

Volume 19 Number 2
Summer 2006

The **Skeptic**



Natural Science and the Spirit World: Part 2

Also in this issue:

Just Your Imagination: Part 2

Discord

Mia Dolan on Granada's This Morning

***Plus:* News. Book Reviews. Comment. Humour**

Hilary Evans' Paranormal Picture Gallery



EXTRAORDINARY SUPERSTITION IN SOMERSETSHIRE.—HOW A WISE WOMAN CHARMED AWAY THE FOOT AND MOUTH DISEASE NEAR ILCHESTER.

WISE WOMEN AND MAD COWS

Time was, when every English village possessed its own 'Wise Woman' who could be called upon in times of emergency. So, at Ilchester in Somerset in 1871, when a neighbouring farmer's cattle were afflicted with foot-and-mouth, the wise woman was called upon to exercise her skills. Her rituals may have been weird, but they seem to have worked, according to *The Day's Doings* for that year. Were there none of her kind about to deal with Mad Cow Disease? Hasn't she a successor who could deal with Bird Flu?

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Editorial

Victoria Hamilton and Chris French



HELLO AND WELCOME to issue 19.2 of *The Skeptic*. We have four varied articles for you in this issue. After Krissy Wilson's review of Sharon Neill in our last issue, we now have Tony Yeouns showing equal frustration in his review of Mia Dolan's 'performance' on ITV1's *This Morning* programme. Dolan's participation in the programme, which ran for six weeks and must have seemed an eternity to sceptical viewers, involved enlightening her 'guinea pigs' (five volunteers expecting an insight into their futures) with such comments as "... you have great intuition and gut instinct so even though you may not believe in psychics, you often say, 'Yeah I had a feeling about that'...". We don't know about you, but we're pretty sure that statement could be fairly descriptive of ourselves, too. Anyone out there heard of the Barnum Effect?

All sorts of seemingly mysterious actions can be attributed to ideomotor actions, the phenomenon whereby expectation or suggestion cause a seemingly involuntary movement to occur (examples would include dowsing and table-tilting). Clever Hans was a horse that wowed audiences in the early 1900s with his ostensible mathematical genius (for a horse). What was really occurring was that the horse picked up on very subtle cues delivered unintentionally by his owner and audiences alike. This involved an extremely slight tilting of the head by those around him when the horse reached the correct answer to a mathematical question (by tapping his hooves to indicate numbers). Martin Parkinson describes a similarly amazing phenomenon in the second part to his article *Just Your Imagination*, an experience performed by those trained in the martial art

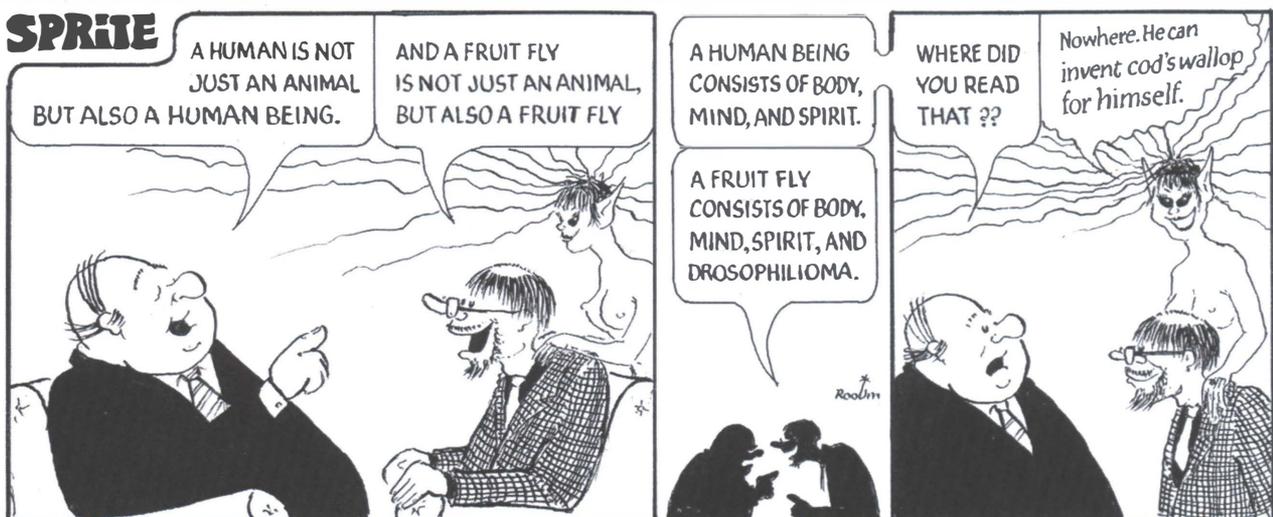
of Ki Aikido. Although quite different to our equine example above, part of the technique certainly also appears to be due to ideomotor effects and suggestion. What might appear to some as being an example of amazing inexplicable powers, Martin describes in his usual rational and logical analysis. We hope you enjoy it.

This issue also wraps up our excerpt from Engels' *Dialectics of Nature*. In this instalment, Engels considers the work of William Crookes, a brilliant scientist who, amongst other achievements, discovered thallium. As you will see, Engels was less than impressed by Crookes' research into mediumship, describing him as possessing "such inimitable naïveté". Engels concludes his piece with a wonderful quotation from Huxley: "The only good that I can see in the demonstration of the truth of 'spiritualism' is to furnish an additional argument against suicide. Better live a crossing-sweeper than die and be made to talk twaddle by a 'medium' hired at a guinea a séance!"

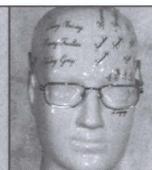
Lee Traynor harks back to the original study of cognitive dissonance to clarify what it is that leads us to alter our thoughts to reach a cognitive and behavioural equilibrium. Traynor discusses its potential in studying paranormal belief, and presents a good case for using Festinger's theory, particularly with reference to research in unconventional therapies and treatment. It does seem to go a long way towards understanding why alternative remedies, many of which aren't founded on evidence-based practice, are so widely accepted.

As always we bring you our regular columns, cartoons, book reviews and letters.

With best wishes until our next issue, Victoria and Chris.



Hits and Misses



Uncloned

Science fraud giveth, and science fraud taketh away. The announcement that Woo Suk Hwang's claimed stem cell research had not after all produced a human clone continues to reverberate, and the news continues to get worse. Not only did Hwang violate ethical principles (duh), but some of his egg donors became ill from the drugs used to stimulate production, he can't account for \$2.6 million in missing research funds, at least five investigations are continuing in South Korea and the United States, and some of those investigations are criminal. Next to all that, the simple retraction of his papers must seem almost minor.

Why do they do it? We know that about 50 percent of elite athletes, when asked, have said that they would take a drug that would ensure victory even though it would kill them in five years, but at least in such a scenario the athlete gets the glory and satisfaction that comes with winning. Do fraudulent scientists really believe that they won't get caught? Wouldn't they be better off claiming results less likely to capture worldwide media attention and therefore somewhat less scrutiny?

Psychic scam warning

The Citizens Advice Bureau issued an advisory in February about psychic scams: fraudsters who promise to tell people their fortune but instead take the money and run. Or they send threats, demand money, and keep demanding it: in one case reported to a CAB, a clairvoyant sent an elderly man numerous letters accusing him of owing money from a past life.

The CAB stopped short, however, of tackling the question of whether any horoscopes (or clairvoyance, predictions, and so on) were actually worth anything. "For most of us reading our horoscope is an enjoyable way of seeing if we can predict what is coming around the corner. But it can turn from harmless fun into an expensive and worrying problem," the press release reads.

We have to say that these guys are just lazy. With all the horoscopes posted on the Net and in the newspapers, you'd think it would be just as easy to throw together a few meaningless sentences to send the dupes. Oh, for the old days, when a fraudulent psychic did a little honest work.

Kneecapping

A poster to *alt.folklore.urban* noted that on a recent weekend morning a *Strange But True* short sandwiched between a couple of cartoons he was watching with his six-year-old son made the claim that babies don't have kneecaps. It turns out this is not an uncommon myth (as anyone who's ever actually looked at a small child's knees might expect) and there are a number of Web sites both promulgating and debunking this myth. They have kneecaps. The kneecaps just aren't ossified



yet, and so they don't show up on X-rays. They are formed when the foetus is about three to four months along in development, and are cartilaginous for the first three (females) to five (males) years of the child's life.

In an unrelated development, the Association of British Science Writers not only couldn't find a worthy award recipient in the category for TV programmes for 2005, it couldn't even find anything worth shortlisting.

The devil in Harry Potter

You know, we don't love Harry Potter, and we made fun of JK Rowling and the water sprite she purchased with her Scottish castle, but it does seem a bit much that a Vatican official has accused her of luring children to devil-worship because her books are tainted by the Prince of Darkness. The Vatican official in question, Father Gabriele Amorth, is apparently best known for having carried out more than 3,000 exorcisms since 1986. But he's not alone: the current Pope, before he assumed the Papacy, said three years ago that the books held "seductions which act unnoticed and by this deeply distort Christianity in the soul, before it can grow properly". Kind of ironic, considering the source.

Michael Jackson's nose

We note without editorial comment that *Ireland Online* ran the story at the beginning of March that Uri Geller, who publicly supported Michael Jackson during the latter's trial, has publicly criticized Jackson for lying to documentary maker Martin Bashir about having plastic surgery.

Cleanliness is next to neurosis

Not exactly paranormal but definitely superstitious is the extreme paranoia with which parts of the US have begun to regard ordinary household dust and dirt. A recent article in *Family Circle* recommended: flushing the garbage disposal with bleach or anti-bacterial cleaner (and then cleaning the sink and counters to get rid of any matter that might have flown out); disinfecting can openers; closing the toilet lid before flushing lest bacteria fly out and contaminate your toothbrush; microwaving your sponges after use (and replacing them every two weeks); and cleaning sinks and counters with a solution of 10 percent bleach after they are touched with so much as a grocery bag. If that doesn't make you feel clean enough, change your towels every two to three days; dump your bar soap in favour of liquid because bacteria can grow on bars; get rid of all carpeting; disinfect doorknobs and remote controls; clean *under* the bolts holding down your toilet; and never, ever, ever wash your clothes with your underwear. The article doesn't say what to do to protect yourself if you actually dare to get dressed, brush your teeth, and venture out into the outside world.

Darwin in Mexico

Science Magazine, the house publication of the American Association for the Advancement of Science, ran an interesting essay by Mexican biology professor Antonio Lazcano, of the Universidad Nacional Autónoma de México, about the deep roots of evolution in Mexican society – despite the fact that the country is notoriously Catholic. Many Americans, Lazcano notes, are under the misapprehension that the teaching of evolution must necessarily be limited in his country.



But no: the Catholic church does not advocate a literal reading of the Bible, and Darwin's ideas and Catholic ones manage a peaceful coexistence, unlike the controversy in some areas of Mexico's bigger and more powerful neighbour to the north.

James Randi health update

The news came through in early February that James Randi was in hospital after bypass surgery. The most recent word is that he continues to recover well. Anyone who wants to write to Randi or send a card may do so via the JREF, 201 SE 12 Street, Fort Lauderdale, FL 33316. Anyone who wants to help is asked to consider donating blood to the Red Cross, or joining or making a donation to Randi's foundation.

Thanks to this issue's clippings contributors: **Rachel Carthy, Sid Rodrigues, Steuart Campbell, Tom Ruffles, Ernest Jackson, the Wizard's Star List, Skeptic News, and Phil McKerracher.** The Skeptic would like to remind clippings contributors to use the magazine's current address, listed on p. 3, rather than the old PO Box address, which has been phased out.

Skeptic at large . . .

Wendy M Grossman



Miracles...

A COUPLE OF issues ago, *Skeptical Inquirer* ran a piece about an Air France flight from Paris to Toronto that crashed and burst into flames. All of the passengers survived more or less unhurt, and the media, in reporting on the crash, described the event as a “miracle”.

