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November/December 1993

The Skeptic



Science and Nonsense

Also in this issue:

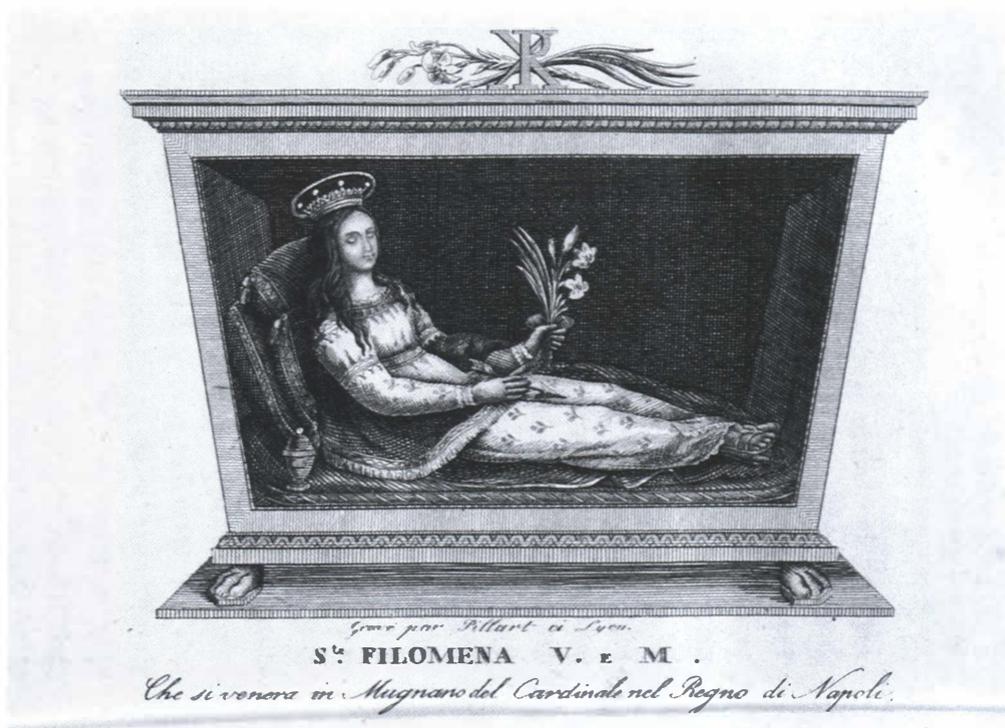
Another look at the Mary Celeste mystery

How to test a psychic channel

Flying saucer cults

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Hilary Evans' Paranormal Picture Gallery



The saint who never was

Few saints can have been so embarrassing to the Church of Rome as Saint Philomena... In May 1802, an archaeological dig revealed the remains of a girl of about 13 years of age in a Roman catacomb. Various indications led to the belief that she was a martyr named Philomena, who had died around 300 AD. Amid great popular enthusiasm, a shrine was erected, and soon healing miracles were being reported. Three sets of private revelations were received, independently, yet agreeing in every respect: they detailed Philomena's miracle-packed biography, and Pope Gregory XVI gave official approval for the cult, while a successor, Pius IX, authorised services in her name. The Curé d'Ars, later canonised as Saint Jean Baptiste Vianney, was especially devoted to Philomena, developing a strange mystical affinity with 'his little saint' and building a sanctuary in honour of the dead girl.

Unfortunately for these admirers, at the close of the 19th century, further archaeological research established that the inscription had been misinterpreted, and that no such person existed. The shrine was dismantled, and when in 1961 Philomena's cult was formally forbidden by the Vatican, it was acknowledged that for a century and a half, millions of people—popes and saints among them—had been victims of a delusion.

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Sorry if we've missed anyone out! Please keep the clippings coming!

Hits and Misses

Steve Donnelly

Amongst the angels

It is always good to be at the vanguard of trends in paranormal beliefs. In *Hits & Misses* in *The Skeptic* 6.5 the subject of angels cropped up briefly (in particular, an angel disguised as a plumber who came to repair a housewife's central heating boiler). Following the publication of a number of books on the subject of angels at the end of last year I can confidently predict that these winged visitors will soon take over where close encounters of the third kind left off. In fact a re-examination of meetings with aliens in the light of current knowledge may lead to the conclusion that any suggestion of padded shoulders on their outfits might have been due to discreetly folded wings. Angels have a major advantage over aliens that they are an intrinsic part of the Jewish, Christian and Islamic traditions and, indeed, do tend to appear preferentially to religious believers. Although they are sometimes in traditional form—8 feet tall, dressed in togas and with dazzling wings—Mrs Hope Price, author of *Angels, True Stories of How They Touch Our Lives*, claims that they also take on normal human guise when necessary. According to an article in the *Observer* on 19 December, Rowan Williams, professor of theology at Oxford University and now Bishop of Monmouth, no less, claims: 'The idea that there may be in the universe other kinds of intellectual beings apart from ourselves, and that there may be connections between us and them is not silly'. However this differs somewhat from the conclusions of another recent book, *Angels: An Endangered Species* whose author Malcolm Godwin concludes that an angel resides at the core at each of us (yes, your children included): '...the angel is one of our inner and most magical aspects. The angel is an integral part of ourselves'.

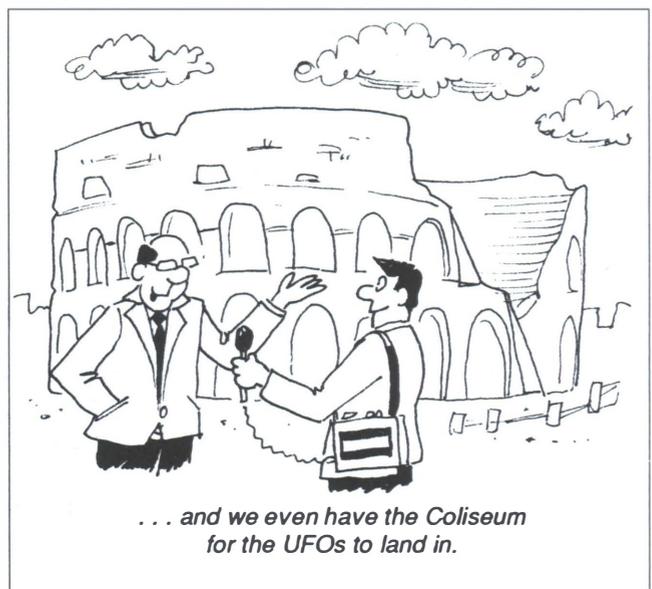
You don't have to be mad . . .

Any reader (or former chief of police of a major city) who has a direct communication channel to God is no more likely to be mad than the next person. Similarly, UFO abductees do not generally suffer from mental disorders. Two separate studies, reported respectively in *The Times* on 2 October and in *New Scientist* on 6 November, were aimed at determining whether people who claim to have these types of unusual experience were likely to differ psychologically from the general population. Psychologist, Dr Michael Jackson surveyed more than 250 people, half of whom had been diagnosed as schizophrenic or manic depressive, and concluded that people who claim to hear God talking to them should not be treated as psychologically disturbed. Just as well really, as the founders and prophets of a number of major religions had this particular problem. Meanwhile, Canadian researchers conducted a similar study of four groups of people, one of which consisted of people who had seen strange lights in the sky, another of people

who had been abducted by aliens or had telepathic contact with them, and the final two groups of people with no such strange experiences. The test results, published in the *Journal of Abnormal Psychology*, revealed 'no support whatever' for the hypothesis that people with these experiences are psychologically disturbed. However, such people were more likely to have a pre-existing belief in reincarnation, astrology and UFOs.

. . . but it helps

The above view, however, may not be shared by Euro-sceptic MP (in more ways than one?), Sir Teddy Taylor, who recently described a proposal to set up a European UFO observatory as a 'madcap proposal'. A number of newspapers reported in early December that Italian Euro MP Tullio Regge had asked the European Parliament to establish a UFO observatory, probably at the site of an existing observatory near Toulouse in France. According to the *Daily Mail* on 2 December, the European Parliament's trade and technology subcommittee has already given the go-ahead to the project and MEP's are currently 'involved in a 'fact-finding tour' to determine whether people in different countries have seen UFOs. Sir Teddy Taylor also claimed that the committee was studying the 'extent of aliens taking control of areas of outer space around the world'—the consensus apparently being the astounding view that aliens have indeed taken over parts of outer space but they are not sure which parts exactly. This may, of course, have important implications for Britain and, according to the *Evening Standard* on 15 December, Sir Teddy has tabled a parliamentary question asking Michael Heseltine about 'unidentified objects and aliens in the asteroid belt and their implications for public policy'.



