

The

Volume 11 Number 4

Skeptic



Does astrology work?

Also in this issue

Super blue-green algae, truth, and the Internet

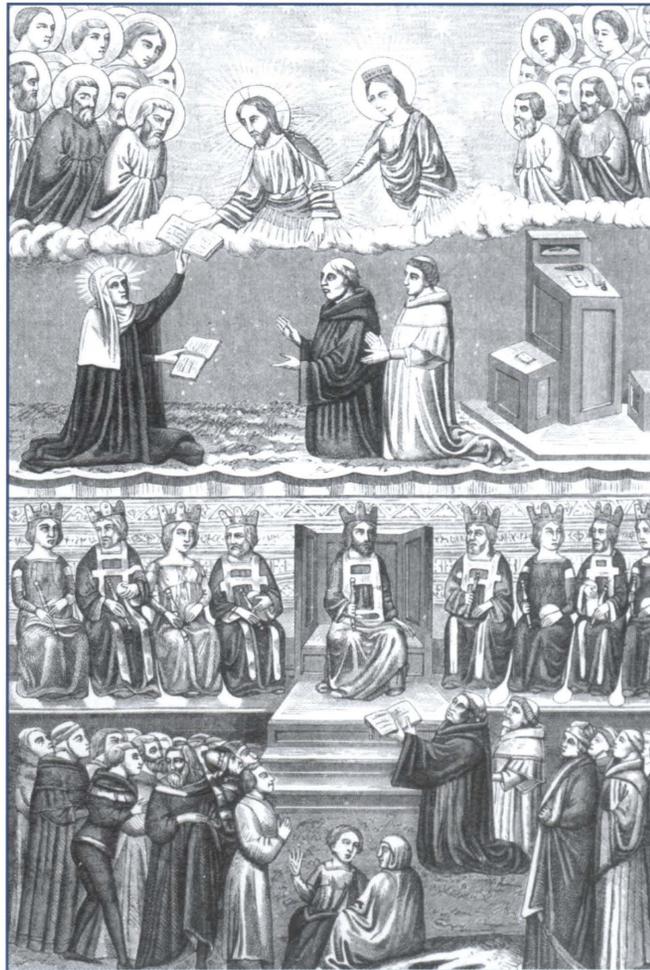
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YOU HAVE ONLY TO VISIT your local bookshop to discover that quite a lot of people are currently receiving messages from other worlds warning us of the awful things we are doing to our planet and urging us to handle it with greater care. But there is nothing new about this: privileged individuals throughout human history have been chosen to channel divine correspondence, often at considerable length.

One such was the 14th century Saint Birgitta of Sweden, who is depicted here receiving her "Revelations" directly from their author and passing them on to the rest of the community. We might be more inclined to trust our present-day channelers if they, too, would show us pictures of them in the act of receiving their messages. But for some reason they don't. Or won't. Or can't.

Contents

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Volume 11

Number 4

Skeptic in Chains	4
Wendy Grossman	
Does Astrology Work?	5
Julie Birkby	
The Skeptics' Dictionary	7
Robert Todd Carroll	
Hits and Misses	8
Steve Donnelly	
The Truth About Pond Scum	10
Andrew Leonard	
Cream Crackers	15
Will Stevens	
Trial by Fire	17
Chris Willis	
Sprite	18
Skeptical Stats	19
David Morton and Wendy Grossman	
Philosopher's Corner	20
Julian Baggini	
Psychic Diary	21
Toby Howard	
Reviews	22
Letters	27

Front-cover artwork courtesy of
the Mary Evans Picture Library



Skeptic in Chains

Wendy M. Grossman

Back in the saddle again

SO, HERE WE ARE AGAIN, after eight years. Most of you won't remember the days when I ran the scruffy, little photocopied newsletter that began life as *The British and Irish Skeptic* in January 1987. That's probably just as well: one of the major advantages of not doing it all these years has been Steve's and Toby's infinitely better design and production skills, which are responsible for giving the magazine its look and feel. So perhaps you'd all give them and everyone else who's supported the magazine all these years a virtual round of applause to bask in. Not that they're leaving. Both will continue working on the magazine in an active capacity. We have room for lots more help, however, and we'll be glad to hear from anyone who's interested in joining the team. Send us email, write us a letter, or just show up at one of our quarterly editorial meetings, and we'll sign you up. The next meeting will be the first week in December, in Kew.

A lot has changed since 1987. For one thing, before we started the magazine it was rare for the skeptical point of view to appear anywhere. TV shows on subjects like ghosts and astrology pitted believers against ministers and others who claimed the beliefs were dangerous; I rarely if ever saw those shows include skeptics who argued that first we needed to prove that the claims were true. Now, skeptics are almost always invited, and the opportunities to cast doubt on wild claims are growing.

This is a good thing; but on the negative side the paranormal seems to get increasing coverage. In some areas, homoeopathy, surely the most useless of the so-called 'alternative' therapies, is available on the NHS. All the media feature vast numbers of people who are willing to trust their futures and their health to psychics of all types. The day I wrote this, I appeared on a Kilroy programme with a spiritual healer who claims to channel the spirits of dead doctors; Albert Schweitzer, he told us, who 'passed on' in 1965 at the age of 92, is 'looking very well'. I'm sure I'd be looking well, too, if I were airbrushed by people's imaginations.

The upshot is that even after eleven years it's a constant struggle to tell people that what's comforting isn't always true, and that what matters is not what we'd like to believe but what the evidence shows. Oddly enough, sometimes what people would like to believe is that the world is about to end, and CSICOP's World Congress held this summer in Heidelberg focused on doomsday prophecies: energy crises, the chances that we'll be hit by a comet, the Year 2000 computer bug. All of these are a reminder that one reason science is such a hard sell is that

instead of unchanging certainty it offers doubt and self-correction.

But back to *The Skeptic*. There's one new thing: around the time the magazine goes to press – that is, a couple of weeks before the release date – we intend to send out an emailed digest of the new issue. It will include 'Skeptical Stats' (a new regular slot you can read on p19), some current news, plus a paragraph or so from each of the issue's major articles. This will, we hope, be a low-cost way of keeping media and friends in touch with what *The Skeptic* is doing. We also expect to make one or two back issues available on the Web, so that electronic visitors can get a better sense of what we're about. If you would like to receive the electronic digest, send an email message to digest@skeptic.org.uk (sorry, but the digest will only be available electronically by email and on our Web site).

The last announcement is less fun: one recurring problem is finances. Sadly, given costs beyond our control, such as the massive rise in paper prices over the last few years, £10 a year for a quarterly magazine with little advertising is not a sustainable rate. But we also hate to hurt our many loyal subscribers. Until summer 1999, therefore, renewing subscribers can renew at the old price, but newcomers will be asked to pay £15.

We especially welcome input from readers on how best to take *The Skeptic* forward. With that . . . let the show continue.

Wendy M Grossman is founding editor of *The Skeptic*, and a writer and folksinger.

Help produce *The Skeptic*

Anyone interested in talking about or helping with the magazine (or just meeting other skeptics) is welcome at our next editorial meeting in Kew. The meeting will take place in the first week of December, but to find day and time or any other information, please either email edit@skeptic.org.uk, or call 07020 935 370 (11am to 9pm).

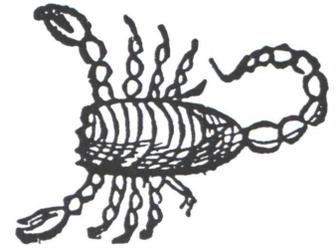
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The Skeptic, PO Box 475,
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**Copy deadline for the next issue is
November 30**

Does Astrology Work?

Astrology goes under microscope in this prize-winning article by Goldsmith College graduate Julie Birkby



THE HISTORY OF ASTROLOGY dates back some 4,000 years. Its creation is often suggested to be a result of ancient cultural practices which involved a tendency to interpret almost any natural occurrence as a predictor of some impending event (Hines, 1988). When one considers that survival in ancient times was largely dependent upon the coming of the seasons, which can be predicted by observations of the stars and planets, it does not seem such an outrageous suggestion that perhaps the movement and arrangement of celestial bodies can predict an array of other events. Modern astrology does not claim that there is a magical association between the movement of the planets and events on earth, as implied by ancient astrology, but that astrological predictions are based on scientific principles and calculations. This discussion looks at two separate issues which must be addressed when evaluating the validity of astrology. Firstly, it investigates the claim that astrology is a science and not merely based on magical associations. Secondly, it tackles the more ambiguous issue of whether astrology's place in science need even be considered relevant when investigating whether or not astrology works.

It has already been seen that a distinction has been made between the suggestion that astrology is "true" and the suggestion that astrology "works". This very much reflects the different perspectives taken by modern astrologers some of whom claim that astrology is a true science and some of whom take the view that it does not need to be a science to benefit those who use it. Before starting to critically examine the scientific evidence for and against astrology, it is important to recognise that people who use, practice, and believe in astrology do so for many different reasons and at many different levels. Millions of people read their horoscopes in daily newspapers, some for fun and entertain-

ment and others for advice and guidance. Most serious astrologers, who provide private consultations involving in-depth analysis of the individual's birth chart, disregard tabloid horoscopes as popular nonsense. Serious astrology, according to those who practice it, is an analysis of a complex interaction of many factors which can be interpreted by constructing and reading a birth chart. Many astrologers are not just concerned with predicting events, but also incorporate psychology and counselling into their consultations depending on their particular emphasis. It is necessary to illustrate that despite the scientific argument this discussion reports, many astrologers do not claim a scientific basis to astrology, but are more interested in the successful counselling framework it can provide.

Despite the light-hearted approach taken by many people who use astrology, some astrologers do claim that their craft is a science and therefore many of its critics justifiably employ scientific methods to test it. There are numerous lines of evidence which indeed suggest that astrology has no more relation to science than phrenology or palmistry. One strong argument against astrology as a science has arisen from the massive technological advances since its creation thousands of years ago. These have uncovered several discrepancies. For example there are more planets than originally thought, although astrology has not been modified to account for this. Also, the star groupings upon which the zodiac is based, are not in fact spatially accurate, yet once again the principles on which astrology is based have not been changed. Critics argue, then, that the only possible way the position of the planets could influence human behaviour on earth is by magic. Hines (1988) suggests that in order to be taken seriously as a science, astrologers must provide some explanation of how the mechanism by which astrological influence





occurs actually works. Suggestions such as gravity, tidal and electromagnetic forces and magnetic fields have all been criticised as being too weak to have even a minor influence on human behaviour (Culver and Ianna, 1984).

Hines also points out that astrology does not take into account any of the physical properties of the planets or stars, such as temperature, age, composition, distance or rotation – characteristics which are commonly studied in the science of astronomy. He concludes that, because all of these important scientific facts are ignored, astrology must be based not on principles of science but on magic.

The 'scientific' astrologer may argue that the exact mechanism by which heavenly bodies influence behaviour is yet to be fully understood – a perfectly plausible element of a scientific theory in its early stages. Despite the fact that astrology is hardly a new concept, critics may be forced to accept that this argument makes it pointless to discuss the theoretical issues any further. However, there are many opportunities available to critics to collect empirical evidence against astrology, based on the success rate of astrological prediction.

Evaluating the success rate of astrological prediction only contributes towards the question of whether or not astrology works – it can in no way be used to support or reject the claim that astrology is a scientific theory. Many astrologers, however, use evidence of a successful prediction to support their argument for a scientific basis to astrology. As well as being a completely separate and perhaps unrelated issue to that of the scientific debate, the allegedly successful predictions of many astrologers have been severely criticised and in many cases completely disregarded. For example, the French astrologer Andre Barbault predicted the end of the French-Algerian war 11 times before he was successful, as well as making numerous other incorrect predictions about political events. Culver and Ianna (1984) reviewed a series of specific predictions made in astrology magazines and found that only 11 percent were correct. They put the majority of these claims down to shrewd guesses, vagueness, inside information and, of course, chance. It can be seen, therefore, that if enough predictions are made, eventually one will come true and it is usually only these which receive media attention giving the public an unrealistic and biased view of the success rate.

