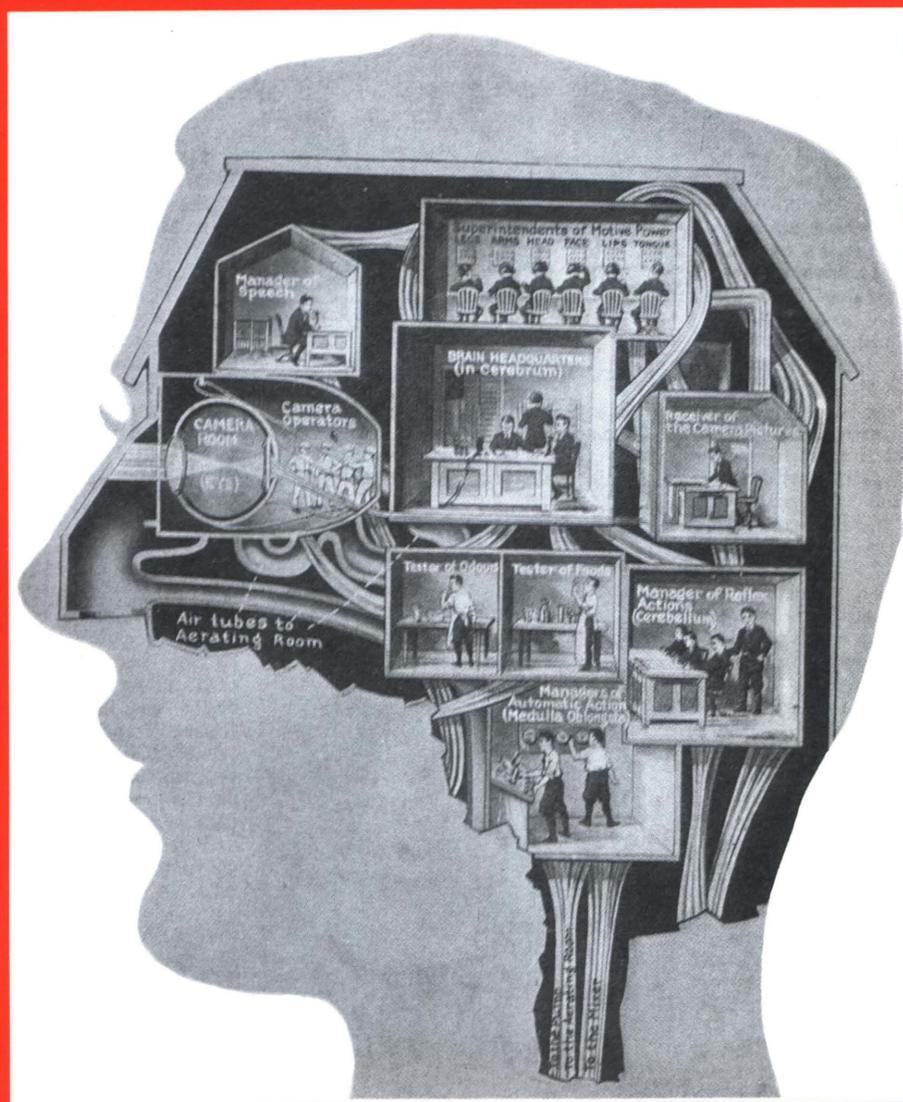


The

Volume 10 Number 1

# Skeptic



## *The mystery of the self*

Also in this issue:

*Investigating a haunted pub*

*Why your 'IQ' may be misleading*

*The Cottingley Fairies*

*Fraud in physical science*

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# Hilary Evans' Paranormal Picture Gallery



## Food from heaven?

Every miracle, by definition, presents methodological problems: but that which saved the life of Alberto di Sarzana in 1429 is particularly paradoxical.

Travelling across the desert with the intention of bringing the Light to the benighted Egyptians, he and his companions ran out of food.

They were saved by an apparition of Jesus who appeared with life-sustaining provisions. But did the apparition bear *real* food

in its unreal hands? And if so, how? Or did it bring food as phantasmal as itself?

In which case, how did Alberto obtain the nourishment he needed? *Source: Henrion, Missions catholiques.*

## What happened to the goat?



In issue 9.5, we asked readers to offer an explanation of the illustration, left, which shows a goat hurtling out of the sea, much to the bemusement of the seamen in their boat. We received many intriguing explanations from readers, some claiming to have used their paranormal dowsing powers to divine the answer. With the help of several sky-clad lady skeptics of our acquaintance, we conducted an esoteric ritual in the offices of *The Skeptic* to prognosticate the name of the winner: W Draper of Leeds, who receives a £20 book token. Honourable mentions go to H Sivyver, who suggested that it was not a goat at all, but an exotic porpoise sometimes released from Atlantis; and to Norman Catlow for the extraordinary tale of his father's wartime exploits in Liverpool Bay (he is the figure in the boat holding his head in his hands) which led to German submariners firing their U Boat's mascot goat Kleine Willi from their torpedo tube.

As for the *real* explanation: In the winter of 1938, the American whaler *Bowhead* struck an iceberg and sank. The crew took to the boats. The goats kept on board to provide fresh milk went down with the ship; but as the ship went down, mounting air pressure burst the goat-shed and projected one of the animals violently out of the water. Obvious, really. Many thanks to everyone who entered the competition.

# Contents

## Editorial

It probably has nothing to do with the end of the millennium, but the nonsense that *The Skeptic* tries to expose, lampoon and ultimately understand really does seem to be coming at us in increasing amounts from all directions.

We are enormously grateful for your support that has taken us into this, our 10th year of publication. Without our readers to submit articles, letters and reviews, and to send in newspaper and magazine clippings, we should not be able to continue into the next year, let alone the new millennium.

But times are hard for independent magazines, and our survival is perilous. We should like to enlist your help in increasing our subscriber base.

We think that our best promotion tool is *The Skeptic* itself. If you have relations, colleagues, friends (or even enemies!) who you think would enjoy this magazine, please tell us, and we'll send them each a free sample copy. We can also send you free copies to distribute – just let us know how many you need. Or if you have any other ideas, we'd be delighted to hear them.

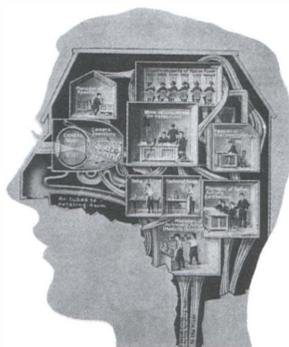
As the millennium celebrations approach, we are likely to hear much New Age nonsense; we think a skeptical voice should be heard too.

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Tel 0161 275 6274  
Fax 0161 275 6236  
email [skeptic@cs.man.ac.uk](mailto:skeptic@cs.man.ac.uk)  
<http://www.cs.man.ac.uk/skeptic>

**Editors**  
Dr Steve Donnelly  
Toby Howard

**Finance Manager**  
Dave Martin

**Cartoons**  
Donald Room  
Tim Pearce  
Nick Kim

**Editorial Support**  
Jane Bousfield  
Angela Cernoculski  
Daf and Mike Tregear

**Special Consultant**  
Cyril Howard

**Special Projects**  
Chris Willis

**Printing**  
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# Hits and Misses

Steve Donnelly

## X-rated

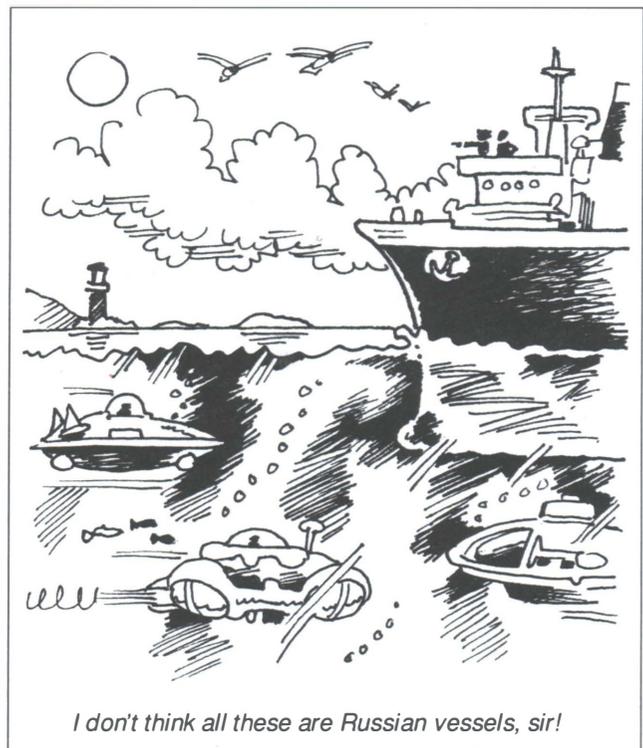


The immensely popular television programme *The X-Files* in which FBI agents investigate paranormal phenomena inspires strong feelings in its viewers. For instance, Tony Stubbley, a police constable in Erith, South East London claims that he has developed a sixth sense through his research and, inspired by the programme, has set up a Bureau of Local Investigation into Paranormal Phenomena. According to the *Sunday Telegraph* on 4 February, PC Stubbley's bureau will investigate UFO sightings, ghosts and poltergeists and, although police colleagues thought it was all a bit odd at first, the paranormal PC claims that '... since the BBC programme *The X-Files*, many have given it a lot more credence'. Even his superior officer, Superintendent Philip Selwood, seems to find the idea perfectly reasonable: 'If the paranormal is going to help us catch burglars in Bexleyheath then all power to those who study it'. On the other hand, some Christians do not feel that an interest in the paranormal is a healthy one, particularly for young people. According to *The Scotsman* on 9 February, Christian writer, Andrew Boyd is concerned that programmes such as *The X-Files* and *The Paranormal World of Paul McKenna* lure children into the occult and, in his new book *Dangerous Obsessions*, he looks at evidence that he claims shows that teenagers can become depressed and suicidal as a result of dabbling with the occult. Given that teenagers can become depressed and suicidal over their pimples, their weight, their relationships and presumably, their Christianity (and much as I dislike what I have seen of the Paul McKenna show), I'm not sure how meaningful such conclusions are likely to be.

## Unidentified Submerged Object

It may be that unidentified objects are not confined to our skies alone. Throughout the 1980s and 1990s, submarine vehicles – some of unusual design and unknown origin – attacked the Swedish coastal defence system in the Baltic. An article published in the *Independent* on 23 February revealed that from 1981 to 1994 there were more than 6000 reports of underwater craft intruding on Swedish waters. Although many of these were identified as known Russian vessels or swimming animals such as mink, a number were never identified and were simply recorded as 'alien underwater craft'. Using the inexorable logic of the UFO enthusiast, such events have no conventional explanation and therefore clearly represent yet another mysterious phenomenon – and one that may be con-

nected with UFOs. Indeed, the newspaper report failed to address the possibility that there may also have been increased UFO activity in Sweden (or in Warminster) during this same 20-year period. Could it be that this mysterious phenomenon is actually occurring all over the world and that UFOs conceal themselves underwater? This would then enable us to link the UFO phenomenon with the failure of enthusiasts of the Loch Ness Monster to provide evidence of her existence. Obviously, when detailed underwater searches have been conducted in Loch Ness, Nessie has been busy buzzing aircraft in her amphibious flying saucer.



Tim Pearce

## Pate(nts)

As someone who once, whilst absentmindedly riding an escalator surrounded by mirrors on walls and ceilings, wondered who the pudgy guy was with the prominent bald patch, before looking around and discovering there was no-one else on the escalator, I have a certain passing interest in baldness cures. German patent DE4330597 offers some hope that a herbal cure may be on the way, as it is for a 'hair growth promoting and loss preventing lotion' and contains about 100 different ingredients including dried apple pieces, chrysanthemum seeds, yarrow leaves, yellow mustard grains, lentils and mountain cranberry leaves. As it can also be used as a herbal tea, how-

ever, it is not clear whether one is supposed to rub it on the affected area or drink it. Collecting all the ingredients could pose a problem though, especially as I have never even heard of 'valerian roots' and 'Azadirachta indica D2 (homeopathic agent)'. On the other hand, particularly for anyone living in or near the countryside, the ingredients for Chinese patent CN1089468 should be much simpler to get hold of, as the main one is sheep excrement. Preparation 'Baiyaolu' is made by burning sheep excrement into ash with dry mulberry sophora and chastic tree twigs as base fire. It has a long storage period, slight fragrance (!) and no toxic or other side effects. There is, however, no mention of 'Baiyaolu' being used as a herbal tea.

## Well endowed fake?



Sometimes you can't help feeling that nothing in this world is as it appears. Many readers will be familiar with the Cerne Abbas giant in Dorset, a 180 foot tall chalk figure of a warrior with a rather large willy, that is widely assumed to have been made in Roman times. The figure is generally believed to be a 2000 year-old fertility symbol and is scheduled as an ancient monument. However, according to *The Sunday Times* on 3 March, Dr Ronald Hutton, reader in British history at Bristol University, believes that it is, in fact, a mere 300–400 years old and was made by inhabitants of Cerne Abbas to upset local puritans. Hutton has spent many months studying old records and the site itself and describes the figure as a 17th century folly. His view is based on the fact that although references to the site appear in records from the late 17th century onwards, nothing appears before that time even in the records of a 16th century Benedictine monastery situated only a few hundred yards from the giant figure. Hutton claims that it is extremely unlikely that the monks would not have had something to say about the rampant figure next door but this is disputed by Tim Darvill, professor of archaeology at Bournemouth University: 'You have to remember that the last abbot was sacked after being accused of rape, co-habiting with woman, using church money to educate his bastard children and allowing the monks to celebrate mass without washing. He would hardly have been bothered by the giant or its penis'. It is not clear whether Hutton's claims will make any difference to the popularity (or efficacy) of the figure amongst the many couples who camp on the giant penis every year in the hope that it will increase their fertility.