The King is dead

Computer users have many distractions and amongst the most worrying is undoubtedly the possibility that Elvis Presley—on indeed the long departed spirits of other great rock stars—might suddenly materialise in the immediate vicinity. But this need no longer be a problem thanks to a unique piece of software developed by the Canadian software firm, Toggle Booleans. According to *Computer Shopper* in September the company has at last written a program which runs under *Windows* and detects the presence of the late lamented rock star. The software is based on 'the most reliable Elvis detection methods gathered from the supermarket tabloids over the last several years'. Once installed in your system, *Elvis Detector* will pop-up at the top of the screen whenever the King is near and will run through some of his best loved numbers. The only drawback that I can see is that the software, which retails for a mere \$7, includes a disclaimer that 'due to the transient nature of Elvis and his spirit' it cannot guarantee to detect Elvis in your vicinity. Version 2 (under development) will also home in on the spirit of Roy Orbison and M C Hammer (who is not yet dead).

Whisper who dares...

The incursion of electronic technology into parts of our lives that other gadgets can't reach continues unabated with a recent invention by Roman Catholic Priest, Father Pasquale Silla. The invention may look like the electronic home of Sonic the Hedgehog or the Super Mario brothers but in reality it is a device that many Catholics may *not* have been waiting for—electronic rosary beads. According to the *Daily Telegraph* on 11 November, the device, which is sold for about £30 by the Sanctuary of Divine Love in Rome measures 5 inches by 3 inches, has a picture of the Madonna (no, the other one) on one side and a message on the reverse side saying: 'The electronic rosary helps you pray and provides an ideal gift for your nearest and dearest'. When it is switched on, a small screen displays the words: 'Recite the Glory be to the Father' and then leads the devout user through the entire rosary. For instance by pushing on a button marked 'Mysteries' the user is given a choice of three sets of five mysteries on which to reflect and, to add to the experience, a selection of religious music is heard.

It seems to me that the next major advance in this area of technology should be to incorporate a fax-modem into the device giving a direct line to God. On second thoughts, perhaps Douglas Adams' electronic monk in his novel *Dirk Gently's Holistic Detective Agency* (who believes on our behalf thus relieving us of the necessity) would be a more useful piece of technology.

Born free

For quite a long time now, the Loch Ness Monster has been Britain's most popular cryptozoological phenomenon. But the number-one position that Nessie occupies in our hearts could be under threat from a large black cat known as the Beast of Bodmin (BOB). Articles on the subject were run in a number of newspapers following the publication of a

blurred photograph of something black and feline in the *Sun* at the beginning of November. In an article in the *Sunday Times* on 7 November, Lynn Barber cited numerous examples of expatriate animals in the UK (wallabies in the Peak District, a black leopard near Kidderminster) but expressed skepticism about the BOB. An article in the *Sunday Telegraph* on 12 December, however, revealed that there have been a number of sightings, on Bodmin Moor, of a dark feline described either as being as large as a bullock or the size of a large sofa—big enough to bring you very bad luck if it crosses your path. Since the first sightings were made public, a number of animal mutilations have been attributed to the Beast and there have been speculations on its origins—from the spirit world or escaped from a zoo or circus. However, given the wealth of newspaper reports over the last two decades linking mutilated animal cadavers with UFOs, it seems to me that an extraterrestrial origin for the animal must be considered. Perhaps Chris Bonnington could be sent to Bodmin to investigate.

Meanwhile, back in Scotland, a review of the Loch Ness ecology published in the journal, the *Scottish Naturalist*, and reported in the *Scotsman* on 24 December includes the suggestion that Nessie herself may be no more than a large, navigationally-challenged, Baltic sturgeon.



Tim Pearce

Pet therapy

For any reader with a schizophrenic snake, depressed doggy or paranoid pussy, relief is now available—although you may have to go to the United States to find it. The *Washington Post* in August reported that there are 3000 pet therapists in the US, including 50 'fully certified' animal behaviourists (readers can supply their own interpretation of the phrase 'fully certified' in this context). A skeptical veterinarian is quoted as saying 'The pets aren't crazy. The humans are crazy.'

But with fees ranging from \$150 to \$400 for a three-hour consultation, I'd say that the therapists themselves are fairly sane.

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

A Celestial Mystery Revisited

Brian Haines

A new look at the famous 'ghost ship'

THE STORY OF THE MARIE CELESTE is a remarkable example of how fact, myth and legend can become interwoven. The result is a name that has entered the language which stands for mystery on the high seas. Even such dedicated people as Skeptics are beguiled by a story which is no more than a circumstance grafted on to fiction.

There is an eternal fascination in the sea. Perhaps our seafaring traditions locked deep within our psyche predispose us to accept the sea holds mysteries as yet untold. Mention the *Marie Celeste* and it commands attention, our imagination flies to the ship that was found with all sails set, with not a soul on board and the remains of a meal on the table.

Of course the whole thing is total fiction. There never was such a ship as the *Marie Celeste*. Not in that context. There have been two ships named the *Marie Celeste*, both small fishing vessels, neither of which were very interesting, nor were they ever found sailing without their crews on board.

When it is said the *Marie Celeste* was fiction, it is no more nor less than the exact truth. The story of the *Marie Celeste* was written by the greatest of all story tellers who also created an even greater fictional entity that has assumed a reality in public perception. Who knows whether it was the quality of the writing, or the fame of the author which caught the public imagination. For him it was an embarrassment that his stories should be so popular as to submerge his serious work.

If Sherlock Holmes had never walked the streets of London, it is highly unlikely the public would have bothered to remember the *Marie Celeste*. Through the ages many ships have been found abandoned, or have disappeared without trace and their names forgotten. A notice in the paper, an overnight sensation and then oblivion. But give the details to Arthur Conan Doyle and you have a writer who turns the mundane into mystery. He it is whose job is to entertain. The story teller weaves a tale to fire the blood. A tale that will pass from generation to generation growing with the telling. Until at last fact replaces fiction.

It has long been a matter of argument whether writers are truly inspirational or merely derivative in the source of their plots. Everyone knows the true source of the plays of Shakespeare laying as they do in historic events. Whether it is deliberate searching for interesting material, or whether it is taken subconsciously from a wealth of published material there is no doubt that the heart of many stories spring from actual events rather than fictional imagery. The

reportage in the newspapers of the finding of a ship called the *Mary Celeste* would be part and parcel of many incidents Sir Arthur Conan Doyle would have read during his daily round.

Eleven years after the actual incident a story appeared in the January 1884 issue of the *Cornhill Magazine* with the title 'J Habakuk Jephson's Statement'. It did not bear the title of the author and to the extent it was well written and gave what seemed to be a true and accurate account of incidents aboard a ship styled the *Marie Celeste*, it quickly attracted attention to revive interest in an old mystery. Such was the power of the 'statement' it generated a correspondence between the United States Consulate in Gibraltar and the Department of State in Washington. Thus was set in motion a hare that was to run and run. Subsequently the author was revealed but, too late, the myth was born.

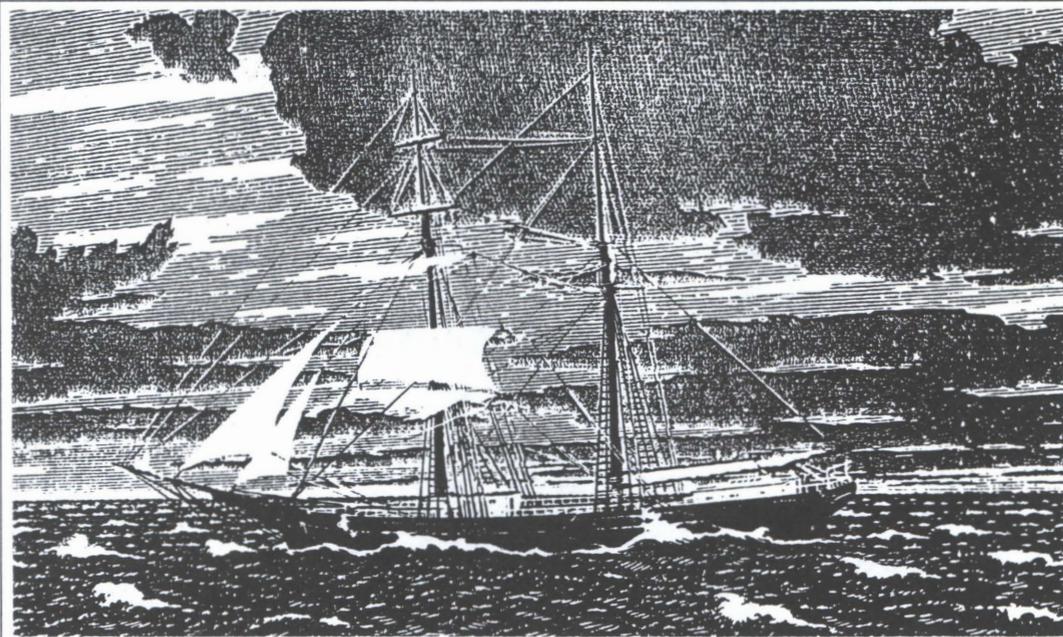
In real life the *Mary Celeste* was found drifting in the Atlantic with no trace of her crew on board. From the day she left port, the Master and part owner, his wife and child together with all 5 crew members have vanished as if they never existed.