In addition to predicting major public events, astrologers more commonly claim to be able to describe personality traits and predict events and behaviours on an individual level. Once again many scientific approaches can be employed in order to test this claim. For example, Dean (1977) carried out a study which found that there are no astrological influences on extroversion and introversion, common personality characteristics which are

said to be represented strongly in various signs of the zodiac. The characteristic personality of the extrovert, for example, seems to be nicely defined by the typical description of Aries – aggressive, assertive, self-confident. Dean, however, found no association between extroversion and Aries. Culver and Ianna (1984) found no association between sun sign and several other attributes, such as occupation, medical disorders and physical characteristics, nor was any relationship found between sun sign and a whole host of personality traits.

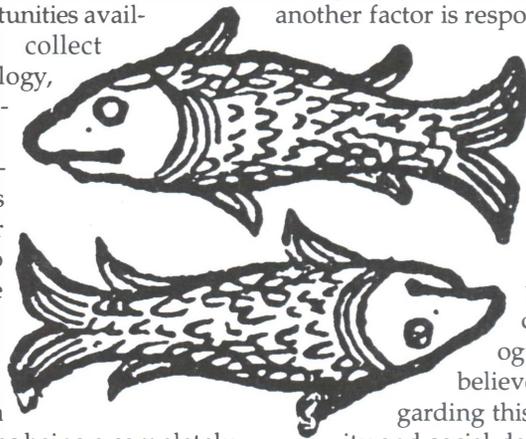
Bearing in mind the strong evidence against the claim that astrology works it may seem quite astounding that millions of people continue to believe in astrology. In examining the reasons why this might be, critics have become adept at recognising the non-falsifiable techniques commonly adopted by astrologers during consultations which are so successful in persuading clients that astrology does work. Wedow (1976) discovered several common responses which were employed after the client had disagreed with a statement made by the astrologer. He found that the astrologer would either blame the client by saying he didn't truly know himself, or blame the ambiguity of the birth chart by suggesting that either another factor is responsible or the manifestation of that

particular behaviour is not typical. It can be seen that such explanations make the whole process nonfalsifiable, and yet those who attend these astrological sessions are cleverly made blissfully unaware of this.

There are numerous reasons why, in the face of such strong evidence against the validity of astrology, millions of people still choose to believe that it works. Most studies regarding this issue concentrate on the generality and social desirability of readings. The Barnum

Effect has been found to be a strong factor in the acceptance of astrological predictions as being true; that is, people have a tendency to accept vague statements as being specific to them when in fact they actually apply to everyone (Dickson and Kelly, 1985). Likewise, people are more likely to agree with an astrological reading of themselves if it is socially desirable (Tyson, 1984). Dean (1991) found that subjects who believed that astrology works tended to agree with descriptions of birth charts which they were led to believe were theirs, and disagreed those which supposedly belonged to someone else but were actually their true readings. He used this evidence to suggest that the reason why so many people believe in astrology is cognitive dissonance i.e. the need to justify our decisions, so reducing conflict between our thoughts and actions. People who believed that astrology works were, therefore, searching for personal attributes in the descriptions rather than carrying out an unbiased review of the statements.

Cognitive dissonance does not explain why people first choose to believe in astrology. Dean (1991) suggested that most believers initially read the description of their sun sign and because astrological interpretations tend to be universally valid they are impressed with its accuracy.





After making this initial judgement, people are more likely to test their astrological profile with questions which are likely to confirm it as valid. It is apparent, then, that the origins of astrological belief do not stem from objective reasoning, but are

largely based on bias, with generality and social desirability being two strong influencing factors in the continuing belief that astrology works.

It has been seen that there is strong evidence against the claim that astrology is a science. The single argument that astrological interpretations are non-falsifiable is enough for many critics to reject such a claim. However, despite efforts by critics to use this point to finalise the argument over whether or not astrology works, a distinction has been made by many astrologers between the question of astrology's eligibility as a science and whether it needs to be accepted as a science to work. The answer to this question depends on how one chooses to define 'work'. If by 'does it work?', one means 'does the movement of heavenly bodies produce changes in personality, feelings, emotions and events?', then the evidence seems to suggest that the answer is no. However, if one chooses to interpret the question as meaning 'is astrology helpful?', then the answer, at least for some people, is 'yes'.

This distinction, however, seems to be an all too easy escape for astrologers who wish to avoid the fact that there is probably no scientific basis to astrology. Despite this, many contemporary astrologers are regarded by their clients as advisors and counsellors, and as such they often hold a great responsibility for their clients' mental well-being. If astrology is used responsibly as a framework to guide therapy, and as a result gives those who use it a purpose and direction in life, then surely no one can argue with the fact that astrology does 'work', without actually needing to be true.

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Julie Birkby has just graduated from Goldsmith College. This was the winning essay for Chris French's 'Psychology, Parapsychology, and Pseudoscience' course.

The Skeptic's Dictionary



Robert Todd Carroll

On myths and moonshine

Numerous studies have tried to find a significant correlation between the full moon and crime, suicide, mental illness, disasters, birthrates and werewolfism, among other things. Such a correlation is sought in the effort to establish a causal connection between the full moon and these other things. People who study this kind of stuff might well be called lunatics, after luna, the Latin word for moon. So far, the studies have failed to establish anything of interest, except that the idea of the full moon definitely sends some lunatics over the edge. No reliable correlation has been established between the full moon (or any other phase of the moon, for that matter) and human behavior.

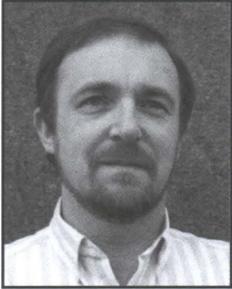
Ivan Kelly, et. al.[†], have examined over 100 studies on the moon and concluded that the studies have failed to show a significant correlation (i.e., one not likely due to chance) between the full moon and each of the following, despite reports to the contrary in the mass media:

the homicide rate, traffic accidents, crisis calls to police or fire stations, domestic violence, births of babies, suicide, major disasters, assassinations, kidnappings, aggression by professional hockey players, violence in prisons, psychiatric admissions, agitated behavior by nursing home residents, assaults, gunshot wounds, stabbings, emergency room admissions, behavioral outbursts of psychologically challenged rural adults, lycanthropy, vampirism, alcoholism, sleep walking, epilepsy.

If so many studies have failed to prove a causal connection between the full moon and anything, why do so many people believe in these lunar myths? One reason is that many people are ignorant and many of these ignorant people are police officers, television reporters, nurses, doctors, sportscasters, social workers, etc., who can influence others with their misconceptions. Another reason so many people believe these lunar myths is that the mass media feeds these lunar misconceptions by repeating them repeatedly. Then, of course, once you have many people believing some myth, they get very selective about the type of data they pay attention to in the future.

[†] I.W. Kelly, James Rotton, and Roger Culver. 'The Moon was Full and Nothing Happened: A Review of Studies on the Moon and Human Behavior and Human Belief,' in J. Nickell, B. Karr and T. Genoni, Eds., *The Outer Edge* (Amherst, N.Y.: CSICOP, 1996). See *Skeptics Dictionary* for bibliography.

Robert Carroll teaches philosophy at Sacramento City College, California. © Robert Carroll. For full text of the *Skeptic's Dictionary*, visit <http://skeptdic.com>



Hits and Misses

Steve Donnelly

Ghostly real estate

Buyers of a 250 year old cottage, that they claim is haunted, have decided to use the courts to deal with their problems, as a vicar brought in to bless the house has been able to provide only temporary relief. Andrew and Josie Smith bought a cottage in the village of Upper Mayfield in Derbyshire and moved in, only to discover that they were not the sole occupants. According to the *Daily Telegraph* on 5 March, as well as sightings of youthful ghostly figures, they have also become aware of 'an evil presence' that is responsible for sudden changes in temperature, unpleasant smells, objects apparently moving of their own accord and 'the sense of being touched in the night'. Indeed Mrs Smith awoke one night feeling that she was being 'throttled by an unseen force'. Investigations revealed that a milkmaid reputedly died whilst locked in the cellar of the cottage and a young boy committed suicide by hanging himself from the rafters. Although they have now lived in the house for four years they claim that the paranormal occurrences have placed a

strain on their marriage and have been detrimental to their health and that of their three children. They further claim that the fact that the cottage was haunted was not mentioned by the vendors or their estate agent and have, on this basis, been given permission by a county court judge to pursue a civil claim for the return of the £41 000 they paid for the cottage. According to their solicitor, not declaring spooky goings-on in a property when putting it up for sale is equivalent to failing to declare 'faulty central heating or bad drains'.

In view of the fact that this kind of problem is not uncommon (and has been reported previously) in *Hits and Misses*, perhaps it is time to set up an Association of Skeptical Lodgers who would volunteer their services to spend a few nights in any house afflicted with ghosts, poltergeists or anything else with a tendency to go bump in the night as it is well known that paranormal phenomena never occur when there is a skeptic in the house.

Aubergines, potatoes and dusters

It seems to me that a major cause, or at least a reinforcement, of many people's belief in paranormal phenomena is the fact that we do not realise the degree to which the human brain is wired to make patterns out of randomness and to see meaning in coincidences. To leaves in a teacup, the entrails of chickens or the order of a shuffled pack of Tarot cards, someone, somewhere is, at this very moment, attaching deep, deep significance. I have probably previously mentioned in this column a serious exponent of the messages-in-randomness school of thought, by the name of William, who used to telephone me from time to time at work to present me with his theories. With a verbal persistence that would be the envy of Margaret Thatcher, William used to argue that God leaves messages *everywhere* including encoded into various types of noise. Simply examine the hiss between radio stations or the wandering output of a random number generator for long enough and patches will be found to contain information of deep significance. (He communicates in mysterious ways, His wonders to perform.)

The most recent manifestation of this view, following the Jesus in the clouds and the Face on Mars is the sacred aubergine. Enough aubergines have now been found containing the name of God in Arabic spelled out in pips to make a large bowl of miraculous moussaka. The latest example was reported as a half-page spread in the *Manchester Evening News* on 11 April and indicated that the Manchester Museum was giving advice on how the sacred aubergine might be preserved for posterity. To add



insult to injury, an even more mundane, even profane, vegetable, the potato has been added to the divine notepad. The Cole family in Hull discovered, on slicing a potato to make chips, a perfectly formed cross made from tracers of mould. According to the *Guardian* on 14 April, this family too is receiving advice from conservationists at Manchester Museum on its preservation. (It could perhaps even become a centrepiece of a church somewhere, although Church of the Holy Potato doesn't have quite the right ring about it.) And just before leaving this topic I *have* to include the divine duster. As Leeds' answer to the Turin Shroud, Christ's face has also appeared on a cleaner's duster; the cleaner, who is with Leeds council, also goes by the name of Cole (and can this really be a coincidence?). According to the *Daily Mail* on 15 January Mrs Cole took the cloth to her parish priest who, instead of saying 'don't be such a plonker' suggested that this was: 'a blessing . . . quite extraordinary'. Extraordinary indeed.

Indian rope-trick

It is bad enough that skeptics insist on providing mundane explanations for all sorts of paranormal phenomena such as telepathy, clairvoyance and spoon-bending and that they insist on debunking claims of ghostly visitations and alien abductions but now they are striking at the very foundations of our belief systems. A detailed study by two British skeptics has revealed that the Indian rope-trick is just that, a trick. Believe it or not, there appears to be no evidence that boys have actually disappeared when climbing a rope that has become rigid when thrown into the air by the performer! Peter Lamont and Richard Wiseman of the Universities of Edinburgh and Hertfordshire respectively have examined accounts from

50 or more people who believed that they had witnessed an amazing occurrence but found that the larger the time interval between observation and report, the more fantastic was the account. According to Peter Lamont (quoted in the *Sunday Times* on 8 February): 'They have seen something fairly straightforward and they are exaggerating over time.' Following the study, Lamont and Wiseman were contacted by a TV company working on a documentary for BBC's *QED* series and went to India themselves to see the trick performed in front of a crowd of 20,000. Although the rope became rigid when thrown in the air, the boy climbing the rope did not disappear. Lamont claims that there are many ways in which a rope can be made to rise in the air apparently unsupported, including special ropes with internal rigid sections or simply a thin wire attached to the rope and a tree or part of a building. Like the Cottingley Fairies, the Turin Shroud and the Face on Mars another source of wonder has vanished into thin air.