## God for your health

God works in bloody weird ways his wonders to perform if a report in the travel section of *The Sunday Times* on 3 March is anything to go by. The article described an almost surreal Turkish answer to Lourdes. People with severe skin conditions such as eczema and psoriasis are making pilgrimages to the small village of Kavak in a remote part of Turkey where they immerse themselves in water in a hot spring. But unlike Lourdes, the water itself has no curative powers. Instead, in Kavak, tiny black fish that should not normally even be able to survive the hot spring waters, nibble at the infected flesh of pilgrims, drink their blood and cure them of their disease. Three

species of fish apparently collaborate in this process, one softening the diseased flesh, the second drawing blood and the third cleansing the wound. There are also snakes up to 70 cm long living in the hot water but these are a bit choosy about the ailments that they treat will and only attend to two specific complaints, snakebite and Saint Anthony's fire (ergot poisoning).

## E Tea

A scientist on a project designed to use radio telescopes in the search for extraterrestrial intelligence (SETI) found intelligent life much closer to home than he initially expected. Peter Backus, of Project Phoenix in California spent four months listening to mysterious signals which he believed were coming to him from outer space via the Parkes Radio Telescope in Australia. The signals he was listening to contained an inexplicable component at a frequency of around 2.4 gigahertz at about the same time each evening. According to the *Electronic Telegraph* on 18 January, however, the intelligent signals were not coming from ET's Mum and Dad calling him home but from the kitchen downstairs. A microwave oven, busy cooking frozen dinners for hungry scientists was beaming out its message every evening. 'It was pretty loud,' Dr. Backus told fellow astronomers at a meeting in Texas. 'One time I tracked one signal for two hours. I couldn't rule it out as human noise'.

I can't help wondering what message would have been revealed had the signal from the microwave been decoded.



Tim Pearce

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

# The Brain and its Self

Huntley Ingalls

## *The enduring mystery of of human consciousness*

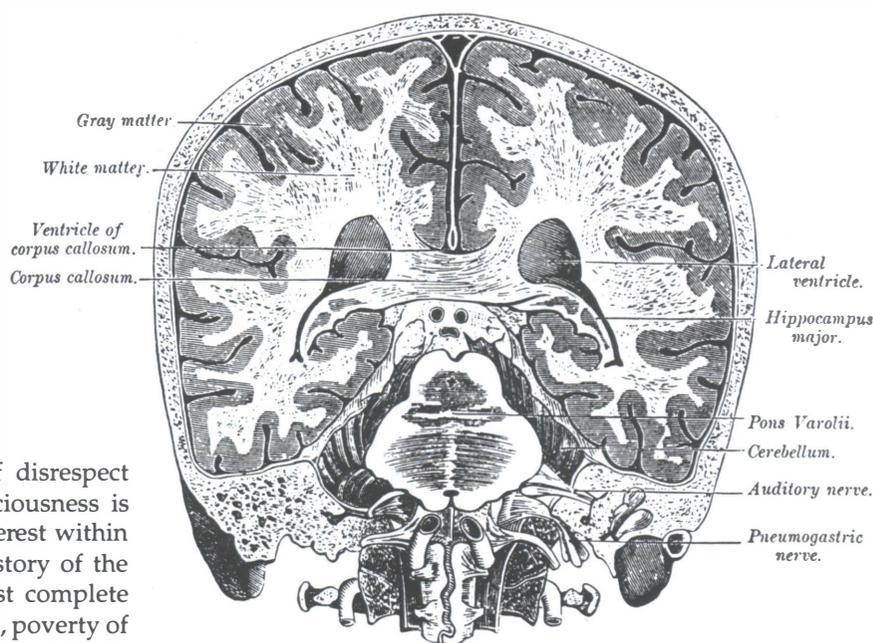
*There was a faith healer from Deal  
Who said 'Although pain isn't real,'  
'When I sit on a pin,'  
'and I puncture my skin,  
'I dislike what I fancy I feel.'*

**A**FTER NEARLY A CENTURY of disrespect and neglect, the nature of consciousness is experiencing a renaissance of interest within the scientific community. The history of the subject has been characterised by an almost complete lack of progress in conceptual understanding, poverty of experimental results, and vague usage of the word itself. These problems led psychologists to dismiss the subject as unscientific and to concentrate on clear objective material such as stimulus-response phenomena that can be studied by fairly exact experimentation. Unfortunately this has been somewhat like limiting the study of French impressionist painting to the study of black-and-white copies.

Recent development of techniques, such as Positron Emission Tomography and Magnetic Resonance Imaging for observing activity in living brains, have aroused a new interest in subjective experiences. Many scientific and philosophical books on consciousness are appearing and a new publication, *The Journal of Consciousness Studies*, has appeared recently. The University of Arizona hosted a meeting in 1994 which was billed as the first interdisciplinary scientific conference on consciousness. It was well attended by distinguished researchers and there was an enthusiastic exchange of ideas.

Francis Crick, co-discoverer of the DNA double helix, is actively involved in the search for the neural basis of consciousness. He holds that there can be no real understanding of subjective experience until we understand its neural correlates. No such correlates have yet been found although there is evidence that, somewhat surprisingly, the seat of integrated consciousness may be in the upper brain stem.

We do know some of the locations of the neural correlates of various features of language skills, motor activity, and vision. The integrated visual field does not arise from the activities of a single definite area. Different areas process specific features of vision which are then brought together. Movement, shape, pattern recognition, depth perception, and colour are processed separately. When some of these areas are taken out in brain injury the resulting behavioural malfunctions can rival Science Fiction for strangeness:



- A patient with prosopagnosia is unable to recognize faces, even those of family members.
- In an effect of injury to the right side of the brain known as hemineglect, the patient loses control of the left side of the body and may deny ownership of its left leg. In severe cases the patient may express outrage that it is somebody else's leg in the hospital bed.
- In an effect of injury known as achrometopsia, the patient loses the ability to see colours, and even dreams are achromatic.
- A woman who suffered damage to several regions on both sides of the visual cortex had no awareness of most types of movement. When she poured tea into a cup she saw a frozen arc of liquid, and the cup often spilled because she did not notice the rising tea.

It is not known at this time how the brain integrates all its separate functions into the unified field of perception which we so clearly experience in daily life. Neurologists call this the binding problem.

### What is consciousness?

A chronic problem in studies of consciousness is the vague usage of the word to connote a variety of meanings. Much confusion arises from people talking past each other on different planes of meaning. The phenomenon of consciousness is most obvious in the great difference between dreamless sleep and waking. There is an even greater annihilation when one is administered the anaesthetic sodium pentathol before surgery. In broadest terms consciousness is any experience of the individual

that contrasts with that individual's encounters with times of voidness. Thus dreams and deliriums are also kinds of consciousness. Conscious experience has structure, such as thought and attention, and content such as colour or pain. The term consciousness is very loosely applied to various features of the structure and content of experience as if they alone represented the concept. Here we will concentrate on a special feature of consciousness which is of greatest importance to the individual – the self. Misconceptions of the self are also a source of delusion and pseudoscience, which are of interest to skeptics.

The manner in which the self is formed and some of the ways in which the self can be distorted and lost can lend understanding to its nature. The gradual formation of ego boundaries can be observed in infants. The activities of a nine-month old infant are centred entirely on itself as if there were no differences between itself and the world. The Swiss psychologist Jean Piaget has shown how children frequently believe that their thoughts can be seen or touched by others. At first the child's own body appears not to belong to itself, but to the external world. This gives the impression that bodily sensations are coming from outside the self. As the infant gains awareness of itself, it becomes mindful of a mobile body set in immobile space. When body awareness has been achieved, the child can begin to distinguish between the 'I' and the 'not-I'.

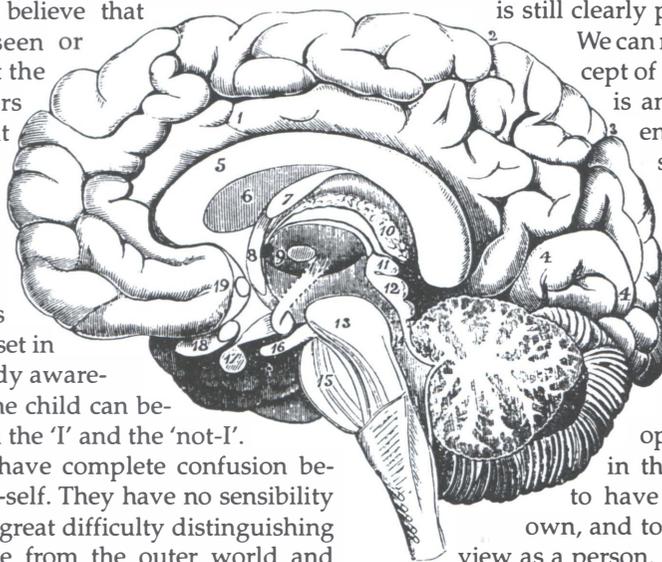
Acute schizophrenics have complete confusion between the self and the not-self. They have no sensibility of being a body, and have great difficulty distinguishing their subjective experience from the outer world and from the experiences of others. A schizophrenic may not know whether it is another person or himself who needs something. Internal and external sensations are experienced as a continuum. The loss of ego boundaries seems to be characteristic of schizophrenia, and some investigators consider this to be the essential feature of the illness. It is significant that physical activity, physical illness, and vigorous showers temporarily improve the psychotic conditions.

The reformation of the ego in schizophrenia has striking parallels with the formation of ego in young children and with the development of ego in autistic children under intensive therapy. The schizophrenic differs from these in having lost an ego rather than never having had one. The self can accomplish its synthesis only when body awareness has been achieved. The consciousness of being a body seems indispensable to the differentiation of the ego and non-ego. Since the body constitutes at once part of both subject and object, it serves the function of linking the ego to the outer world, and then to others.

In some cases when the brain is directly stimulated by electrodes, such as in explorations prior to surgery, patients report thoughts transforming into vivid external images. The patient is both in an experience and outside it at the same time. This disturbance of the ego boundary is probably a consequence of direct stimulation

of the brain rather than the senses. In this experience there is no bodily structuring of neural patterns, and the ego enters experience only in a conceptual way.

The sense of self in normal people can be displaced and distorted under abnormal conditions. In experiments involving prolonged concentration on simple objects such as a vase, some people feel a loss of ego boundaries and a confusion of the subject-object relationship as though they and the vase were merging. There is a loss of distinction between the ego and the environment as if there is no space between the perceiver and the perceived. Under hallucinogenic drugs such as mescaline or LSD the self may seem to be localized in some body part such as a fingertip. It may be identified with an object or even with fretwork patterns. In very advanced states under heavy dosage the ego and the body, with the entire environment, may dissolve into an undifferentiated sensory field. The self may also dissolve while the environment is still clearly perceptible.



We can now attempt to outline the concept of the self. The concept of the self is an integration of several different concepts, all of which are associated with an idea of a centre, or origin, of a person's experience. The idea of the self as it appears in common usage incorporates the concepts of the person, the inner self, and the witness. The concept of a person is closely associated with a physical body operating in space. Each person in this outside view is considered to have a special 'inner' view of its own, and to regard itself from this special view as a person. A person is characterised by a spatio-temporal continuity of body and a temporal continuity of behaviour, holding a particular store of memories and especially a continuity of self-observant processes. The identity of a person is more a matter of continuous form than of constant substance. From an outside view, this identity has both bodily and behavioural criteria; although identity is most definitively settled by references to the psychological rather than the physical features of the person.

The inner self is a special aspect of a person that involves the person's inner view. It consists of the part of consciousness that is a continuous process of awareness of experience including awareness of its own ongoing processes; and it also consists of a part of that process that outpaces immediate awareness. It is not a specific entity like the pain of a bee sting, but is the continuity through time of the central view that perceives these processes, in unity with awareness of this ongoing central view.

The ego is a more momentary aspect of the self. It is much more central and more associated with present experience than the self as a whole. It is the present self centre of awareness. 'I' speaks from the ego, but also from the self, and often about the person. 'Me' speaks about the ego, self, or person from an external view.

The witness is the immediately present process of

conscious experience. It is a part of the self which is always ahead of observation, and that part cannot be an object of observation for then it would not be the observing part. When the witness is perceived it is no longer the witness, but the witness is easily and intimately known through immediate short-term memory.

In summary, the self is characterized by a special central viewpoint from which perception has various unique perspectives, such as a unique geometrical perspective of the surrounding world and access to such experiences as sensations and emotions not available to other persons. When one plays with a dog the witness sees, hears, and feels the acts of play, the ego directs the play, the inner self knows the play and remembers past plays, the person does the playing, and the self is an integration of all of these.

The activities of many diverse parts of the brain are somehow bound together to support our familiar integrated field of consciousness. A subtle and important feature of this field is that it is 'centred'. There is one part of the field that can give focused attention to all our parts. For example, the different parts of the visual field do not 'know' each other but the 'centred' part of consciousness knows them and their relations to each other. Similarly one sound does not hear another but the centre knows them. This centring probably arises naturally from the binding process and may well be the basis of the inner self.

Although the self is not a thing or substance, it is a process, and as such is a real entity, much as a candle flame is a real entity. The self has definite advantages for the organism. A concept of the self allows the individual to have a definite place in its model of the world, and this has great advantages for planning and strategy. It also gives tremendous advantages for social interactions. The individual can form a model of what it is like to be another person. Such models can be used to predict the desires and behaviours of others.

## Spirit and the inner self

Questions of reincarnation, possession, and out-of-body experiences are questions about transference of behaviour, consciousness, and especially the inner self into or outside of an organism. We will briefly consider these questions as they apply to the inner self of humans. The same principles apply to cases of animals or 'spirits'.

Reincarnation is the passing of the inner self from the death of a physical body to a new living body. Somehow the inner self retains its continuity from one body to another. If someone really did report verifiable memories of details of a past life which that person could not possibly have known in any ordinary way, we would need to take the possibility of something like reincarnation seriously. Such a development is not inconceivable,

and nature does overrule theory, but the evidence at this time is not of the kind that is convincing to most scientists. On the other hand massive evidence from the effects of brain injury, drugs, direct stimulation of the brain by electrodes, and observation of brain activity by microelectrodes, Positron Emission Tomography, and Magnetic Resonance Imaging indicate that conscious experience is associated with neural activity.