The ship was originally built in Nova Scotia during the years 1860-1 and was named the *Amazon*. She was at that time of British Registry. It traded for some years before being wrecked at Big Glace Bay, Cape Breton in 1867. The wreck was purchased by Richard W Haines (and there is a co-incidence if you like) who was an American citizen and re-registered in New York under the name of the *Mary Celeste*.

A number of changes were made to the ship while being refitted and she became a 'brigantine' or 'half brig'. This means there was the old style square-rig in front with the new style 'mainsail' at the rear. It would seem the costs of this were too much for Mr Haines and creditors caused the vessel to be sold at auction, there were yet more financial difficulties and another purchaser who ordered a new refit. The ultimate owners finally were able to trade by finding a charter which would effectively make the purchase profitable.

This history of the ship was such that it gave rise to many stories of a deliberate attempt to defraud the Insurance Companies in order to recoup the losses. In times of bad business such actions are common, however there was never any suggestion the owners were anything other than reputable and were not otherwise short of money. In any event the ship and the cargo were never lost, it was the crew who were missing, and they weren't insured.

As a matter of history, the ship changed hands several



From a wood engraving by Rudolph Ruzicka of the *Mary Celeste* sighted by the *Dei Gratia*

times after the incident and traded for a further twelve years. It ended up being deliberately wrecked on the Rochelais Reef, Hayti on 3 January 1885. This time there was no error, it was a dummy cargo and the intent was to collect on the insurance. It could perhaps be said to have been an unlucky ship if one believed in such things. One of the difficulties has been to establish with certainty the actual nature of the cargo carried by the *Mary Celeste*. It seems reasonably clear from all the references in letters from those who examined the ship, and from the insurers that she carried 1,701 barrels of alcohol. The alcohol was proof 93.35 and of specific gravity 0.815. Nine of the barrels were empty and the whole apparently agreed with the Bill of Lading. Whether this description of the alcohol is of one that is very strong and liable to explode, or whether it was drinkable, or indeed what its ultimate purpose was seems to have been lost. It is known that the consignee was unable to repudiate delivery on the ground of damage as the cargo was stated to be in excellent condition.

Whatever caused the crew of the *Mary Celeste* to abandon her, or whether they were abducted for some reason as yet unidentified seems for ever to remain a complete mystery. The association of alcohol automatically creates an aura of deep suspicion that it must necessarily play a part in the story. The fact that the cargo was untouched suggests it should be ignored as a factor.

Finally, and perhaps most interestingly, the usual perception of a ship found drifting with all sails set, and food freshly prepared in the cabin is wrong. The only account of what was seen comes from the statements made four months later at the enquiry in Gibraltar by the seamen from the *Dei Gratia* who boarded the *Mary Celeste* when it was first sighted and subsequently sailed her to port. Necessarily there may be mistakes of recollection of detail by the seamen of the actual condition of the ship.

There was no food in the cabin nor was there any

cooked food in the galley. The washing up was all done. The sails were furled except for the topsail gib and the fore-top stay-sail which were set. The fore-sail and upper fore top sail appeared to be missing. Of particular interest was the condition of the standing rigging. It was said to be 'old, it was not broken but wanted repairing'. This is strange in view of the recent extensive refitting prior to departure. It was also noted that on the starboard side only,

planking and canvas were nailed outside the glass. The glass was not broken. It can only be assumed this was some form of protection erected during the brief voyage. Although there were davits astern, there was nothing to show whether a boat had been carried, or whether one had been launched.

That the ship itself was sound and well founded is proved by the fact that it was sailed from the place it was found to Gibraltar by a crew of three in the same time as the *Dei Gratia* with a crew of four. This included putting the ship in order and coming through a storm.

In sum total, the *Mary Celeste* was found sailing under a small amount of sail, with the possibility of other sails having been blown away. There was little physical damage, three and a half feet of water in the hold and no sign of a crew nor any evidence of how or when the crew left the ship. The Captain's chronometer, sextant, navigation book, ships register and usual papers were missing. However the ship's log was present which showed a last entry on 25 November. It was sighted by the *Dei Gratia* on the afternoon of 5 December at about 1.30 p.m.

An unusual circumstance, a mystery, a perplexing problem certainly. This does not mean the explanation may not be very simple. Leaving aside theories of Alien abduction, contorted plots to gain salvage money and scenarios of drunken orgies on board the answer has to be quite straightforward. The fact the ship was under 'short sail' means it had not stopped to lower the crew. The missing items, being navigational instruments suggests an intention to make an independent voyage. Further than this all is speculation. The Captain had his wife and child with him neither of whom would he be expected to risk in an open boat.

All of which leaves the case very much as it was at the beginning. They vanished leaving not a wrack behind, and an abiding plot to entertain generations to come.

Brian Haines is a writer living in London.

Who's That on the Line?

Robert E McGrath

Authentication of computer and psychic channels



HOW CAN YOU TELL who a message is from when you can't see the sender? This is a critical problem for psychic investigators and computer engineers.

When you conduct business at an Automated Teller Machine (a hole-in-the-wall cash dispensing machine), how does the central bank know that the transactions are really from you, and not from some hacker? When a message is produced by a psychic medium or 'channeler', how can we know that the message is really from dear departed Aunt Maggie? In both cases we want to know if the message is really from who it is supposed to be from, that is, 'Is the message authentic?'

When an Automated Teller Machine (ATM)—which has a small computer in it—conducts a transaction, it exchanges information with another computer at the bank over a telephone line. Both the ATM and the bank computer must be sure that the information received is really from the other and not from some thief. The difficulty lies, of course, in the fact that neither can 'see' each other. They each only 'see' messages coming from a telephone line.

Obviously, steps must be taken to assure that the messages that come out of the wire are from the right party. In computer engineering, the telephone wire is called a 'channel' and the problem of assuring the source of the message is called 'authenticating' the source of a message. Variants of this type of authentication problem are encountered in many parts of computer systems.

One of the more commonly observed so-called 'paranormal' phenomena is psychic mediumship or, to use the more modern terminology, psychic channeling. A 'medium' or 'channel' is a person who can speak or write words that are said to come from some entity other than the channel—perhaps from the spirit of a dead person, an extra-terrestrial being, or a higher intelligence. (For more detailed discussions of 'channeling' and related phenomena from various points of view, see [1,2,3,4,12,15,18,19]).

If these messages are actually from such sources, they are (somehow) transmitted from the unseen source, through the speaker, to us, the receiver. The terms 'medium' and 'channel' are used as a deliberate (and appropriate) analogy to electronic communications. In both cases the receiver can only 'see' the 'channel,' while the actual source of the messages remains invisible. In each case, we must be

cautious, and dare not take the identity of the source of the message for granted.

How to authenticate computer communications

Computer engineers have developed some interesting ideas about how to authenticate a message when it is transmitted between two computers. The problem is tricky because computers are very stupid and because it is easy for one computer to imitate another computer. One general solution is for the source and receiver to exchange secrets. The basic scheme is for the sender to tell the receiver 'secret information' which is known only to the two of them. If this can be done, the receiver knows precisely who the message is from.

Computers might do this in different ways, but the most popular method uses coded numerical 'signatures.' Mathematical encryption schemes are used to create these coded 'signatures' that are extremely difficult to guess or forge. The particular mathematical schemes to be used are selected on the basis of theories that attempt to define the difficulty of guessing or forging the signature, given various assumptions. In other words, this is a mathematical theory of 'secretness'. These theories are intricate, elegant, and the details are not terribly relevant for the moment. The main thing is the ability to have 'shared secrets' that really are 'secret' and can be shared [7,5]. The second major requirement for authentication of computer communications is that there be some ultimate authority: someone, somewhere, sometime, must create the first 'secret', which is used to make all the other secrets. This first secret must be believed implicitly, so the first authority must be extremely trustworthy! (In mathematics, it seems one is never far from God!) In the case of a computer system this role is performed by a special system, which is heavily monitored and guarded (by humans) at all times. The 'trusted' system is charged to give each party their own 'private secret', and can confirm the correct signature of the other parties.