Sermon-bites

Christianity in Britain is in decline. In fact, projections of current trends have revealed that there will be more practising Muslims in this country early in the new millennium than members of the Church of England. It's not surprising, therefore, that churches should, from time to time, embark on initiatives to bring back the faithful to their pews. According to the *Daily Telegraph* on 19 March, a workshop entitled 'Preaching in Today's Culture' has been set up in the Anglican diocese of Lichfield in order to teach clergymen techniques for delivering sermons to the 'soundbite' generation. And, just in case clerics themselves might be reluctant to attend, parishioners are being urged to pay to send their vicar—an advertisement for the workshop reads: 'Are you tired of listening to dull sermons, week in, week out? Club together and raise £18 to send your vicar to the workshop.' Amongst other things the clergymen will be shown, with a view to encouraging them to become less academic and boring in their discourses, are clips from the Australian soap *Neighbours* and *News at Ten*. This might not result in increased church attendance but suggests great items for an improvised comedy show: 'Deliver the Sermon on the the Mount in the style of *Newsnight* or: 'Act out the nativity in the style of *Coronation Street*'.



OK, pull me up. I don't think they can see!

Tim Pearce

As this is my last *Hits and Misses*, I would like to give my sincere thanks to everyone who has contributed not only clippings but comments, letters, cards and general support over the years. One of my greatest pleasures in writing the column has been this correspondence. Please keep the clippings coming as the column will continue under new authorship, while I am moving on to a new science column (suggestions for a column title would be most welcome). Meanwhile please mark any clippings with specific science/pseudoscience themes for my attention.

Steve Donnelly is Professor of Experimental Physics at the University of Salford.

The Truth About Pond Scum

Andrew Leonard reports on the amazing claims made for 'Super Blue-Green Algae', and discovers that information has a peculiar ecology all its own. . .

IGAZED DOWN INTO the cool waters of Oregon's Upper Klamath Lake, entranced by the countless slender blue-green threads swirling in the depths. Their kaleidoscopic grace took me by surprise. I glanced up at the weather-beaten man standing nearby on the dock, waiting to rent me a canoe.

"So is this the blue-green algae I've heard so much about?" I asked.

"Yep," he drawled. "That's the green gold."

Fans of blue-green algae from Klamath Lake call it by many names — "earth's best super-food," "a neuro-somatic nutrient," "jet fuel." But for me, at the end of a long investigation of the shimmering substance, no phrase better captured the truth about it than "green gold." In the Klamath Basin, algae is gold — a hundreds-of-millions-of-dollars-a-year business. Hundreds of thousands of self-described "algae eaters" are convinced that consuming this food supplement boosts energy and enhances mental clarity. And the numbers are growing, despite critics who denounce the whole craze as a cannily marketed New Age hoax more likely to harm your health than help it.

Panacea or public safety threat? My journey to the shores of this cold mountain lake had begun far away, on the distant fringes of the Worldwide Web, where algae hucksters proliferate. As a reporter, I wanted the truth about pond scum — as some of the algae's more vociferous critics dismiss it. My quest had become a test case for info-age hype. An enduring fantasy of digital dreamers is that the Net is supposed to be an inexhaustible source of information, the ultimate repository of answers to every question: the truth is in there somewhere.

Or at least I hoped so. But the truth, like algae, is a slippery substance. The Net pointed me toward it but

could not deliver it into my hands. To truly understand blue-green algae — how it smelled, how it tasted, how it played a key role in the economy of a depressed region of southern Oregon — I had to become an algae eater myself. I had to abandon my computer, get out on that lake and commune with the algae. And even then, I had to accept that ultimate answers might remain forever hidden beneath deep blue-green waters.

Pop the phrase "blue-green algae" into the AltaVista search engine and you will generate 3,000 hits. Not too

surprising — blue-green algae, one of nature's simplest and sturdiest life forms, exists everywhere there is fresh water. But the particular strain of blue-green algae blooming across the Net is known primarily by one name — "Super Blue Green Algae" — and found in only one place — Klamath Lake.

During the summer of 1997, some 11 companies were reported to be

harvesting algae from Klamath Lake. But one company, Cell Tech, is far and away the largest, claiming \$200 million worth of sales in 1996. Cell Tech has trademarked the phrase "Super Blue Green Algae" — and Cell Tech distributors market the food with relentless vigour.

Cell Tech operates according to the principles of "multilevel marketing" — a business strategy in which distributors purchase a product at a discount, and then market that product directly to consumers, who are in turn encouraged to become distributors themselves. "Amway you can eat" is how one observer described it, and it is a tactic that adapts naturally to the Net. Hundreds of Cell Tech distributors maintain Web pages, and their missives regularly appear in e-mail boxes, bulletin boards and newsgroups touting both the wonderful benefits of consuming blue-green algae and the amazing



financial opportunities of the algae business.

"Go-getters can realistically achieve \$5,000 – \$15,000 a month in solid long residual income within two years," wrote one distributor in a direct email advertisement. "Much more is possible, there are no limits."

Cell Tech itself is no stranger to the Net. The company operates its own Web site, and declares that it reviews all distributor Web pages to ensure that they conform to its advertising guidelines. Cell Tech, which markets blue-green algae as a food, is prohibited by FDA regulations from making specific health claims, forcing a vague gauziness upon Cell Tech proclamations about Super Blue Green Algae. The algae, I would read again and again on Web page after Web page, makes people feel better because there is a "synergy to the variety of ingredients" that extends beyond "simple quantitative biochemistry."

There was nothing vague or gauzy, however, about the first thing that I saw on Cell Tech's home page. In big, bold letters at the centre of the page ran the headline: "Cell Tech's response to misinformation on the Internet."

Algae salespeople aren't the only algae enthusiasts in cyberspace; phycology — the science of algae studies — thrives on the Net. There are Web site clearinghouses for all kinds of algae-related information. Top phycologists trade tips and discuss the latest research developments in mailing lists — Algae-L, Diatom, Phycotoxins. Amateurs and entrepreneurs engage in algae flame wars in Usenet newsgroups like *misc.health.alternative* and *sci.med.nutrition*. There is even a virtual storefront for a commercial toxic algae exterminator, not to mention a map of Klamath Lake — or the excerpted musings of one William Barry, author of the blue-green algae primer "The Astonishing, Magnificent, Delightful Algae."

After a few hours of surfing I knew that the scientific name for Super Blue Green Algae is *Aphanizomenon flos-aquae*. I had also located the world's premier specialists in toxic algae issues — Wright State University's Wayne Carmichael and Woods Hole Laboratories' Donald Anderson. I had been informed that Super Blue Green Algae was related to other forms of algae currently marketed as health foods, like spirulina and chlorella. And I had discovered that a significant number of health professionals regarded algae eaters as hopeless dupes.

At a site called Quackwatch, I discovered that Victor Kollman, the brother of Cell Tech founder Daryl Kollman, had been forced by the FDA to shut down a company that sold Klamath algae in the mid-'80s. Victor Kollman apparently had broken the rules about making therapeutic claims. And, according to Quackwatch, Cell Tech's distributors were no better, claiming that blue-green algae could cure everything from Attention Deficit Disorder to AIDS.

"Consumers of SBGA report that they have much more physical energy throughout the day without extreme highs or lows," one distributor posted to Usenet. "They report improved memory, mental clarity and focus; improved digestion, control of appetite and cravings, and heightened immune functions. They report relief from fatigue, hypoglycemia, PMS, anxiety and depression."

At HealthWatch, I learned that Carmichael had written an article in *Scientific American* in 1995 noting that "toxic blooms" of harmful algae often occurred in the same places where *Aphanizomenon flos-aquae* flourished — and that screening methods to separate good and bad algae were inadequate. And perhaps most damagingly, a Usenet-published synopsis of an article in the March *Self* magazine quoted none other than alternative medicine guru Andrew Weil declaring that there wasn't "a shred of evidence to support the health claims" of Cell Tech distributors.

But Cell Tech's response to "misinformation" dealt with none of these issues. Sure, through Cell Tech's "fax on demand" service, one could obtain voluminous responses to critical articles in *Self*, *Consumer Reports*, the *Vegetarian Times*, and the National Council Against Health Fraud. But on its home page, it chose to address two particular claims at a level of detail somewhat forbidding to the layman's eyes. First, it denied the charge that Super Blue Green Algae potentially contained a dangerous neurotoxin referred to as "anatoxin-a." Second, it ridiculed the claim that anatoxin-a, which some scientists consider a "cocaine analog," might be the reason so many devoted algae eaters testified to its energy-boosting benefits.



Why had Cell Tech chosen to respond so publicly to those particular accusations? What was the story behind the story? I had combed the Net, but couldn't answer that question. And the more I learned about algae online, the murkier the picture got: the anti-quack forces made a compelling case against Cell Tech, but some of their rhetoric was as off-putting as the obviously self-aggrandizing patter of the Cell Tech distributors. They lumped together all forms of "alternative" medicine as nonsense and myth and delighted in smearing the algae as "pond scum."

Stephen Barrett, a psychologist who maintained the Quackwatch site, told me he appreciated publishing on the Internet because it gave him a chance to put out his version of the "unmediated" truth. But I was finding it hard to force a Net full of unmediated ranting into a clear picture.

The Net could only take me so far. I had to go deeper. I had to pick up the telephone.

I desperately wanted to talk to an electrical engineer named Mark Thorson. The man was a regular in several Usenet newsgroups, an obvious Net old-timer. And a crucial player in the story of Super Blue Green Algae and the Net. But he wasn't answering my email.

I sought him because I had determined, after a short review of a few years of blue-green algae-related Usenet postings, that when Cell Tech said "a response to misinformation on the Internet," Cell Tech meant, "a response to Mark Thorson."

Thorson is a one-man anti-Cell Tech propaganda machine. For the past four years, in almost every single instance in which a Cell Tech distributor has posted a message in either the *sci.med.nutrition* or *misc.health.alternative* newsgroups, Thorson has come blazing in with a cut-and-paste flurry of facts about health dangers associated with blue-green algae.

"My agenda is to bring an end to the abuse of the Internet for commercial advertising purposes by Cell Tech," wrote Thorson. He signed one message, "We're the Internet. To protect and to serve, that's us!"

Thorson took his campaign seriously. After reading the *Scientific American* article by Wayne Carmichael, he spent hours in the Stanford Medical Library. He obtained Cell Tech's FDA file. He conducted detailed comparisons of the amounts of nutrients, amino acids and minerals in a day's dose of Super Blue Green Algae and more conventional "nutritive supplements" like bananas or eggs. A college major in neurobiology, he scoffed at claims that blue-green algae eaters owed their energy boosts to glycogen, or neuropeptides, or B-12. He was convinced that Super Blue Green Algae contained a pharmacological

agent — anatoxin-a — that acted as a stimulant. When he tried it himself, the algae made him "wired," he wrote.

Finally, late one Saturday night, he called me — and then refused to talk. He told me that he would soon be forced to give a legal deposition in a blue-green algae-related law suit. He would not comment, on or off the record, until after the deposition.

The deposition, I later discovered, was related to a personal injury lawsuit that a Pennsylvanian named Samuel Fineman had filed against Cell Tech. According to court documents, Fineman, an insulin-dependent diabetic, was claiming that "shortly after ingesting" Super Blue Green Algae, he had "suffered severe and adverse reactions, including but not limited to flushing of the skin and numbness of both arms and hands, lower legs and feet." Furthermore, after contacting the president of Cell Tech, Marta Kollman, "for information and assistance," the complaint alleged that Kollman had "refused to provide [Fineman] with information and/or assistance regarding his symptoms."

Neither Fineman nor his lawyer would comment on the case, due to go to trial this fall. Other algae experts familiar with the details also refused to comment, as did Kollman herself, except to tell me that the lawsuit, which she claimed was the first in Cell Tech's 14-year history, was "ludicrous."

Ludicrous or not, the lawsuit was the story behind the

"misinformation" story — the missing link I had been unable to find on the Internet that explained Cell Tech's home-page defensiveness. But though the lawsuit is invisible on the Net, ironically, it turns out to have been heavily shaped by the Net. Several people familiar with the case agreed that Fineman's legal strategy and research rely on information harvested online — a low-budget answer to a cash-strapped plaintiff's dreams.

Several days after my first brief conversation with Thorson, he called me again. Cell Tech, said Thorson, had dropped its efforts to subpoena him, and he was now more willing to talk.

Thorson is confident that he has made an impact on Cell Tech: "I think I've been very effective. The level of abuse of the alternative medicine and nutrition newsgroups is much less now than it was in, say, 1995. It's very quiet out there, in terms of algae. I can go for weeks waiting for someone to post something."