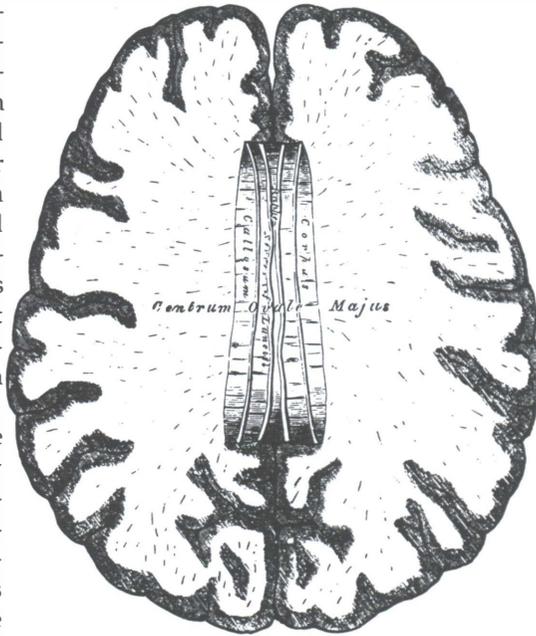
At this time there is no convincing evidence that such a system can propagate conscious experience to another system. At this time the evidence for reincarnation is dubious and there is no known way to transfer the process of the inner self from one organism to another.

An agent that possesses a person differs from reincarnation by commandeering the body and by not necessarily originating from a past life. The problems with such a phenomenon are similar to those of reincarnation. It is possible to have a weak form of possession by using the imagination to simulate the psyche of another person. Good acting is a weak form of possession. Suppose the simulation were complete and lasting?

Would that be strong possession? The new psyche would have continuity in time with the old psyche, in the same body, and we would rather say that the person has changed.

In an out-of-body experience a person seems to perceive the surrounding world from a location outside the physical body. Perception is rather like ordinary perception. This itself seems odd. If one is outside the body in a non-physical state, why should perception bear the stamp of the body's perceptual apparatus? Why, for example, should vision under such conditions be like the optics of the eyes? Out-of-body experiences are often reported to be clear and vivid, and not at all like dreams. These experiences can occur when a person is under conditions of muscular relaxation, exhaustion, listening to monotonous sounds, or during near-death experiences. All of these conditions tend to disrupt both sensory input and the normal body image. When this happens the ordinary model of the world, based on sensory input, may become unstable and break down. Thus it seems likely that out-of-body experiences are a kind of hallucination arising from a psychological response to unusual sensory disruptions. This is further supported by out-of-body feelings which may occur when the brain of a patient is directly stimulated by electrodes. In a classic experiment the English psychologist, G M Stratton, wore a mirror arrangement mounted on a shoulder harness that visually displaced his body so that it appeared horizontally in front of him. He had the feeling of being mentally outside his own body, yet the processes which generated that feeling were surely in his brain.

Very strange effects appear in patients when the corpus callosum, the great bundle of fibres which connect



the two hemispheres of the brain, are surgically severed to treat crippling epilepsy. For example, when objects are presented to the visual field of the right hemisphere, that hemisphere cannot utter words to name or describe them. When the same objects are presented to the left hemisphere it can respond in a completely normal way. There has been speculation that two selves have been created in the same body, but the brain stem has not been disturbed and there is probably no division of the self. It seems more likely that the content of the self has been deeply altered, perhaps somewhat like receiving a description of the same room from two people, one mute, one blind.

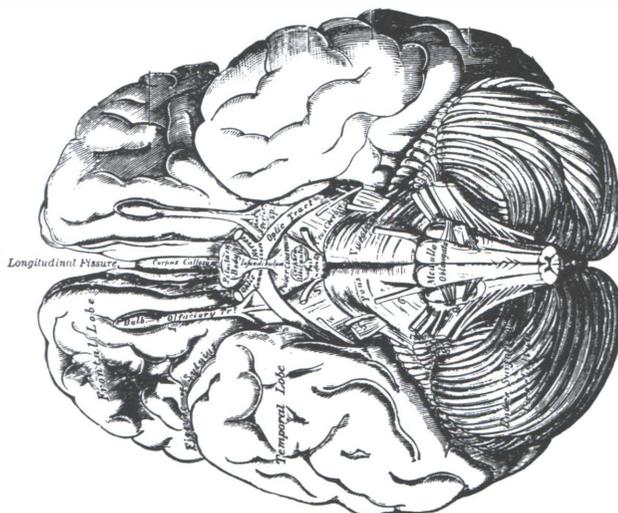
## Deep mysteries

It is difficult to appraise cases of multiple personality. There is a great deal of controversy about the extent to which an alternate personality is a new self. Certainly sensational cases where there are many different personalities are very dubious. It seems likely in such cases that either the patient is acting, or that the therapist is counting moods rather than genuine dissociation. If there is a genuine new personality dissociated from the original it must draw heavily on the knowledge and skills of the original. It is significant that only one personality is manifested at a time. The brain can support only one centred self-process at a time.

In dreams the body and self are more loosely associated, and out-of-body experiences and many kinds of mental transfer are common. This is interesting because in dreams perception has no dependence on sensory input to the dream body. In waking life all our senses depend on signals to bodily senses – light to the eyes, sound waves to the ears – and this is the most powerful basis of our self boundaries. The self in dreams is a substrate of the waking self depending on the same brain and its store of skills and memories. Even in the vaguest dreams the consciousness remains 'centred'. Sometimes there is an awareness in dreams that one is dreaming and that the larger self is producing the dream.

It is certainly a deep mystery how neural events or anything else can generate the subjective experience of the blueness of blue. There are some who say that all subjective experience is an illusion, but it could as well be said that the language expressing such ideas is an illusion.

We have seen that the inner self is a structure of consciousness and can be greatly distorted. Is there a sense in which this self is an illusion? Solid objects are composed of atoms which are mostly empty space. Are such objects an illusion? Have you ever hit your head on a door edge at night? Solid objects are an illusion when viewed from a sub-microscopic perspective. A face in a mirror, or a mirage in the desert, is an illusion on the ordinary scale of daily life. When we call something an illusion we should be mindful of the scale in which we are operating. If music is greatly slowed down it is only a succession of isolated sounds, if greatly speeded up it is only a shriek, but music is not an illusion on the time scale in which we communicate. Similarly when we watch television we do see a screen full of coherent images, but if we saw it for a millionth of a second the electronic scan would be attested and we would see only a stationary



dot of light. The self is a product of many different poorly understood brain functions bound together into a unity. It would not be recognisable on the scale of individual neurons, but we darn well do exist just as mountains and butterflies exist, and the inner self exists just as auroras and stars exist.

Skeptics are widely accused of being kill-joys and of demolishing all sense of mystery. I believe that many skeptics, certainly including myself, welcome the stimulation and wonder of genuine mysteries, and that is why we do not welcome the distractions that pseudo-mysteries demand.

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**Huntley Ingalls is a co-founder of the Rocky Mountain Skeptics.**

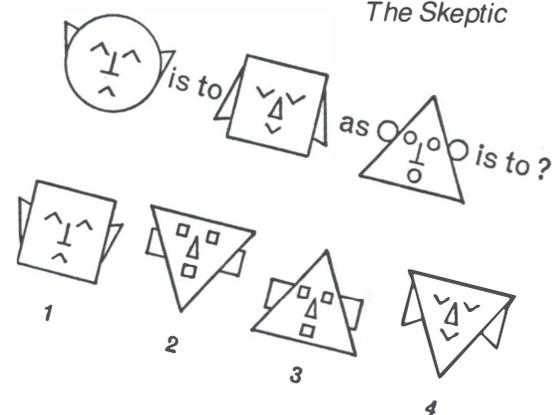
*This article first appeared in the newsletter of the Rocky Mountain Skeptics, Boulder, Colorado, USA, and is reprinted with kind permission.*

**We welcome clippings from newspapers and magazines. Please mark clippings with source and date, and send to the editorial address (see page 3). Thanks for this issue to: Andy Brice, Steuart Campbell, John Clarke, Jock Cramb, Marie Donnelly, Chester Faunce, Gerald Fleming, Dorothy L Forrester, Mavis Howard, Earnest Jackson, Yilmaz Magurtzey, David Martin, Stephen Moreton, Austen Moulden, Alan Remfry, Donald Room, Neil Rosen-Webb, Tom Ruffles, Mike Rutter, Gillian Sathanandan, Ian Saunders, H Sivyver, Brian Slade, J Thompson Jnr, Chris Torrero, J G Watson, Chris Willis.**

# Measuring the mind

Dene Bebbington

## *IQ: Intelligence or Irrelevance Quotient?*



**I**N MODERN TIMES it seems that psychometric methods such as IQ and personality tests have become the latest pseudoscience used to rank and judge people. There is a proliferation of books for testing your IQ, and the extensive use of personality tests in job applications.

As a one-time member of Mensa I was originally of the view that IQ was a measure of intelligence. But after reading several issues of the Mensa magazine I started to seriously question this assumption, and wondered whether IQ should really mean 'Irrelevance Quotient' – with apologies to any Mensa members reading this. With this in mind I researched the subject and realised that the claim that IQ measures intelligence is somewhat specious at best.

The view that IQ measures innate intelligence (or cognitive ability) has been held by many eminent Psychologists, including the infamous Cyril Burt. But this assertion rarely seems to be substantiated, and is really quite a fallacious claim. For example, some parts of a typical IQ test rely heavily on vocabulary: a Cattell IQ test I've seen had four sections (out of a total of six) where the answers would be influenced by the size of the subjects's vocabulary. It seems obvious that intelligence has many aspects, and that an IQ test is only going to measure a subset of these, and even then we cannot assume that it is actually measuring intelligence *per se*. In the monumental book *The Bell Curve* [3] three notions of intelligence are described, but the authors choose to base their research on the classicist notion which is measured by typical IQ tests. They base this decision on the fact that IQ tests in the classicist tradition have a high G (general intelligence) loading.

The concept of G derives from work done by Charles Spearman who used statistical methods to determine that variance in mental test scores were due to one underlying factor known as general intelligence or G. This idea of G was then reified to indicate a particular 'property in the head', and this continues to be the main reason for assuming that IQ tests measure innate intelligence [3]. Lurking behind all this appears to be a circular argument: the concept of G derives from mental tests purporting to measure intelligence, and so an IQ test that has a high G loading must be measuring this property.

The original IQ test developed by Alfred Binet was actually used as a tool within schools in Paris to identify children with particular areas of learning that they needed remedial help with. However, the IQ test concept later got taken over by hereditarians who believed that IQ is a

measure of an innate, and hence unchangeable, level of intelligence (see [1] for a detailed discussion of the early history of IQ testing). Indeed it seems that much of the work done by Cyril Burt helped to give justification for the Eleven Plus system which condemned many people to an inferior education.

Heritability is a measure of how much variation in a particular trait is accounted for by genetics, and a figure often accepted by psychologists working in this field is that IQ has a heritability of about 0.8. In other words, about 80% of the variation in IQ within a population is accounted for by genetics, and 20% by environmental factors.

In order to measure the heritability of IQ the most obvious method is to study identical twins who have been reared apart, and so have the same genes but have been reared under different environmental conditions. The main early attempt at such study of separated identical twins was carried out by Cyril Burt, whose work on this subject has been subsequently dismissed due to allegations of shoddy methods and fraudulent data. A more recent study in Minnesota has turned up a remarkably similar figure for the heritability of IQ to that reported by Burt, although this finding could obviously be interpreted in two possible ways!

What seems to be quite telling is that most studies on the heritability of intelligence are done by psychologists and social scientists. There doesn't seem to be much involvement by those who know about the genetic aspects of this issue, that is, the geneticists and molecular biologists. And in fact there are several well known scientists in these fields who disagree quite strongly with the conclusions on the high heritability of intelligence.

In light of all this it is worth quoting the insightful R C Lewontin [2]:

If we wanted to seriously ask the question posed by Arthur Jensen in his famous article 'How much can we boost IQ and scholastic achievement?' the only way we could answer would be to try and boost IQ and scholastic achievement. We do not answer it by asking, as Jensen did, whether there is a genetic influence on IQ, because to be genetic is not to be unchangeable.

It seems to me that psychologists and social scientists can be seduced by the lure of statistics, in that they think that by ascribing numbers to various human aspects such as environment or socioeconomic status they are somehow probing the realities of a complex world. One

of my main criticisms is that in doing twin studies to ascertain the heritability of intelligence it is necessary to enumerate in some way the environment a person has grown up in. My view is that this is much too complex an issue to be decided by glibly assigning numbers to various factors, such as parental income, occupation, and so on.

As a confirmed sceptic I think that attempts at measuring intelligence are always going to be dogged with problems, not least of which is a generally accepted definition of what intelligence is. The crude use of numbers tends to lead to the erroneous view that someone with a higher IQ is therefore necessarily more intelligent, or vice versa.

This and attempts at measuring the heritability of intelligence are really nothing more than seductive pseudoscience, the results of which have been – and still are – used to justify prejudice, racism, eugenics, and social policy.

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Dene Bebbington is a computer programmer and an ex-member of Mensa.

# Skeptical Predictions for 1996

by resident seer Marjorie Mackintosh

**January** Tabloid psychics predict that Princess Di will get into difficulty over yet another man. Readers complain that you don't have to be clairvoyant to expect that.

**February** A group of dowsers reveal that they were hired by Yorkshire Water to look for new sources of water. But they failed because the water coming from the company's own leaky pipes corrupted their results.

**March** Labour-supporting New Agers report that Tony Blair's aura is gradually changing from red to blue. Offers of help are rejected by the Blair camp.

**April** Two newspaper horoscopes predict the same things for the same star sign in the same week. This is declared by astrologers to be proof that astrology works as it can't be a coincidence. Nobody checks to see if any of the predictions come true.

**May** Poltergeist activity is reported in the tabloids: a fourteen-year-old girl is alleged to be able to make chairs and tables move. She is besieged with offers of cash if she will use her powers on the lottery balls.

**June** A spaceship lands in Britain but, as its occupants have green skin, Michael Howard will not talk with them. Instead he offers them financial assistance to return to wherever they came from as quickly as possible.

**July** The controversy over decommissioned oil rigs is resolved when it is suggested that they be towed to the Bermuda Triangle to disappear forever. Only one problem remains – no one will volunteer to tow them in.