Readers who have used an ATM will recognize these two key elements. Before you can conduct business you must provide a secret password or number to prove that you are really you. This password is your secret, which serves to authenticate messages from you to the bank. The password itself is given to you by someone at the bank, the source of 'authority'. Both you and the bank must implicitly trust this initial password.

How to authenticate psychic communications

Can the principle of 'shared secrets' be applied to authenticate messages delivered by psychic 'channels?' In fact, this is *exactly* what psychic investigators have attempted! To do this the source, the 'channeled entity' must send some secret information known only to the source and the receiver. It is vital that the secret be something that could not reasonably be known or guessed by anyone else, *especially* the channel herself. This observation is interesting in the light of the history of mediumship and channeling: the evaluation of the validity of many claims has hinged on assertions about what the channel could or could not have known.

Some channeled messages appear to be communications from the spirits of the recently deceased to their still-living loved ones. These messages are often emotionally compelling, and sometimes seem to contain references to events that could only be known to the receiver and the deceased. Such a message would argue strongly for the authenticity of the source and of the message itself. Such a message would confirm the validity of channeling itself and possibly confirm life after death!

With such far-reaching implications, it is not surprising that cases of 'authenticated' messages from beyond the grave have been very critically evaluated and vigorously disputed. In particular, the supposedly 'secret information' in the psychic message must be examined to determine if it was actually secret or might have been obtained by the channel himself, perhaps through such mundane sources as family friends, servants, or personal letters.

Many people are convinced that the case for life-after-death and for communication from beyond the grave or from other non-human sources is already well established, or does not need to be established empirically at all. Even granting this position, a message from the dead, from a spirit, or from whatever non-human entity still needs to be authenticated because it might be faked, forged, or tampered with by entities other than the supposed source. Authentication is important to anyone who wants to take channeled messages seriously.

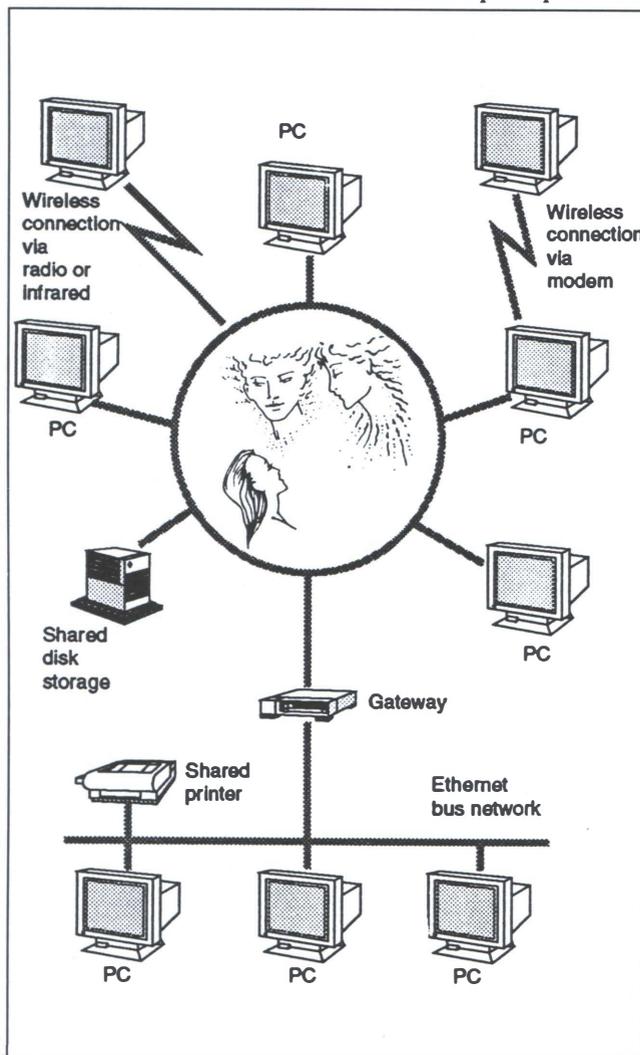
Applying the lessons learned from computer engineering, we could suggest that a good method of authentication would be to prearrange secret codes to be used after death.

To be effective, the secret code would have to be hard to guess and known only to a select few. In fact, the secret should be unknown to both the 'channel' and the 'receiver', to avoid the possibility of the channeler 'picking up' the secret from the receiver through 'cold reading' [13]. In fact, just such a scheme was attempted by the great magician and spirit hunter, Harry Houdini. He left prearranged secret codes with his wife and secretly stored code words for Arthur Conan Doyle and others. The plan was that he would use these code words in any attempt to communicate with the living after his own death. This is a direct application of the principle of shared secrets discussed above. In

the years since his death, many mediums have produced messages purporting to be from Harry Houdini, but in only one (hotly disputed) case have any codes been present. Thus, his preparations have, at least, prevented the acceptance of unauthentic messages, even if it has failed to produce conclusive proof of messages from Houdini himself. (The story of Harry Houdini and the controversy surrounding his posthumous message are discussed in [6,8,14,15,17]).

Other approaches to investigating psychic channels

The vast majority of cases of channeled messages are not candidates for 'authentication' by shared secrets, because that requires that the end parties know each other and prepare in advance to communicate. When the 'channeled entity' is a stranger, non-human, or even super-human, the necessary pre-arrangement is not possible. Other methods have been used to attempt to 'authenticate' psychic messages and their sources



in these more difficult cases.

One possibility to consider is to ignore the question of the identity of the source altogether. Many psychic investigators take the view that the channeled message should be judged on its contents—on its artistic merit, as it were. If the message is valuable, beautiful, wise, or otherwise satisfying, what difference does it make where it came from [15]? This approach may be acceptable for psychic messages, but it has little to offer computer engineering. It does, however, resemble the design of many home and office personal computers, which seem to follow the rule 'if it looks OK, do it'. This is certainly the cheap and easy way to deal with authentication. It also contributes to the easy propagation of computer viruses!

Another way to try to authenticate a message is to analyze its content. The goal is to find independent corroboration to establish the validity of the contents of the message, and by implication, its source [15]. This is not quite the same as authenticating the source. For example, a computerized thief might well be fully informed and perfectly willing to tell the truth about your bank account, but you still don't want the bank to let him have all your money! In some particular cases, however, validating parts of the message might well serve to 'authenticate' its source: when the message contains information that could only be known to the purported source. This is actually an indirect form of the principle of shared secrets discussed above.

A channeled message contains two sorts of information, the *manifest*, or literal content of the words, and the *latent*, or hidden content. The manifest content of the message may contain details of historic events or descriptions of distant places that are potentially subject to verification. In these cases, the strongest 'authentication' is provided by accurate portrayal of facts that could not be known by the channeler herself. Unfortunately, channeled messages often contain few, if any, such verifiable facts. And even when 'checkable' details are present, it is often difficult to show that they could not be known to lots of possible sources, including, most especially, *the channeler*.

The latent or 'hidden' content of the message might also be used to corroborate it. In particular, the linguistic elements of the message (the accent, the grammar, the vocabulary, and so on) contain an unconscious 'signature' of its source, which may be studied by standard linguistic methods. In a classic study, Thomason [20] analyzed channeled messages purporting to be from the spirits of people who lived in the past and are now dead. In the cases studied, the

linguistic structures used were inconsistent with those one might expect of a person from the claimed time and place. In each case, however, the language was consistent with the knowledge and abilities of the channelers themselves. Linguistic analysis uncovers unconscious, 'unforgeable', linguistic 'signatures', which can help to authenticate (or not) a source. Thus, Thomason's study is right on target.