At least one Cell Tech distributor acknowledges that Thorson's postings had caused him to question whether he should be consuming blue-green algae.

"If it wasn't for the Net I wouldn't know what I do now," says Ralph Castro, a Long Island psychologist.



"At first, I believed that the feelings of energy that one gets from the blue-green algae were due to nutritive effects. But now I believe there is a psychopharmacologic effect. But I don't know for sure. All I really know is what I've read on the Internet."

Thorson believes he knows why so many people are pumping up Cell Tech's sales: he thinks they may be addicted to a drug.

"It definitely felt to me like a stimulant," said Thorson, describing his own experience. "It gave me a feeling of floating or flying on air . . . I can see why people would enjoy that."

After talking with Thorson, I saw puzzle pieces fitting into place. What was visible through the Net alone — that festival of unmediation — offered only an uneasy reflection of offline reality. But it did suggest that there was a new power afoot in traditional information dynamics. A flame war in cyberspace . . . a showdown in district court. There was no real dividing line. The lawsuit would bring together algae experts, Cell Tech executives and Internet gadflies. The Internet was facilitating an ecology of information that knew no boundaries, virtual or real.

But by now, I was frustrated with sifting through old Usenet postings and engaging in off-the-record phone calls. I craved more direct information.

I purchased some blue-green algae and started popping capsules. And yes, there did appear to be something happening here. I felt pepped up, even a little jittery. I had convinced myself that some kind of biochemical action was going down. I could feel it in my bowels.

But even that wasn't enough. I had exhausted the Net and made all my phone calls. The time had come to travel to the source — to the town that time forgot: Klamath Falls.

Once upon a time, Klamath Falls was a bustling logging town. Nestling down at the south end of Klamath Lake, the city also benefited tremendously from its position next to the tracks of the Southern Pacific Railroad. It even operated a profitable sideline to its main sawmill business: the town is dotted with huge cold-storage facilities originally intended to warehouse produce brought up by train from California's immense Central Valley.

Today, Cell Tech owns all the cold storage in Klamath Falls, and the warehouses are filled with freeze-dried algae instead of corn and cucumbers. And today, Klamath Falls is just a shadow of its former self. Most of the sawmills are closed, and the city has been hurt badly by the construction of Interstate 5, some 70 miles to the west. Downtown Klamath Falls is filled with boarded up shops and crumbling old hotels. At eight o'clock on a week-night, the city is a ghost town, a likely location for a nefarious cult operation — as some Cell Tech detractors (including some of Cell Tech's competitors) have been known to call Cell Tech.

Indeed, Cell Tech's headquarters, freshly painted and well-maintained, occupy pride of place in the centre of town. An oddly ornate building that once served as a Ford dealership, the headquarters is only one of 14 Cell Tech buildings in Klamath Falls. Cell Tech is one of Klamath Falls' largest employers, with 600 staffers and considerable civic clout.

Evidence of the clout is clear just north of the city centre, overlooking the lake. There, a low hill is being cleared for a new consolidated centre for Cell Tech operations. Construction of the buildings hasn't yet begun, but a brand new paved road winds up into the empty hill. The road is named Dan O'Brien Way, in honour of the Olympic gold medal-winning decathlete. O'Brien, Cell Tech president Marta Kollman tells me, is a major league algae eater.

As is Kollman, who keeps a stash of Cell Tech products in her desk drawer and misses no chance to sing their praises. Blonde, middle-aged, charismatic and effervescent, Kollman struck me at first glance as a typical super-salesperson, adeptly sliding away from the tough questions, but able to talk at length and with enthusiasm about most aspects of Super Blue Green Algae production. It wasn't until about a quarter of the way through a two-hour tour of Cell Tech's facilities that I realised she was wearing blue-green eye shadow like a badge of honor. Even later, the full truth of Kollman's algal sincerity was made even clearer when we entered a room adjoining one of Cell Tech's laboratories, and she pounced upon a plastic canister of algae powder that had been left sitting on a table.

While telling me that this was a test sample of a new algae-production process, she quickly unscrewed the canister and took a deep whiff, then handed it to me, eyes glinting with obvious delight. The smell of freeze-dried algae, as Kollman herself admitted, is "an acquired taste" — a harsh aroma more redolent of a stagnant pond than the health-giving bounty of nature. But the odour is anything but harsh to Kollman — she could hardly restrain a bodily shiver of joy as she put the canister back down.

Until I visited Klamath Falls, Cell Tech had remained an amorphous abstraction to me. The grandiose claims of Cell Tech distributors struck me as distinctly penny ante — a travelling salesman's snake-oil rhetoric. But after zipping across the full gamut of Cell Tech operations, chauffeured in Kollman's ultra-comfortable Mercedes, I began to see the company in a new light.

Super Blue Green Algae is big business on an industrial scale. While Cell Tech's much smaller competitors harvest the algae from the open waters of the lake using specially designed barges and small boats, Cell Tech sprawls along a canal that drains the lake and channels its water into irrigation systems feeding southern Oregon and portions of Northern California. The algae is harvested directly from the canal. On the day I visited, Cell Tech filtered some 200,000 pounds of green goo from the canal, using large, mechanised rectangular racks that scooped out the algae and channelled it into a massive system of pipes, centrifuges, freezers and assorted other industrial machinery.

Cell Tech is a magnet for all things phycological. In fact, both Wayne Carmichael and Don Anderson — the algae experts I had tracked down on the Net — were on site in Klamath Falls during my visit, working for Cell Tech. Anderson, the director of the National Office for Marine Biotoxins and Harmful Algal Blooms at Woods Hole Oceanographic Institution, was testing the algae for neurotoxins, while Carmichael searched for traces of another strain of algae — the dreaded microcystis.

I had seen references to microcystis in my online research, but buried among thousands of other facts, they hardly stood out. After talking with the people who actually get their hands wet in Klamath Lake, I realised that microcystis is the paramount safety concern in the world of commercial blue-green algae. Microcystis is a potentially lethal strain of algae — and from time to time, it appears in Klamath Lake.

In the summer of 1996, right at the peak of the harvest season, Jacob Kann, an aquatic ecologist employed by the Klamath Indian Tribes, discovered a “toxic bloom” of microcystis algae in the lake. For reasons that phycologists don’t completely understand, strains of algae can suddenly explode into high-speed growth, or “bloom.” In some cases, especially with microcystis algae, the resulting flood of algae is toxic to animals and humans.

Kann alerted the Oregon Health Board. The algae harvesters halted their operations, even though the open-water harvesters claimed that they could steer away from the danger areas — not an option for Cell Tech, which has to take whatever comes down the canal.

Canada, Great Britain and Australia all require that drinking water contain no more than one part per million of microcystis. The U.S. has no such regulation, but the Oregon Health Board is currently advocating a similar standard. Duncan Gilroy, a toxicologist for the health board, stated that he had discovered levels of microcystis in excess of one part per million in “finished product from all the algae harvesters.”

Marta Kollman was reluctant to discuss microcystis. Representatives of some of the other harvesting companies have declared that the proposed standard is too strict, but Kollman declined to comment on it.

“That’s the big controversy right now,” said Kollman. “I don’t really want to say anything about it.”

Kollman did note that Cell Tech is conducting “three separate tests” aimed at discovering successful screening methods for separating microcystis from *Aphanizomenon flos-aquae*. And she pooh-poohed the idea that the open-water harvesters could steer away from problem areas. “That’s a nice theory,” she said.

Kollman did not even want to admit that the microcystis issue was the sorest point in the blue-green algae business. Reciting the standard Cell Tech line that “there is no medical evidence that anyone has been harmed by Super Blue Green Algae,” she repeatedly declared her confidence that Cell Tech products are “absolutely safe.”

Carmichael’s role testing Super Blue Green Algae reassures Kann and Gilroy; he’s a respected figure in the world of algae. But questions remain. When 200,000 pounds of algae are removed from the lake, what percentage of that algae is tested? And what of the other harvesters — how much testing are they doing?

“We have questions about whether the testing is adequate,” said Gilroy. “And we’re concerned about how straightforward the entire industry has been on this problem.”

Klamath Lake stretches for nearly 30 miles north of Klamath Falls. Algae is the dominant life form — to the detriment of other creatures. Jacob Kann, the aquatic

ecologist, is concerned that the lake’s stock of native fish is being depleted. Agricultural runoff is supercharging the lake with nutrients, spurring the algae on, and crowding out everything else. Kann is also worried that the supercharging process may make future toxic blooms more likely.

Marta Kollman, like any good salesperson, thrives on maintaining a blissfully unworried pose. She blames last year’s microcystis bloom on a spate of unseasonably hot weather. To her, the lake is a bottomless cornucopia.

“The great thing about algae is that the more you take out, the more grows back,” said Kollman. “We’re not worried about running out.”

Running out would be a Super Blue Green disaster. Multilevel marketing requires constant growth. Cell Tech has extravagant goals for the near future — Kollman’s husband, Daryl, has challenged Cell Tech’s distributors, currently numbered at around 275,000, to boost their numbers to 3 million by 1998 and 5 million by the millennium.

Tighter state or FDA regulations could hamper that growth. So could increased competition, or an unfavourable ruling in the upcoming lawsuit. The ecology of Super Blue Green Algae includes many players — toxicologists, personal injury lawyers, pushy distributors and even Usenet bulletin-board regulars. They flow in and around each other in a pattern every bit as iridescent and endlessly motile as that of the algae itself.

Reflections of that pattern can be found on the Net, and, as I had discovered, the Net is creating new ways to link the players — in the story of algae, or in any story. The information, which isn’t necessarily the truth, is out there, albeit not always in plain sight. And always, of course, warped by hidden motives.

Perhaps that’s how it should be. Perhaps we should not look to the Net for answers, but only for starting points. It’s unwise, in any case, to count on neatly wrapped packages of ultimate truth, available for easy download in the not too distant future. In my algae odyssey, I had grasped some measure of certifiable fact. I was convinced that there are potential health hazards associated with consuming Super Blue Green Algae. But it was also clear that algae eaters aren’t hopeless dupes — that they are getting something for their money.

I, for one, am grateful that I followed the trail as far as I did. If I hadn’t, I would never have learned one truth about pond scum: that you cannot find it on the open waters of Klamath Lake. The dancing green tendrils of *Aphanizomenon flos-aquae* are full of all the mystery and wonder of life; to call the algae “pond scum” is to fling a mortal insult. Better, perhaps, to see its restless complexity as a metaphor for truth. That might do the stuff justice.

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Cream crackers

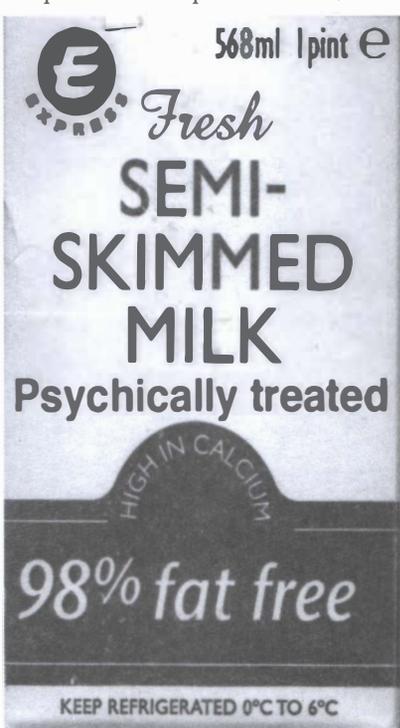
A group of skeptics devise an experiment to test a paranormalist's claim that his psychic powers can stop milk turning sour.

Will Stevens holds his nose and takes up the story

THE ISSUE OF WHETHER milk can be kept fresh by paranormal means was raised in the 'skeptics' conference on the conferencing system CIX, where a member claims to have a wide range of paranormal powers. One of them is the ability to make milk stored in an ordinary domestic refrigerator remain fresh for longer than would normally be expected. He gave a fairly detailed account of one occasion on which he said he had done this.

The claim provoked a good deal of skepticism, and after a long and often heated series of discussions, some conference members set up an experiment to test it, with the paranormalist's cooperation. I initially designed the experiment, and the draft protocol was revised several times in the light of suggestions and criticisms from other conference members. I also coordinated the experiment when it was carried out (in March 1998), and was responsible for the randomising and 'blinding' procedures, as well as for collating and reporting the results. There was no face-to-face contact between any of the participants; everything was done through the conferencing system, by email, or by post.