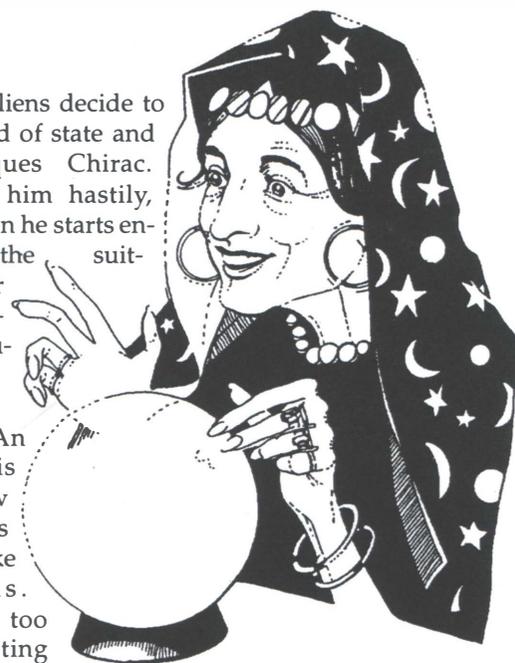
**August** Hugh Grant reveals he is seeking training in clairvoyance so that the next time he feels like an escapade, he can make sure it's over before the police turn up.

**September** Aliens decide to contact a head of state and kidnap Jacques Chirac. They return him hastily, however, when he starts enquiring about the suitability of their planet for future French nuclear tests.

**October** An election is called but few psychics bother to make predictions. They are all too busy forecasting winning lottery numbers for anxious clients.

**November** After intensive research, astrologers conclude that there should be yet another Zodiacal sign. This is the sign of the Octopod. Its image is an octopus with its eight arms spread out, each tightly grasping a gold coin. Among those born under this sign are heads of privatised industries and many politicians.

**December** It is announced that Father Christmas has become a follower of the Maharishi. Santa, it appears, wants to scale down his reindeer operation by substituting yogic flying on short hauls. The reindeer, in the meantime, are trying to organise a management buyout with the senior elves.



Marjorie Mackintosh, an Art Historian by training, is an administrator at the Open University.

# Hunting for Spirits

Richard Wiseman

## Seeking ghosts in a 'haunted' pub

**N**OT WANTING TO SPEND large amounts of time at supposedly 'haunted' locations waiting, in vain, for something unusual to happen, I normally decline offers to investigate ghosts and poltergeists. However, the television researcher who called me recently explained that in the case whose investigation they wanted to film, the alleged ghost had already been captured on video walking in front of a security camera and opening a door. So, two days later I found myself on the 9.50 from Paddington to Neath.

There were five investigators in all: Tony Cornell (from the Society for Psychical Research), Lynn Picknett (a writer on the paranormal); Graham Wiley (an author of several books on haunted Britain), Tina Laurent (a medium specialising in electronic voice phenomena) and myself. We were a mixed bunch and had been chosen to illustrate the different ways in which an apparent paranormal phenomenon could be examined.

We were introduced to the case via a short news report made by the local television station HTV. On 4 July 1995 the proprietors of a seventeenth century pub in the centre of Neath had returned home to discover the fire door at the rear of the pub wide open. At first they thought that burglars had broken into the building. Luckily, a closed circuit television system had been installed a few months earlier and so they were able to wind back the video-tapes and review the day's events. Film taken by two of the cameras seemed to contain some remarkable footage.

One camera was positioned outside the rear of the pub and covered the back of the building (including the fire door that had been found open), a car park and the adjacent street. The film revealed that at exactly 16.28 the fire door had quickly swung open as if it had been pushed from the inside or pulled from the outside. The film, however, showed that there didn't appear to be anybody on either side of the door at the time of the incident.

A second camera was positioned inside the pub and covered the area between the front door and the bar. Thirty seconds after the door had swung open a pair of strange, ghost-like legs appear to walk through the front door and up to the bar. Just one second later the proprietors entered the pub, spotted the fire door and started to explore the premises.

The five of us set to work. Graham Wiley and Tina Laurent went to the pub to see if they could detect any psychic vibrations that might prove helpful (an account of Tina's investigation appeared in *Psychic News*, 2 De-



ember 1995). Lynn Picknett set off to interview the proprietors and check the details of the story. Tony Cornell and I were asked to try to duplicate the phenomena seen on the video-tape via non-paranormal means.

Our first trip to the pub revealed some interesting details that had been missing from the HTV report. First, we discovered that the fire door was very old and the bar holding it shut could only be lifted by us applying considerable force. There seemed almost no chance of the door opening by itself. However, we also noticed that once it had been pushed off its latch the door lodged against the doorframe. Once lodged, it only required a much smaller amount of force to cause it to rapidly swing open. This was important. When we looked again at the video-tapes we couldn't tell whether the door was properly shut or simply lodged against the doorframe. However, it didn't seem implausible that somebody may have opened the door the previous day, thought that they had shut it but had simply left it lodged against the doorframe. If this were the case then something as simple as a gust of wind or even the vibrations from passing traffic could have been enough to make it swing open.

There was one small problem with our theory. Earlier in the day the landlord had told us that the fire door was equipped with sensors that meant that the intruder alarm could only be set when the door was properly closed. However, when we searched the door we couldn't find these sensors. The landlord admitted that he had been mistaken. All the other doors in the pub were fitted with such sensors but the fire door wasn't and, as a result, the alarm could be set without the door being properly closed.

Next, we turned our attention to the ghostly pair of

legs that appeared to walk across the pub and up to the bar. The outer door of the pub was large, solid and didn't contain any glass panels. This outer door opened into a small, rectangular, porch area. One side of this porch (almost directly opposite the outer door) was a smaller inner door that led into the bar area. This inner door contained six clear glass panels.

To enter the bar one would first have to push open the large outer door and then pull open the smaller inner door. Time code on the film from the security cameras revealed that the 'ghost' had appeared at exactly 16.28 and the proprietors had arrived back one second later. Footage from the outside camera revealed that it was a bright day and that the sun was shining directly on the front of the pub. We wondered if our ghostly image was nothing more than bright sunlight being reflected into the pub via the two doors as they were opened and shut by the arriving proprietors.

To test our theory we arranged for the camera crew to rig up a strong light directly outside the pub. Next, we asked the landlord to wait outside the pub and come in when he heard us call him. We re-entered the pub, shut both the outer and inner doors behind us, turned off all the inside lights, called to the landlord and waited. When the landlord opened the outer door two rectangular strips of light were cast onto the floor of the pub. Next, as he opened the inner door and the outer one shut behind

him, the rectangular strips rapidly moved across the floor before fading into darkness. It was certainly a weird looking patch of light, but was it the same as the light that had been caught by the security camera?

Up to this point in time we had always been watching the security footage at normal speed. However, the following day we looked at each frame separately. The transformation was dramatic. When played at normal speed the image did resemble a ghostly pair of legs. However, when examined frame by frame the appearance of legs disappeared and were replaced by two strips of rectangular light moving horizontally across the floor.

The ghost of Neath had rapidly faded away. The fire door could have easily swung open through natural, as opposed to supernatural, causes. The 'ghost' itself had turned out to be nothing more than an odd reflection of bright sunlight through the pub's inner and outer doors.

The following day I caught the 16.30 from Neath back to Paddington. Back in London the taxi driver asked me what I had been doing in Wales. I told him I had been looking for some spirits in a pub but hadn't managed to find them. It was a quiet ride home.

**Richard Wiseman is a Senior Research Fellow in the Psychology Department at the University of Hertfordshire.**



# Fairy Tales for Grown-ups

Chris Willis

*Were there really fairies at the bottom of the garden?*

**I**N JULY 1917, two young Yorkshirewomen played a practical joke which was to have far-reaching consequences. Their photographs of themselves with 'fairies' were accepted as genuine by Sir Arthur Conan Doyle and were the subject of speculation for over 60 years, until the two women revealed the truth.

Elsie Wright was 16 in the summer of 1917. A former art student who had worked as a photographer's assistant, she lived with her parents in the village of Cottingley, near Bradford. Her 10-year-old cousin, Frances Griffiths, was staying with the Wright family for a summer holiday, along with her mother. Young Frances was repeatedly told off for coming home with her clothes wet after playing in a stream which ran through the woods near the Wright's home. When her mother asked her why she spent so much time there, she replied that she went there to play with the fairies.

Intrigued by her cousin's story, Elsie borrowed her father's camera one afternoon. When she helped her father Arthur develop the pictures she took, his first comment was, 'You've been up to summat' [1], for the first picture apparently showed Frances with five fairies. In September Elsie borrowed the camera once more, and Frances took a picture of her with a 'gnome'. Not surprisingly, Arthur refused to lend the girls the camera again.

The family regarded the photos as a joke until 1919, when both girls' mothers attended a Theosophist meeting in Bradford. The lecturer mentioned fairies, and Frances' mother, Annie, told her about the photographs, asking if they could possibly be genuine.

This was the heyday of 'spirit photography', a bizarre phenomenon in which unscrupulous photographers made large amounts of money by producing photographs of the sitter accompanied by an other-worldly 'spirit' or the 'ghost' of a relative who had died in the war. Popular knowledge of photography was limited at

this time, and most people did not know that such pictures could be produced by a simple double exposure. Many Spiritualists were led to believe that the camera could 'see' what the human eye could not.

Against this background, a wide range of people began to take Elsie's photos seriously. Eminent Theosophist Edwin L Gardner took up the case, and submitted the photos to several photographic 'experts', including

Kodak, who refused to give a certificate of authenticity, commenting that, 'they must have been faked somehow' [2]. In his eagerness to prove that the negatives had not been tampered with, Gardner ignored the possibility that it was the 'fairy' figures themselves which might be fakes. In June 1920 Sir Arthur Conan Doyle heard of the pictures, and wrote to Gardner asking permission to use them for an article in the *Strand Magazine*, and offering the girls money. They eventually received £20, a considerable sum in 1920. At this point, Doyle claimed to be 'on his guard' about the photos [3]. There was talk of getting Elsie to sign affidavits or swear on the Bible that the photos were genuine. Understandably, she



*Fairy offering harebells to Elsie*

refused to do either.

A supposedly clairvoyant friend of Gardner's, Geoffrey Hodson, visited Cottingley in July and August 1920 in the hope of seeing the fairies. Both Frances and Elsie later said they had enjoyed teasing Mr Hodson by taking him for woodland walks during which they pointed out non-existent 'fairies' – which he then claimed to have seen as well [4]. The young women produced three more 'fairy' photographs, all taken when no-one else was present. Gardner did not regard this as suspicious, believing that the fairies were shy and would not show themselves in the presence of an adult male [5]. Elsie later said that one of these photos took her by surprise. It was an unintentional double exposure and was so effective that even she could almost believe it genuine.

Doyle's article, accompanied by photographs, ap-

peared in the *Strand* in December 1920, prompting a cynical reviewer in *John O'London's Weekly* to remark that 'It is easier to believe in faked photographs than fairies' [6]. However, for years after the article appeared, Doyle and Gardner were inundated with letters from other people who also claimed to have seen fairies.

Both men were widely ridiculed for their credulity. One of Doyle's biographers comments that 'even those who had kept an open mind about spiritualism and Doyle's involvement in it were driven to speculation about Doyle's mental state when in 1920 he became the prime propagandist in the cause of fairy folk' [7]. Even the girls' own families were skeptical. Elsie later said that 'My poor Dad was very much disappointed in his favourite [*sic*] detective writer, Conan Doyle. I heard him say to my mother, "May, how could a brilliant man like him believe in such a thing?"' [8].

Doyle and Gardner both wrote books about the photographs. With belated caution, Doyle began his book by commenting that its contents 'represent either the most elaborate and ingenious hoax ever played upon the public or else they constitute an event in human history which may in the future appear to have been epoch-making in its character' [9].

The truth was revealed over 65 years later when an author, Fred Gettings, accidentally stumbled across almost identical pictures of the 'fairies' illustrating a poem in a 1915 children's book, *Princess Mary's Gift Book*, which by a strange coincidence also contained a story by Conan Doyle himself. Another illustration to the poem showed a young girl playing with a fairy, and may well have been Elsie's inspiration.

In an interview given to *The Times* in April 1983, Elsie then explained how she had produced the photos. Waiting until her parents were out, she had copied fairy pictures from the book and mounted them on cardboard. For the photographs, the figures had been fixed in place with hat-pins.

Why was Conan Doyle so easily fooled? In many ways, he was a victim of his own assumptions about age, class and gender. He told the eminent spiritualist Sir Oliver Lodge that 'two children of the artisan class' were incapable of such 'photographic tricks' [10]. He was wrong on all counts. Elsie, the prime mover in the hoax, was not a 'child': she was a young woman old enough to have children of her own, and had been earning her own living for some time. She was an artist, not an 'artisan', and the 'tricks' were later proved to involve no photographic skills whatever.

Doyle seems to have regarded intelligence and trickery as the prerogatives of middle class males, and was unprepared to find such attributes in two working-class women. He had not investigated the girls' backgrounds closely, and was unaware that Elsie had worked as a photographer's assistant until the *Westminster Gazette* gleefully revealed the fact in 1921 [11].

The fact that the girls were young and pretty undoubtedly helped the hoax. It was a commonplace of spiritualism that adolescent girls and young women were often 'psychic'. Victorian spiritualism abounded with personable young women who enjoyed lucrative careers as mediums, attracting a clientele who were largely middle-aged, middle-class and male [12]. Doyle was a victim



Frances and the leaping fairy

Mary Evans

of his own prejudices. Fortunately, not everyone was as credulous as Doyle and Gardner. One contemporary commentator, J E Wheelwright, put objections into verse [13]:

*If you, Sir Conan Doyle, believe in fairies,  
Must I believe in Mister Sherlock Holmes?  
If you believe that round us all the air is  
Just thick with elves and little men and gnomes,  
Then must I now believe in Doctor Watson  
And speckled bands and things?  
Oh, no!  
My hat!  
Though all the t's are crossed and i's have dots on  
I simply can't Sir Conan.  
So that's that!*

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Chris Willis is a writer living in London working on her PhD on Victorian detective fiction.