Even more difficult cases

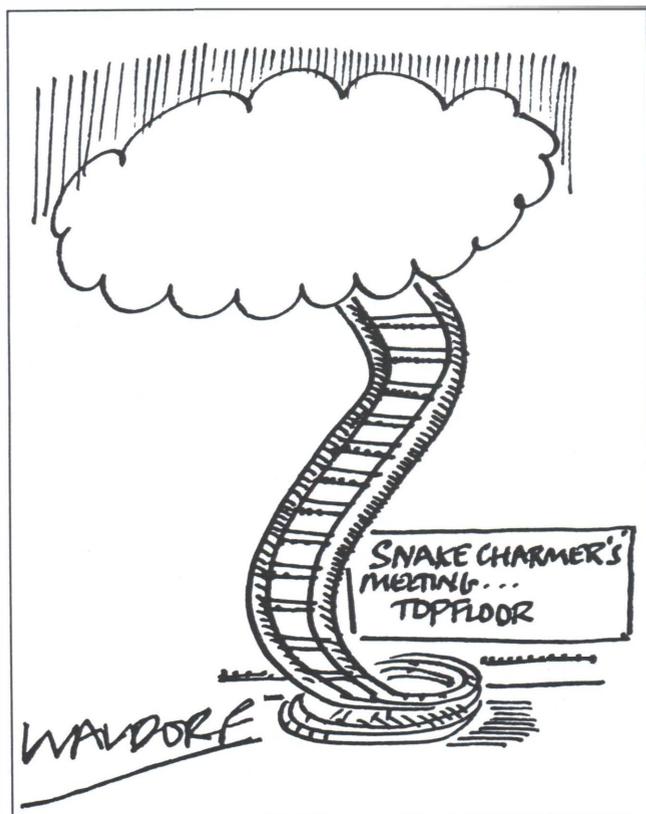
Authenticating messages from a departed loved-one is tricky, and it is even more difficult when the source is a stranger. More difficult still are messages said to be from non-human sources, from extra-terrestrials, higher intelligences, discarnate spirits, or animals. Is there any way to try to 'authenticate' such messages? Since we have no communication with or knowledge of these creatures except through psychic channels, it is very difficult to think of how we could establish a shared secret with them. Worse, if the message is really from some 'higher intelligence,' then it is difficult to see how we could ever hope to disconfirm her identity—she is surely way too smart for us and our silly tricks!

Lessons for computer engineering

Most computer engineers do not look to psychic investigators for help in designing computer systems. Indeed, this article has provided little of immediate practical value to the design of computer systems. Nevertheless, there are some potentially interesting lessons to be learned. The philosophical and practical difficulties encountered in attempting to authenticate messages said to be from non-human or super-human sources remind us of the limits of authentication theories. No mathematical scheme can protect a system from absolutely any possible subversion or accident. Engineers must always be aware of the assumptions and limits of the theories they use. Mathematical authentication schemes are based on many 'reasonable' assumptions, including: the assumption that the 'trusted' system is trustworthy, the assumption that certain mathematical problems are so difficult as to be 'impossible', and the assumption that 'secrets' held in human and computer memory cannot be known unless it is deliberately communicated.

If spirits, extra-terrestrials, or higher intelligences are involved, then all these 'reasonable' assumptions go right out the window. Any 'trusted' system is vulnerable to invasion by non-material beings, 'impossible' problems may be solved easily by super-human intelligences, and 'secrets' might be plucked right from our brains by all knowing spirits! Indeed, if any of several forms of extra sensory perception are established to exist, it would likely be a disastrous blow to many areas of the theory of computation, but most especially to authentication theory.

I would suggest that in the future the problems of computer engineering will come to resemble the ambiguity and chaos encountered by psychic investigations. Computer systems will become even more numerous and complex, and they will become active agents, interacting with people, objects, and other computers according to what will be recognizable as their own personalities [9,10,11,16]. It will not be possible for a computer system to know in ad-



vance all the entities with which it will have to communicate. The simple formalisms of today's authentication schemes, based as they are on pre-planned and limited mathematical problems, may very well prove to be inadequate for such a brave, new world. As these developments come to be, computer engineers will have opportunity to learn from perhaps unexpected fields of expertise: from sociology, from anthropology, from (abnormal?) psychology, and yes, perhaps even from parapsychology.

Lessons for psychic investigation

Most psychic investigators do not look to computer engineering for help in understanding psychic channeling. It is not clear that this article has provided much of immediately practical value for the study of channeling. Nevertheless, there may be some valuable lessons to be learned. First, of course, is the principle of 'shared secrets.' These work best if they are prepared in advance and can be shown to be 'unknowable' by others. Mathematical encryption schemes offer interesting possibilities for such mutual secrets. Perhaps psychic investigators should investigate the mathematical theories of one-way functions, 'informationless' proofs, and public key encryption [7].

The use of shared secrets requires the secret or the method of its generation be prepared in advance. Thus, all psychic investigators are encouraged to prepare secret codes to be used to authenticate messages after their death. For best results, the secret code should be known only to a few and stored in a secure place, such as a bank vault.

It might be noted that practically all the points made about channeling apply equally to telepathy (thought transference or 'mind reading') and almost as well to other proposed forms of ESP (astral travel during out of body experiences, distant viewing, or seeing the future). For this reason, I encourage investigators of paranormal phenomena to learn more about the formal theory of communication in general and about authentication and encryption schemes in particular.

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Close Encounters of the Cult Kind

Arthur Chappell

A look at the dangerous world of the 'Flying Saucer' cults



IN CONSIDERING the nature of UFO cults it is first of all important to emphasise that most people claiming to have seen a UFO are not in any sense to be regarded as 'cult recruits'. If you see something in the sky and don't know what it is, then you have seen an 'Unidentified Flying Object'. It's that simple. For many, however, if it's 'unidentified', it's a spaceship. Even people making this assumption are not necessarily 'cultists' as many people believe we have been visited by aliens. 13 million UFO sightings have been reported in the last 25 years. This is clearly too many to be believed in. As Ian Ridpath has observed, 'even if there are a million other civilisations in our galaxy, all launching one starship annually, we could expect to be visited only once every 10,000 years.' (John Allan, *Mysteries*, Lion 1981.) It's very apparent that most sightings reported are misperceptions of terrestrial objects: planes, weather balloons, unusual cloud formations, and so on.

Commentators agree that most UFO spotters are not hoaxers or liars, though some people do fake photographic evidence by filming hubcaps and plastic models dangling from strings. Many UFOlogists haven't seen UFO's themselves, but dearly wish they had. They look for tangible evidence of UFO visitations. Crop-circles, though now seen very openly to be made by men with string and creative wit, are still regarded by some to be flattened UFO landing sites. Many books reinterpret Biblical visions as early UFO sightings. Erich von Daniken wrote a series of best-sellers claiming that the Egyptians (among others) were too primitive and stupid to build their magnificent monuments, and so resorted to watching as alien spacemen built them, and then started praising the builders as gods. Pictures of men in fertility masks, thus became, for Daniken, extra-terrestrial monsters. (Ronald Story, *The Space Gods Revealed*, 1973, NEL).

UFO sightings are a phenomenon that increases with progress in our own space race; each space shuttle/Soyuz launch leads to a spate of reports as does each popular science fiction film on the UFO subject. The film 'The Thing' (1952) ends with a hysterical reporter screaming to the world, 'Watch the skies, watch the skies'. We did just that. Stephen Spielberg's film 'Close Encounters of the Third Kind' (1977), inspired by actual UFO sightings, had a similar effect. It fired imaginations to take unusual lights in the sky and make a saucer out of them, in the mind's eye.

For others, UFO sightings were never enough; some claim to have met the aliens, been abducted, experimented on and granted rides in the spacecraft, often to other planets.

The first leader of a UFO cult (George Adamski) claimed in 1952 to have met a Venusian wearing ski-pants who educated him in 'Cosmic Philosophy'. Adamski's book *Flying Saucers Have Landed* became a best-seller, although Venus as we now know is too hot to be inhabitable by any kind of lifeform with a biology even remotely similar to ours. Condemned as a charlatan (his photographs were certainly fakes) Adamski still has a following today.

Adamski set a trend for tying the saucer phenomenon to New Age beliefs in general; a sighting becomes a vision, the spotter becomes enlightened, changed and in some way 'born again'. There is the same missionary zeal to convert and convince others. It is no accident that UFO books share the same shelves as books on alternative religions. UFO pilots have the same characteristics as messianic gods, the ability to see all, to judge, punish and reward human behaviour. In the event of a nuclear war, the UFO-cultists believe the aliens will save the chosen few (themselves). In short, these groups are to be regarded as no less a cult than the major groups which ex-cultists have escaped from. The trappings and sense of technology is different, but for the often hierarchical, fanatical leaders, it's business as usual.

UFO spotters in cults are often encouraged to believe that they have psychic powers revealed to them by the UFO-nauts. Some communicate telepathically with aliens across time and space, through seances and spiritualistic rituals, thus eliminating the need to actually see a space-vehicle at all. In his book *Volcanic Visions* (Arkana, 1991), Michelle Jamal, a reincarnated priestess from a lost civilisation is telepathically contacted by 'Ashtar, of the Ashtar Command, The Universal Federation, the Universal Christ Force.'

