the authors, who still profess to be unconvinced of the existence of the phenomenon, explain their apparent need to ramble on about the tenuously connected theories they have described by the simple tenet that none of the 'mundane solutions'—careless smoking, electrical faults and so on—can be *proven* to be the cause of the unexplained cases which they have described. So, away with Occam's razor and we can feel free to believe in any of the fanciful theories that they have proposed or, I imagine, any combination thereof. It's a point of view I suppose.

Although I was not impressed by this book, I think I shall hang on to my review copy (with the editors' permission). But, I shall take care to keep it separate from my other books, just in case an unfortunate and inexplicable combustion event occurs on my own bookshelves.

—Matt Cooper

## Three's company . . ?

Ralph Abraham, Terence McKenna and Rupert Sheldrake, *Dialogues at the Edge of the West* (Bear & Company, distributed by Airlift Books, 1992, 176pp, pbk, £8.95)

'Dialogue' is not a word listed in my dictionary (the OED), but according to the authors of this book it is a dialogue between three, as opposed to two, people. *Dialogues at the Edge of the West* grew out of a series of public and private discussions held at the Esalen Institute, California in September 1989, and comprises edited transcripts of these talks. The more intriguing topics debated include 'Creativity and the Imagination', 'The World Soul and the Mushroom' and 'The Apocalypse'. The only link between chapters is the common attitudes of the authors.

A book which rationally investigated how such subjects are viewed by differing religions would be of great interest, but unfortunately this is not that book. It is instead a thinly

disguised exposition of the writers' beliefs on these subjects. Two of their main tenets are that primitive societies knew what they were doing, and lived in harmony with their environment; and that modern societies don't.

Many of the dialectics presented are fatally flawed by the authors' habits of either twisting facts to fit their preconceived notions or failing to consider alternative possibilities. In the chapter 'Entities', Terence McKenna states that:

No less a founder of modern scientific rationalism than Rene Descartes was set on the path towards the ideals of modern science by an angel who appeared to him in a dream and told him that the conquest of nature was to be achieved through measure and number.

In an effort to support his thesis that 'major movers and shakers' were guided by higher beings, he never considers that possibly Descartes was just trying to make his heretical ideas more acceptable to a religious age. Ralph Abraham also gives a remarkable 'proof' for the existence of paranormal phenomena: '...they are difficult to confirm, and I'm thinking of that as a kind of evidence in itself.'

Implicit in the whole book is the authors' belief that they are right, and anyone who disagrees is wrong. Their ideas appear not to have been subjected to serious criticism at any

point and presumably the public debates were in front of a 'friendly' audience. This book shows that when they move out of their specialist fields, academics are just as likely to talk rubbish as anyone else, or perhaps more so. I found the whole thing reminiscent of the conversations I sometimes have with friends in the early hours of the morning, after an evening spent at the pub. It does however give a fascinating insight into the minds of three 'New Agers' and certainly provokes a lot of reaction. I groaned out loud on numerous occasions. Not recommended.

—Toby O'Neil

### New Prometheus books for Xmas

• *Missing Pieces: How to Investigate Ghosts, UFOs, Psychics, and Other Mysteries*, by Robert A. Baker and Joe Nickell. A 'how-to' manual for becoming a qualified investigator of paranormal claims. 339 pages, £17.50 (cloth).

• *The Write Stuff: Evaluations of Graphology – The Study of Handwriting Analysis*, edited by Barry L. Beyerstein and Dale F. Beyerstein. The definitive study of graphology. 515 pages £37.95 (cloth), £15.95 (paper).

See below for Prometheus address.