Skeptical Inquirer was less impressed. Managing editor Benjamin Radford went into some detail about the fact, previously unknown to me, that a National Transportation Safety Board study that looked at 568 crashes between 1983 and 2000 found that only five percent of passengers were killed. In a second study of more serious crashes, passengers still had a 50 percent chance of survival. Crashes on the ground, like the Air France one, have a high percentage of survivors.

It wasn't a miracle, Radford concluded. The 100 percent survival rate was due to good preparation, good safety engineering, and good science.

Like Americans say sometimes, jeez Louise, do we have to pick at every little thing? Does it make us even vaguely human if we start carping about whether a plane crash from which I'm sure all the passengers were hugely relieved to have escaped unhurt was or was not a miracle? Can't we say, gee, the odds of surviving a plane crash are better than most people think, without whining? If you personally were in an emergency landing and escaped from a plane with flames shooting out of it wouldn't you feel, personally, that it was a miracle that you weren't dead? Wouldn't your family agree after they stopped hugging you in relief?

Well, all right, fine. It wasn't a miracle in the literal sense. But, as I emailed intemperately to Barry Karr, CSICOP's executive director about 2.3876 seconds after I read the piece, if you were in the crash it probably felt like one, and if I had been one of those passengers I wouldn't be impressed by someone else's being ultra-rational at my expense. This, I'm afraid, is the kind of thing that makes sceptics look humourless to others.

Of course, Radford was following in the steps of the 18th century Scottish philosopher David Hume, who said, “Nothing is a miracle, if it ever happens in the common course of nature”. Hume went on to say, “There must, therefore, be a uniform experience against every miraculous event, otherwise the event would not merit that appellation”. So all right, as soon as there's one plane crash in which everyone explicably survives it's not a miracle if it happens again (unless, of course, you have some way of proving it was a supernatural occurrence). And one thing Radford's statistics reveal is ironic: Isaac Asimov, who refused to fly because he

thought the odds of survival in a plane crash were so low that it wasn't “sporting”, could have flown to conferences and other events he was invited to after all.

Given a little time, I sympathize a bit more; tossing the word “miracle” around casually feeds into the general fuzziness about statistics and probability. I was reminded of this a couple of days ago when a mathematically inclined friend copied me into a correspondence with his boss, who had asked the odds of someone's correctly predicting the apparently unlikely outcome of a particular sporting event. My friend began severely questioning him. At exactly what stage of the proceedings had the prediction been made? What exactly was its phrasing? And so on.

This dispute was not, of course, about a miracle, just an unlikely occurrence, but my friend is so maddened by the persistent misuse and misunderstanding of statistics that he couldn't stand the thought that his boss might use his words to make an outrageous claim. My involvement was merely to act as a witness: he wanted to be able to prove that he had explained the math in detail (among his caveats: how many wrong guesses had the same predictor made?), and he even enjoined his boss from quoting selectively from his analysis to make the event look more surprising than it actually was. In his calculations, the prediction had about a 1 in 4,000 chance of being accurate, which makes it rare but hardly “wow”. In fact, since the predictor had expert knowledge, the odds were even better than that.

The whole incident reminded me of mathematician Persi Diaconis's calculations about the likelihood of various apparently extraordinary coincidences. His calculations, for me, changed the question about coincidences from “Man, what are the odds on that?” to “Why me?”

In my friend's case, there was little at stake except public accuracy. In the case of the crashed plane, I suppose you could say that if the 100 percent survival rate were truly miraculous – rather than being a result of good planning and preparation – some crack-brained bean-counter might decide that the safety regulations were unnecessary, because if we wanted to save the passengers praying for a miracle would work better. Probably no one at the Federal Aviation Authority (or the British equivalent, the Civil Aviation Authority) is quite that stupid, but these days you never know. If you believe angels are watching over you, God is directing evolution, and Noah saved all the animals in 40 days, maybe you'll think that airplane safety is a matter of divine intervention. I just hope I never have to fly on your airline.

Wendy M Grossman is founder and former editor (twice) of *The Skeptic*, and author of *From Anarchy to Power: the Net Comes of Age*. Wendy M Grossman also writes for *Scientific American*. Her web site is at <http://www.pelicancrossing.net>.

Natural Science and the Spirit World: Part 2

The second instalment of an article taken from **Friedrich Engels'** *Dialectics of Nature*.

THE SECOND EMINENT adept among English natural scientists is Mr William Crookes, the discoverer of the chemical element thallium and of the radiometer (in Germany also called *Lichtmühle* (light-mill)). Mr Crookes began to investigate spiritualistic manifestations about 1871, and employed for this purpose a number of physical and mechanical appliances, spring balances, electric batteries, etc. Whether he brought to his task the main apparatus required, a sceptically critical mind, or whether he remained to the end in a fit state for working, we shall see. At any rate, within a not very long period, Mr Crookes was just as completely captivated as Mr Wallace. "For some years," he relates, "a young lady, Miss Florence Cook, has exhibited remarkable mediumship, which latterly culminated in the production of an entire female form purporting to be of spiritual origin, and which appeared barefooted and in white flowing robes while she lay entranced in dark clothing and securely bound in a cabinet or adjoining room." This spirit, which called itself Katie, and which looked remarkably like Miss Cook, was one evening suddenly seized round the waist by Mr Volckmann – the present husband of Mrs Guppy – and held fast in order to see whether it was not indeed Miss Cook in another edition. The spirit proved to be a quite sturdy damsel, it defended itself vigorously, the onlookers intervened, the gas was turned out, and when, after some scuffling, peace was re-established and the room re-lit, the spirit had vanished and Miss Cook lay bound and unconscious in her corner. Nevertheless, Mr Volckmann is said to maintain up to the present day that he had seized hold of Miss Cook and nobody else. In order to establish this scientifically, Mr Varley, a well-known electrician, on the occasion of a new experiment, arranged for the current from a battery to flow through the medium, Miss Cook, in such a way that she could not play the part of the spirit without interrupting the current. Nevertheless, the spirit made its appearance. It was, therefore, indeed a being different from Miss Cook. To establish this further was the task of Mr Crookes. His first step was to win the *confidence* of the spiritualistic lady. This confidence, so he says himself in the *Spiritualist*, 5 June 1874, "increased gradually to such an extent that she refused to give a séance unless *I made the arrangements*. She said that she always wanted *me* to be near her and in the neighbourhood of the cabinet; I found that – when this confidence had been established and she was sure that *I would not break any promise made to her* – the phenomena increased considerably in strength and there was freely forthcoming evidence that would have been unobtainable in any

other way. She frequently *consulted me* in regard to the persons present at the séances and the places to be given them, for she had recently become very nervous as a result of certain ill-advised suggestions that, besides other more scientific methods of investigation, *force* also should be applied."

The spirit lady rewarded this confidence, which was as kind as it was scientific, in the highest measure. She even made her appearance – which can no longer surprise us – in Mr Crookes' house, played with his children and told them "anecdotes from her adventures in

The spirit proved to be a quite sturdy damsel, it defended itself vigorously, the onlookers intervened, the gas was turned out, and [...] after some scuffling [...] the spirit had vanished and Miss Cook lay bound and unconscious in her corner

India," treated Mr Crookes to an account of "some of the bitter experiences of her past life," allowed him to take her by the arm so that he could convince himself of her evident materiality, allowed him to take her pulse and count the number of her respirations per minute, and finally allowed herself to be photographed next to Mr Crookes. "This figure," says Mr Wallace, "after she had been seen, touched, photographed, and conversed with, *vanished absolutely* out of a small room from which there was no other exit than an adjoining room filled with spectators" – which was not such a great feat, provided that the spectators were polite enough to show as much faith in Mr Crookes, in whose house this happened, as Mr Crookes did in the spirit.

Unfortunately these "fully authenticated phenomena" are not immediately credible even for spiritualists. We saw above how the very spiritualistic Mr Volckmann permitted himself to make a very material grab. And now a clergyman, a member of the committee of the *British National Association of Spiritualists*, has also been present at a séance with Miss Cook, and he established the fact without difficulty that the room

through the door of which the spirit came and disappeared communicated with the outer world by a *second door*. The behaviour of Mr. Crookes, who was also present, gave “the final death blow to my belief that there might be something in the manifestations.” (*Mystic London*, by the Rev C M Davies, 1875). And, over and above that, it came to light in America how ‘Katies’ were ‘materialised’. A married couple named Holmes held séances in Philadelphia in which likewise a ‘Katie’ appeared and received bountiful presents from the believers. However, one sceptic refused to rest until he got on the track of the said Katie, who, anyway, had already gone on strike once because of lack of pay; he discovered her in a boarding-house as a young lady of unquestionable flesh and bone, and in possession of all the presents that had been given to the spirit.

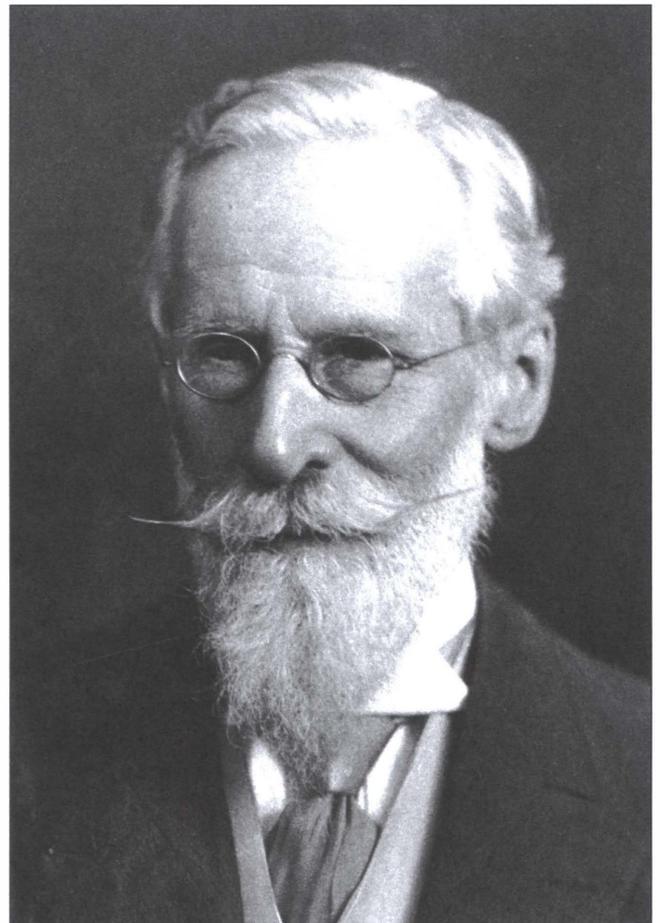
Meanwhile the Continent also had its scientific spirit-seers. A scientific association at St. Petersburg – I do not know exactly whether the University or even the Academy itself – charged the Councillor of State,

Professor Zöllner has addressed himself to one or more mediums in order with their aid to determine more details of the locality of the fourth dimension

Aksakov, and the chemist, Butlerov, to examine the basis of the spiritualistic phenomena, but it does not seem that very much came of this. On the other hand – if the noisy announcements of the spiritualists are to be believed – Germany has now also put forward its man in the person of Professor Zöllner in Leipzig.