UFO cults have many sources of origin; some spotters, like Adamski, or Jamal, may impose their own convictions on people in a sufficiently impressive way to gain themselves a following. Many UFO watching groups, where members swap personal experiences and exchange newspaper clippings can grow into cults too.

The most successful UFO cult, at present, is the Finchley-based Aetherius society, started in 1954 by George King, who was washing the dishes in his bedsit when a voice told him that he was chosen to be the voice of a galactic parliament here on Earth. Like Adamski, King was listening to a man from Venus, where Jesus is also believed to reside, as a star man, and not as the Son of God. Members of the Aetherius cult hold spiritualist-style meetings where their psychic energy is taken and stored in batteries to be located

at mystical sites around the world. In the event of some crisis, this energy can be tapped, to refuel spacecraft passing through the galaxy. Only certain high priests actually contact these alien visitors; the rest of the group have to take their word for it. King was interested in Yoga and metaphysics in the years prior to his own claimed close encounter. Many people are concerned by King's growing number of chivalric/masonic titles, Knight Commander, Doctor of Divinity, and so on. (see Peter Brooksmith's *The Age of the UFO*, Orbis 1984).

More sinister still is the UFO cult started by France's Claude Vorhilan who calls himself Rael, an abbreviated form of Gabriel, the Archangel). The International Raelian Society has turned the 'Burning Bush in the wilderness' into a flying saucer. Rael wrote of his being bathed by five female robots, and has his own rather sinister insignia, a star of David pendant with a Swastika at its centre. He hopes to build a mansion for the old gods (the Elohim) to move into when they land again. Please send your donations to... (quite).

Until recently the main people likely to be recruited to a UFO cult were people who have had UFO encounters, or desired them. Nowadays there is a new trend: convincing people through hypnotic regression that they have had an encounter which is lost in their subconscious memories, whether they believe—or even think about—UFOs or not. This is a trend started by some pseudo-psychiatrists, who place too great a degree of faith in evidence acquired through hypnotising their patients. Hypnosis is far from totally reliable, as the suggestive state leads many clients to fantasize, and take suggestions from the hypnotist extremely literally. The good psychiatrist learns to differentiate fact and fantasy and not to lead hypnotised clients up the garden path.

Edith Fiore, on the other hand, in her sensationalist book, *Abductions, Encounters with ETs* (Sidgwick & Jackson, 1989) asks very leading questions. One client, called 'Tom', merely asked her what the book she was writing was about; she told him it was on UFOs, and he spoke of a frightening UFO story he had read. On 'a hunch', Fiore asks him why he was spooked by the book—the fact that it was written by an accomplished horror novelist being immaterial—and before long, she uncovered 'Tom's forgotten UFO abduction'.

Fiore is unmoved by any evidence that her clients are following her leading questions or fantasising. She writes: 'Because my main concern is helping people, it is not important to me if the patients/subjects report correctly the colour of the aliens' skin'. Alas, such contrary evidence is the very key to recognising that the patient is not giving an entirely factual report.

I am not saying that UFOs exist or not; that is a matter for the individual to decide for him/herself. My concern here is the cults that grow from beliefs about UFOs. These cults show all the hallmarks of the recognised and established 'religious cults', some of which also have an interest in UFOs and extra-terrestrial life. A popular Krishna book is called *Easy Journeys to Other Planets* and claims that all worlds, including the Moon, are inhabited. To date, I have met no ex-Aetherian, ex-Raelian, etc. I feel that ex-UFO cultists should be encouraged and welcomed to join ex-cultist support groups, as their need, contribution, and participation in cult-counselling and support work is as valid, essential, and worthy as that of any ex member of any other cult.

Many ex-cultists are haunted after escaping from their respective cults, by the feeling that the initial experience that attracted them was genuine, but that the cult, and its leader somehow lost it. The UFO cultist will feel this just as strongly, and perhaps more so, as the initial UFO sighting that they had may have occurred years before they joined the cult they got involved in. They may want to reject the cult, but not the initial experience that inspired their involvement. That will have to be respected.

My own writing here is perhaps a shade sceptical for the comfort of some. This is perhaps a way of redressing the balance. There are plenty of pro-UFO books available (for example Mark Chapman's *Flying Saucers Over Britain?*, Mayflower 1978, and the Orbis partworks issues and reissues of *The Unexplained*), most of which catalogue sightings of UFOs one after another. Study the case for and against and then make up your mind; but whether the aliens exist, and are friendly or not, you still don't need a cult; UFO-cult or otherwise.

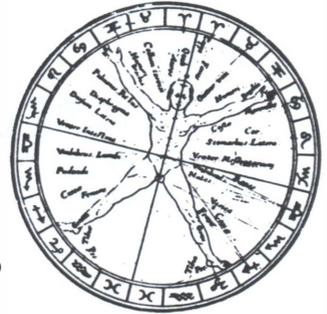
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Dissecting the Soul

John Clarke

The ultimate question: are we corporeal, or ethereal?



I'LL SAY ONE THING for old Ron Hubbard, of Scientology notoriety. At times, he was careful of his semantics. He pointed out, quite sensibly, that as you can't be the same thing as something you own, then to talk about 'my soul' is a nonsense. The bit that is conscious, is you yourself. Anything else that survives death and even gets tortured in hell, you are therefore not conscious of, so you can stop worrying.

I just thought I'd get that source of possible misunderstanding out of the way first. You *are* a consciousness. Which is obvious, really.

The next item on the menu is to take the bull by the horns and all four feet, and try to define consciousness. Some learned person tried this in a recent book, and came up with six different consciousnesses in each human being, which somehow get together to form 'me'. I prefer to define my consciousness simply as awareness.

This is a very useful definition, because in plain language, if you're *not* aware of anything, ever, do 'you' exist? (Further: you can be aware of yourself as a consciousness any time you like. But awareness of anything else can be temporary, fickle or even illusory. 'You' are a certainty.)

We now come to people's experience of the so-called paranormal, which features frequently in *The Skeptic*, including issue 7.3 which I'm reading again this week. Let's start off with near-death experiences, or NDE.

You're on a hospital bed, and the doctors are looking worried. You float up to the ceiling, and observe your body on the bed. The doctors are doing something to it, yet your main feeling is only one of curiosity. At this point you observe that you are in a tunnel, with a bright light at the end, which pulls you towards it. You serenely follow the light, to emerge in a lovely garden, where dear old Uncle Jack who died in 1976 is pruning some roses, and comes over to greet you. After a hug and a chat, you are suddenly aware that something is pulling you back, and you wake up on the hospital bed, with a worried surgeon bending over you, and you feel a bit annoyed.

Oh, brother (or sister)—are *you* making a whole bagful of unsubstantiated assumptions! Let's dissect your NDE, or any other paranormal experience. First, how do you know it's *your* body you're viewing from the ceiling? In fact, how do you know it's a 'body' at all? Well, your memory tells you, doesn't it? And your memory tells you what light is, and what tunnels are, and who Uncle Jack was, and about roses. It also tells you what it is that you're feeling: serenity,

friendship, annoyance, whatever. Mind you, the first time you ever felt these sensations, they were just feelings, which in any case are bodily functions—which is why drugs affect them, which is why we have drug-trafficking. Because they're material things, causing feelings. For which you need a body. And a memory to remember them.

Yet isn't your memory essentially corporeal, rather than ethereal? It's decades since it was found that prodding certain parts of the brain produced certain memories. And Alzheimer's disease isn't ethereal or paranormal, but physical, destroying memories, or blocking them.

Near Death Experiences, exteriorisation, souls flitting back and forth, all involve another serious contradiction. For these 'souls' seem to be able to see perfectly well. Yet seeing is not just looking at something. It's a highly complex physical operation, in which you first need a lens and a retina to produce a picture, which is upside down. Behind the rods and cones of the retina, sensitive cells do a certain amount of preliminary data processing before passing the data on to the sight interpretation area at the back of the brain. This puts the 'picture' right side up, and relates it to your memory of what you've seen before. Which in the case of NDEs is beds, nurses, ceilings, tunnels, light, Uncle Jack and all. Very physical indeed. And much the same goes for talking to Uncle Jack's ghost.

Paranormalists in America have tried to get over the problem of an ethereal memory by calling it a 'discarnate memory'—a memory which doesn't need a brain or even nervous system to exist. Even less probable than a computer that's all ethereal software and no hardware at all?