## Prometheus Books Prize Xmas Crossword

by Skepticus

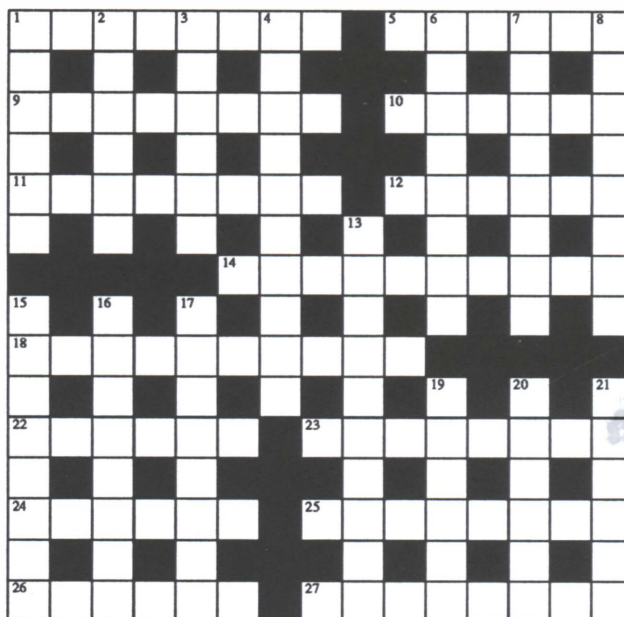
### Across

- 1 Duly I tee off at Christmas (8)
- 5 Oddly unties and ties (6)
- 9 Not hard to fool bird I bled endlessly (8)
- 10 Thanks briefly after box reveals old place (6)
- 11 Believers not, revealed by hundred pets (sic) (8)
- 12 Explosively swears (6)
- 14 Lam Ron a rap, bringing back the extraordinary (10)
- 18 Is this how Shirley grooved? (10)
- 22 Evidently cannot create nebula (6)
- 23 Very little achieved by homeopathic technique (8)
- 24 Eager desire of model with crumpled shirt (6)
- 25 A true non-believer costing a mistake (8)
- 26 Leaping adders—fears greatly (6)
- 27 Listen: purchase permits for roads (8)

### Down

- 1 The Hindu philosophy of T.V. bear's million (6)
- 2 Herein lies fifty-one flowers (6)
- 3 At cards perhaps, spirals (6).
- 4 To give delightful muddle bleed a Celt (10)
- 6 You will find a kind of spirit makes a noon leap (8)
- 7 O me! I rest disturbed, finding it tedious (8)
- 8 Upset spry seal, described as thinly spread (8)
- 13 Alternatively, linger (undulating around) shakily (10)
- 15 Remarkably cute, cold, hidden (8)
- 16 ESP: tiara reveals hanger-on (8)
- 17 Totally confined, shut in consequence... (8)
- 19 ...Or surrounded by unproven glow, light in the sky (6)
- 20 Let us put nothing in drinks for horses (6)
- 21 Do we hear these at the table when calling for spirits? (6)

The sender of the first correct solution to be channelled to *The Skeptic's* group consciousness will win a copy of *The Science Gap*, by Milton A Rothman, published by Prometheus Books. Send your entry to *The Skeptic* (Crossword), PO Box 475, Manchester M60 2TH, to arrive no later than 5 January 1993. Prometheus Books specialises in skeptical books about the paranormal. For a free catalogue, write to Prometheus Books, 10 Crescent View, Loughton, Essex, IG10 4PZ.





# Letters



## Vampires and blood

With reference to your recent article on the Vampire Legend, I have often wondered how it first arose; I suppose there are many threads in this belief, but so far I have never heard anyone connect it with an episode in the *Iliad*, where Odysseus wants to contact the spirits. In this very strange section of Homer's wonderful poem, Odysseus digs a trench, animals are sacrificed, and their blood poured into the trench. The spirits come and drink the blood, and then Odysseus questions them.

The whole point of the story is that the blood gives the spirits sufficient materiality to enable them to speak—they could not speak until they had drunk. This sounds remarkably like the need of the Vampire to drink blood, and also confirms that he is a spirit not a re-animated body (although it seems he retains some contact with his body).

In fiction Dracula & Company can lurk in a hinged coffin and in a cellar and pop out and in; but in real life the dead are buried under the earth or bricked up in a vault, so clearly the legend must visualise the Vampire as a spirit which can pass through these inhibiting substances as and when!