For years, as is well known, Herr Zöllner has been hard at work on the ‘fourth dimension’ of space, and has discovered that many things that are impossible in a space of three dimensions, are a simple matter of course in a space of four dimensions. Thus, in the latter kind of space, a closed metal sphere can be turned inside out like a glove, without making a hole in it; similarly a knot can be tied in an endless string or one which has both ends fastened, and two separate closed rings can be interlinked without opening either of them, and many more such feats. According to the recent triumphant reports from the spirit world, it is said now that Professor Zöllner has addressed himself to one or more mediums in order with their aid to determine more details of the locality of the fourth dimension. The success is said to have been surprising. After the session the arm of the chair, on which he rested his

arm while his hand never left the table, was found to have become interlocked with his arm, a string that had both ends sealed to the table was found tied into four knots, and so on. In short, all the miracles of the fourth dimension are said to have been performed by the spirits with the utmost ease. It must be borne in mind: *relata refero*, I do not vouch for the correctness of the spirit bulletin, and if it should contain any inaccuracy, Herr Zöllner ought to be thankful that I am giving him the opportunity to make a correction. If, however, it reproduces the experiences of Herr Zöllner without falsification, then it obviously signifies a new era both in



Sir William Crookes (1832-1919), eminent natural scientist and investigator of the paranormal.

the science of spiritualism and that of mathematics. The spirits prove the existence of the fourth dimension, just as the fourth dimension vouches for the existence of spirits. And this once established, an entirely new, immeasurable field is opened to science. All previous mathematics and natural science will be only a preparatory school for the mathematics of the fourth and still higher dimensions, and for the mechanics, physics, chemistry, and physiology of the spirits dwelling in these higher dimensions. Has not Mr Crookes scientifically determined how much weight is lost by tables and other articles of furniture on their passage into the fourth dimension – as we may now well be permitted to

call it – and does not Mr. Wallace declare it proven that fire there does no harm to the human body? And now we have even the physiology of the spirit bodies! They breathe, they have a pulse, therefore lungs, heart, and a circulatory apparatus, and in consequence are at least as admirably equipped as our own in regard to the other bodily organs. For breathing requires carbohydrates which undergo combustion in the lungs, and these carbohydrates can only be supplied from without; hence,



Florence Cook (1856-1904), medium with an uncanny resemblance to the spirit "Katie King".

stomach, intestines, and their accessories – and if we have once established so much, the rest follows without difficulty. The existence of such organs, however, implies the possibility of their falling a prey to disease, hence it may still come to pass that Herr Virchow will have to compile a cellular pathology of the spirit world. And since most of these spirits are very handsome young ladies, who are not to be distinguished in any respect whatsoever from terrestrial damsels, other than by their supra-mundane beauty, it could not be very long before they come into contact with 'men who feel the passion of love'; and since, as established by Mr Crookes from the beat of the pulse, 'the female heart is

not absent,' natural selection also has opened before it the prospect of a fourth dimension, one in which it has no longer any need to fear of being confused with wicked social-democracy.

Enough. Here it becomes palpably evident which is the most certain path from natural science to mysticism. It is not the extravagant theorising of the philosophy of nature, but the shallowest empiricism that spurns all theory and distrusts all thought. It is not *a priori* necessity that proves the existence of spirits, but the empirical observations of Messrs. Wallace, Crookes, and Co. If we trust the spectrum-analysis observations of Crookes, which led to the discovery of the metal thallium, or the rich zoological discoveries of Wallace in the Malay Archipelago, we are asked to place the same trust in the spiritualistic experiences and discoveries of these two scientists. And if we express the opinion that, after all, there is a little difference between the two, namely, that we can verify the one but not the other, then the spirit-seers retort that this is not

And so empiricism finds itself compelled to refute the importunate spirit-seers not by means of empirical experiments, but by theoretical considerations

the case, and that they are ready to give us the opportunity of verifying also the spirit phenomena.

Indeed, dialectics cannot be despised with impunity. However great one's contempt for all theoretical thought, nevertheless one cannot bring two natural facts into relation with one another, or understand the connection existing between them, without theoretical thought. The only question is whether one's thinking is correct or not, and contempt of theory is evidently the most certain way to think naturalistically, and therefore incorrectly. But, according to an old and well-known dialectic law, incorrect thinking, carried to its logical conclusion, inevitably arrives at the opposite of its point of departure. Hence, the empirical contempt of dialectics on the part of some of the most sober empiricists is punished by their being led into the most barren of all superstitions, into modern spiritualism.

It is the same with mathematics. The ordinary metaphysical mathematicians boast with enormous pride of the absolute irrefutability of the results of their science. But these results include also imaginary magnitudes, which thereby acquire a certain reality. When one has once become accustomed to ascribe some kind of reality outside of our minds to --1, or to the fourth dimension, then it is not a matter of much importance if one goes a step further and also accepts the spirit world of the mediums. It is, as Ketteler said about Döllinger^[3]: "The man has defended so much nonsense in his life, he really could have accepted infallibility into the bargain!"

In fact, mere empiricism is incapable of refuting the spiritualists. In the first place, the 'higher' phenomena always show themselves only when the 'investigator' concerned is already so far in the toils that he now only sees what he is meant to see or wants to see – as Crookes himself describes with such inimitable naïveté. In the second place, however, the spiritualist cares nothing that hundreds of alleged facts are exposed as imposture and dozens of alleged mediums as ordinary tricksters. As long as *every* single alleged miracle has not been explained away, they have still room enough to carry on, as indeed Wallace says clearly enough in connection with the falsified spirit photographs. The existence of falsifications proves the genuineness of the genuine ones.

And so empiricism finds itself compelled to refute the importunate spirit-seers not by means of empirical experiments, but by theoretical considerations, and to say, with Huxley: "The only good that I can see in the demonstration of the truth of 'spiritualism' is to furnish an additional argument against suicide. Better live a crossing-sweeper than die and be made to talk twaddle by a 'medium' hired at a guinea a séance!"



Sir William photographed standing next to Florence's manifested spirit "Katie King". What more proof so you need?

Notes

3. A catholic scholar who did not accept the dogma of papal infallibility

References

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From a manuscript of Engels probably written in 1878, and first published in the "*Illustrierter Neue Welt-Kalender für das Jahr, 1898*." The article is taken from Engels' *The Dialectics of Nature*, translated and edited by Clemens Dutt, and published by Lawrence & Wishart in London in 1940. It is reproduced here with the kind permission of Lawrence & Wishart.

Skeptical Stats

1. Number of people living in New Orleans as of February 1, 2006: **130,000**
2. Number of people living in New Orleans pre-Katrina: **nearly 500,000**
3. Price, with seven days to go, of an “image of Jesus on a piece of sheet metal New”, on eBay: **\$1.025**
4. Percentage of 562 surveyed British children who thought their fathers were the smartest people in the world: **27**
5. Percentage who thought their mothers were: **19**
6. Number of weeks London mayor Ken Livingstone was suspended by the Adjudication Panel for England for comparing a reporter from the *Evening Standard* to a concentration camp guard: **4**
7. Number of Fairtrade products available in Britain: **1,300**
8. Number of psychics helping search for a prize-winning show whippet that escaped from a travel cage at New York’s Kennedy airport: **12**
9. Cost of a “Psychic Journey” at Uri Geller’s and Jonathan Cainer’s Psychic Museum in York: **£30**
10. Number of “Aura Photographs” included in the price: **1**
11. Number of British children who run away every year: **100,000**
12. Percentage that are under 11: **25**
13. Amount the Department of Homeland Security spent on antiterrorism devices between September 11, 2001 and June, 2005: **\$4.5 billion**
14. Amount that was found to be ineffective, unreliable, or too expensive to operate: **almost all**
15. Average percentage of the UK population that the British believe are immigrants: **21**
16. Percentage of the UK population that actually are immigrants: **8**
17. Number of networks that make up the Internet: **250,000**
18. Estimated number of Chinese people who start their days by drinking their own urine: **3 million**
19. Age at which babies have shown altruistic behavior: **18 months**
20. Number of people in the European Union who identify themselves as Muslims: **20 million**
21. Number of intergalactic lovers jazz singer Pamela Stonebrook claims to have had: **1**
22. Amount pension obligations add to the cost of every vehicle General Motors produces: **\$675**
23. Number of thymus organs German scientists discovered in 2006 that mice have: **2**
24. Number chickens have: **10**
25. Percentage of British children receiving the MMR vaccine: **81**

1 Brookings Institution (www.brookings.org/metro/katrina.htm); 2 Reuters; 3 eBay; 4,5 *Pocket-lint.co.uk*; 6 press reports; 7 *Observer*; 8 Associated Press; 9,10 www.psychicmuseum.com; 11,12 Children’s Society, cited in *Evening Standard*; 13,14 Bruce Schneider’s Weblog; 15,16 *Harper’s Index*; 17 Vint Cerf, in testimony before the US Senate Committee on Commerce, Science, and Transportation; 18 *Outside Magazine*; 19 *Science* (via BBC); 20 *The New Yorker*; 21 *Metro*; 22 *Harper’s*; 23,24 *Nature*; 25 Durham University press release

Both Hits & Misses and Skeptical Stats depend heavily on reader contributions of clippings, story leads, and odd statistics. Please send contributions to news@skeptic.org.uk or via post to the address on the masthead (p. 3). Make sure all clippings are clearly marked with the date and the name of the publication.

Skeptical Stats is compiled by **Wendy M Grossman**.

Just Your Imagination

Part Two: Feel The Force

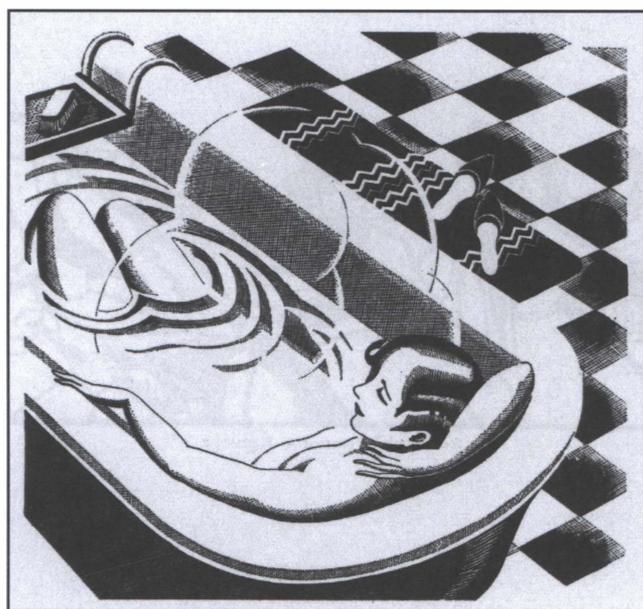
Barefoot sceptic **Martin Parkinson** 'fesses up and counts his new age brownie points.

I USUALLY FIND magic irritating and certainly didn't think I knew how to perform any myself, so I was most surprised, while watching Derren Brown on TV (Channel 4, 2003), to see a trick which I know how to do. He goes to a boxing club full of beefy chaps presumably in heavy training. He then casually calls in a petite young woman (who we assume is a member of the TV production crew) and invites one of the athletes to lift her off the ground as she stands facing him. Of course he does so easily, holding her on either side of the ribs somewhat below the armpits. Brown then issues the challenge a second time to the same guy but gives him The Stare, tells him he will NOT be able to lift her, says "wait!" (homophone of 'weight') then stands behind him frowning furiously and extending magic rays through his fingertips. Sure enough, the young lass remains rooted to the spot despite much evident straining from the bruiser. We're supposed to think it's hypnosis but it is actually all down to the assistant who employs an easily learned physical technique. I'm a scrawny wee thing myself and I can do it too; in my favourite version one allows oneself to be hoisted aloft by two people, one then 'turns it on' and sinks gratifyingly back to the floor. As this was not taught to me as a secret trick I don't see that anyone can get upset if I tell you about it.