I consider this matter of post-death memory to be central to any discussion of 'soul', survival, Last Judgements and all the rest of it. For let's go back to the one thing we haven't yet managed to comprehend: simple consciousness. In other word, *us*. (And let's keep animals out of this. Animals are aware. Humans are aware of being aware. That's why we're human. And the bigger our pre-frontal lobes, the more we're capable of monitoring our own thoughts and actions. Well, it's an interesting theory, anyway.)

In almost all the literature I've read on the subject (even by skeptics) there seems no understanding of the fact that consciousness alone is not enough for intellectual, emotional or locational survival. For consciousness is not Personality. For that, you need memory. Simple awareness is total ignorance. Which means that if we can't take a well-functioning memory with us when we go to heaven, we

might well find that the sum of everyone's IQ in heaven adds up to zero. Unless you believe in miracles or other cop-outs.

There's another interesting thing about memory, which I will pass on as I don't see why I should be the only person who can't solve it rationally. When you go to sleep at night, mightn't it be that what really happens is that your memory switches off totally, while you remain completely conscious, but unaware of anything except awareness itself? So that when you wake up in the morning, it's simply your memory re-activating. And as that memory hasn't recorded anything while you've been asleep, you say 'Gosh, I slept well'. Only you've been fully conscious all the time.

Dreams? Well, if your memory starts churning around in your sleep, your consciousness will make you aware of those memories. Hence, dreams. And as they'll now be in your memory, you can remember some of them. An irritating theory I pass on, free.

A final word on memory. We are—as anyone who has had anything like aphasia knows—rather more fragile and more at the mercy of our physical being, memory bytes and all, than most people imagine. I had aphasia on several brief occasions about thirty years ago, and it is a most educational experience. Besides scaring the hell out of one. I had been overworking, had eye-strain, and got a new pair of specs, which turned out to overcorrect for parallax. A week later, I had the visual phenomena of migraine, but nothing else—until a couple of minutes later when I tried to say something, and gibberish came out. I kept trying. More gibberish. (I later realised that speech is practically automatic, so that when one normally speaks, one is only barely conscious of assembling the words in one's mind. One gets the sense of what one wants to say, and it comes out, without effort, in

one's own terms of phrases and inflections.)

Anyway, I had nightmarish thoughts of having to learn the English language again, from scratch. But a few minutes later, speech slowly returned, and after getting new specs, the problem vanished. But it had been like being in a car, and forgetting what all the controls were for. And even forgetting which end is 'front'.

Now, spectacles and eye-strain are not ethereal things. Yet even that minor strain-caused disturbance to my brain wiped out my ability to use language, for a bit. Destroy the brain, as in death, and it seems as if you do indeed wipe out all memory and personality. For keeps.

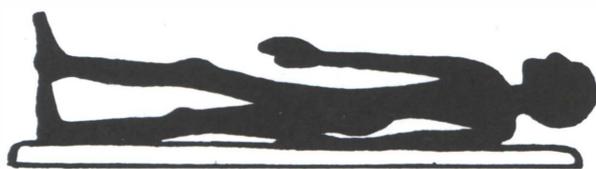
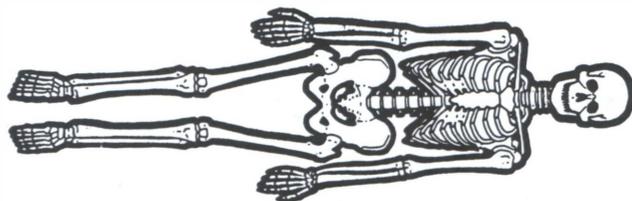
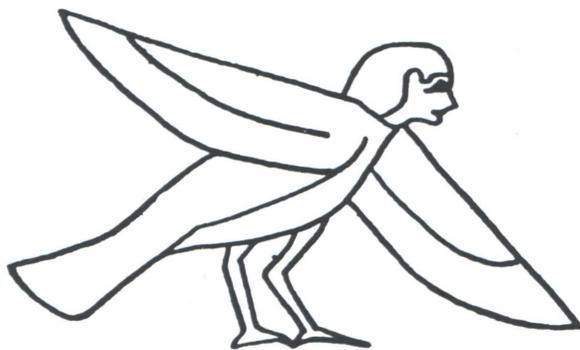
Which leaves us with consciousness. Which is a most puzzling phenomenon, for it is both fragile and tough. A simple blow to the head will temporarily demolish it, completely. But on the other hand, how many babies have you heard of who have actually been born unconscious? How many puppies or kittens are born in a coma? Not many—although babies and pups alike may be still-born, which is quite a different thing. Because it means, dead.

So you're conscious, and you know who you are. Do you? What if *you* had only been in your body since you woke up this morning—the previous owner having gone elsewhere. How can you prove that that isn't the case? You'll have all the memories of your brain, and all of them telling you that they're *your* memories. Your reflexes, attitudes, tastes and so on will be, you think, unchanged and *yours*. Only they're some-one else's. There's no way you can tell, because simple consciousness doesn't have reflexes, attitudes or tastes. It's simply awareness. Which is why many people, on coming round after a really nasty crack on the head, don't know who they are, what they are, or where they are. But they're certainly aware. (And their memory-system is recording, so they can remember much of it later.)

So far, I seem to have done a fair job of proving that there's no life after death. But where there is even a tiny bit of rational doubt, the true Skeptic is skeptical even of his own conclusions. And the doubt here is in the fact that on a planet which is around four billion years old, Homo Sap has only been around for some 100 000 years, and science and its scientific methodology, for probably less than 400. So we know rather less than we might think, as shown by our wide-eyed reaction to such things as the Big Bang and genetic engineering, etc. By no means is all the evidence in, regarding consciousness. We can't actually prove that it exists in the Here and Now—or in another dimension (to offer a smart escape hatch from the Grim Reaper?).

But from what we know, we can make some shrewd guesses, and even afford a chuckle at that skeptical epigram about the 'survival of the soul', which goes: 'Most of those who yearn for eternal life don't even know what to do with themselves on a wet Sunday afternoon'. Surely a self-evident truth?

So why does humanity imagine there's an individual, surviving soul for each, all and sundry? 'My personal opinion is that this is partly because it's very hard to imagine 'not being'. But as this problem is in a way self-answering ('not being' means not being *anything*), try this way around it: Describe your feelings on 22 November, 1746.



(Reincarnationists need not answer that one.) See? It is possible for you to imagine that you don't exist; in the abstract, anyway.

Humanity as a whole, however, doesn't engage in such deep thinking. It blithely assumes that if 'I' survive death, so do my memory, sight, hearing, emotions—in fact, the whole works. And yet if all this assemblage of sophisticated sensors, data, gigabytes (and, to get to Heaven, navigational equipment) does exist in the here-and-now universe, as the orthodox religions assure us, then surely it must weigh something? Well...

In the latter half of 1993, some German scientists allegedly claimed that after many careful weighings of people at the very moment of death, they found ten milligrams had gone missing, per corpse. No, I don't know the names of the scientists, or of their lab. Although I'd feel better about it all if Richard Dawkins had been present. Because we now have a problem. (Or rather, the German scientists do.)

If souls have weight, but no volume (because if they had volume, they'd be unable to escape from submarines, etc) then their density must be infinite, and they'd sink to the centre of the Earth. Too much volume, and they'd end up in

the stratosphere. And what about momentum? If you have a fatal infarction in a 747 at full speed, do you just keep circling the Earth?

In other words, if 'I' have any existence in this universe, even as self-regenerating radiation (which can be measured, surely?) then a fair assumption is that 'I' must obey the universe's laws. Otherwise, we're back in the Miracles and Magic department—generally known as the paranormal. I just thought I'd clear that point up. I hope I have.

Still, the sneaking feeling exists, when you look at the sheer size and improbability of the universe, that it just might be a 'put-up job'. Otherwise, why the existence of Sod's Law? Why, when nuclear physicists look for simple truths, do they find only more and more complications? Why are religions both so powerfully mind-warping, yet so stupid?—and bearing in mind that we can't know anything except through physical nerve-endings, is there really a universe out there? For when the chips are down, 'I' is the only certainty we have.

I hope I haven't spoiled your dinner.

John Clarke is a writer living in Uxbridge

Where Not to Look for Science Books

Daniel O'Hara

Bemoaning the poor deal afforded popular science

IN ONE of the occasional pieces collected in the volume recently issued by Penguin Books, *Did Darwin Get It Right?*, the eminent biologist and emeritus professor at Sussex University, John Maynard Smith observes: '...people do not want to believe that they are the product of evolution by natural selection. They would prefer to believe that God created them with some special role in mind.'