Six members of the conference set up, in their refrigerators at home in different parts of the country, a total of 55 pairs of samples of milk, or 110 samples in total.



(A further five sample pairs were set up, but later discarded because of labelling mistakes.) Each sample was about 5 cl (two tablespoonfuls) of milk stored in a plastic cup or similar and sealed with clingfilm. Each sample was marked with the serial number of the pair to which it belonged (1-55), and the letter A or B.

As coordinator of the experiment (I did not myself set up any samples), I used a pseudo-random number

generator to prepare five different target lists for the paranormalist's use. This showed which sample of each pair he should attempt to keep fresh, the other being the control, which was to be allowed to degrade naturally. The lists were, therefore, in the form: 1 A, 2 A, 3 B, 4 B, 5 A. These five target lists were sent in sealed envelopes to a participant whose only task was to select one at random and post it to the paranormalist. So nobody except the paranormalist knew what the actual targets were until the conclusion of the experiment.

After two weeks, the participants who had set up the samples opened them and had the unenviable task of tasting them and judging which of each pair was fresher – or, at least, less nasty! Tasters were permitted to involve family and friends in the tasting and judging.

The results were sent to me, and I retrieved the unused target lists and established by elimination what the targets actually had been. Each sample pair was then categorised as:

1. a 'hit' – the target sample was fresher;
2. a 'miss' – the target sample was less fresh; or
3. a 'tie' – the taster(s) were unable to decide which sample was fresher.

The full detailed results were published in the conference so that participants could verify them. In summary, they were as follows:

Hits	18	32.73%
Misses	20	36.36%
Ties	17	30.91%
Total	55	100.00%

Clearly, if the paranormalist is having no effect on the milk, then the number of hits will be approximately equal to the number of misses. However, there was no way of knowing how many ties to expect, except possibly by doing an elaborate preliminary trial, so ties had to be excluded when evaluating the results and applying statistical significance tests. Omitting ties, the results were:

Hits	18	47.37%
Misses	20	52.63%
Hits + misses	38	100.00%

So, we had no evidence that the paranormalist was having any influence on the milk. He himself had had 'loosely

predicted' an 85% success rate. If he had achieved this, then, clearly, the result would have been entirely different, and the sample size was large enough to make it statistically significant.

Although the results were in one sense disappointing, doing the experiment was an instructive exercise for a number of reasons.

Firstly, although the souring of milk seems to be a good, objective way of testing a paranormalist's claimed powers, it is unsatisfactory in that there is likely to be a substantial proportion of 'ties'. The freshness of the milk was judged by human tasters (who should be commended for their courage and dedication!), and though we spent some time looking for better, more discriminating methods we couldn't find any that could be used at home. Under laboratory conditions, better methods probably are available such as chemical tests or counting spoilage organisms. (Preliminary experiments using narrow range pH paper to see if a test of acidity would be better were disappointing). We did suggest to the paranormalist that some other test should be used. Unfortunately, there were no better ideas.

Another interesting, and unexpected, result was the range of deterioration reported. We attempted to standardise the samples by asking participants to obtain full-cream, non-UHT, non-sterilised cows' milk, with a 'use by' date falling within five days of setting up the samples. Even so, when the tasters presented their results, their comments ranged from 'Afterwards, I made an acceptable mug of cocoa with the samples' to 'So nasty that nobody would taste them' (this set had to be scored as 'ties').

There are probably several related reasons for this variation. The degradation of milk is a complicated process, involving at least two groups of bacteria. Some bacteria break down milk sugar anaerobically, and the main end product is lactic acid. These bacteria produce little protein degradation, and, in fact, they are responsible for the controlled, desirable sourness of products such as yoghurt and creme fraiche. Other groups of bacteria break down the proteins and have a much more dramatic effect, producing extremely unpleasant smells.

Other factors include: the source of supply; the amount of time the milk spent unrefrigerated; refrigerator temperature. Another factor maybe have

been cleanliness: participants were asked to make sure the vessels were clean, but it was not practicable to demand surgical sterility. Intrinsic variation of this kind may partly account for the paranormalist's clearly sincere belief that he can influence what happens – though he himself disagrees with this, and says that the conditions of the experiment affected his abilities more than he had anticipated.

The final lesson we learnt is that it is surprisingly difficult to set up, agree on, and execute a really solid experimental protocol with a number of different people, especially without face-to-face contact. This caused impatience, and, from time to time the cry was heard, 'Let's stop being so finicky; let's get on and do something'. It was not always easy to resist this, but by doing so we ensured that the experiment that was actually performed has a proper scientific basis, and can stand up to scrutiny.

The full experimental protocol can be found in the CIX 'Skeptics' conference, in the topic 'Milk'. Anyone considering similar experiments who has access to CIX, is welcome to make what use they wish of it, though, obviously, I should like to hear about it. Alternatively, I am happy to send copies of it by post or e-mail.

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Trial by Fire

Chris Willis *on the links between Charles Dickens, the demon drink and . . . Spontaneous Human Combustion*

POSSIBLY THE STRANGEST death in English Literature is that of Krook in Dickens' *Bleak House*. Calling at Krook's home, two of his acquaintances become aware of a strange burning smell accompanied by 'a smouldering, suffocating vapour in the room and a dark greasy coating on the walls and ceiling':

Here is a small burnt patch of flooring; here is the tinder from a little bundle of burnt paper, but not so light as usual, seeming to be steeped in something; and here is – is it the cinder of a small charred and broken leg of wood sprinkled with white ashes, or is it coal? O Horror, he is here! and this from which we run away, striking out the light and overturning one another into the street, is all that represents him.

Help, help, help! come into the house for Heaven's sake!

Plenty will come in but none can help ... Call the death by any name. Your Highness will attribute it to whom you will, or say it might have been prevented how you will, it is the same death eternally – inborn, inbred, engendered in the corrupted humours of the vicious body itself, and that only – Spontaneous Combustion, and none other of all the deaths that can be died. [1]

Not surprisingly, some of Dickens' readers found this a little hard to swallow. George Eliot's lover, the critic G H Lewes, took Dickens to task in his weekly journal *The Leader*, complaining that Krook's death was a scientific impossibility: 'it is a fault in Art and a fault in Literature, overstepping the limits of Fiction and giving currency to a vulgar error.' [2]

Dickens rose to the challenge. *Bleak House* was then being published as a serial and the next instalment was already in the press. Dickens added a paragraph to the next chapter at proof stage, citing various supposedly scientific sources for the phenomenon of spontaneous human combustion, and satirising Lewes' scepticism. At the inquest into Krook's death:

Some of these authorities (of course the wisest) held with indignation that the deceased had no business to die in the alleged manner; and being reminded by other authorities of a certain inquiry into the evidence for such deaths, reprinted in the sixth volume of the Philosophical Transactions; and also of a book not quite unknown, on English Medical jurisprudences; and likewise of the Italian case of the Countess Cornelia Baudi as set forth in detail by one Bianchini ... and also of the testimony of Messrs. Fodere and Mere, two pestilent Frenchmen who would investigate the subject; and further of the corroborative testimony of Monsieur Le Cat, a rather celebrated French surgeon ... Still they regard the late Mr. Krook's obstinacy, in going-out of the world by any such by-way, as wholly unjustifiable and personally offensive. [3]

Scholars have established the authenticity of Dickens'



sources [4] which come from nineteenth century scientific writings. Spontaneous human combustion was widely debated in the press of the time, much in the way that alien abduction and false memory syndrome are debated in today's press. Many reputable scientists believed wholeheartedly in spontaneous combustion. The 1833 *Cyclopedia of Practical Medicine* included an eight-page section on the subject by a professor of chemistry. In 1845 the popular *Penny Cyclopedia* carried a long piece on spontaneous combustion which argued that cases

have been constantly put on record, and although often misrepresented by superstition and ignorance, the evidence of such a combustion of the human body is admitted as perfectly satisfactory by the best writers on medical jurisprudence of the present day. [5]

Behind such supposedly scientific accounts lurked a strong moral agenda. In many supposedly scientific accounts, spontaneous combustion is seen as the result of over-indulgence in alcohol. According to the *Cyclopedia of Practical Medicine*, this condition is 'often promoted by the dispersion throughout the system of alcoholic vapours' [6]. Dickens relies heavily on this belief. Krook is a habitual drunkard who has 'drunk himself blind' on the night he dies [7].

Most of the authorities Dickens cites are taken from a chapter on 'Spontaneous Combustion of Drunkards' in Robert Macnish's *The Anatomy of Drunkenness*. Macnish held that drunks were particularly liable to spontaneously combust because of the build-up of inflammable alcohol in their bodies. Dickens' other source, the *Philosophical Transactions*, attempted to account for the mysterious death of Contessa Cornelia Zangari (*née* Baudi) by claiming that flammable gases from the wines and spirits

she had taken had caused her to spontaneously combust.

Modern physiologists dismiss such ideas as ridiculous. As John West points out:

For the physiologist of today, the remarkable thing is that there was so much earnest discussion of the preposterous notion that spontaneous combustion could occur, no matter how many bottles of gin had been imbibed. The greenest medical student would be able to calculate that the concentration of alcohol in the body was infinitesimally low.

[8]

However, spontaneous combustion of drunkards had taken a firm hold in the popular imagination, becoming what would now be described as an urban myth. Other authors before Dickens had portrayed spontaneous combustion as a punishment for alcoholism. The narrator of Frederick Marryat's 1834 novel *Jacob Faith* recounts that his mother:

perished in that very peculiar and dreadful manner, which does sometimes, although rarely, occur to those who indulge in an immoderate use of spirituous liquors ... She perished from what is termed spontaneous combustion, an inflammation of the gases generated from the spirits absorbed into the system. [9]

Herman Melville recounted a similar incident in *Redburn* (1849) in which a drunken sailor spontaneously combusts in front of his horrified shipmates.

Such incidents fitted neatly with Victorian Christian ideas of divine retribution. Christian temperance campaigners preached the evils of drink, urging people to sign a pledge of total abstinence from alcohol. In a theology which held that the fires of hell were a punishment for evildoers, death by fire was a frequent form of divine retribution for sin. In the Bible, the sinful cities of Sodom and Gomorrah are destroyed by fire from heaven [10]. The righteous, however, are able to survive fire. The prophet Elijah ascends to heaven in a chariot of fire [11] and, as every Sunday School child knows, Shadrach, Meshach and Abednego emerged unscathed from the flames of a furnace [12]. These stories would have been familiar to Victorians, the vast majority of whom were Christians. Before Darwin, belief in the literal truth of the Bible was widespread, and the fires of hell were perceived as a very real threat.

Dickens counterpoints Krook's death by putting an-

other character through a trial by fire. Esther Summerson, the insufferably pious Christian narrator of large sections of the novel, is stricken with smallpox at the time of Krook's death. In a raging fever, she hallucinates that she is on fire:

Strung together somewhere in great black space, there was a flaming necklace, or ring, or starry circle of some kind, of which I was one of the beads. [13]

Unlike Krook, Esther survives her fiery ordeal, living to preach Christian morality to the reader at every opportunity. Her illness is convincing to the reader: Krook's death is less so. However, Dickens was certainly not at fault in giving further credence to a widely-held belief of the time. In his preface to a later edition of *Bleak House*, he emphasised that he did not 'wilfully or negligently mislead [his] readers' and would not abandon his belief in the 'fact' of spontaneous combustion 'until there shall have been a considerable Spontaneous Combustion' of the evidence' [4].

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Chris Willis is a freelance journalist and researcher.



Skeptical Stats

A new column based on the observation that sometimes statistics don't lie – they're just plain crazy . . .