How do I know about this? Well (author coughs and looks sheepish), I learned to do 'unliftable body' as part of practicing a martial art called Ki Aikido. Aikido is a 'soft' martial art which uses the concept of *ki*, pronounced 'key' (a Japanese near-cognate of the Chinese *chi* or *qi*, pronounced 'chee'). Ki Aikido is a minor variant which lays particular stress on *ki* and reserves a part of each class for '*ki* development', where, amongst other things, you learn to do exercises such as the above. This article is mainly about '*ki* development' and I must stress that I am most definitely no sort of expert on aikido or *ki*; I just want to point out some interesting things. The soft martial arts are an occasional subject for sceptical debunking (e.g., Brice's article in *The Skeptic*, 8.4, 1994) and to be honest, it must seem a bit like shooting fish in a barrel. *Ki* seems to have a number of mundane meanings but also refers to a sort of ultimate stuff out of which the universe is made. You have your own personal allowance of *ki*: it is what (ultimately) keeps you alive and you can learn to amplify and direct it (Tohei, 1966). Practicing aikido gains me quite a few new age brownie points and I'm also in very good company: Charles Tart the parapsychologist is an *aikidoka*, and he has a whole entry to himself in *The Skeptic's Dictionary!* (Tart, 1986; Carroll, 2004).

I imagine you've already guessed that I don't believe

that *ki* is literally a mysterious and powerful force, but that I do nevertheless consider *ki* training to be of both psychological interest and real personal value. The reason for this is that *ki* training is basically about the manipulation of attention, including one's own (as is magic, I'm well aware). The strange martial arts effects – the no-contact throws, the soft touches which feel amazingly powerful – are produced on your opponent by, in the useful aikido phrase, "moving their mind".

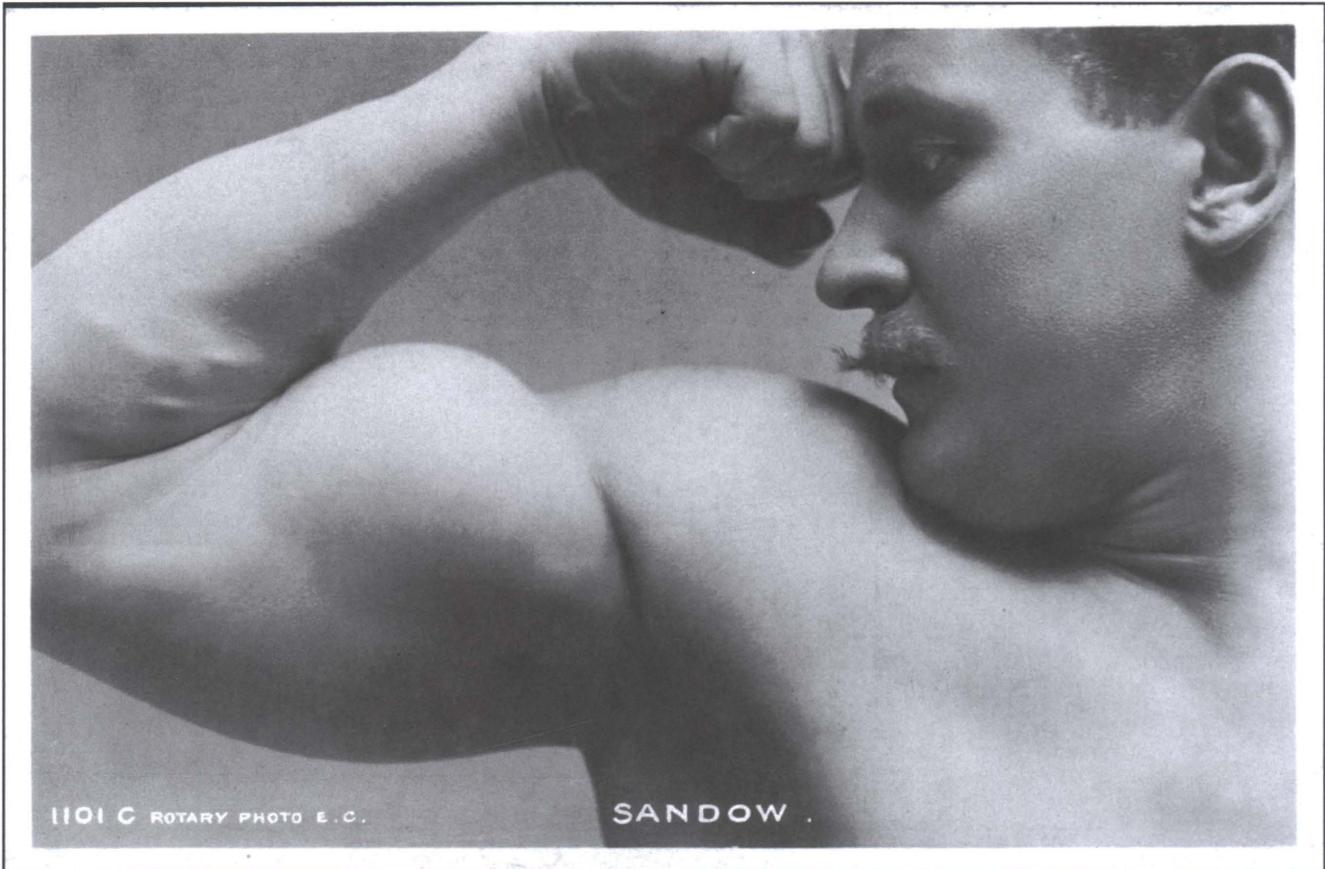


Relaxation is important: tense and resistant people are much easier to hoik around...

Now you might think belonging to a Ki Aikido dojo means rubbing shoulders with a load of new age [insert your favourite term of sceptical abuse here]. The reality is less of a caricature: Ki Aikido collectively seems to be resolutely agnostic as to the nature of *ki* and although the matter is never in my experience discussed (when the subject has been raised by newcomers in the pub after training it has always been very quickly and politely kicked into touch), I am pretty certain that many participants share my view that *ki*-language should be understood metaphorically. However, yes, aikido does attract some people with interests in 'alternative' whatnots and yes, this does, sometimes, kind of ... errm ... *bother* me. I'm working on it.

Manipulating your own attention

If you wish to experiment with unliftable body yourself (don't try it in a room with a low ceiling) instructions are given, together with a historical sidelight about its use as a stage trick, by Collingbourne (2002)



By tensing your biceps, you make it easier for someone to bend your arm at the elbow.

who is both a second-dan black belt and a magician and therefore has rather more authority than myself on the matter. The effect is actually more startling as a performer than a spectator. As lifter, it does not feel as if your liftee has gained weight; it feels as if you are suddenly unable to get a proper grip, as if their skin is somehow detached from the underlying muscle and you are forced to try to raise them by the impossible method of pushing upwards against their skin.

Unliftable body obviously can be explained in terms of biomechanics and the version described earlier is probably partly effected by a very slight forward shift in the liftee's centre of mass. But an important point is that there are many *ki* exercises (most of them unspectacular stability tests), which each seem to have different and obscure mechanisms. So how are all these exercises taught and learned? One learns to perform them by means of generating a single specific bodily sensation which correlates with performing the exercises successfully: switch the feeling on, the appropriate bodily shifts and relaxations occur automatically. This sensation of 'extending *ki*' or 'keeping one point' is partly characterised by a sensation of 'openness', of 'lightness', of one's attention being spread in a wide arc rather than a narrow beam, of a kind of suspension of judgement. Relaxation is important: tense and resistant people are much easier to hoik around. *Ki* development is partly about learning to move efficiently and developing body awareness. I find this more helpful (and fun) than the somewhat ponderous auto-suggestions of the eminently

respectable Alexander Technique (a mere personal preference, I hasten to add).

If you saw *Psychic Secrets Revealed* (Channel 5, 2005) you might think my account of unliftable body is naive in discounting the possibility of suggestion being a causative factor. In the second episode there is a varia-

He could make one of the young men so stupid, even in the waking condition, that he no longer knew his own name, a feat, however, that other schoolmasters are capable of accomplishing without any mesmerism

tion of the effect reproduced from a Uri Geller performance: three people (plus the magician himself) are invited to lift someone from a chair using only their index fingers. They are told this is impossible and indeed when they try it, the liftee budes only slightly. They are then led through a ritual where they pile up their hands over the top of the liftee's head, before hoisting him up easily. Clearly, suggestion does play a part in this: four people (or rather three, as the magician

himself is one of the lifters) can easily lift one seated person, even with just their index fingers, but note that the magician has to hustle and lead the lifters through this part of the trick (without appearing to do so), so that they do not get a proper chance to try: they are not responding to a simple suggestion but to more active manipulation. The funny little ritual probably does have an effect on the liftee's mind and its form is not arbitrary: had they say, taken two steps back and then crouched down on the floor, it may not have worked as well. This is because, in line with my previous discussion, tense people are easier to lift than relaxed people and the effect of crowding round the liftee's head is to induce tension (try for a moment to imagine yourself in his place). I try to be careful not to use 'suggestion' as a catch-all explanation; I want some detail about the actual suggestive mechanics.

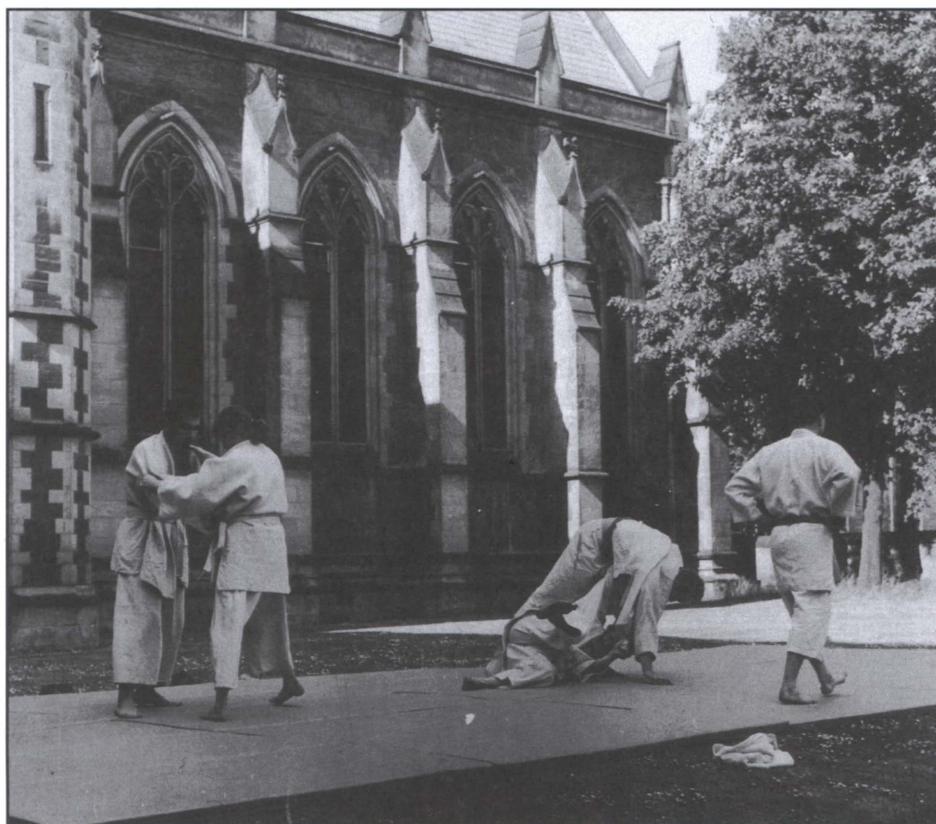
'The mind leads the body'

Imagine you are in a *ki* development class doing the exercise 'unbendable arm'. You hold out your arm in a vaguely pointing manner and your partner stands beside you and puts one hand on your bicep and the other underneath your wrist and applies pressure so as to bend your arm at the elbow, moving your hand towards your shoulder. If you tense your arm, this is rather easy to do as, amongst other things, you will be contracting the bicep and thus assisting your partner; whereas if you relax, your arm will be, as advertised, unbendable. This is pretty easy to learn, especially if you experiment with various mental tricks and visualisations, and you soon get used to remaining unaffected by having someone impressively larger than you mysteriously attached to your arm, heaving away. So then you hold out your arm, relaxed and confident; your partner puts their hand on your bicep and moves their other hand towards your wrist. Then something odd happens, not exactly a distraction, more a sort of *very* slight violation of expectation, hardly anything at all in fact. Then your partner's hand touches your wrist ever so gently, your arm bends easily and you think "Uhhh?" The exercise has been cranked up a notch.