# Fraud in Physical Science

Tony Klein

*How science is not immune to deception and malpractice*

**M**ANY YEARS AGO, before the fall of the Evil Empire, a colleague from behind the Iron Curtain told me that doing research in Science is like chasing a black cat in a dark room. Philosophy, he said, is like chasing a nonexistent black cat in a dark room. And Marxist economics, he added, is like chasing a nonexistent black cat in a dark room and shouting 'I've got it, I've got it!'

I was reminded of all this by the cold fusion fiasco, back in 1989. The question is not why there were so many people chasing this particular black cat, which was fairly quickly found to be nonexistent, but why there were so many seemingly respectable scientists shouting 'I've got it, I've got it!' without properly verifying, in their own laboratories, what was, after all, such an overwhelmingly improbable result.

I say 'overwhelmingly improbable' because we know that from ordinary chemistry to extraordinary nuclear fusion there is a gap of about five orders of magnitude to be bridged between the size of atoms and the size of nuclei, and a gap of the same magnitude between the energy scales involved. Nevertheless, cold fusion was extremely newsworthy. Why?

Newsworthy ought to mean the same as having high information content and, to be strict about it, information content is inversely related to the probability of an occurrence: thus, the more improbable, the more newsworthy. So, cold fusion, having such a terribly low probability, must be very high on information content and hence be very newsworthy.

Whoa! There must be a fallacy here somewhere! 'Elvis is alive and well and living in Cuba'; 'World War II Bomber Found On the Moon', and so on. If it is known not to be true why should it remain newsworthy? I failed to get this point across to any of the media people who kept ringing me regularly at the height of the cold fusion furore.

Why, then, the many false claims? The original claims may have been just plain mistakes. They can happen to anyone and they do, even in science, with monotonous regularity. No great harm is done, there may be slight embarrassment, but reputations survive intact (unless stubborn refusal sets in, leading ultimately to unreason, levitation, Tarot cards, and so on).

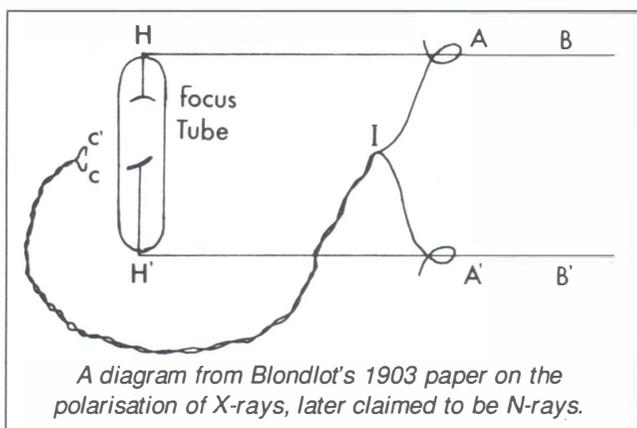
The point is that the truth will eventually out, and that is something that we must stress, over and over again, to our friends, neighbours and non-sceptics generally. There is, we hope, in science if not elsewhere, such a thing as Truth with a capital 'T'.

But what about the erroneous claims which corroborate the original mistake? One may call it the bandwagon effect, but naming it is not the same as explaining it. The lure of instant 'fame', one's name in the papers, and so on, surely cannot be all there is to it, but don't underestimate the subtle pressure of the media, and, for that matter, of society in general, ever on our tails to lay golden eggs: 'How come such a famous institution as 'Your University' has not yet been able to produce cold fusion? Where is all that research money we gave you?'

The only sensible explanation seems to be wishful thinking. All this is very well-documented in the history of science; almost all of us (if we are old enough) can recall cases of wishful thinking producing erroneous results or mistaken theories, each with its own peculiar history and degree of notoriety.

## The story of N-rays

Very seldom, however, do they reach quite the level of hysteria that characterised the cold fusion story. One instance that did is the famous case of N-rays. The year was 1903. The previous eight years had seen the discovery of X-rays, cathode rays, alpha, beta and gamma rays; it seemed that there were no end of rays! Then, a distin-



guished Professor of Physics and Member of the French Academy, Rene Blondlot, announced the discovery of a new type of ray which he called N-rays (after the University of Nancy). Supposedly emitted by X-ray sources, N-rays could penetrate many centimetres of matter and made themselves apparent by increasing the brightness of sparks jumping between pointed wires. They also made fluorescent screens glow, just like X-rays, with which they were sometimes mixed and confused. How-

ever, N-rays had all sorts of other bizarre properties: they could be shielded by iron but not by copper; they could be stored by ceramics, such as in bricks; they could be bent by metal prisms, and so on. Furthermore, Blondlot even had photographs to prove it.

Next, it was found that N-rays were emitted by all kinds of things, including the human nervous system – so you can start to get suspicious! Nevertheless, all over France, Germany and even England, scientists were falling over themselves in confirming Blondlot's results: over 300 papers by 100 scientists were published between 1903 and 1906. Blondlot wrote a prize-winning book on his researches – it was translated into English in 1905.

All along, however, many serious players had trouble in reproducing Blondlot's results. In particular, a noted experimental physicist from Princeton, R W Wood, crossed the Atlantic specially to visit Blondlot's laboratory. He was greeted cordially and shown various experiments, but, in all honesty, he couldn't see any of the supposed brightening of sparks or screens. What to do? Well, when Blondlot tried to demonstrate the bending of N-rays, Wood, the cunning old fox, took advantage of the darkened laboratory and swiped the aluminium prism from the middle of the apparatus! Blondlot continued to enthuse about the supposedly shifted spot of light, and Wood said nothing. Upon returning to the USA he wrote a devastating article, exploding the N-ray myth as a giant hoax or a very bad case of self-deception.

The moral of the story is that all human observers, however well trained, have a strong tendency to see what they expect to see. But what about the photographs? Well, Blondlot had a very helpful and obliging lab assistant who never failed to produce whatever was asked of him! To be kind, perhaps others had confused things with X-rays which definitely exist – unlike N-rays. Anyway, after Wood's denunciation, everyone dropped the subject with alacrity – everyone, that is, except the French, whose national pride was somehow involved. As for poor old Blondlot, who was so very keen to make a significant discovery, he was treated with great kindness and lived to a ripe old age, never wholly convinced of his error.

Another famous case, even more closely analogous to cold fusion, is that of 'polywater'. This was a strange, anomalous form of water, produced by condensing water vapour in fine quartz or even glass capillaries. It was reported to have a density of 1.4, a boiling point of several hundred degrees C and a viscosity similar to that of grease.

Originally discovered by an obscure Russian chemist in the early 1960s, it was espoused by the very distinguished Russian academician Boris Deryagin. With the aid of some helpful assistants who, presumably, did all the experiments for him, Deryagin somehow convinced himself of the reality of this strange substance and managed to infect British scientists with the idea in 1968. They thought that the anomalous water was something like  $HgO_4$  – a polymer – hence the name polywater. Polywater crossed the Atlantic around 1969; its supposed infrared spectrum was published by a respected American chemist, and an incredible bandwagon started rolling. Publication in the *New York Times* and other simi-



A WEEKLY ILLUSTRATED JOURNAL OF SCIENCE.

"To the solid ground  
Of Nature trusts the mind which builds for eye."—WORDSWORTH.

#### The $n$ -Rays.

THE inability of a large number of skilful experimental physicists to obtain any evidence whatever of the existence of the  $n$ -rays, and the continued publication of papers announcing new and still more remarkable properties of the rays, prompted me to pay a visit to one of the laboratories in which the apparently peculiar conditions necessary for the manifestation of this most elusive form of radiation appear to exist. I went, I must confess, in a doubting frame of mind, but with the hope that I might be convinced of the reality of the phenomena, the accounts of which have been read with so much scepticism.

After spending three hours or more in witnessing various experiments, I am not only unable to report a single observation which appeared to indicate the existence of the rays, but left with a very firm conviction that the few experi-

*R W Wood's article in Nature, 5 May 1904, in which he described his investigation of N-rays.*

lar non-scientific journals added great momentum to the story and pretty soon hundreds of papers and reports were being published on polywater.

One bizarre aspect of the polywater story was the claim that it may in fact be the stable form of water and all the ordinary stuff that surrounds us may turn into polywater if 'seeded' by a microscopic sample that may escape from the laboratory. (That turns out to have been the plot of 'Cat's Cradle', a Science Fiction story by Kurt Vonnegut, published in 1963). Another bizarre idea was that the water present in living cells may actually be polywater, a claim espoused by at least one Australian food chemist. ('Scientists' New Answer to Mystery Polywater', *Sydney Morning Herald*, June 1970). By that time, however, the bubble was well on the way to being burst ('Polywater? There's no Such Thing, Says CSIRO Man', *Sydney Morning Herald*, July 1970).

To cut a long story short, polywater turned out to be a giant false alarm, all of its strange properties being attributable to impurities: in some cases silica dissolved from the capillary tubes, in other cases perspiration from chemists' fingers. Read all about it in a very entertaining book by a noted authority on water (Felix Franks, *Polywater*, MIT Press, 1981). An interesting postscript about the credibility of Academician Deryagin: in the 1980s he announced the synthesis of diamond in tabletop apparatus! Everyone said 'Oh yeah? More Russian polywater?' Well this time, astonishingly, he was right: One can make thin films of diamond in a microwave plasma, and people are now doing it all over the world.

The rise and fall of interest in polywater, documented in Franks' book, is very similar indeed to that of Cold Fusion, except for the time-scale: e-mail and the fax machine speeded up communications by such a large factor that, while polywater lasted for several years, cold fusion, at its height, lasted only a few months (although some people thought – some chemists perhaps still think?

– that there may be some interesting electrochemistry left in what was supposed to have been cold fusion).

Other aspects are also closely parallel: an initial mistaken observation (in the case of cold fusion it seems to have been a hydrogen explosion); a strong wish to believe in the strange results; a very obscure initial publication; an almost immediate ‘me too’ from several laboratories – clearly fraudulent; feverish efforts in very many laboratories to try and replicate the experiment (I confess that in my department too, we had palladium electrodes in heavy water, surrounded by shielding and neutron detectors, in a basement lab, against my better judgement based on theoretical arguments). Then there were too-clever-by-half theories, purporting to explain things; phony claims; premature patent applications and then . . . silence. Cold Fusion died a fairly sudden death in the serious scientific community – it was left to cranks, electrochemists and cartoonists.

Of course, to be honest, I am rather sorry that this particular cat is nonexistent. It would have made a wonder-

fully bright table-top neutron source, at the very least, and possibly a good, clean energy source. (No, we don’t need cheap energy, we need clean energy).

I am, however, very glad that, to the best of my knowledge, none of my fellow Australian researchers were caught shouting ‘I’ve got it, I’ve got it!’ – at least not to my knowledge, although keen supporters of cold fusion still turn up from time to time. I heard one of them only last year, giving Australian physicists a serve for being so backward as to not be working on cold fusion – the hope for the future.

Mind you, that doesn’t mean that Australian physics has not had its share of false discoveries: around 1970 there was the noted Sydney physicist who thought he discovered fractionally charged particles in a cloud chamber experiment. Since fractionally charged quarks had recently been theorised, this discovery caused a sensation when it was announced at a conference in Budapest.

It didn’t last long: a perfectly reasonable explanation for faint tracks in cloud chambers was put forward to explain the evidence and other serious attempts to find fractionally charged particles (‘free quarks’) never did find any. (We know today that quarks are always confined in pairs or triplets, inside other particles). However, the Sydney Professor was so convinced of having been robbed of a monumental discovery, that he became completely unhinged after his short-lived fame and took up levitation, Tarot cards and the like. In fact, the Australian Skeptics short-listed his Tarot card experiments for the Bent Spoon Award for 1989.

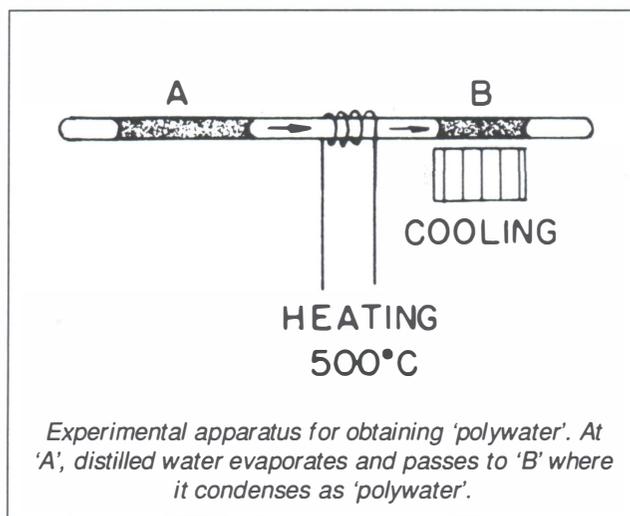
Another quite well-known instance of self-deception in Australian Physics was the case of the ‘tachyons’ discovered in Adelaide, by a young physicist who didn’t

know any better, together with an old one who should have.

Tachyons are particles which travel faster than the speed of light and are not supposed to exist, according to Einstein. However, some mathematical fiddling with the theory of relativity does allow a theoretical possibility for the existence of such particles but they would have very peculiar properties indeed. Anyway, the Adelaide team, after causing a medium-sized splash in the journal *Nature*, eventually found a silly instrumental error. After that, the Adelaide tachyon paper was actually retracted,

unlike the Sydney quark one. No great harm was done to anyone’s reputation but some wags were heard to comment that ‘a tachyon is a particle ahead of its time’.