Why he needs blood surely ties in with the *Iliad* episode—he wants to retain some shred of material existence; in the case of the Austrian records, I understand, the Vampire was reckoned to be someone who had lived a wicked life while on earth; and since he is much accused of causing illness and spreading infection, perhaps it was believed that his wickedness had made him 'earth-bound' and that he was unwilling to renounce his old life. Of course this tie-up entails a change from animal blood to human blood in his diet.

**E. M. Karbacz**  
Colchester

## Missing statistics

I was interested to see Montague Keen's letter in response to Robin Allen (Letters, *The Skeptic*, 6.5). I was also present at the Crop Circle Competition from about 7 a.m. on the morning after.

I would make two points. History is apparently being revised: the first public suggestion for a controlled trial of crop circle hoaxing was made by me in a letter published in the Summer 1991 edition of *The Cerealogist*. My point was that it is the *first* thing that should have been done to clarify the phenomenon, not the last. As an indicator of the level of science being employed I was amazed when the results were announced that the minimum possible score was not given, so that it was impossible to know whether the winner was 10% or 90% of a perfect performance.

When asked by me afterwards the presenter of the prizes had difficulty understanding the concept, and evidently could not see the relevance. I assumed that this fundamental omission would be redressed, but in what appears to be the definitive report, in the Harvest 1992 edition of *The Cerealogist*, a table of 12 winners is printed with scores ranging from 684 to 1,687—but we are still no wiser on how good a performance the winner was. Corn-dolly tiaras are no substitute for good statistics.

**Roger Morgan**  
London

## Scientific thinking

Alan Jones (Letters, *The Skeptic*, 6.5) and I are not so far apart in practice as he seems to think. The difference is in theory, if it is anywhere. I would join with him in a large bet that a magician is cheating rather than disproving the second law of thermodynamics. The logical point that I was trying to make is that the cheating can only be

truly identified and exposed as such by empirical observation of what the magician actually does. Our confidence in the second law, confidence based upon a vast array of data of many kinds, merely serves to suggest that our bet would be worth placing. It is simply non-scientific to assert that what the magician did is absolutely known to be cheating because of the sanctity of the second law. People who think like that are not thinking *as scientists*.

To make this distinction is not to open the floodgates to a torrent of rubbish; it is to say that a hypothetical possibility cannot be dismissed solely on the ground that it is at variance with what we think we know. We may think wrong. I imagine that in 1491 there was no shortage of people rubbishing Columbus: 'India is to our east so clearly it is rubbish to suppose that you can get there by sailing west—it will serve you right if you fall off the edge'. And it is not only among pre-scientists that such attitudes can be observed. In 1808 John Dalton, the father of modern atomic theory, asserted to the effect that 'you might as well try to put a new planet into the solar system as to split an atom'. Quite so! By 1958, and granted a certain flexibility in the definition of 'planet', we had done both of these pre-rubbished things. Scepticism, like charity, should begin at home but not, of course, end there; we should not be at our least sceptical when contemplating things that we are especially sure of—our current 'certainties'.

**Eric Stockton**  
Orkney

Due to lack of space, we are unable to run Robin Allen's response to Montague Keen's criticisms of his article 'Hoaxers on Trial' (*The Skeptic*, 6.4). This will appear in the next issue.

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- 6 **Creationism in Australia**; Noah's Ark founders on the facts; Hunting Nessie;

### Volume 2 (1988)

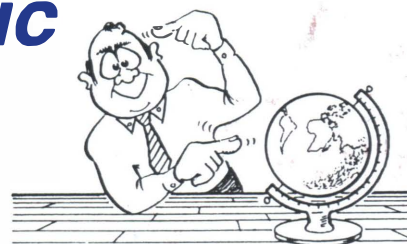
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- 2 **Doris Collins and the Sun**; Paul Kurtz interview-1; State of the art; S.G. Soal: master of deception.
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