What happened was that a miniscule pause was inserted into the proceedings. Even when you work out why it happened it seems a bit outrageous to be bested by such a tiny movement: your arm bent because your attention had been very subtly engaged.

(It occurs to me that 'applied kinesiologists' might inadvertently use this device in their 'muscle testing'.) The *ki* aikido slogan "the mind leads the body" is, I think, quite a nice encapsulation of this kind of effect. Your arm bends because 'your mind is moved', your attention is narrowed, you tense a little. We do even speak of someone being "thrown" as a metaphor for brief mental confusion.

In unbendable arm, it is *just* possible to be conscious of what is happening, whereas in the speed of an actual



You could not really have such a thing as 'ki judo'.

aikido technique, especially performed by advanced practitioners, actions and responses barely pass through consciousness. Tiny cues cause responses in a speedy interactive dance, too quick to think about. Soft martial arts might sometimes work very well on people who don't 'know the script' because some of the cues lead to a universal response (for example, we'll all shy away automatically in reaction to fast movement in the vicinity of our eyes); the faster the interaction, the smaller the cue can be and the less we'll be aware of why we got out of the way. Watched from the outside this can look a bit fake, but experienced from the inside it feels distinctly odd – like nothing much exactly, but irresistible nonetheless – perhaps like being squished to the ground by a giant invisible balloon. As there is little conscious information about what went on, this is the best construction your mind can make when it tries to reconstruct what happened. A point to note is that being able to lead and direct people's attention in this way is only possible where participants have some minimum

physical distance between them: for this reason you could not really have such a thing as 'ki judo' (Tokitsu, 2002, discusses this last point at length).

The above is, of course, an example of ideomotor action and rather than quote Ray Hyman's famous essay on the subject (2003) I shall offer my own slightly whimsical account. Ideomotor action is said to occur when your brain gives your muscles a purposive instruction without consulting your consciousness in circumstances where your consciousness thinks it ought to be consulted. I find this rather comforting in a martial arts context: basically if your brain calculates 'danger' it shoves you out of the way pronto, and won't hang about listening to any fancy cogitation. The ideomotor effect explains why some people believe in guardian angels and much else besides – and even if you know all about it, it still works and it still feels bizarre.

Nevertheless, in aikido practice there *is* very often an element of 'following the script' where people breakfall because they know they ought to; in fact it would be impossible for this *not* to happen fairly often. What sometimes then happens is that their practice partner says "That was a dive – please don't breakfall unless you have to". When you roll in response to situational pressure there is no feeling of inevitability, no squishy balloon, but there might be a sort of 'double consciousness' of the type I mentioned in Part 1: it *was* real, but when someone calls you on it, you realise that it was also pretend.

Trouble with metaphor

You might be muttering "all right, I'll grant you that *some* people take new age notions non-literally, and maybe ki aikido in particular is more sensible than I originally thought and might even do you some good if you're stressed or clumsy or have a bit of a bad back or whatever, but plenty of folk do believe all sorts of stuff about vital forces *literally*. Quite apart from people being killed by charlatans on the back of this nonsense, we simply should not believe such ridiculous stuff in this day and age". One could hardly disagree, but 'belief' is complicated and nuanced; what exactly do we mean by 'belief' anyway and how much choice do we have about it?

Here we have drifted back to the alternative healers who introduced Part 1. I characterised what they are doing as "making people feel better when they feel bad". We, looking from the outside, are able to distinguish between the organic illness and the emotional effects which accompany it and know that the organic component is beyond the reach of the healers. But this

distinction must be hard to make for the chronically ill themselves because this kind of distinction is difficult for *anyone* to make about themselves.

I have been trying to write this article since I finished my very first piece for *The Skeptic* (vol. 16, no. 1, Spring 2003). I was going to start from my comment that "I had not known ... how literal-minded people can be" and go on to argue, using my aikido experience as illustration, that some 'new age' beliefs are in fact category mistakes: confusions between levels of description where a metaphoric description, genuinely truthful when its metaphoric nature and limited application is consciously acknowledged, was mistaken for a description of a different, scientific, type – the title was to be *Trouble with Metaphor*. The piece as originally envisaged proved impossible to write because I gradually realised that *all of us* have 'trouble with metaphor' and handling different levels of explanation is difficult. I had also forgotten that a large chunk of 20th century philosophy was concerned with the nature of language and its slippery relationship to the world. This is a thorny area, but I don't suppose that will deter me from returning to it in the future, as its relevance to the sceptical project is seldom discussed.

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Martin Parkinson is working toward becoming a science writer, his main interests being anomalistic psychology, the philosophy of science and environmental issues.



Discord

Why is cognitive dissonance important in understanding pseudoscience? **Lee Traynor** explains...

IN A RECENT article in this magazine (*The Skeptic*, 17.4) Mark Pendergrast referred to Festinger's theory of cognitive dissonance as the idea that you cannot believe two opposites at once and – in a manner reminiscent of creationists – as “just a theory”. “The idea is that you cannot have two contradictory ideas in your head at the same time. One of them is going to push out the other one like a cuckoo pushing an egg out from the nest.” (Pendergrast, 2004). This, however, is based on a misunderstanding of Festinger's work and of what cognitive dissonance actually

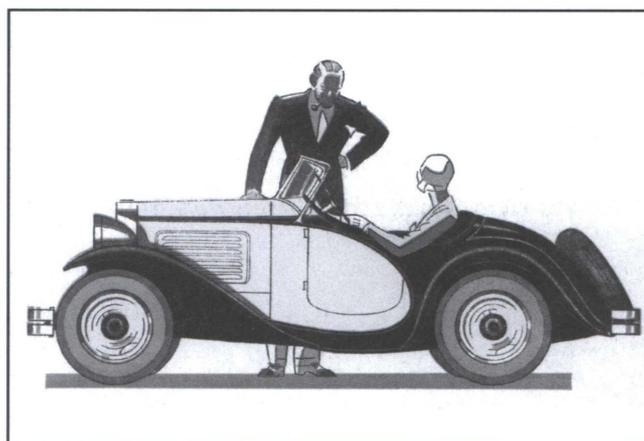
Whether it's a bad car, time-sharing or Microsoft Windows, people will adduce arguments to help them overcome any negative aspects they are confronted with. Or in the words of Murphy's Law: if it jams, force it; if it breaks, it needed fixing anyway

is. In fact cognitive dissonance is a counter-intuitive concept which goes some way in explaining why people will publicly defend such baloney as pseudoscience commonly is. It is a pity that in an age where the original article is freely available on the Internet (yorku.ca), it is apparently not read.

What Festinger was looking for

It is important to realise that Festinger's theory of cognitive dissonance was a comprehensive theory about what people do regarding the dissonance that arises when people are confronted by contradictory attitudes or behaviours. He postulated that there were three ways of reducing dissonance: to play down or ignore dissonant cognitions; to focus on additional features that would outweigh the dissonant cognition; or to change one's behaviour to bring it into line with the dissonant cognition (psychology.org). Festinger proposed that people would rather choose to change their beliefs (the first two options) rather than their behaviour. To use his own example, what do you do when you buy an expensive car that is unfortunately uncomfortable on longer journeys? Well, you can claim that you use the car mainly for short journeys anyway so that the discomfort on longer journeys does not figure highly (option 1). Or you could emphasise that the car looks nice, is easy to handle or is particularly safe or reliable (option 2). Or you could sell the car (option 3).

Festinger's theory differs from the Freudian theory of the ego defence mechanism or the commonsense notion of “rationalisation” in that it covers all possible outcomes and it can be tested. Note that if someone rationalises his car's discomfort on long journeys by claiming that he only uses it for short journeys, it does not tell us anything about the workings of the mind. For all we know more people might be selling their uncomfortable cars than inventing reasons to keep them. But most of us suspect that people are doing the latter.



What do you do when you buy an expensive car that is unfortunately uncomfortable on longer journeys?

What Festinger found

But how do you measure the effect? When you read Festinger and Carlsmith's paper on the net, what is very obvious is the experiment's almost Byzantine structure and the very small effect size. I won't dwell on the details but I assume the elaborate structure arose from pilot studies that had to be refined until an effect was discoverable. The smallness of the effect size need not worry us, as Festinger was measuring attitude change taking place in the course of just an hour. A larger effect size might be seen over a longer time period during which the attitude change could be reinforced. What was the gist of the experiment?

Festinger and Carlsmith had male students perform a rather boring task for an hour and then claim to a female student that the “experiment” they were doing really was interesting. After this the male students were asked to continue for another hour doing an equally boring task but this time some of them were offered money for their compliance. A control group was offered nothing; two experimental groups were now offered either \$1 or \$20 (nearly seven times as much in today's currency, see inflation calculator at bls.gov). At the end of the hour the students were asked to rate a number of items including how enjoyable the tasks

were and how scientifically important they thought the experiment was.

Now the burning question becomes: Did the students who received \$20 enjoy the tasks more because they were paid a lot of money for an hour's work? After all, most of us would enjoy putting the money into our wallets. Or would the students who received only \$1 say they enjoyed the tasks more? There was an opportunity for the students to reinterpret their experience by playing down the negative aspects (option 1) – they could claim that they thought the experiment was scientifically important. However if there was no difference on this item, the students must have thought that since the pay was meagre, the task must really have been interesting (option 2). No one broke off performing the additional tasks (option 3).



Would you be happier doing a boring task for \$1 or \$20?

And the winner is? Yes, it was the One Dollar condition where students were most content; there was no difference in how they viewed the scientific importance of the study.

Sound familiar? Whether it's a bad car, time-sharing or Microsoft Windows, people will adduce arguments to help them overcome any negative aspects they are confronted with. Or in the words of Murphy's Law: if it jams, force it; if it breaks, it needed fixing anyway.

Relevance to pseudoscience

It is often remarked that the reason people embrace pseudoscience so fervently is that its practitioners possess so-called soft skills, e.g. the ability to empathise with, and understand, their clients' needs – skills which cold, hard scientists apparently do not possess. The question is whether this is really the case or whether cognitive dissonance might be at work here, making people's assessments of pseudo-scientists more positive.

There have been few instances of sceptical investigations of pseudoscience in respect to cognitive dissonance. Occasionally, however, comments do seep through that pseudo-scientist performance is below par

and would rationally lead to rejection of their claims. Edwards and Stollznow (1998) visited a number of "alternative" medical practitioners for consultations and their overall conclusion appears to be that patients were not treated with empathy and understanding. As Stollznow remarks with some disgruntlement of an iridologist: "His diagnosis was the most serious that I've ever received, yet it was delivered within five minutes of my appointment on the pretext of spots on my iris". Festinger might even argue that paying for treatment would be expected to improve contentedness with it and this is likely to be the case for alternative therapies rather than conventional treatments that are covered by health care schemes. And cognitive dissonance appears to predict that placebos might be more effective when they are perceived as being *less* effective.

I recently attended an exorcism in Los Angeles (Traynor, 2005) and found that a) nothing much happened; b) possession by spirits to explain personal problems is neither plausible nor helpful in solving such; and c) that the exorcist himself put on a poor showing. No doubt the people who invested a Sunday afternoon in this farce now believe all the more strongly in the validity of exorcism precisely for these reasons.

I do therefore think that there is something to be said for applying the paradigm of cognitive dissonance to aspects of our investigations of the supposedly paranormal. It would strengthen the sceptics' case if we could make it understood that people do not always accept the best evidence when judging paranormal phenomena.

Acknowledgement

I would like to thank Mahlon Wagner for his helpful comments.