1. Amount *Harper's* magazine said Americans spent on psychic phone networks in 1997: **\$1 billion**
2. Number of stories Stephen Glass, who reported the above, fabricated in *New Republic* 1994-97: **27**
3. Number of turtles required to balance the Feng Shui of Richard Gormley's Angel of the North: **1**
4. Estimated cost of crystal worn by Cherie Blair and described as a "stress-busting shield": **£239**
5. Number of such crystals, priced between £100 and £749, sold in the UK: **200**
6. Number of Eagle Star employees hospitalised with burned feet after a motivational firewalk: **7 of 10**
7. Number of people hospitalised with burned feet after firewalks run by the Wessex Skeptics: **0**
8. Year British doctors began complaining about patients finding information on the Internet: **1996**
9. Estimated number of Americans who read their horoscopes each morning: **70 million**
10. Cost of a personal five-year horoscope from Jonathan Cainer's Web site: **£18.99**
11. Median value of test group's estimate of the product of $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8$: **512**
12. Median value of test group's estimate of the product of $8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$: **2,250**
13. Amount The Amazing Kreskin asked for to determine who is lying in the Starr investigation: **\$1**
14. Number of articles published about the 50th anniversary of Roswell in 1997: **1,009**
15. Number of new motel rooms being built in Roswell: **200**
16. Gartner Group estimate of cost to fix the Year 2000 computer bug, in 1993: **\$60 billion**
17. Gartner Group estimate of cost to fix the Year 2000 computer bug, in 1996: **\$300 to \$600 billion**
18. Number of web sites mentioning Feng Shui: **13,580**
19. Number of books in print on Feng Shui: **134**
20. Number of books in print on interior design: **2,014**
21. Number of psychics predicting the 1997 death of Diana, Princess of Wales, beforehand: **0**
22. Number of psychics reported to have predicted the Year 2000 computer millennium bug: **0**
23. Percentage of UFOs UFOlogists agree have natural explanations: **90**
24. Number of computers IBM head Thomas J. Watson thought would sell worldwide, in 1943: **5**
25. Year first studies were published that showed health hazards associated with smoking: **1938**

Sources: 1 Stephen Glass, *Harper's* magazine, April 1996; 2 Editors, *The New Republic*, June 1, 1998; 3 *Guardian Society* supplement; 4,5 *Daily Mail*, July 20, 1998; 6 *Daily Telegraph*, July 15, 1998; 8 *British Medical Journal*; 9 American Federation of Astrologers; 11,12 John Allen Paulos, *A Mathematician Reads the Newspaper* (the actual answer is 40,320); 13 *Harper's* magazine, July 1998; 14,15 *Skeptical Inquirer*, July/August 1998; 16,17 *Wired News*; 18,19 searches on <http://www.altavista.digital.com>, July 1998; 20 search on <http://www.amazon.com>, July 1998; 21,22 informal survey by *The Skeptic*; 23 TV show discussions; 24 Christopher Cerf and Victor Navasky, *The Experts Speak*; 25 Richard Kluger, *Ashes to Ashes*.

Skeptical Stats is compiled by **David Morton** and **Wendy Grossman**. Please send contributions (with source) to stats@skeptic.org.uk or to *The Skeptic* (stats), PO Box 475, Manchester M60 2TH.



Philosopher's Corner

Julian Baggini

Sometimes there are no straight answers

PHILOSOPHERS ARE RENOWNED for not giving straight answers to straight questions, with very good reason. So often the questions we ask are founded on error and a lack of clarity, and the only way to make real progress when confronted with such confused queries is to first unravel the mess.

I have been reminded of this recently by the continued press coverage of the relative merits of 'conventional' and 'alternative' medicine. The problem here is that we seem to be presented with two types of medicine when in fact the terms 'conventional' and 'alternative' do not refer to two types of medicine at all.

Let's take conventional medicine first. There are many branches of conventional medicine, but all share a common understanding of human physiology, research methods and, to a certain extent, practices. A neurologist and an immunologist have very different specialist knowledge, but they share the same basic understanding of how the body works.

When we turn to alternative medicine, the contrast is immediate. What assumptions are shared by a homeopath and an acupuncturist? None at all. The latter's theoretical framework is based on principles of the flow of Qi energy through the body, whereas the former's is based on a principle of 'like cures like'. The dialogue that is possible between a neurologist and an immunologist is not possible between a homeopath and an acupuncturist. They're just not operating in the same conceptual space.

The point is that while there is a single system of medicine which we can call 'conventional', 'alternative' medicine is simply a blanket term; the only thing required to qualify for inclusion under it being that it is not conventional.

We can understand this confusion in terms of what philosopher Gilbert Ryle called a 'category mistake'. Category mistakes are made, says Ryle, by 'people who are perfectly competent to apply concepts, at least in the situations with which they are familiar, but are still liable in their abstract thinking to allocate those concepts to logical types to which they do not belong'. An example he uses is of a foreigner visiting Oxford or Cambridge and being shown all the colleges, libraries, offices and so on, and then asking, 'But where is the university?' The foreigner makes the mistake of thinking that the university is an institution like those which go to make it up, rather than being the organised collection of these institutions. He fails to realise that the noun 'university' does not function in the same way as the nouns 'college',

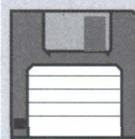
'library', and 'offices' do.

'Conventional medicine' and 'alternative medicine' superficially appear to be the same kind of noun phrase. But, of course, they are no such thing, and the two contrasting terms are importantly different in type. The former refers to a single discipline, the latter is an umbrella term covering a range of very different practices.

Once we recognise this, it becomes clear that it makes little sense to be for or against alternative medicine. Both the blanket dismissal of this disparate group of therapies and the evangelical zeal with which some people embrace them all are both frankly confused because there is no one thing to be for or against. Enthusiasm for placing crystals all over your body is no more reason for believing aromatherapy will cure you of your nicotine addiction than a passion for Kant is a reason for believing you'll enjoy a Wagner opera. Conversely, the fact that acupuncture can't cure cancer is no reason for believing that a chiropractor can't relieve neck pain.

So what is the practical pay-off for the rational person? The evidence for the success of conventional medicine is so overwhelming that it makes little or no sense not to make that the automatic first choice for the unwell. But what if conventional medicine can't help you? No 'alternative' medicine has the proven track record of conventional medicine, so there's no obvious benefit to be gained from pursuing it. But if you really are in need, there's no reason why you shouldn't sift through the alternatives and see if there isn't something that can help. Even the hardest cynic should accept that for certain conditions, some alternative therapies do have a proven positive effect. The point is that acknowledging these successes is not an endorsement of alternative medicine in general, because there just isn't any such thing to endorse.

Julian Baggini is editor of *The Philosopher's Magazine*.



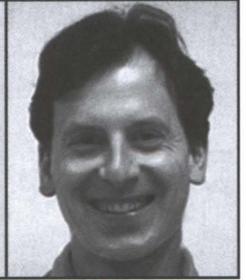
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Psychic Diary

Toby Howard



Seeking needles in inter-galactic haystacks

FOR THE LAST SIX MONTHS, my PC has been having out-of-cabinet-experiences. Whenever it's not doing something of vital importance, like running Quake or displaying Uri Geller's WebCam, it's been creeping out onto the Internet, where, with a karmic blast, it merges with thousands of other computers. Together they form a vast super-computer. The thing about this super-computer is that while it doesn't actually exist – it's 'virtual' in nerd-speak – it's an enormously powerful machine.

This is 'meta-computing', and it's a new way of harnessing the mostly wasted computing power of the world's PCs. Instead of sitting idle while its owner is elsewhere, if a PC is periodically connected to the Internet, and runs suitable software, it can cooperate with other PCs similarly connected. The idea is to treat all these machines as if they were really pieces of one massive computer – and to set them to work on questions so hard that single computers can't solve them on their own.

Until now, the problems addressed have been mostly mathematical, such as searching for ever bigger prime numbers, producing more and more digits in the expansion of pi, and cracking supposedly 'unbreakable' codes. But now the stage is set to apply meta-computing to a particular question in which many *Skeptical* readers will be acutely interested: *Is there life out there?*

The Search for Extra-Terrestrial Intelligence, or SETI, has been underway at radio telescope observatories around the world for decades, typically piggy-backed onto more mainstream research astronomy, for which it's far easier to find funding.

Since the 1970s, the Arecibo Observatory in Puerto Rico has hosted a project to hunt for intelligent signals hidden in the cacophony of deep-space radio waves. But the specialised search equipment, which works in real-time, can check only a minuscule fraction of all the likely wavelengths for signals which may be coming from gregarious aliens. The bad news is that the chances of actually detecting alien messages are vanishingly small.

But there's good news: this kind of needle-in-a-haystack searching problem is precisely where meta-computing excels. A few years ago Dan Werthimer, an astronomer at the University of California, conceived the idea of harnessing the unused power of home PCs for searching through the Arecibo radio data, and launched

the 'SETI@home' project.

The plan is to digitise recordings of the Arecibo radio signals, and place them on the Internet. Then, volunteers will each download small chunks of the data to search through using free analysis software running on their PCs as a screen-saver. When a PC has finished analysing its chunk of data, it reports back to a central 'coordinator' computer on the Internet, logging anything of interest it's found, and asking for another chunk to work on.

So far, over 100,000 people have signed up to participate in SETI@home, and Werthimer and his team are anxious to get the show on the road. It should have launched in early 1998, but – you guessed it – they ran out of money. They reckon on needing another \$200,000 to set up the infrastructure, and are currently wooing the corporates for sponsorship. Let's hope they find the support they need. Let's also hope it's not from Bill Gates – it's bad enough watching him try to conquer his own planet, never mind someone else's.

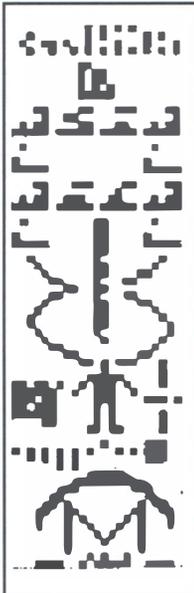
As well as conquering problems too big for conventional computers, meta-computing is also a great leveller. Every participant in SETI@home

has the same chance of finding the lucky chunk with the alien message. It could be you – so sign up today and give your computer its first out-of-cabinet experience.

To start meta-computing, all you need is a PC and a modem. A good place to begin is the Great Internet Mersenne Prime Search project (GIMPS) at <http://www.mersenne.org>, from which you can download the software; for the latest information about the SETI@home project, visit <http://setiathome.ssl.berkeley.edu>. And if you fancy delving into the mysteries of pi, see <http://www.cecm.sfu.ca/projects/pihex/pihex.html>.

Well, that about wraps it up for *Psychic Diary*. I've really enjoyed writing these columns over the last 10 years, and I hope you've enjoyed reading some of them. But it's time for a change. Starting next issue, there'll be a new column by Steve Donnelly, whose acerbic wit and irreverent approach to paranormal nonsense, I'm sure you'll enjoy. But from me – for now at least – cheers!

Toby Howard is a lecturer at the University of Manchester, and a freelance science writer.



Reviews

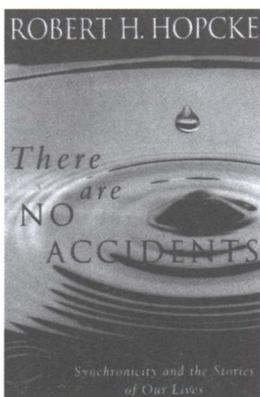


WARM AND FUZZY

There Are No Accidents: Synchronicity and the Stories of our Lives

by Robert H Hopcke

Macmillan, £16.99, 1997, ISBN 0333664612



Humans are good at seeing meaning in things. In evolutionary terms, this is a cool survival trait, because mostly there *is* meaning in things. But (in the same way that Margaret Thatcher, finding that being 'orrible brought her political power, went on being 'orrible until it brought her political disaster) you can have too much of a successful strategy.

Humans can detect meaning in random assemblages like inkblots, the pattern of the stars, and the poetry of Algernon Charles Swinbourne. Couple this with charming and profound innumeracy, and you get a fascination with coincidences.

This brings me to Robert H Hopcke, who, his book's flyleaf tells us, 'is Director of the Centre for Symbolic Studies, a centre for the training [*sic*] in psychoanalytic and Jungian oriented psychotherapy'. This, you will not be surprised to learn, is based in California.

Robert H has devoted a book to the notion that coincidences, when they are warm, fuzzy, and cheerful, are actually Meaningful Synchronicities. When they are nasty, they can also be Meaningful Synchronicities. When they are dull and boring, of course, they are not coincidences at all, and therefore don't count. This particular notion will be familiar to followers of Jung, a psychotherapist who has the unusual distinction of being dafter than Freud. It reappears from time to time, most notably a few years ago in the writings of Brian Inglis, Science Correspondent for the *Observer*.

I cannot effectively summarise this book, because there is no clear theme. It is a collection of anecdotes about coincidences, linked by psychobabble. Let me give you an example, from a section entitled 'If I Am Not Aware of It, How Can It Be? Synchronicity and Archetypal Symbols of the Collective Unconscious'. (Yes, really).