There are countless other anecdotes about hoaxes, frauds or instances of self-deception (particularly in other fields of science), but I hope that one can draw the distinctions between honest mistakes and self-deception by scientists on the one hand and the crooks and charlatans of pseudoscience on the other, who appear to have



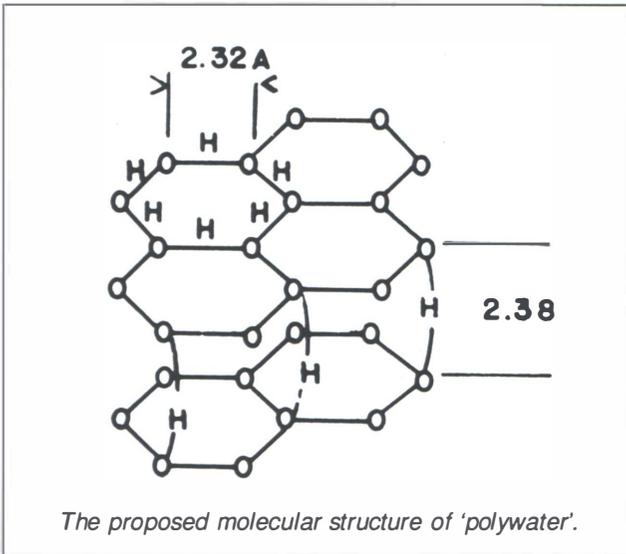
existed for a million years.

So, what conclusions can one draw from all these anecdotes? As usual, there are more questions than answers. One very important and complex question is: what is the effect of fraud on the scientific enterprise?

My answer is, that in the long term, the effect is precisely nil! Let me explain. Science is a complex self-adaptive system like human learning in individuals; like biological evolution, like the immune system in vertebrates and, perhaps, like computers generating strategies for games. All such systems are self-correcting or self-healing. Wrong ideas are eliminated; wrong facts are forgotten or actively ‘un-learned’; mal-adaptive behaviour leads to extinction; wrong strategies are eliminated. So, false science – whether the result of fraud or of honest mistake – will disappear in the long run. The trouble is that the time-scale is not defined – the run could be very long indeed. After all, some medieval superstitions, mal-adaptive though they are, survive to this day.

In science, while minor error may persist for quite a while, important things such as new discoveries can be accepted or rejected quickly. The replication of High Temperature Superconductivity and the failure to replicate Cold Fusion were both quite quick. An important lesson in this is that deliberate fraud is usually discovered quite quickly. Thus, in my opinion, fraudulent science is a very high risk operation compared, for example, with financial fraud.

As a scientist, you’d be mad to even contemplate fraud, although – paradoxically – if you are not worried about your scientific credibility, in other words if you are a charlatan or a pseudoscientist, you may get away with it for quite a while, especially if your publicity is good.



For while the scientists are the generators and perhaps the arbiters of scientific truth in our society, the gatekeepers of truth are often the publicists and the journalists. They can do a great deal of damage if they fail in their task because the publicity that is associated with falsehood detracts greatly from the impact of true science. On the contrary, false science can easily lead to antiscience. Thus, I think that the wilful purveying of falsehood and antiscience should be made a criminal offence.

Charlatans and quacks, in common with the perpetrators of scientific fraud, are guilty of what I would liken to well-poisoning – the misleading, polluting or derailment of impressionable minds. The betraying of truth – to echo the title of an influential book on the subject. Written by two journalists from the *New York Times*, William Broad and Nicholas Wade, *Betrayers of the Truth* (Simon and Schuster, 1982) concentrates on case studies of various crooks, (mainly in the biomedical area), who tried to profit from fraudulent activities.

Some important issues are well exposed in this book

including some of the thorniest ones upon which I have not touched so far. For example, why do people engage in fraud? Put very simply, it is a conflict between the dual goals that most scientists have. The advancement of science on the one hand and the advancement of self, on the other. However, given the very high risk of exposure, the very high probability of comeuppance that scientific fraud has, I tend to think that it is more a question of psychopathology than of morality that is involved. It's more of a case of mad than of bad!

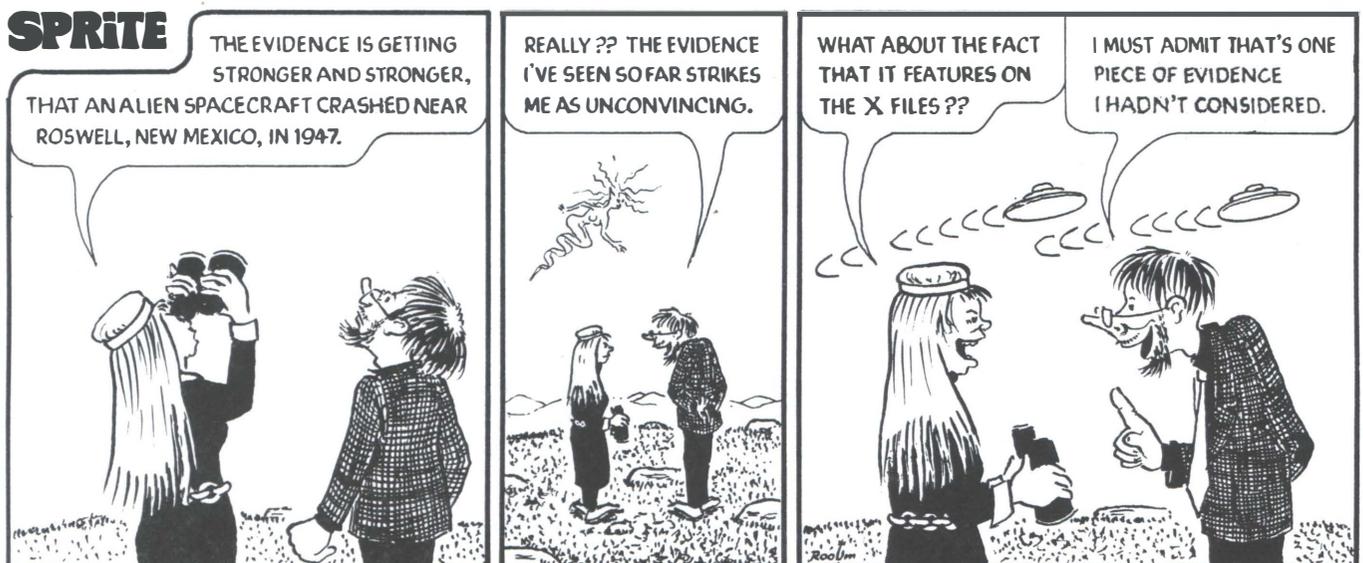
Falsehood is of no practical value – it doesn't work. If levitation worked we wouldn't need cranes! Nevertheless, new falsehoods are invented daily. Why? This, to me, is one of the most interesting questions: why do false doctrines arise and why do they persist?

A grand old charlatan of the 16th Century, a Swiss quack by the marvellous name of Theophrastus Bombastus Paracelsus von Hohenheim – Paracelsus for short – who may be regarded as the last of the alchemists (or the first of the chemists because, in fact, he carried out a great deal of systematic experimentation) is on record as having said that 'Humanity wants to be deceived'. This means that there will always be a lucrative market for soothsayers, astrologers and other such charlatans: people need their form of quackery for reassurance.

Perhaps even more to the point is George Bernard Shaw who, in one of his plays, I think, says that: 'What people want is not truth but certainty'. Thus, while we scientists struggle to reach better and better approximations to the truth, we may be beaten to the draw by false prophets who offer certainty. Nevertheless, we must have faith: truth will out in the long run!

*This article is based on a talk given the the author at the 1995 Australian Skeptics convention, and is reprinted here with kind permission.*

**Tony Klein is Head of the School of Physics at Melbourne University, Australia.**





# Psychic Diary

Toby Howard

## *It's just a phase he's going through*

**I** HEARD RECENTLY that Robert Monroe had died. Monroe was an idiosyncratic pioneer of out-of-the-body experience (OOBE) research, and a major catalyst of my interest in the paranormal. If it were not for Monroe, I doubt I would today be co-editing *The Skeptic*. I may even have turned out to be a New Ager, although – I would hope – a relatively sober one. Nevertheless, I shudder at the thought, and owe Monroe a debt.

I was 13 years old when I spent my week's pocket money in W H Smiths in Birkenhead, on Monroe's paperback *Journeys Out of the Body*. I still have the book. It's just about in one piece, but the pages now are smelly and brown. Until I heard of Monroe's death I hadn't looked at it for years. To read it today, I find it an interesting psychological study. But in my impressionable youth, it was much more.

Having devoured books on the paranormal ever since seeing – at age 9 – a 'UFO' over Bidston Moss (which with my 30-something wisdom now seems to have been a helicopter or marsh-gas) I spent many hours after school lying down following Monroe's instructions for achieving an OOBE of my own. To my eternal regret I never did go out of the body, but I *did* experience a whole lot of mental and physical states he didn't describe in his book. On reflection, perhaps adolescent hormones were to blame. At least there weren't any poltergeists.

But I was disappointed, if only because Monroe was so precise in his description of the methods for accessing the astral world. He gave a set of mechanical procedures for body and mind, as if you were learning to do something rather mundane, like assuming the Lotus Position or erecting a tent of unfamiliar design.

Also convincing was the fact that Monroe described the astral world in great detail, dividing it into three regions with quite different properties, calling them 'Locale I', 'Locale II' and 'Locale III' respectively.

Locale I, according to Monroe, is our ordinary world. The astral body leaves the physical body behind, and floats around the world, seeing the usual objects, visiting the homes of friends or loved ones, and so on. Experimentally testable, and not too far-out.

In Locale II, things begin to get a bit scary. This is the region of demons. As Monroe left his body he would be hassled by nightmarish beings grasping at his astral self, impeding his progress and generally making things quite unpleasant. He stated, however, that Locale II was the 'natural environment of the Second Body', where thought translates directly to 'bodily' motion.

Locale III is perhaps the strangest of all, described by

Monroe as a kind of pseudo-Earth which 'proved to be a physical-matter world almost identical to our own'. But things were just a bit different: 'There are no electrical devices whatsoever'. The transport there includes a steam-driven locomotive that sounds like a cross between an American motor-home and a High-Speed Train, which hauls wooden cars; and automobiles twice as wide as their Earthly equivalents, which drive along huge roads at a puzzlingly sluggish 15–20 mph.

After several visits to Locale III, Monroe discovers an inhabitant who is his doppelganger. Monroe involuntarily takes over his double's body, and embarrassment and confusion ensue, often involving 'Lea', the Locale III woman with whom the 'other-Monroe' becomes romantically attached. Even at age 13 I was now beginning to get a bit suspicious . . .

At this point the skeptical reader may have one of two alternative viewpoints in mind: (1) Monroe is indeed exploring the stranger parts of our universe in his astral body; or (2) He's been reading too much Sci-Fi and not getting out enough. For me, the kid handing over all his pocket money in Smith's, explanation (1) was the hot ticket. I was amazed, excited, and frightened. I followed Monroe's instructions to the letter, desperate to replicate his experiments, and leave my body, floating upwards to Locales I, II, III – and perhaps beyond. As I lay in bed practising the exercises of Chapter 16, I visualised the vibrations I was supposed to feel, and tried to pull them into my head as Monroe suggested. Nothing.

I tried hard, for what must have been three or four months. No-one knew of my late-night experiments, and no-one knew of their failure, and my frustration.

Thinking back, and re-reading sketchy diaries from the time, I see that my attitude changed rapidly, and skepticism began to look like a more attractive proposition. I had followed Monroe's detailed instructions to the letter, but I had failed to replicate even *one* of his results. That Locales I, II and III had any existence beyond Monroe's sleeping and waking dreams, began to look increasingly implausible.

The months passed, and I soon forgot about Monroe, instead concentrating my teenage energies on trying to play the guitar parts from Pink Floyd's *The Dark Side of the Moon*. As with Monroe's OOBEs, I didn't succeed, but at least I knew that it was actually *possible*, even for my decidedly physical, and rather clumsy, fingers.

**Toby Howard** is a lecturer in computer graphics at the University of Manchester, and a freelance writer.

# Skeptic at Large

Wendy Grossman



## Tennessee madness

**W**ELL, THIS MONTH, there's good news and bad news. The good news is that the Tennessee legislature is *this* far from passing a bill which will require science teachers to explain that evolution is 'only a theory'. The bad news is that I think I'm psychotic. Maybe I've got those two things backwards.

The psychosis is easy to explain. I'm writing an article every three days, my personal life is a disaster area, I haven't had a vacation since Christmas of 1994 (vacation being defined as a time when you don't have to do anything but lie around playing silly games and watching trashy talk shows), none of the projects in which I place hope for the future is getting tackled, or even thought about, I'm spending too much money, and I'm in a daily panic from discovering that all the fragments of my past lives are raining down on CompuServe. I am in a continual state of conviction that the earth is about to crash in and take me with it. But there's hope: I'm alienating editors so fast that by the end of next month I should have all the vacation I can use. Er . . . where was I?

Oh, yes, Tennessee. You may remember Tennessee as the state where the Scopes monkey trials were held. If you don't remember those, they were immortalized in Jerome Lawrence and Robert E Lee's 1955 play 'Inherit the Wind'. Check out the video of the movie.

My friend Barbara, in Kentucky – I was visiting her and trying to have a four-day vacation last week, but things went wrong because I kept sending psychotic copy to an editor who became increasingly alienated, resulting in my spending the entire vacation either writing or storming around the house banging on the walls – takes this Tennessee business as evidence of the poor understanding of science by most people. If they understood science, she reasons, they'd have some notion that evolution is really not about whether we're descended from monkeys, but about the changing of the planet's flora and fauna over time. The religious right who object to evolution, she goes on, don't understand the extent to which the ideas in evolution are inextricably intertwined with the sciences of geology, chemistry, biology, and archeology as we know them.

I'm sure she's right, but don't take my word for it – my judgement's shot. She, like me, is an Easterner in US terms, but she's been living in Kentucky for six years

now and has had the dubious pleasure of substitute teaching in the same local schools her daughter is now attending. We could try picking out things to blame for this – the talk shows are a nice target – but the fact is that there's unlikely to be a single cause. There's the tendency of the media to opt for subjects that can be easily understood, both by them and their audience, rather than doing the work to explain difficult concepts. There's the coming of the millennium and the mounting insecurity both from that and, more importantly, from the 1960s and 1970s rejection of community standards and apparent certainties. There's the influence of the religious right, itself a backlash against the permissiveness and loss of structure of those decades. There's even the American

sense of politeness, which requires us to pretend that all points of view are equal, or at least equally valid and important.