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Mia Dolan on Granada's *This Morning*

Tony Youens and his gripe with "psychic" entertainment

DURING AUGUST 2005, every Monday for six weeks, *This Morning* (ITV1) conducted a series of tests which were supposed to determine whether a woman named Mia Dolan had psychic powers. The feature had the pejorative title of *Psychic versus Cynic*.

According to her own website Mia Dolan is the "Psychic of the millennium". She is also the author of two books: *The Gift*, which tells how she first discovered her psychic powers at the age of 22 when 'Eric' her spirit guide first made contact; and *Mia's World* which was published in October 2005. In an article published by *People* magazine she claimed she not only predicted a plane crash and the death of Princess Diana but also foresaw the death of her own brother and son.

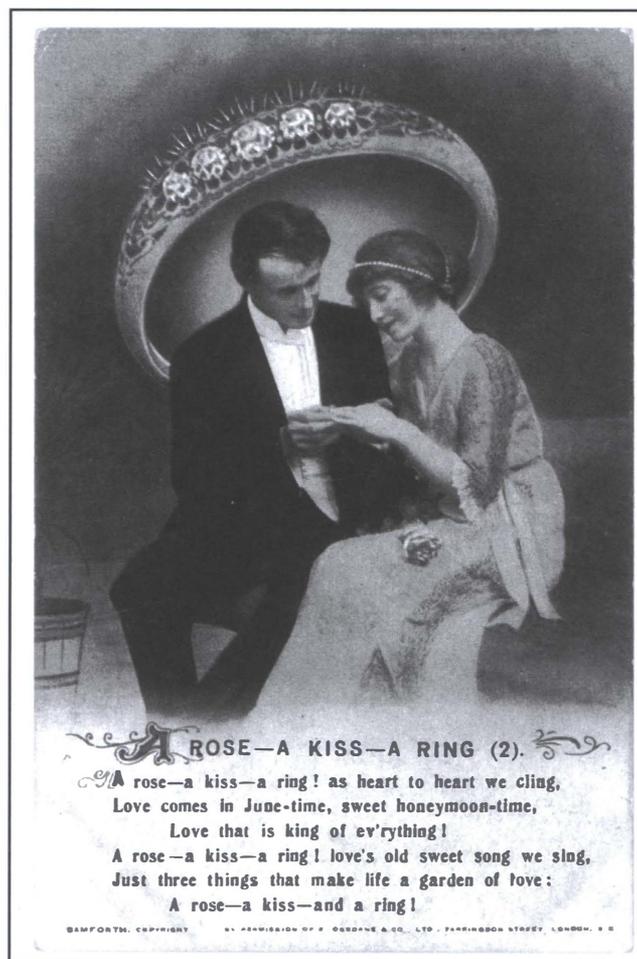
"I see a ring coming off which means a change of relationship. I also see you're going to be doing a lot of walking."

With this level of ability Ms Dolan should be able to pass the most stringent of tests. Sadly and predictably, the 'test' seems to have been designed so that all but the most inept cold reader could pass with flying colours. The basic format was for Mia to meet a number of volunteers, originally six but later reduced to five due to unforeseen circumstances, and, without actually speaking to them, record in writing her predictions of what she thought would happen to them over the next few weeks. These volunteers also underwent a personality test (the 16PF test) given to them by psychologist Dr David Lewis which was to be used for some kind of comparison. Exactly how a personality profile can be compared with the predictions of a psychic was not made clear. I can see that such a comparison *might* serve some purpose if Mia was simply giving a character reading, but she wasn't. My guess is the production team came up with the title first and then wondered how they might proceed from there.

The second phase of the test took place in the studio six weeks later with Mia first giving a live reading supposedly detailing the volunteer's past and present. This was then followed with one of the hosts, Richard Bacon or Denise Van Outen, reading out Mia's earlier predictions. The implication seemed to be that the first part of the experiment would test Mia's ability to predict the future whilst the second reading would focus on the

recent past and present.

Already things become a little fuzzy, as just how far into the past Mia's insights could go was not made clear which gave her a good deal of latitude. The impression was that this would refer to the *recent* past and if true this highlights another peculiarity of the test. If Mia predicted the forthcoming six weeks but then six weeks later gave a reading dealing with the past six weeks then she would be dealing with exactly the same time frame. You might therefore think that the two readings would



Does "a ring coming off" signify a "change" or a "break" in a relationship?

bear some similarity, needless to say they didn't.

The readings themselves were by any standards mundane. The 'prop' favoured by Mia was aura reading and it came as a revelation to me that these ethereal emanations could be transmitted via a television monitor. As for the actual 'predictions', they were often nothing of the kind. For example, for one volunteer she trots out the time honoured line, "Wendy has strong psychic ability." Unless this has happened in the last few weeks I don't see its relevance to the test.

Other discerning comments included;

"...you have great intuition and gut instinct so even though you may not believe in psychics, you often say, 'Yeah I had a feeling about that'..."

"...you'll be involved in helping people. Your life will be a mission to do with people. You're very warm, you're everyone's agony aunt."

"I see a ring coming off which means a change of relationship. I also see you're going to be doing a lot of walking."

Apart from the ill-conceived test design, the deck was further stacked in Mia's favour by the constant attempts of the show's presenters to portray her in the most favourable light possible. When Mia apparently got something vaguely correct Dr Lewis, constantly referred to as the "cynic", was asked how he could explain such apparent miracles. He would patiently

Of course, some might argue that this was, 'only entertainment', as if this can justify the abandonment of integrity and the broadcasting of any old nonsense

point out that much of what Mia said applied to 90% of the human race but rather than exploring this point or challenging Mia to be more precise Richard Bacon simply wrote it off by declaring it "unfair". One interesting aspect of this process was how Bacon and Van Outen often misquoted what was actually said so that it sounded more precise. For instance in the above statement about, "a ring coming off" Mia said this meant, "a change in relationship" but when Denise Van Outen asked the volunteer to comment she said, "Also the ring coming off. Does this sound right, a break in a relationship?" Notice how "change" became "break" which was significant when you heard the reply, "When I had the first interview six weeks ago my husband and I were separated at the time. Happily we're back together now." So in fact there was no change but there was a break. Did Van Outen know something we didn't perhaps?

But let's look a little more closely at Mia's choice of words. She didn't say on whose finger the ring was coming off or whose relationship would actually be changing. This allows for a much wider range of possibilities. In fact it would be a hit if anyone known to the volunteer, family friend or work colleague, was finishing or

starting a relationship. This misquoting, which I assume was unintentional, occurred frequently in the presenters' attempts to make Mia's often trivial remarks appear more meaningful and precise than was actually the case.

During the programmes a running score was kept of Mia's hits and misses as well as those of Dr Lewis, an entirely pointless exercise not least because the final word on whether Mia had proven her psychic abilities was decided by a public phone vote. That it went in

Portrait of a salesman

Stressed psychologist a manufacturer to pack his product in a modern, designed-to-discard container. They expect him to protect his goods from the slightest worst-case damage. They expect a pack that looks proud of its contents. In short, it is the pack that sells the quality of the product. That is why today the best products are packed in Medway corrugated cases. In the manufacture of these cases the Medway Corrugated Paper Company excels - making the corrugated sheetboard, lining it with tough, kraft paper and turning it into corrugated cases. Each case, planned to give the maximum protection to the goods it is to carry, is a reminder of the part which the Reed Paper Group, with all its resources, plays in the development of new packaging methods.

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Just how much do programmes such as these maintain the myth of psychic ability?

Mia's favour (62%) should come as no surprise but in fact this only amounted to around 1,240 people who actually bothered to vote for Mia.

Of course, some might argue that this was, 'only entertainment', as if this can justify the abandonment of integrity and the broadcasting of any old nonsense. In essence this was no more than a free publicity campaign but some people take this kind of thing very seriously and it's reasonable to assume that they will see it as further validation that decision making, based on the advice of a psychic, is a sensible course of action. Just how much programmes such as this maintain the myth of psychic ability is of course unknown but a little more balance in future would not go amiss.

Tony Youens is a founding member of the Association for Skeptical Enquiry and works at Nottingham Trent University as a Safety Officer.

Rhyme and Reason

Steve Donnelly



Magnetic quackery

Although magnetism was known and exploited by the third century BC or earlier, it still has a capacity to amaze and confuse and it is probably for this reason that it seems to be seeing a particular resurgence as a quack therapy and for a lot of other dubious uses. With my first-year students, when I am discussing the idea of a force, I usually take a pair of small but powerful neodymium permanent magnets and put them on top of an overhead projector with similar poles facing one another. Moving one then forces the other to slide across the surface of the projector as a result of magnetic repulsion even though they are separated by a centimetre or so. This almost spooky action at a distance can seem even weirder when I pass the magnets around the class and ask the students to attempt to push similar poles together. The feeling this gives is of having a slippery but dense jelly in between the magnets — of course, in reality, the only physical substance in between them is air, the repulsion being provided by the magnetic interaction. This doesn't mean that magnetism is not well understood by physicists. It is, but the description tends to be rather mathematical and this is perhaps another reason that even physics students can find magnetism difficult to understand at a reasonably deep level as they tend to regard electromagnetism as one of the more intractable subjects in their syllabus. For the general public, then, it may seem perfectly reasonable that this mysterious force of nature which is omnipresent on our planet (in the form of the Earth's magnetic field) may be harnessed in the service of good health and wellbeing.

On the web and elsewhere you will find no shortage of suppliers offering small powerful magnets in a variety of shapes and sizes along with suggestions as to how they should be employed to deal with specific ailments. For instance a UK company called MagneCare tells us that one of their product ranges, MagneDisk magnets, “give effective local treatment of any aches, pains and sprains, anywhere on the body;— the head, neck, shoulders, elbows, wrists, hands, spine, lower back, hips, knees, ankles, feet and acupressure points” [1]. They will also provide magnets for producing “magnetic water” — something which if it really existed would have probably gained its discoverer a Nobel Prize. Drinking magnetic water, apparently “reduces excess acidity and bile in the digestive system and regulates movement of the bowels, expelling all accumulation of poisonous matter, soothes the nerves and helps clear arteries” [1]. Just don't lick your credit cards after drinking it, though. The company's tests show that magnetic water can be made by placing a beaker of water on a magnet for 60 minutes or taping a

magnet to the side of the vessel. And don't forget Tamiflu — according to a Dr Philpott of Oklahoma: “During a flu epidemic, take magnetically treated water every 4 hours for prevention or relief of symptoms” [1]. (By the way, this will work better for avian flu than other varieties as birds are well known to have a magnetic sense that they use for navigation). In fact, so popular have so-called magnetic therapies proven to be, that, according to the *Sunday Times* on 26 February 2006: “NHS accountants are so impressed by the cost-effectiveness of a ‘magnetic leg wrap’ called 4UlcerCare that from Wednesday doctors will be allowed to prescribe it to patients” [2].

Now, you may have picked up from my tone that I am a little sceptical about the efficacy of these therapies but is there any evidence (other than the testimonies on the suppliers' websites) that any of them might actually work? Well some of the websites that are promoting these therapies refer to a pilot study on 50 adults that was conducted at Baylor College of Medicine in Houston, which compared the effects of real magnets and false magnets on knee pain in people who had had polio. However, a pilot study is only ever meant to be used to help decide whether it is worth continuing with a full study — and given the small numbers of patients and differences in the characteristics of the group using magnets and the control group, this study really has no significance at all. Dr Stephen Barrett gives a detailed discussion of this trial and others on the pages of the US Quackbusters organization [3]. He also discusses a number of North American legal cases where suppliers have been taken to task for their false or exaggerated claims. He concludes that there is no scientific basis for the idea that small permanent magnets can either relieve pain or make any difference whatsoever to the course of an illness.

So by all means, continue to be a little mystified by magnetism and enjoy decorating your kitchen with fridge magnets but, if you were thinking of spending money on magnetic mattresses, bandages, golf shoes or underpants to cure your ailments, I'd suggest that you just stick to your homeopathic tablets.