Robert H is Frank's therapist. Frank is under the impression that everyone wants to control him (it's the fault of Frank's mother, explains Robert H), and that includes his therapist. A session is taking place under adverse conditions. Robert H writes:

Then at one point, seeing that we weren't getting

anywhere, I decided to take another approach, to challenge him more openly. I wondered aloud how he might account for the fact that I had showed up in the middle of the rain storm, with no electricity in the building, so that he could continue to tell me how much he disliked me. Wasn't that evidence that I cared about him? Why else would I choose to do something like this, so inconvenient, so patently unenjoyable, unless I was really concerned for his welfare? Here Frank fell silent and I could feel an emotional shift taking place. After some moments of thought, Frank said 'I see your point. Maybe you do care, maybe it isn't all about power'. And at that moment, the power went back on and the office was suddenly, synchronistically, brightly illuminated once again.

And I sincerely hope there was a later moment when another little light went on for Frank, and he wondered, 'That therapist – was he there because he cared for me? Or was it a meaningful synchronicity? Or was it because . . . because . . . I was PAYING him?'

John C McLachlan

SPREAD OF EXCELLENCE

Life's Grandeur

by Stephen Jay Gould

Jonathan Cape, £16.99, 1997, ISBN 0099893606

'We must abandon a habit of thought as old as Plato and recognize the central fallacy in our tendency to depict populations either as average values (usually conceived a "typical" and therefore representing the abstract essence or type of the system) . . . or as extreme examples (singled out for special worthiness).'

Life's Grandeur 'treats the "spread of excellence", or trends to improvement best interpreted as expanding or contracting variation.' 'When groups are truly successful, and their tree contains numerous branches, all prospering at once, we can designate no preferred pathway . . . The evolutionary tree of horses is copiously bushy throughout.'

But the modern horse represents the endpoint of an *unsuccessful* lineage, 'so reduced from earlier bushiness that only a single twig – life's little joke – survives as a relic of former glory.'

Gould also addresses another main question: is there a drive towards more and more complexity as life evolves? His answer is no. He sees the bell curve of complexity as blocked by a wall at the left end: the irreducible simplicity of the bacterium. Any random change in complexity can move no further in that direction: it has no choice but

to stay as it is, or encroach on the space to its right:

If we could replay the game of life again and again, always starting at the left wall and expanding thereafter in diversity, we would get a right tail almost every time, but the inhabitants of this region of greatest complexity would be wildly and unpredictably different in each rendition... Humans are here by the luck of the draw, not the inevitability of life's direction or evolution's mechanism.

If you insist on looking for statistical dominance on the planet, look no further than bacteria:

During the course of life, the number of E. coli in the gut of each human being far exceeds the number of people that now live and have ever inhabited the earth.

In fact,

it is bacterial photosynthesis that supplied the atmosphere's original oxygen, (and, in concert with multicellular plants, continues to act as a major source of resupply today).

Are there even bacteria that can live on nothing but rocks and water? 'The answer seems to be yes'. And total bacterial mass 'may exceed all the rest of life combined, even forest trees'.

It all makes for an interesting read, if you can put up with the interminable pages of baseball names and references and analogies, and if you can face the fact that the ideal length for this would probably have been as an essay in one of Gould's popular collections.

Lewis Jones

CONSPIRACIES AT LARGE

The UFO Invasion: The Roswell Incident, Alien Abductions, and Government Cover-ups

by Kendrick Frazier, Barry Karr, & Joe Nickell (Editors)

Prometheus, £22, 1997, ISBN 1573921645

The Real Roswell Crashed Saucer Cover-up

by Philip Klass

Prometheus, £21, 1997, ISBN 1573921319

It's now more than half a century since the incident that gave birth to the modern phenomenon of UFOlogy.

On June 24, 1947, US pilot Kenneth Arnold, flying a private plane in Washington state, reported seeing a number of objects 'skipping like saucers over water'. Media headlines about 'flying saucers' stimulated other reports and soon it became a flood, one that has hardly abated since.

The UFO Invasion is one of the books, published every few years by Prometheus, that consist of compilations of articles from *Skeptical Inquirer*. Unlike its predecessors, which covered a wide variety of paranormal and pseudoscientific topics, this book concentrates on UFOs and related issues. Authors of the various pieces look at the UFO phenomenon from the perspectives of psychology, engineering, physics, medicine, historical research and plain investigation. Those who have subscribed to *SI* for any length of time will probably have seen many of

these articles before, but these have been updated and it is very useful to have them collected in one book.

The topics covered range from an historical perspective on previous cases of mass delusion, in the 'airship scares' of last century, through alien abductions, crop circles, UFO crashes, an even a look at the scientific search for extraterrestrial intelligence. Above all, it is a sober and sensible look at a phenomenon that, all too frequently, engenders neither attitude.

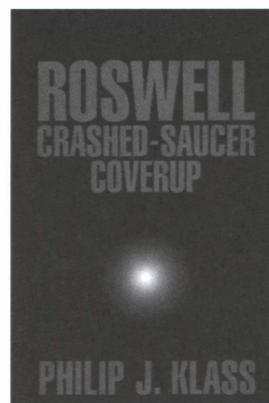
Among the best known of all UFO cases is, of course, the so-called Roswell incident, the 50th anniversary of which was celebrated in 1997, amid much hype and ballyhoo.

It all began barely two weeks after Arnold's 'saucer' sighting, when a rancher found some material spread around his property near Roswell, New Mexico, which he then took to the local Sheriff for identification. At their Roswell base the US Army Air Force took charge of the substances, and an enthusiastic Public Relations officer, no doubt influenced by the widespread accounts of sightings of mysterious 'discs' that followed the Arnold publicity, issued a press release to local newspapers claiming the USAAF had recovered debris from a 'flying disc'. This story caused a brief flurry and then died, largely because the substances were quickly identified as parts of a weather balloon, and there were more interesting stories around.

It generated one book, Frank Scully's *Behind the Flying Saucers*, which sold well for a while, but which did not survive the exposure of its chief 'witness' as a known confidence trickster.

The UFO phenomenon moved on, traversing ever more strange byways, to become part of the folklore of the USA, and much of the rest of the world. The Roswell incident remained on the books as little more than a footnote for 30 years, until, in the late 1970s, several UFO believers looked for something to answer the frequently asked skeptical question 'Where is the physical evidence?'.

The next book on the topic to see print, and one which marked the beginning of the resurrection, was *The Roswell Incident*, by Charles Berlitz (of Bermuda Triangle fame) and William Moore. It took the line that a UFO had crashed near Roswell, had been recovered by the USAAF, and that the US Government had ever since been involved in covering up the evidence. This book contained so many inaccuracies that it was not particularly



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successful, but it clearly sowed seeds in other minds, and several other books on the topic were to follow a decade later.

Competing organisations and competing authors within the UFO movement sought out witnesses to the original events. Not surprisingly, 40 years after the events, these witnesses were not easy to find, many having died and those still alive being well-advanced in age. Books by such UFO luminaries as Don Schmitt and Kevin Randle (*UFO Crash at Roswell*, Avon Books, 1991), Stanton Friedman and Don Berliner (*Crash at Corona*, Paragon House, 1992), Schmitt and Randle again (*The Truth About the UFO Crash at Roswell*, 1994), as well as innumerable articles in UFO journals, TV specials and news reports in the press, promoted a wide variety of stories about what had happened in New Mexico in 1947.

And what a diverse selection of views "they were (one is almost tempted to describe them as orthodox, catholic and protestant), but on one thing they all agreed; the US Government was involved in a conspiracy to cover it up. The most serious claims of cover-up were those concerned with the technology and alien bodies recovered from Roswell and its environs. Perhaps it is unsurprising that none of the accounts of the affair in popular UFO books agrees in detail with any other, for such is the way of competing religious claims. And the accusations directed by each of the believers against each of the other believers, smell strongly of 'heresy' and 'apostasy'.

Enter Philip Klass. Klass, a long time Senior Editor with *Aviation Week & Space Technology* magazine, is the doyen of the UFO skeptics, and this is his sixth book on the subject. He is widely known and respected for his meticulous research and critical analysis of UFO claims, and he does not fail us here.

He charts the Roswell myth through its increasingly byzantine twists and turns, with new 'witnesses', new sites and new conspiracies emerging as each UFOlogist tries to steal a march on his fellows. He catalogues the 'evidence' that withstands no scrutiny; the short- and long-term alliances between the different camps, alliances that often founder on small doctrinal differences; the 'witnesses' who seem to disappear, leaving no trace of their existence.

The book discusses in detail the only real event to which the term 'cover-up' could legitimately be applied, and then only in a peripheral way. What had been described as 'weather balloon' debris was almost certainly from Project Mogul. Mogul was an attempt by the US military, in the era before satellite or effective long range aircraft reconnaissance, to sample the upper atmosphere for radioactive evidence that the Soviet Union had exploded a nuclear device. Mogul consisted of a string of balloons, lifting an instrument package and a selection of radar targets, which would allow ground observers to keep track of the system. There can now be little doubt that the debris found on the ranch outside Roswell was, in fact, from one of the Mogul balloon trains. It is doubtful that the information supplied by the officers at Roswell Base was deliberate misinformation (a common conspiracy claim), as Mogul was a Top Secret project and it was unlikely these officers knew about it. And the materials used in Mogul were standard weather balloons and

targets – it's just that there were a lot of them in each system.

Klass is particularly scathing in exposing the selective use of evidence by the UFO conspiracy proponents. Much is made by them of various documents that have come to light under Freedom of Information legislation, referring to concerns the US authorities had about the mysterious flying objects. These are widely quoted by many UFOlogists to show that the military hierarchy was very concerned about the phenomenon, and not at all dismissive of it as a collective delusion. Klass has obtained copies of the original documents, and shows that the proponents of conspiracy have used them very selectively indeed.

More than one document expressing concern about UFOs also contains the sentiment that 'if only we could get some physical evidence'. These were written after the debris from Roswell was supposed to have placed into the care of the USAF Technical Intelligence Centre at Wright Paterson Air Force Base in Dayton, Ohio and they were written by people whose official positions made it incredible that they would not have known what the Tech Int people had in their care, if they indeed had any.

Facts that are fatally damaging to the credibility of the UFO proponents, and the producers of sensationalist TV pseudo-documentaries, are that these documents have been publicly available since the mid-1970s, and that Philip Klass has personally drawn their full contents to the attention of these people. Not once, in any of the UFO books or documentaries, has this evidence been made available to the public.

Philip Klass contends that there really is a cover-up about the events at Roswell, and that cover-up is being perpetrated by authors and producers who, for their own reasons, have laid baseless charges of conspiracy against the US Government. Read this book, consider the damning evidence he has gathered, and you will find it very difficult to disagree with him.

Barry Williams

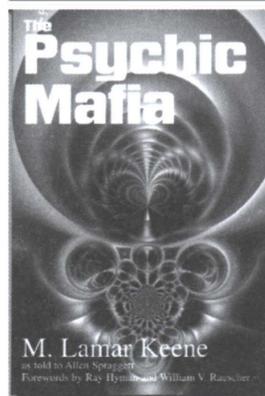
The above review first appeared in the Australian SKEPTIC magazine, and is reprinted here with their kind permission.

A FAKER COMES CLEAN

The Psychic Mafia

by M Lamar Keene

Prometheus, £14.50, 1997, ISBN 1573921610



At last, a long-awaited reprint for this classic confession, which should be kept in print as a public service.

M Lamar Keene spent 13 years as a professional medium, lauded for his astonishing feats of physical and mental mediumship, before a crisis of conscience drove him first to stop practising, and then to write this biography.

This book is, among other things, a textbook on how to be a fraudulent medium; detailing not only the methods used by Keene and other

mediums, but also the extent of the conspiracy among them to defraud their sitters. Spiritualism, as Keene admits with cheerful cynicism, is extremely profitable (and tax-free), and the 'psychic mafia' of the established Spiritualist church make sure it stays that way, helped by the massive gullibility and sheer will-to-believe of their clients.

Many of the methods used will be familiar to anyone with a basic knowledge of conjuring and mentalism, though it's also evident that many clients wouldn't need the trickery. Ray Hyman's Introduction mentions a case of incredibly blatant fraud that he witnessed as a teenager. It was completely ignored by the rest of the congregation, and some of the examples from Keene's own career are equally unbelievable. Sitters are exploited not only financially, but emotionally, and, yes, sexually as well, but many of them are so desperate for reassurance of the existence of an afterlife that they continually return for more.