But what happens now? If the bill passes, it will open many science teachers to prosecution. Will Tennessee really go after these guys? Or is the hope that the existence of the bill will automatically get them to steer clear of topics that might fall within the meaning of the act? Some of you by now will be thinking that Tennessee must be full of supremely stupid Americans. I can't stop you; anyway, it seems to be trendy in Britain to make fun of the ignorant Americans. I personally find it shocking that a country whose biggest growth industries at the moment are related to science and technology, that landed a man on the moon, and in which all sorts of breakthroughs from the disk drive to the scanning tunnelling microscope were made could also be the site of such a piece of legislation. But those things happened in other states, and I guess Tennessee figures its citizens don't really need those sorts of jobs.

Of course, there is an alternative explanation. I hesitate to put it forward, but it came originally from a New York City friend of mine. He said this: 'When you listen to country music for more than about 45 minutes, you can feel yourself getting stupider'. Well, you do the math. Nashville's the home of country music. Nashville's in Tennessee. That must be it. Come to think of it, I also love country music. That's got to be it. At least, that's the story I'm going to tell my editors, and I'm sticking to it.



**Wendy Grossman** is the founder of *The Skeptic*, and a writer and folksinger.

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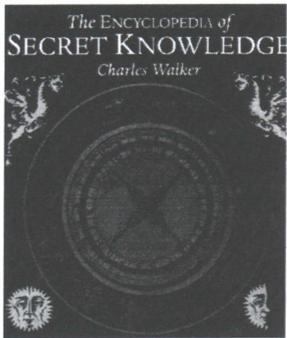
# Reviews

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## Giving away the secrets

Charles Walker, *The Encyclopedia of Secret Knowledge* (Rider, hardback, 216 pages, 1995, £16.99)



This book has an intriguing title. What is this secret knowledge? And aren't we lucky to have to read only 216 pages to gain an encyclopaedic grasp of it?

The 'secret knowledge' in question is the occult. Until recently, this knowledge was only available to initiates into one or other of its many branches.

For the most part, Walker's book lives up to its title. It is an encyclopaedic survey of the occult, divided into four main sections on the occult world, witchcraft, magic and divination. A long introduction covers occult ideas and symbolism.

Certainly the book is a nice one to own. It is in a large format, and is well printed on good paper. There are pictures on nearly every page, some of them beautifully coloured. In the sections concerning the modern occult, many of these pictures include 'sky-clad' (naked) young ladies doing serious rituals.

The book is very well written, pulling together a mass of influences and ideas. There is a good keyword index, with over 900 entries. As a result, the book can be read two ways, either cover to cover, or by looking for entries on particular topics. It is easy to learn the difference, for example, between a talisman and an amulet, or between natural and Enochian magic.

With a few exceptions, Walker is almost completely uncritical of the hundreds of ideas he describes. The European witch-hunts come in for some criticism. The Tarot is shown not to be an ancient method of divination. Apart from that, almost anything seems believable in this book. Walker informs us that alchemists have long known how to make gold. Apparently Ferdinand III of Nuremberg had a medal struck from such magic metal. We also learn that the Emperor Nero went mad because he insisted on receiving occult knowledge without being properly prepared: it drove him mad.

Skeptical snorts of derision are probably being heard all over the country by this time. Where is the evidence for all of this? And that is the most maddening part of the book: there isn't any. Walker does not quote his sources nor give references for the claims he makes. He simply makes statements and moves on. There isn't even a bibliography at the end.

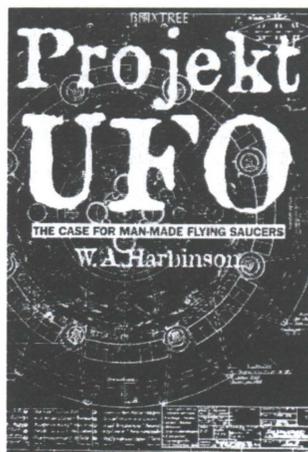
Perhaps these complaints are a little unfair, as this is plainly a coffee-table book. For your money, you get a good-looking, well written volume with credulous accounts of hundreds upon hundreds of occult ideas, arranged roughly into streams of thought and backed up with a good index. You get hundreds of attractive pictures (not forgetting the sky-clad young ladies). You do not get the means for making a serious study of occult claims, nor do you see much evidence for the statements made.

Personally, I am happy to have a copy of this book on my shelves. It will make a useful reference work. However, its uncritical approach and the lack of any possibilities for further reading would make me reluctant to actually pay for it.

— Martin Bridgstock

## Pie in the sky

W A Harbinson, *Projekt UFO: The Case for Man-made Flying Saucers* (Boxtree, hardback, 264 pages, £16.99)



This book begins with the most extraordinary admission. The author tells us that he carried out no interviews, either of sceptics or believers, in researching it, relying instead entirely on published material. This he did 'in order to avoid the prejudices and misinformation of those with vested interests'. Now I was very puzzled indeed by this. Is the author really suggesting that those who write books on any subject don't have a vested interest?

The author's main premise is that flying saucers exist, and have been secretly in production for many years, built by Nazi refugees in a secret Antarctic base. Somehow the US, the Soviet Union and the Canadians are also involved, though he never fully explains how.

What, then, is the evidence? Well apparently it all started when the Nazis began using 'Foo Fighters' or 'Feuerballs' in 1945. These, he tells us, were unmanned craft which were radio controlled from the ground, though later he contradicts this by claiming that they were 'attracted to the aircraft's exhaust fumes'. The Germans then constructed massive underground bunkers in the Antarctic using slave labour in order to manufacture more sophisticated machines. As evidence for the Germans' capability to build these, the author cites huge

underground complexes at Peenemunde and other sites in Germany and Austria, though he passes over the difficulties that would be involved in secretly building such places in totally hostile environments whilst fighting a war on two or more fronts.

The Roswell incident naturally finds a place in his narrative, Mr Harbinson's main source of information being Charles Berlitz and William Moore. But there's a new twist. We are asked to believe that the pilots of the crashed spacecraft were robots or, more probably, cybernauts (half organic, half robot). These are easily created using modern technology, we are told. After all, back in 1967, someone called Vance Packard wrote that 'By switching [patients'] heads . . . only a few connections need to be severed and then re-established in the neck of the recipient body'. I wonder what a neurosurgeon would make of that statement?

Harbinson's argument is then simple. If we had the technology to create the 'Foo Fighters' in 1945 and the ability to transplant heads in 1967, imagine how far advanced we are now. Of course the Powers That Be don't want us to know what's going on, so no need to do any research to find out if any of this is true, because They wouldn't tell us anyway. For students of paranoia, Mr Harbinson would make a wonderful case study.

Needless to say, the pseudoscience in the book abounds. One saucer which crashed in Spitsbergen in 1952 had ' . . . a radio piloting transmitter with a nucleus of plutonium transmitting on all wavelengths with 934 hertz, a measure that was then unknown'. There are also ' . . . supersonic interstellar ships powered by cosmic energy' (even someone with my schoolboy knowledge of science knows that anything travelling in the vacuum of space must be supersonic by definition). Later he tells us of gravity shields that would make the UFOs 'virtually massless'. Massless? Sorry Mr Newton. Better take another look at those theories of yours.

This is a very silly book, which spends half its time reiterating the unproven and unfounded theories of UFO writers and the other half propounding daft ideas without anything but the most circumstantial evidence. If you are into conspiracy theories, then this book might interest you. Otherwise, forget it.

— Mike Walsh

## It's no joke

Mission Control and Zoev Jho, *E.T. 101, The Cosmic Instruction Manual for Planetary Evolution* (Thorsons, paperback, 1995, 126 pages, £4.99)

Beware of books with bogus blurbs:

*E.T. 101 is one of the wittiest books I have read in a long time. It is also one of the most profound.* — Peter Russell, Author of *White Hole in Time*

Who are they trying to kid?

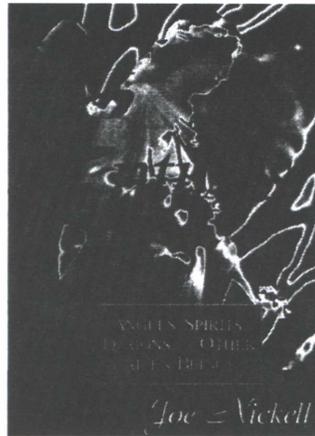
The joke palls well before the 128th page. I won't tell you what the joke is in case I spoil it for you, but the title pretty much says it all.

There's lots of SF stories which have done it in a more original, succinct and, above all, humorous fashion. Or maybe my genetic coding for humour has just suffered a trans-dimensional shift today.

— Vicki Hyde

## Realm of strange beings

Joe Nickell, *Entities: Angels, Spirits, Demons, and Other Alien Beings* (Prometheus Books, 1995, hardback, 297 pages, £21.00)



In this book, Joe Nickell, a CSICOP Fellow, has provided an excellent guided tour of the realm of those strange beings which, even in modern times, are the subject of hotly disputed claims. Depending upon their nature, the 'entities' which Nickell discusses may demonstrate a range of alleged behaviours from, at one extreme, saving humans from imminent danger or bringing beneficial messages from other worlds to – at the other extreme – scaring the living daylight out of their victims or even attacking or abducting them. Others, such as the Loch Ness monster, show no great interest in humans at all. Despite popular belief to the contrary, the evidence that such beings actually exist is typically flimsy at best and Nickell, with his wealth of knowledge and experience, is the ideal person to illustrate this.

The book is divided into three parts. Part one deals with spirits, including ghosts and poltergeists. Part two considers such theological beings as demons and guardian angels. The final part assesses claims relating to extraterrestrial contacts, monsters, and fairies. The numerous examples of actual cases provided in the book are fascinating. In many instances, the cases were investigated first-hand by Nickell and his colleagues, one of whom, psychologist Robert A Baker, has provided the book with an 'Afterword' discussing the range of psychological stressors that can induce hallucinations.

A number of common themes emerge across the book as a whole. In many instances, claimants are sincere in their belief that they have had some kind of contact with an unusual entity of some kind, but careful investigation reveals a more plausible non-paranormal explanation. This is often the case with respect to claims of hauntings. The psychology of such situations is such that expectations play a decisive role. Once it is accepted that a location is haunted, even slightly unusual occurrences are explained in terms of 'the ghost'. Psychological factors can be important in other ways too. For example, Nickell rightly places great emphasis in accounting for contact experiences upon the part played by hypnogogic and hypnopompic hallucinations (i.e., the imagery experienced in that strange state between sleep and wakefulness). Another common theme is that of hoaxes, many of which will be familiar to readers of this publication, such as the Amityville Horror and the Cottingley fairies.

In the vast majority of cases, Nickell's sceptical accounts are convincing. The most outstanding exception to this is his dismissal of the Marian apparition at Knock in 1879 as 'merely some kind of optical illusion' resulting, in some unspecified way, from the weather conditions. I find the possibility that the Marian apparition

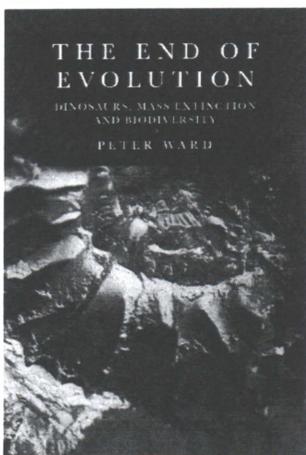
was a deliberate hoax produced using a 'magic lantern', as argued by Nicholas Humphrey and others, far more plausible. Another minor irritation with the book is that Nickell often repeats at considerable length details of investigations already fully presented in his previous books. I felt that such cases, while clearly relevant, should perhaps have been given more summary treatment, with the reader referred to the earlier works for details.

However, such complaints are merely nitpicking. Nickell, as usual, has provided an eminently readable and invaluable work which belongs on the shelf of any well informed sceptic and, even more so, on the shelf of any poorly informed believer.

— Christopher C French

## Evolutionary thoughts

Peter Ward, *The End of Evolution: Dinosaurs, Mass Extinction and Biodiversity* (Weidenfeld and Nicolson, hardback, 290 pages, £18.99, 1995)



By mass extinction is meant that a large number of species are extinguished in a (geologically) short period of time. About fifteen mass extinctions are known to paleontologists. Some of these events are believed to have wiped out as much as half of the world's species. Peter Ward has singled out two of the largest of these mass extinctions, which he calls the 'first event' and the 'second event'. They occurred 245 and 65 million years ago, respectively. The second event is the one that killed off the dinosaurs, and it is also believed to have wiped out at least half of the other species then on earth.

Most of the book is devoted to reflections and discussions on the causes of these two major events in earth history. There are too many digressions for my taste, but some parts of the book are really good popular science. This applies in particular to Chapter 6, which tells the story of recent scientific discoveries and debates on the extinction of the dinosaurs.

Ward puts more emphasis than most of his colleagues on the multicausal nature of the two events. According to him, they were both caused by several factors, including climate change and a sudden change in sea level. But the culmination, at least in the case of the second event, was one or more large asteroids or comets that crashed into the surface of the earth.

The last part of the book is devoted to what Ward calls the 'third event' – the currently ongoing mass extinction. He is anxious to point out that the current extinction is not of recent origin, but has been going on for a couple of million years. Many species have been lost due to the perturbations of the Ice Ages during the last 2.5 million years. Furthermore, many species have

been lost when humans settled on various continents. The migration of humans to Australia about 35000 years ago coincided with the extinction of a large number of species, in particular large mammals. Similarly, about 11000 years ago, when humans first came to the American continent, two thirds of that continent's larger mammals died out.

Hence, the widespread belief that so-called primitive peoples live in harmony with nature seems to be much exaggerated. There are also other indications of this. Ward reports that each of the feather capes worn by the traditional Hawaiian monarchs required the feathers of 80 000 birds. 'These capes 'surely pushed more than one species to – or over – the brink of extinction'.

But of course modern technological civilization gives rise to much more serious threats to biodiversity, such as man-made global warming. Ward points out a parallel between the second event and the ongoing third event. The second event, that put an end to the dinosaurs, seems to have started with global warming caused by gases emitted from volcanos. The calculated volumes of gas are roughly the same as those emitted by mankind today.

Hopefully we can learn from history, and not only from human history.