Notes

[1] Quotations retrieved 5 March 2005 from <http://www.magnecare.co.uk/>

[2] Templeton, S-K. *NHS takes up Cherie's magic magnets cure*. Retrieved 5 March 2005 from <http://www.timesonline.co.uk/article/0,,2087-2058902,00.html>

[3] Barrett, S. (2002). *Magnetic Therapy*. Retrieved 5 March 2005 from <http://www.quackwatch.org/04ConsumerEducation/QA/magnet.html>.

Steve Donnelly is a physics professor at the University of Salford.



Philosopher's Corner

Julian Baggini

THESE DAYS, it's scepticism which tends to make me most sceptical. Not, you understand, the reasonable, thought-through scepticism of esteemed organs such as this, but what passes for scepticism in the wider world, yet is really no more than a world-weary cynicism.

I'm particularly sceptical about the standard sceptics: those who proclaim that society is dumbing down. Like all doomsayers, this lot have of course been around for years, and had they been right, by now, after a good few centuries of decline, we'd all be unable to add up one and one or use words longer than, well, you know, that word that means the number of sounds you get in a word.

Looking back through some personal archives (a grand word for long-forgotten folders on my hard drive), I came across something I had scribbled in response to just such a claim made about nine years ago. Weidenfeld and Nicolson had just published a series of short monographs called *The Great Philosophers* series. This heralded the predictable accusations of pernicious simplification and trivialisation. Philosophy, say the critics, is a complex and difficult subject and not something that can be captured in 60 easily digestible pages. The usually eminently sensible Stuart Jeffries, for example, in *Education Guardian* wrote that the series suggests "profound and tricky philosophers could be served up like a light supper". I'm sure he'd backtrack on that now: after all, he frequently interviews leading thinkers in considerably fewer than 60 pages and has also made some short TV programmes which have attempted to explain the character of entire nation's philosophies. If he followed his own supper analogy through, he'd be a biscuit boy.

Jeffries' mistake is actually the same one more cynical sceptics make, whether they're dissing popular culture or George W Bush: they underestimate the intelligence of the masses. Most readers of such short books do not expect them to tell them everything there is to know about the philosopher in question, just as they would not expect one of Jeffries' interviews to fully reveal the mind of their subjects. There is always the occasional ignorant bore who thinks an hour spent with a primer has equipped him with all the knowledge and conceptual tools to be an expert, but for every one such individual there are countless more who read these books simply wanting, and getting, some basic grasp of the great ideas which have shaped human understanding.

This is even more evident in the case of obviously tongue-in-cheek books like *Pooh and the Philosophers*, which is in any case far more amusing if you know a little about the subject anyway. It's no more than a form of

intelligent entertainment, and as yet I have not met anyone (nor hope to do so) who after reading the book would claim to have learned a great deal about philosophy.

Given that we accept accessible introductions don't give us the full picture, there still seems to be a feeling that by their very nature they attempt the impossible. How can one distil a complex system of thought into an easily digestible read? But this accusation too rings hollow. The best popular science, for example, far from tempting the reader into thinking they know all there is to know, is actually extremely humbling. Yet I would have thought even the flimsiest grasp of science is required for anyone who hopes to achieve a decent general education. These things are too important to be left to the specialists, as thankfully the Goulds, Dawkinses and Penroses of this world well appreciate.

If this is true for physics, then it is at least equally true for philosophy. Philosophers examine the most basic questions of all. What is knowledge? Who am I? What is the right way to live? If their answers to these questions are not valuable to intelligent non-specialists, then we would be justified in questioning their value at all.

The best introductions do three things. First, they engage and entertain. This is actually essential if they are to achieve their goals: you don't take in much from books you have to wade through, desperately trying to stay awake. Second, they present the most significant ideas of the great thinkers in that subject area in a way which can be understood. Of course, depth is sacrificed to achieve this, but the days when an educated person could reasonably be expected to have a good in-depth knowledge of more than one or two subjects has gone. And in any case, in most subjects, the essence of a theory is deceptively simple and philosophy is no exception.

Third, such works should leave the reader with no illusions about the extent of their knowledge. Any book which claimed in all seriousness to tell you everything there is to know in 100 pages would merit censure, but I don't see many of these around. Writers don't need to keep reminding us that there is more to know than they can tell us. Such disclaimers only prove to be wearing, but the implication should be there.

Of course, the cynical sceptics could point out that since I have myself published some 'popular philosophy' books which include those grievous crimes of popular culture references and lightness of tone, "I would say that". To which I say, they would say that. You see, adopting a sceptical posture is not good enough: you need sceptical arguments too.

Comments welcome to julian@julianbaggini.com

Julian Baggini is editor of *The Philosophers' Magazine* (www.philosophers.co.uk) and author of *The Pig that Wants to be Eaten and 99 Other Thought Experiments* (Granta), *Making Sense: Philosophy Behind the Headlines* (Oxford University Press) and *The Meaning of Life* (Granta).

See www.julianbaggini.com

ASKE News

From the chairman of the Association for Skeptical Enquiry, Michael Heap



SOME EXCITING DEVELOPMENTS have taken place in ASKE. Tony Youens and Jim Spencer have revamped the ASKE website. In particular we have an extensive members' section, which is accessed by a password that changes periodically. Jim Spencer is uploading past issues of the *Skeptical Intelligence* and the *Skeptical Adversaria* (ASKE's quarterly newsletter) so that they are available to all members without the need to pay for back copies. The most exciting innovation is that ASKE has taken over sponsorship of Rick Wood's *Audiomartini*. This is a radio show that is broadcast over the Internet. Rick Wood is steadfastly sceptical but interviews people from both sides of the argument. Shows are broadcast every Thursday but you can listen to and download them at any time by going to: www.aske-skeptics.org.uk/audiomartini.htm#seti. At the time of writing there are interviews with Joe Nickell (sceptical paranormal investigator), Linda Billings (on John Mack, science and pseudoscience), Walter Shropshire (science and religion), Michael Shermer (scepticism in general) and Mark Weber (Zionist conspiracies).

At the beginning of 2006 ASKE offered honorary membership to five prominent figures in the world of scepticism, namely Barry Karr (CSICOP), James Randi (JREF), Amardeo Sarma (ECSO), Michael Shermer (the Skeptics Society), and Rick Wood (Audiomartini). This is one way of opening up lines of communication between ASKE members and colleagues and like-minded organisations abroad. To further this aim we are widening the circulation of the *Newsletter* to include other interested parties and organisations nominated by members (these can include libraries and the news media). For this reason we aim to make the *Newsletter* more substantial.

At the time of writing, the March 2006 *Newsletter* is under construction and includes commentary and analysis of the Channel 5 series *Britain's Psychic Challenge* and the BBC series on alternative medicine presented by Professor Kathy Sykes. The 2005 *Intelligence* has been distributed, the main topic being the placebo effect. For anyone wishing to set up a thriving practice as a placebo therapist there are detailed instructions on how to do so in a safe and ethical manner. The cost of this issue is £4, including postage and packaging. It could be the investment of a lifetime.

So, can there possibly be any reason why there is one single reader of *The Skeptic* who is not a member of ASKE? Could it be the sheer effort of writing a cheque for £10 and putting it the post? No longer an excuse! You can now join on-line by Paypal at the ASKE website

(www.aske-skeptics.org.uk) using your credit card.

Neurolinguistic programming (NLP)

The ASKE email discussion network recently aired the topic of NLP when it became apparent that a local authority was paying employees to undertake an exorbitantly priced course that featured NLP as a selling point. NLP has also featured in recent issues of *The Skeptic* (issues 16.4, 17.1 and 18.3).

Paul Burns (17.1, p. 27) thinks that NLP is "one of the reactions to behaviourism". Not so. NLP is one of a plethora of therapies that have appeared from the 1970s onwards, many originating in the USA. There were a number of reasons for their emergence at that time, notably disaffection with the prevailing orthodoxy in mainstream (i.e. medically-dominated) psychotherapy in the USA, namely psychoanalysis. (We may also include the 'client-centred' approach espoused by Carl Rogers.) The reasons for this were the slow pace of psychoanalysis, its very lengthy timescale, and doubts about its theoretical underpinnings and efficacy. One should never, however, underestimate the importance of another influence: namely, the increasing reluctance of medical insurers in the USA to fund lengthy courses of psychotherapy.

In these newer therapies, unlike the psychoanalyst, the practitioner is actively engaged in the application of *techniques* presumed to facilitate the changes that person is seeking. By far and away the most successful mainstream development has been cognitive therapy. (I haven't space to describe where behaviour therapy fits into this.)

When, at the beginning of the 1980s, I joined the stampede and did some training in NLP, the sole promotional message of the books and courses was that it was an extraordinarily fast, almost miraculous therapy. Its inventors made the strong claim that the ideas and practices were distilled from their observations of American therapists who had a reputation for obtaining quick and effective results, usually by 'strategic' methods or hypnosis.

Some years later I wrote some articles reviewing research that discredited NLP's claims concerning the representation of sensory modalities in language and their relation to ocular gaze (papers available on request). I notice that these ideas are still peddled in the NLP literature, as is the inappropriate hype concerning the influence on rapport of postural matching and similar ploys. However, I have not had much to do with NLP in recent years: predictably it has gone where the money is, namely management training, 'life coaching', etc.

Michael Heap is the Chairman of ASKE and a clinical and forensic psychologist in Sheffield. ASKE email address = general@aske.org.uk
ASKE website = <http://www.aske.org>

Reviews



WELL, WHAT DO YOU KNOW?

A Beginner's Guide to Reality

by Jim Baggott

Penguin Books, £7.99, ISBN 0-141-01930-1

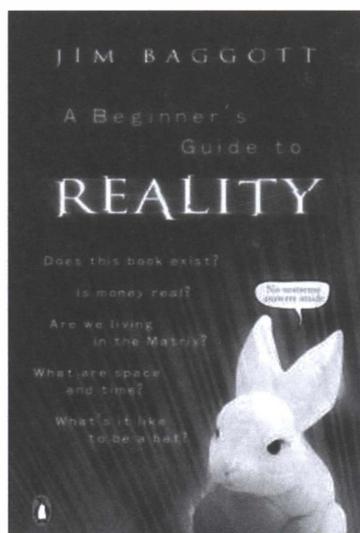
Although the author does not use the word, this is an introduction to epistemology, the study of how we know, and how we can know that we know. Can we, in fact, be sure that anything is real?

Three major problems are logical, psychological and physical. The logical problem is, how can we be sure of reality unless we have some reality to test it against? Descartes proposed the most famous answer, that he was sure he existed because he was asking the question: *cogito, ergo sum*. But philosophers have since rejected this. The psychological problem is, that everything we 'know' is processed by the brain and nervous system. Not only are these fallible, we have no direct apprehension of what they represent. The physical problem is, that modern physics seems to show that at a basic level, the universe is in principle unmeasurable, that is unknowable.

Baggott discusses all these, though he starts, as I think rather misleadingly, with social reality, arguing that it only exists as long as we believe it to exist. For example, money is only money as long as we believe in it. I think it is accepted as simply a means of exchange. 'Belief' has nothing to do with it. The final chapter summarises the arguments, and some might like to read this first.

There is another approach to the problem, a religious one that claims direct apprehension of reality. Personally I don't accept this, but it deserves discussion.

The style is chatty and informal, with lots of references to fantasy and science fiction. Some will find it amusing and illuminating, others merely facetious and tiresome; it really is a matter of taste. The wording is sometimes imprecise, for example 'purpose' and 'function' seem to be equated, and 'belief' is used in various senses, but overall it is a very readable introduction.



John Radford

FANGS AIN'T WHAT THEY USED TO BE

Vampire Nation

by Arlene Russo

John Blake, £17.99, ISBN 1 84454 172 X

Arlene Russo, editor of *Bite Me* magazine, surveys the UK vampire scene with mixed results in a book that reads like an extended fanzine.