It's a fascinating book, breezily written, with enjoyable sidelights on the eccentric personalities and practices involved in the history of the Spiritualist movement, as well as some truly appalling examples of naked greed and cruelty. But it's easy to see the temptation of setting yourself up as a medium – easy money, respect and power, if of course your conscience allows you to abuse the trust of human beings at their most vulnerable.

One minor wrinkle: it would have been interesting to have an update in this new edition. The book is over 20 years old, so a modern introduction on the present state of the Spiritualist church and institutions mentioned would have been welcome, and though the bibliography is excellent, it hasn't been updated either. Still, this is a small complaint. This book is essential for the shelves of anyone interested in the psychology of deception, self-deception and irrational belief.

Rachel Carthy

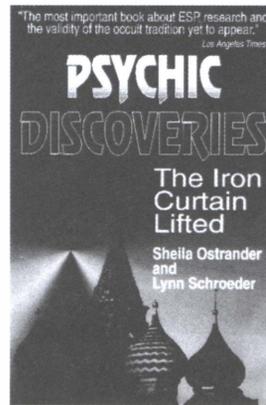
PSYCHIC HEARSAY

Psychic Discoveries: The Iron Curtain Lifted
by Sheila Ostrander and Lynn Schroeder
Souvenir Press, £18.99, 1997, ISBN 0285634097

Ostrander and Schroeder spent some time travelling in the USSR and eastern Europe during the 1960s collecting tales of the paranormal and this book was first published in 1971. It has now been reissued in Britain with a short addendum covering the period from 1991. Although every page is headed 'Psychic discoveries' the book is little more than 400 pages of anecdotal or hearsay accounts of events supposedly demonstrating the reality of the paranormal.

The text jumps abruptly from meeting to meeting and topic to topic, dragging in ESP, dowsing, Kirlian photography, psychic espionage, bio-psychokinesis, eyeless sight, astrological birth control and psychotronic generators (no, I don't know what those are either). There is no attempt at analysis or critical evaluation of what the authors saw, or more often, had related to them.

The aim seems to be to convince with an unstoppable flow of assertions and wild guessing – but unfortunately



the book cannot escape the fact that however many zeros you collect their sum is still zero.

Given that so many of the 'paranormal' abilities that Ostrander and Schroeder found so compelling have been repeatedly shown to be either nonexistent or the product of plain fraud it is hard to see what purpose a book like this serves – unless to show that every country has its share of charlatans and gullible believers. It never occurs

to the authors to ask why none of the clairvoyant 'psi-meisters' they met were able to predict the events which were soon to convulse the USSR – just as it seems never to have occurred to anyone at Souvenir Press to wonder whether statements like 'Russian space probes have discovered artificial structures on the moon' should be included in a book published in 1997.

There might be an interesting book here, discussing the extent to which the collapse of communism has led to an upsurge in irrational beliefs and how far these are rooted in more traditional forms of Russian mysticism but this is not such a book. Might *Psychic Discoveries* still be a useful reference book? Not at all; most of the ideas in it are common to any number of books on the paranormal. The bibliography is inadequate and consists largely of references to obscure publications. The one Web site quoted produced only a rambling essay repeating material identical to that in the book.

This is not a book for anyone who thinks that extraordinary claims require extraordinary evidence.

Michael Hutton

IT'S A MIRACLE

The Complete Story of the Course
by D Patrick Miller
Rider, £12.99, 1998, ISBN 0712671811

'A Course in Miracles' (Registered Trade Mark) was dictated to New York psychologist Dr Helen Schucman by an 'Inner Voice' which she came to identify as that of Jesus – or possibly not.

This ambivalence is a hallmark of the Course which could well be described as a post-modern version of Christianity. Reading Miller's history of A Course in Miracles (ACIM), it is clear that its major selling-point is its judicious blending of prescription and permission. The author(s) of ACIM apparently reject the label 'New Age' but, in many ways, it is an archetypal New Age programme.

Miller provides a table listing key differences between ACIM and orthodox Christianity and these seem so fundamental that it is easy to understand why conservative churches have denounced ACIM as heresy or even Satanism. On the other hand, ACIM claims to 'rehabilitate' Jesus and his teaching by revealing the true nature of the doctrines which the churches have distorted and suppressed. On the other hand (you can have

as many hands as necessary in the New Age), the Course is not:

the only way (or even the best way) to salvation ...
Other paths may be equally valid, and it is not for us to judge whether someone else is making spiritual progress.

The fundamental principle underlying the Inner Voice's dictation (which eventually ran to 1,200 pages, published in three volumes by the Foundation for Inner Peace) is that the only reality is God and that everything else is an illusion. Our attachment to this illusion of a separate self existing in a physical world is what the course is designed to help us overcome. It has had a considerable (if illusory?) worldly success, with over a million copies of the Course sold and over 2,000 'study groups' in existence around the world.

Miller's book is described on the cover as 'the other book that every Course student should own' and it is difficult to see who, other than a Course devotee, might be prepared to buy it.

Although describing itself as 'investigative', the book is highly supportive of ACIM of which the author is a former student. He devotes one brief chapter to 'Critiques of the Course' but even here, there is little evidence of any attempt to locate AICM in its historical and sociological context.

John Gillies

Doctors fooled

The Death of Innocents: A True Story of Murder, Medicine, and High-Stakes Science

by Richard Firstman and Jamie Talan
Bantam, 1997, ISBN 0553100130

'Sudden Infant Death Syndrome' (SIDS) is a continuing mystery: three decades of the best efforts of forensic pathologists and medical researchers have failed to come up with an explanation of why some babies die, apparently without cause, in their sleep.

One of the leading theories, originally proposed in a 1972 paper published in the peer-reviewed journal *Pediatrics* by a Syracuse doctor named Albert Steinschneider, was that the babies suffered from Apnea, a condition in which breathing stops temporarily. Steinschneider's paper also laid the groundwork for the belief that SIDS could run in families through some kind of unexplored genetic link, and these two propositions founded an entire industry of apnea monitoring for young babies in the US.

Steinschneider's research was based on his experiences monitoring babies drawn from the general Syracuse, New York area after his interest in the possibility of a link between SIDS and Apnea at a 1969 conference on SIDS, the first ever held. Two of these babies came from a single family from Tioga County which had lost three previous children, one of them over two years old. That family formed the basis for much of Steinschneider's argument and for his 1972 paper, in which he recounted the stories of the two babies, who were monitored in Syracuse's Upstate Medical Center for most of their short lives only to die at home shortly after their release.

To Texas-based forensic pathologist Linda Norton, however, Steinschneider's paper seemed to be a clear account of serial infanticide, and in 1983 she published a paper surmising that this was the cause of many reported cases of multiple SIDS deaths within a single family. It was because of this paper that, in 1986, when Syracuse prosecutors were preparing a case against Stephen Van Der Sluys, who was later convicted of murdering three of his children for their insurance money, Norton was called to Syracuse to testify. A reference in a case conference to Steinschneider's paper and her reading of it set off the local DA on a quest to prove whether the babies were in fact murdered and if they were, to prosecute the murderer. In 1995, Waneta Hoyt was convicted of smothering all of the five dead children born to her and her husband, Timothy Hoyt.

The Death of Innocents, a tour-de-force whose authors are both journalists working for *Newsday*, follows all of this incredible story in detail, mixing a page-turner medical-legal thriller with an in-depth investigation into how bad science can propagate and a procedural explanation of forensic medicine. Steinschneider, they argue, glossed over the inadequacies of his research in the interests of becoming a major figure in world medicine, while other researchers simply could not believe that parents would kill their own children. The authors are careful to make plain that only a small percentage of SIDS deaths are homicides; no one wants to go back to a period when parents were automatically suspected. But they make a persuasive case for the notion that multiple unexplained deaths in a single family need to be thoroughly investigated. But science, as well as individual suspects, is on trial in this book, which meticulously documents the difficulty of conducting research with human subjects.

Just as in the paranormal world a physicist who is used to subjects that don't lie may be at a disadvantage testing a psychic claimant, so in the medical world doctors were fooled by their own presuppositions.

Rachel Winston

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No Nitpicking

Regarding miracles (review of Cassandra Eason's *Miracles*, 11.3, p23) it is insufficient to agonise over whether any given miracle claim can be sustained; it is the very concept of 'miracle' that should be questioned.

A miracle is defined by the Church as 'an event contrary to the laws of nature' and it is at once obvious that no such claim can properly be made of any event (supposing it to have happened at all) *unless* we have comprehensive and absolute knowledge of the totality of 'the laws of nature'; we do not have this.

It follows that an event that surprises us, in terms of the limited and provisional knowledge of the laws of nature that we have, can either be contrary to all laws or be in accord with laws as yet unknown; we cannot know which.

This is no nitpicking distinction; it lies at the heart of scientific discovery; many a puzzling observation that could have been thought of as miraculous has, by careful observation and experiment, been shown to be perfectly natural – albeit exceeding what had hitherto been thought of as the limits of natural possibility.

A book of anecdotes of the alleged miraculous is incomplete without due reference to the presumption implicit in the above definition of 'miracle'.

Eric Stockton
Orkney

Phantoms in the sky

Robert Bartholomew and Philip Cole ('Zeppelin Hysteria', 11.3, p10) quite rightly draw attention to the simple explanations which exist for reports of phantom airships earlier

in this century and that they hold a lesson for reports of UFOs in the latter half of the century.

Strange then that they failed to mention that reports of phantom airships came from the USA in the 1890s, before Count Zeppelin had even flown his first craft.

The report from Sheerness on 14 October 1912 appears to have been a sighting of the planet Saturn, then on the horizon to the NE. The report from Dover on 4 Jan 1913 seems to have been caused by sight of Jupiter, only 2° above the horizon in the SE at 0730 (the sun rose at 0758).

Venus may well have been the cause of many other reports, as Joseph Eagle pointed out, but it is also possible that the bright planets responsible were seen in mirage, so explaining the different shapes reported, particularly cigar shapes (mirages as the cause of UFO reports are explained in my book *The UFO Mystery Solved*, 1994).

It is notable that the gullible reporters never seemed to wonder why a foreign and hostile power would fly its airships over Britain while exhibiting bright lights, or to wonder what they could see in the dark. Of course one could argue that the flyers were using bright lights to see the ground, but that does not explain how the lights were seen horizontally. Nor does it explain how such surveying could be done covertly.

Enthusiasts for UFOs seem to be blind to the same aspect of UFOs, usually only visible because of some bright light. Why would secretive and shy aliens draw attention to themselves by flying in luminous craft?

Steuart Campbell
Edinburgh

Hot coals

I'm writing to draw your attention to an article in *The Sunday Times* (26 July 1998) pp. 34–35, STYLE entitled 'Mind & Body' by one Tania Alexander. This prominent article is a plug for Firewalking courses run

by Teresa Johnson, clearly as an efficient way of relieving people of their money. It has some typical new-age language, e.g. putting one's hands in one's pockets blocks energy flow and stops one making contact with one's inner guidance, etc. etc. The really bad bit is this paragraph:

'There is no scientific explanation of why people can firewalk without getting burnt, but research at a burns hospital has shown that people who walk on hot coals release endorphins (the body's natural painkillers). However, while this may explain why you don't feel any pain, it does not explain why your skin doesn't burn.'

This is factually incorrect and the *ST* should publish a correction. I intend to write to the editor, but it is less likely to be knocked on the head if a number of people write in, particularly physicists who have conducted firewalking experiments. I am sure you are in contact with such people, so over to you!

Diana Brown
By email

The Skeptic depends, for inspiration and information, on its clipping contributors who – for this issue – include: Tom Ruffles, Ian Saunders, Gillian Sathanandan, David Rydeheard, Paul Blackwell, Simon Brody, Stuart Campbell, Brian Carter, Jock Cramb, Charles Dietz, Edzard Ernst, Dorothy L Forrester, Earnest Jackson, Ken Johnson, Yilmaz Magurtzey, David Martin, Patrick Marwham, Stephen Moreton, Austen Moulden, V S Petheram, Peter McCawber, Alan Remfry, Donald Room, Neil Rosen-Webb, Mike Rutter, Alma Simmonds, H Sivyer, Brian Slade, J Thompson Jnr, Chris Torrero, J G Watson, Chris Willis. **Thanks to everyone.**

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