— Sven Ove Hansson

## Natural reflections

Stephen Jay Gould, *Ever Since Darwin* (Penguin Books, 1995 [original 1991], paperback, 285 pages, £7.99); Stephen Jay Gould, *The Flamingo's Smile* (Penguin Books, 1995 [original 1991], paperback, 476 pages, £8.99)

Why take on two reviews at the same time?, you may ask. Well both books may be treated as one, is the answer, where each may claim descent with modification of subject matter, from a common ancestor – namely Stephen Jay Gould's reflections in natural history. Each book contains a series of essays which originally appeared in his monthly column 'This View of Life' for *Natural History Magazine*. All the essays form a chain, forged with the common link of evolution by the theory of natural selection – where 'natural selection is the creative force of evolution'.

In order to grasp Darwin's magnificent unifying concept (co-discovered independently by Alfred Russell Wallace) which is 'simplicity itself', Gould lists in the prologue to *Ever Since Darwin* the three concepts and the two corollaries to the third, which together are the essence of the theory of natural selection. He then discusses, briefly, their meaning and highlights the philosophical implications of Darwin's theory that make it such a bitter pill to swallow for many.

Gould's brief discussion therefore provides the uninitiated reader with a set of criteria of some explanatory power with which to analyse, interpret and evaluate the seemingly apparent contradictions, paradoxes and enigmas that plague an inquiring observer of the material world. Thus both books deal with nature's oddities and conundrums from the Darwinian perspective and it is in those essays that the explanatory power and sheer beauty of natural selection is most evident.

Nothing is excluded from Gould's scalpel, when we are taken on a roller-coaster ride through the anatomy of natural selection. For example, in both books under the section headed 'Darwiniana', we see issues and principles that arose from Darwinism illustrated through a kind of historical detective work of Darwin's puzzling behaviour and discussion of the way he faced certain dilemmas. Although both sections use similar methods of illustration each has a different theme derived from that of the particular book. *Ever Since Darwin* is more generally concerned with the fundamentals of evolutionary theory and their political implications as a 'world view' whereas *The Flamingo's Smile* is generally about how, as Gould puts it, 'life is the product of a contingent past, not the inevitable and predictable result of simple, timeless laws of nature'.

So, both books provide the reader with a broad overview of evolution – biological, geological and social. I deliberately have not described the particular subjects of the various essays because such an eclectic mix would require more than space allows.

I read the originals when they first appeared in print and upon perusal they still entertain, inform and educate. Gould has a marvellous, witty, almost anecdotal conversational style which I found a pleasure to read. One more point: these books are the first and fourth, respectively, of a series. Each has a comprehensive bibliography and index and a prologue which serves to tune the reader for delights to come. For other skeptical inquirers who wish to be further educated, enlightened and entertained, both books are highly recommended.

— Michael Stanwick

## A flawed classic

Richard Maurice Bucke, *Cosmic Consciousness: A Study in the Evolution of the Human Mind* (Arkana, 1995, first published 1901, paperback, 384 pages, £7.99)

Did you know the origin of the phrase 'Cosmic Consciousness'? I didn't, until I read this reissue of the 1901 classic.

Bucke grew up on a farm in Canada in the 1840s. At 17 he left to travel the States and, after terrible hardships and injuries, put himself through medical school, studied in Europe, and finally returned to Canada to practice medicine and psychiatry.

He was deeply affected by the poetry of Walt Whitman, and used to meet with friends to read Wordsworth, Shelley, Keats and Browning. Driving home one night, in a hansom cab, he found himself wrapped around by a flame-coloured cloud, and propelled into a typical mystical experience, with a sense of great intellectual illumination and bliss – and from that a conviction that all the universe is ordered for the best and that the soul of man is immortal.

His experience inspired him to study the stories of other great men and eventually to put together Cosmic Consciousness. His thesis was (and I am reminded of Ken Ring and John Mack, for whom NDEs and alien abductions are signs of coming enlightenment) that there are several levels of consciousness. A few men achieve the highest, cosmic consciousness, and the number of them is increasing. The book is basically the stories of

these special men (and yes, he is utterly sexist throughout, with only a couple of women being mentioned).

The special men include Gautama the Buddha, Jesus Christ, Paul, Plotinus and Mohammed; as well as great writers or artists like Dante, Blake and Francis Bacon (who entered into cosmic consciousness at about the age of 30 and immediately began writing the 'Shakespeare' sonnets).

Bucke's thesis is clearly deeply flawed. Presumably the list consists almost entirely of men and with more in recent decades, because those are the ones he could easily read about. However, I thoroughly enjoyed reading it, I appreciated his real insight into mystical experiences, and am glad to know at last where the famous phrase comes from.

Oh – and skeptics might enjoy some of his predictions for the future. He believed that, with the invention of 'aerial navigation', national boundaries would disappear, language differences die out, cities no longer be needed and, with the advent of Socialism, everyone would live together without crowding, hardship or toil. Oh dear.

— Susan Blackmore

## Another side to the triangle

Larry Kusche, *The Bermuda Triangle Mystery Solved* (Prometheus, 1995 [original 1975], paperback, 302 pages £14.50)

This is not a new book. It was first published in 1975, and has now been republished by Prometheus with an updated foreword. Full marks to Prometheus. This is the sort of book that should not be allowed to go out of print, since the painstaking research done by Mr Kusche makes an important contribution to the debunking of the Bermuda Triangle myth and it deserves to be read by a new generation.

The subject is covered in chronological order. Each occurrence attributed to the Triangle is taken in turn, and given a chapter of its own. The chapter sets out the story according to the legend, after which the available evidence is offered. Much of this evidence is in the form of contemporary newspaper reports. The author allows the story to unfold as it would have done at the time, adding his own comments where appropriate. Information from other sources such as shipping agencies and coastguard reports is also used to try to give as full a picture as possible.

In the main (if you'll excuse the pun) those losses that actually occurred within the Triangle (most didn't) are shown to have occurred during bad weather, a fact that

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*The Sceptic*, a bimonthly newsletter within British Mensa Ltd, which exists for all non-religious individuals, whether Agnostic, Atheist, Humanist, Rationalist, Secularist, Ethicist, etc. Our newsletter elucidates all naturalistic philosophies and combats dogmatism in all its forms. For details contact Paul T Bell, 29 Barnstone Street, Hexthorpe, Doncaster, South Yorkshire DN4 0ET.

the Triangle's fans invariably omit to mention. The book also chronicles other ways in which evidence was ignored by believers. In fact, in some cases the author fails to find any evidence that the ship that supposedly disappeared even existed. One of the most extraordinary cases cited involved Bill Verity, an experienced mariner who, the legend tells us, disappeared in the Triangle in 1969. The author had a simple answer to what happened in this case. He rang up the very much alive Mr Verity and asked him! Not everything can be explained this simply, however, and in the few examples where there is no clear-cut answer to what happened, the author readily admits it, simply putting forward what hypotheses exist.

Mr Kusche performs another useful service in pointing out how writers about the Triangle, as with so many other areas of pseudoscience, use one another's material for reference; seldom, if ever, carrying out any real research for themselves. Thus apparently carefully researched work with impressive bibliographies can be shown to be no more than the repetition of tired old myths.

Unfortunately the style makes the book a somewhat disjointed read, so that I found my concentration wandering at times. That having been said, this style gives an ideal opportunity for the reader to 'dip in' and, when debating the existence of the Triangle, this book would be an invaluable companion in arguing specific cases.

At the end of the book, the author touches on two other 'mysteries'. The Japanese 'Devil's Sea' (which turns out to be virtually unknown in Japan) and Ivan T Sanderson's 'Vile Vortices' theory. I wasn't at all sure if this was a good idea, though, since in both cases too little space is allocated to justify their inclusion.

In conclusion, then, the book is a comprehensive examination of the so-called mystery of the Triangle. For anybody interested in the Bermuda Triangle and similar nautical myths, this volume will be an essential addition to their bookshelf.

— Mike Walsh

## Life after life

Sue Carpenter, *Past Lives: True Stories of Reincarnation* (Virgin, 1995, paperback, £4.99, 250 pages)

The majority of this book is taken up with twelve case histories of persons who believe themselves to be reincarnated. The case histories are largely unverifiable from the details provided and appear, to this reviewer, open to more prosaic explanations than the survival of the soul or spirit through many generations of people, animals, insects and aliens. Arguments for and against reincarnation are provided in the introduction.

The main argument for the belief appears to be its popularity. We are informed that more than half the world's population believes in a form of reincarnation. Yet this popularity involves a diversity of opinion concerning reincarnation which undermines its attractiveness. We are reincarnated as members of the same clan (Aboriginal), interesting people (New Agers), animals (47 African tribes), insects and extraterrestrial beings (a Dr Rossetti) amongst others. There is no consistent view of what reincarnation actually involves and some of the

options may not appeal.

A second argument is the appeal to celebrity. On pages 28 and 29 we have more than 30 references to the believing great and good. These include Gary Glitter who, having regressed to a woman in the time of the pharaohs, remarks 'Maybe I'll come back as a woman next time'. Possibly, but hardly a compelling argument. The proposition 'The famous and very clever believe in reincarnation therefore it must be true' is invalid.

A third argument is the charm of the idea that we are, in some sense, eternal. The idea of death and extinction is 'bleak and untenable to many minds'. Presumably, then, eternal existence is a Good Thing giving believers something to look forward to. But is this the case? Buddhists view reincarnation as a curse lifted only by Enlightenment in the extinction of the Self. Hindus hold beliefs in both reincarnation and pre-determination. Therefore, for some, eternity means being a recycled and helpless onlooker, destined to behave badly and have yet another bad time in the next life.

The author does review certain arguments which could account for people's beliefs without invoking reincarnation. Examples include imagination, telepathy, spirit possession and composite memory. With the exception of the first, all of these seem as problematic as reincarnation.

Many people who hold a belief in reincarnation are doubtless sincere and their sincerity ought to be respected. However, the move from being sincere to the claim that reincarnation is 'true' is not supported by the evidence or arguments in this book. The fact that millions believe in reincarnation doesn't make reincarnation a reality.

—Dave Unsworth

## SKEPTICAL CONTACTS

### UK Skeptics

*Committee:* Susan Blackmore, Steve Donnelly, Wendy Grossman, Ian Rowland, Chris Nash, Mike Howgate, Richard Mather, Michael Hutchinson.

*Contact:* 10 Crescent View, Loughton, Essex, IG10 4PZ, 0181 508 2989.

### London Student Skeptics

*Convenor:* Bill Harman  
21 Manville Road,  
London, SW17 8JW.

### Wessex Skeptics

*Secretary:* Martin Hempstead  
Optoelectronics Research Centre  
Southampton University, Highfield  
Southampton, SO9 5NH.

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# Letters



## Alien picture shocker!

I am writing to express my considerable alarm and concern at the appearance of the ghoulish apparitions at the head of pages 4, 20 and 21 of issue 9.6 of *The Skeptic*.

Are these fake photographs of extraterrestrial beings, or have you unearthed some Frankenstein-like examples of weird genetic mutations? Either way, would you allow these monstrosities to be seen by your children?

Since it appears that you are prepared to go to any lengths to boost the circulation of your organ, may I contribute a small donation to ensure that informed reason prevails.

**Cyril Howard  
Richmond**

*We apologise if the gruesome apparitions to which Mr Howard refers offended or upset readers of a nervous disposition. The images are in fact those of our office gargoyles, on which we rely to ward away evil spirits from The Skeptic. Since we have not yet detected any evil spirits here, we must conclude that our gargoyles indeed work. Or are we missing something?*

*Gargoyles aside, we are very grateful to Mr Howard for his generous donation. – The Editors*

## The dreaded 666

It isn't only the born-again of New Mexico (Hits & Misses, *The Skeptic*, 9.6) who fear this evil bunch of digits.

We have our own, not far from our own doorsteps! The A666 runs from the M62 to the A59, spreading its ill-fated influence throughout Bolton, Darwen and Blackburn. Local numerologists point to the poor performance of Rovers and Wanderers in this season's football as evidence (though they are still

having to work at an explanation of both teams' success last season).

I've also heard that the term 'Old 666' is the new nickname ('Nick'-name?) for the Home Secretary, but this – beastly as he undoubtedly is – still lacks personal confirmation.

**Ken Moody  
Bolton**

## Anti-astrology

Can anyone provide me with a copy of the anti-astrology article by Richard Dawkins that appeared in the *Independent on Sunday*, 31 December 1995?

It provoked one of the angriest floods of letters they've ever received, nearly all of which were *in favour* of astrology! I've seen the letters, but missed the original article, and will pay whatever's necessary to get a copy.

Also, if there are any skeptics in the Liverpool area, I'd like to hear from them.

**Dave Rogers  
11 Carnarvon Road  
Liverpool L9 1EB  
0151 525 6152 (after 4pm)**

## Our tectonic debt

Further to Mark Lawson's interesting article ('Is there really anyone out there?', *The Skeptic*, 9.6), there is another reason for the importance of plate tectonics he does not mention.

Practically all our mineral deposits and fossil fuels owe their existence to tectonic activity. A planet devoid of these, no matter how climatically hospitable, could never give rise to an industrial, technological society. In severe cases the inhabitants could be permanently stuck in the Stone Age.

Even our own Earth may not always have been suitable. Many

mineral deposits and nearly all our fossil fuels originated in the last few hundred million years. Had we evolved in the Devonian period, it is doubtful we would have had enough resources, particularly fossil fuels, to sustain an industrial society.

How many alien civilisations have got as far as the steam age only for their coal to run out before they could develop alternatives?

**Stephen Moreton  
Warrington**

## What's in a name?

I was surprised that James England (*Letters, The Skeptic*, 9.6) should describe my obituary of John Brunner as 'importantly wrong' for using the name John Kilian Houston Brunner.

This is the version of his full name which John approved for all reference books and indeed his own biography in Joe de Bolt's *The Happening Worlds of John Brunner*. If he invented the middle names, he had a perfect common-law right to do so and can hardly be called 'importantly wrong' to claim them.

Meanwhile, several SF colleagues remember a story John occasionally told: that early in his career he was worried about being confused with a five-years-older cousin, also a writer, called John Houston Kilian Brunner.

**David Langford  
Reading**

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