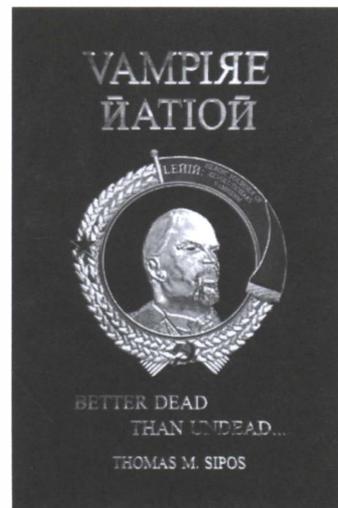
She distinguishes between those who merely adopt the lifestyle, and 'real' vampires, who take it seriously but are definitely not undead. Real ones subdivide into sanguinarians who, as the name suggests, consume blood, and psychic vampires, who conveniently absorb psychic energy from others. Real vampires are born not made, we are told. That means the condition can't be transmitted, contrary to the fictional portrayals, so if it is inherited there are a lot of vampire families keeping quiet.

The most interesting bits are the interviews, which Russo uses to explore different facets of the vampire scene, some decidedly racy. The 'lifestylers' are more talkative than their 'real' counterparts, which skews the responses. Our everyday image, drawn primarily from Bram Stoker and Hammer films, is of someone definitely dangerous to know, but the majority of the interviewees in the book proclaim themselves "safety-conscious and moral".

It is suggested that real vampires craving blood can alleviate it with black pudding, and the virtues of vegetarianism are extolled – more Count Duckula than Nosferatu – making them sound surprisingly dull. Many sanguinarians have volunteer donors to satisfy their physical, or at least psychological, needs. Those who drink their own blood thinking that they can get energy from it misunderstand the first law of thermodynamics.

Given our conception of vampires stemming from European folklore traditions, it is surprising to find influences from Eastern philosophy, with references to *prana*. Similarly "ki wavelength" may be a mispronounced reference to *chi*, giving these princes and princesses of darkness a new age slant.

The book has been carelessly proof-read, contains no index, and little analysis. Not a lot to get your teeth into.



Tom Ruffles

OLD SCORES

Kuhn vs. Popper: The Struggle for the Soul of Science

by Steve Fuller

Icon Books, £7.99 (pbk), ISBN-10: 1-840467-22-3

Anyone espousing a scientific approach to our claims to knowledge about the world will sooner or later run up against a thorny network of critiques of science emanating from such disciplines as philosophy, sociology and that relative, even relativist, newcomer, science studies. It then only takes a few moments before the name of Thomas Kuhn is invoked.

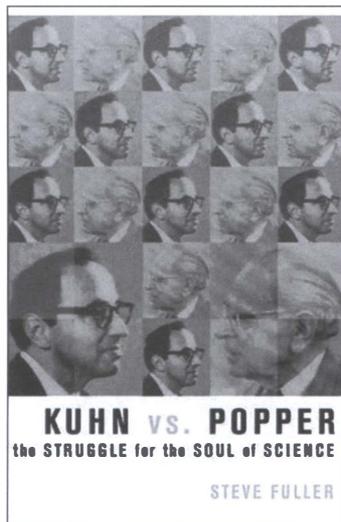
Kuhn's book, *The Structure of Scientific Revolutions*, first published in 1962, has often been a favourite touchstone for those wishing to undermine the knowledge claims of science by emphasizing the way that the institutionalization of science shapes the practice of scientists, though this was not its purpose. In Kuhn's account, scientists labour within officially sanctioned paradigms that determine the direction of their research, until revolutions replace old paradigms with new ones. Exaggerating this, proponents of junk science may try to explain the rejection of their work in terms of blinkered paradigms in sore need of a new revolution.

Karl Popper, of course, is no friend of pseudoscience, having offered us ("notoriously", says Fuller) a way of demarcating it from real science by means of the criterion of falsifiability: pseudosciences do not and dare not risk making any statements that could be falsified by any possible state of things.

Kuhn and Popper clashed in a debate in London in 1965, but although this event is the focus of the book, there is precious little information about what actually took place. Rather, Fuller launches into an intricate historical-sociological account of their theories and their political significances. His thesis is that the wrong man, Kuhn, won, but this seems to have less to do with the adequacy of Kuhn's account than with his apparent complicity in the way the Cold War shaped the University.

The implied defence of Popper may not bring much cheer to the pro-science camp, given some of the odd remarks Fuller makes. The suggestion that evolution is now only "presumed true until proven otherwise" accompanies various ill-informed jibes about evolutionary psychology. More troubling, perhaps, is his failure to explain the logic of falsificationism *versus* inductivism, presenting them as postures or ethics.

Aside from these worries, there is much of interest for those wishing to pursue the deeper ramifications of a key academic dispute.



Paul Taylor

OWN GOALS

Will Storr vs the Supernatural:

One Man's Search for the Truth about Ghosts

by Will Storr

Random House, £10.99 (pbk), ISBN 0091901731

Storr declares himself a "proud hard rationalist", yet he worries about the point of a life spent acquiring knowledge and experience that are "wasted" if death is the end: "Why would nature do that to itself?" This shaky grasp of natural selection sets him on his quest to investigate ghosts.

At first, he wavers back and forth between belief and scepticism depending on who he has just talked to – a philosopher, a psychiatrist, people involved in the Enfield poltergeist case, some colourful ghost-hunters, among others.

He learns about EVP, Stone Tape Theory, astral planes, orbs, ouija boards, different types of hauntings and quantum theory. He discovers factions, rivalries and elitism among investigators. A trip to the set of *Most Haunted* leaves him in no doubt about Derek Acorah's 'ability'.

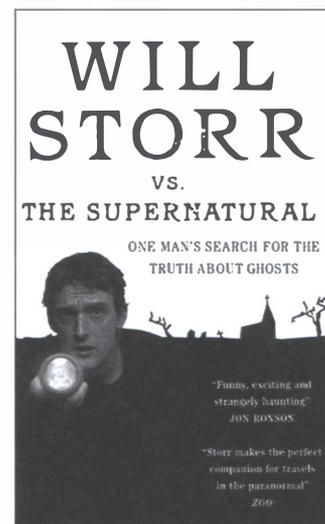
Some of his encounters are entertaining, especially with the stranger ghost-hunters and dubious mediums; some are disturbing, like the 'possession' of the autistic boy.

His scepticism is short-lived. After visiting a Vatican exorcist and spending the night in a haunted house, he becomes convinced the afterlife is real. He does remain sceptical about the existence of God and the motives of some ghost-hunters, though.

Faith, he declares, is for the frightened. He doesn't need faith because he has the evidence of his own experience. Sceptics get short shrift: "To believe passionately in the existence of nothing that isn't immediately obvious is to suffer the most gigantic failure of intelligence and imagination".

He concludes: "I am convinced that one of the frontier sciences will eventually solve ghosts. And most likely it will be quantum science", but all the evidence he presents is anecdotal rather than scientific.

Storr sets out to find some purpose to life and finds an answer that suits him. Some would see this as confirmation bias. And even if existence does continue, what is the 'point' or 'purpose' of the afterlife? The book is often clumsily written; the Prologue first appeared in *Loaded* magazine, which is perhaps some indicator of its quality.



Tessa Kendall



LETTERS

Flew's conversion

I am most grateful for the *Skeptic at Large* page in the summer number of the *Skeptic* 18(2). There are just a few things which I would like to alter or to add. The first is that my so much reprinted paper "Theology and Falsification" was indeed first published in 1950; but not in the *Journal of Philosophy*. It was published in a short-lived student journal *University*, especially founded for the purpose. This brief paper was a shortened version of a talk which I had given to the Socratic Club, a club which had been founded, and which was always chaired in its regular fortnightly meetings in term-time, by C.S. Lewis – the most formidable Christian apologist of the second half of the twentieth century.

The purpose of my talk had been to prevent the disruption of all discussion of religious issues by the Logical Positivist contention (proposed by A.J. Ayers, in his bestseller *Language, Truth and Logic*), that all religious utterances are without literal significance. "Theology and Falsification" appeared in book form only five years later in a collection of *New Essays in Philosophical Theology*, edited by Antony Flew and Alistair MacIntyre and published by the Student Christian Movement Press.

The first thing which I should like to add is that Darwin died as a believing Christian. I do not know what his reasons were. But there will be plenty of room for Arguments to Divine Design until biological science has produced persuasive naturalistic accounts

both of the origin of life and of the development of the first couple of genetically reproducing animals. The Tom Stafford and Andrew Brown article on "Why Creation Science Must be Taught in School" is, therefore, very much to the point.

My own modest conversion has been to belief in the Aristotelian God of Deism, who is not interested in the beliefs or the conduct of human beings.

Antony Flew
Reading

What do you mean you don't believe?

Alfred Bahr makes a convincing case for the non-existence of God (*Skeptic*, 18(4)). However it is easily refuted by the religious, with several knock-down arguments, including these:

1. We know that God exists, because He has said He does.
2. The universe exists, and God created it. Therefore He exists.
3. You must have faith in the existence of God, and then you will know that He exists. (This is my favourite.)
4. It is God's will that the whole human race should obey Him. You cannot obey a Being who does not exist.
5. God is all-powerful and can do anything, including existing in a state of non-existence.
6. God is far beyond our comprehension, and our arguments are irrelevant to His existence.
7. For Christians and many others, God has manifested Himself in the world, thus proving His existence.

8. It is all a great mystery and we are not meant to understand it.

9. Denying the existence of God is heresy, and heretics should be killed, tortured, imprisoned, or at least knocked down (as above). That should put an end to the matter.

John Radford
London

A clarification

In reporting the conflict between the US and the ITU (*Hits and Misses*, Winter 2005), you claim that, because the Earth's rotation is uneven, every so often the difference between atomic clock time and 'the rotation of the earth' must be corrected by adding or subtracting (*sic*) a leap second. You note that the latter has so far never happened.

This is misleading and so not quite correct. It is true that the International Earth Rotation and Reference Systems Service (IERS), based at the Paris Observatory, can tell the world every six months whether to add or subtract a second from atomic clocks to keep pace with the rotation of the Earth. But this is merely what the IERS can do, not what needs to be done or what has been done. Although the Earth's rotation is uneven on a millisecond scale, this has nothing to do with the one second correction. The latter is mainly due to the Moon's tidal drag, which gradually slows the Earth's rotation, and pushes the Moon further away. It is for this reason that there has never been a need to *subtract* a second. There never will be.

Stewart Campbell
Edinburgh

Nothingness

Alfred Bahr ("The Problem of the Existence of God seen through the Eyes of a Physicist", *Skeptic*, 18(4), Winter 2005) believes that religions teach that God "existed already before space, time and matter was [sic] created". Some do, but that is a debateable interpretation. In the Judeo-Christian account, God "created the heaven and the earth" and later added some "lights" (the Sun and Moon and the stars) as an afterthought. Genesis is silent on the questions of whether or not God made all this out of nothing and whether or not God himself (itself?) lived in

the universe he created or in something outside it. There is no claim that the creator existed in "nothingness".

Consequently Mr Bahr's thesis is flawed and pointless. Of course nothing can exist in nothingness, whatever that is. However, no modern cosmologist believes in "nothingness". Indeed, since the equations of string theory allow time to exist before the Big Bang, they do not believe that time began at that point. The current consensus is that our 3D universe exists and arose from a higher-dimensional space-time, perhaps containing 11 dimensions. Debate

continues on whether our universe is one of many contemporary universes or whether it is one of a long series (in the higher space-time). It also continues on whether or not our universe is infinite; if space-time is 'flat', as the evidence suggests, it must be infinite, but with a finite history.

What Mr Bahr seems to overlook is the possibility that the creator exists in the higher dimensions from which our universe arose. However, as an atheist, I have no interest in exploring that idea.

Steuart Campbell
Edinburgh



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