The truth of this observation was brought home to me forcibly during a visit to Guernsey in October, when, the weather being too bad to do much but read, I went to the two main and well-stocked bookshops in St Peter Port, armed with my *Penguin Popular Science* catalogue, listing some hundred and fifty titles, to search for some congenial reading-matter.

One bookshop had a vast collection of fiction and classics, but I could find no 'Science' section. An enquiry to one assistant elicited a puzzled response: was I looking for childrens' books? I said I was looking for several of the titles listed in a recent *Penguin Science* catalogue.

Eventually, I was shown a corner which contained a few copies of Stephen Hawking's *A Brief History of Time* (surely the most bought but least read book after the Bible?) and several shelf-feet of books on astrology and the occult. They had none of the titles I was looking for, but said they could order them.

Not, in the circumstances, very helpful.

The other shop likewise had no obvious section of books on science, but an enquiry eventually revealed a few volumes tucked away on a bottom shelf, of which the only one listed in my Penguin catalogue was *From Eros to Gaia* by Freeman Dyson. In exasperation I expostulated: 'Don't you even have Richard Dawkins' *The Blind Watchmaker*?' To this the assistant, a mature male, replied: 'Oh yes—it's over there under Fiction'. Infuriated, I replied: 'But it's not a work of fiction!'. 'That's how we classify it', replied the salesman, unabashed.

After my return to London, I found one of the volumes I had been looking for: *One Long Argument: Charles Darwin and the Genesis of Modern Evolutionary Thought* by the veteran Ernst Mayr in a small but well-stocked bookshop in the Kilburn High Road (where they had no less than three shelves of popular science). The collection of essays by Maynard Smith (just published) turned up a few days later in a shop specialising in legal books in Fleet Street.

The visit to Guernsey was not, however, entirely fruitless. One volume, long out of print, I had been seeking for ages turned up in a second-hand bookshop. It is a collection of entertaining and perceptive reminiscences by Darwin's granddaughter, Gwen Raverat, entitled: *Period Piece: A Cambridge Childhood*. It cost me the princely sum of twenty pence! Guernsey certainly has its virtues, but a lively interest in contemporary science seems not to be among them.



Science and Nonsense

Gilbert Shapiro

How can we distinguish fact from fancy?

I WAS BORN between February 19 and March 20, so my astrological sign is Pisces. Even if I hadn't known it before, it was easy to find out since the information is printed in almost every newspaper.

Actually, on the day I was born, the sun was really in the constellation of Aquarius. This is because, in the two thousand years since the astrological tables were drawn up, the earth's axis has moved by more than thirty degrees. The sun's position now lags *more* than one full constellation behind the signs in the original tables prepared by sages more than 20 centuries ago. On the nineteenth of February, it is really still in Capricorn.

While some astrologers are aware of this discrepancy, basing their clients' horoscopes on the actual position of the stars, others do not. They use the traditional dates for birth signs. You might guess that the two methods would lead to considerably different analysis and advice, and they do. Then there are the Chinese and Indian methods which are based on entirely different traditions. They can lead to predictions that are the opposite of Western astrology. This does not bother followers of the occult art. All ways of doing astrology are considered to be equally valid.

As a practising scientist, I agree. They are all equally hogwash. I am continually dismayed by the college students who attend my classes in physics expecting to be enlightened about the astronomical basis of their star charts. Even apart from the study of heavenly bodies, I get questions about 'auras' and 'vibrations' and, depending on the current fads, about pyramid or crystal power, or channelling. The interest in such far-fetched ideas pervades our society, and is reinforced by the media. Even the past President of the United States regularly changed his schedule based on astrological advice. Newspapers that delight in pointing out errors in a politician's pronouncements continue to print daily horoscopes as if they represented the Scientific Truth.

Since I represent the science establishment, I had better spell out my own ideas about what Scientific Truth really is. It does not exist. There is not one scientific idea that is not liable to be overthrown, disproved, superseded, or discarded at any moment. The greatest heroes of science, Charles Darwin, and Albert Einstein, are all considered to have been mistaken in some major points. In my own lifetime, in the physical sciences alone, I have witnessed several cases (perhaps one every five years) where ideas that 'everybody' accepted one year, have been revised or replaced in the next.

I do not mean to suggest that scientific theories are ephemeral, or that every wild-eyed scheme thrown in from the sidelines has an equal chance of gaining acceptance. An idea that has enjoyed some success in explaining natural phenomena can be replaced only by a better idea. But it is a hallmark of scientific practice to be able to admit that one has been wrong in the past. This feature is notably absent from other belief systems.

The essence of the scientific approach is to attempt to find a simple explanation to nature. As an example, consider the Biblical account of the Creation. We cannot logically refute the idea that the world was created suddenly in the year 4004 B.C., with all the fossils and geological strata in place, with radioactive elements and their daughters present in the proper proportions, and with light already on its way from distant stars in order to make it seem that the world is much older. We can only assert that it seems a much simpler hypothesis to treat the world *as if* it were several billion years in age.

The phrase 'as if' is a key one. Matter behaves *as if* it were composed of atoms, even though we may never see a single atom. The fossil record can be explained *as if* living species have evolved over the ages. We do not have to believe these hypotheses. It is useful to reason from them to reach an acceptable and integrated explanation for a wide range of observations.

There is no reason to expect that the simple explanation that science seeks is really there. If scientists can be said to have a religion, it is their unshakable faith that the universe is basically, in some sense, simple. It is common to hear a scientific theory praised for its 'elegance' or 'beauty'. This is an aesthetic description that, like beauty in music or art, is difficult to define, but easy to recognise. The success of the scientific enterprise, over four centuries, in finding such elegant solutions is the justification we have for pursuing simple explanations.

The simplest explanation for some observations is that an experiment was done incorrectly, that the report is fraudulent, or that the observer was suffering from hallucination. Science depends upon the honesty of its practitioners, not only in dealing with each other, but by the scientist dealing with him- or herself. We expect that before a result is made public, the writer will first try as hard as possible to find out what is wrong with it. All the sources of error must be examined and eliminated, or at least quantified. No such

7 F. 在 其 中 也 有 其 理。
Others are more rational in their approach. Facts, not ideas, will carry the day.

26 W. 在 其 中 也 有 其 理。
Intellectual pursuits to the fore. Use the time to plan future events.

strictures govern untrained observers. When we hear reports of unidentified flying objects, or extrasensory perception, it is natural to examine them with a skeptical eye.

But the public is not always wrong, nor the scientists always right. Before 1800, some of the most learned savants (and scientific dilettantes like Thomas Jefferson) decried the ignorance and superstition of peasants who insisted that rocks fell from the sky. When, in the wake of an extensive meteor shower, real meteorites were found still warm and brought to the laboratory, scientific ideas had to be revised, for neither the first time, nor the last. Applied to modern controversies, this example shows how much more convincing than 'secret government reports' it would be to have even a tiny fragment of a putative alien space vessel to examine for ourselves.

Our skepticism about alien visitors is based on the known difficulties of space travel as well as the absence of manifest evidence for them. We wonder why, if the aliens are so common in our neighbourhood, we have not detected their presence more overtly. Would they deliberately conceal themselves from us, and even if they wanted to, could they succeed? Since we think space travel is limited by the speed of light, so the alien base must be really close by, if they can visit us as often as has been reported.

The claims about space visitors actually suffer from a lack of imagination. The spaceships we hear about are designed much as humans might make them, and the aliens encountered have arms, legs, and heads much like earthly creatures. Historically speaking, aliens of this form were relatively unknown (in the media) before 1942 when a popular science fiction magazine published a fanciful description of 'visitors' of this type. Alien life

in the universe, if it exists, is likely to have much more bizarre forms than most of us have even thought about. It need not be restricted to carbon chemistry, like life on earth, or even chemistry at all, as we know it. For example, in their book *Life Beyond Earth*, Gary Feinberg and Steven Shapiro describe a hypothetical 'spin-life' that might exist on a cold planet with a liquid hydrogen ocean. Some of the hydrogen molecules can have a net angular momentum. Elaborate structures might be built out of these spinning molecules which would be impenetrable to each other. Thus they would exhibit the feature of 'solids' and possible evolve

somehow into reproducing and even thinking creatures. A human visitor to their planet would not even recognise their existence; whereas they, if they ever could journey to the vicinity of earth, would find it an inhospitable, and uninhabitably hot, hellhole.

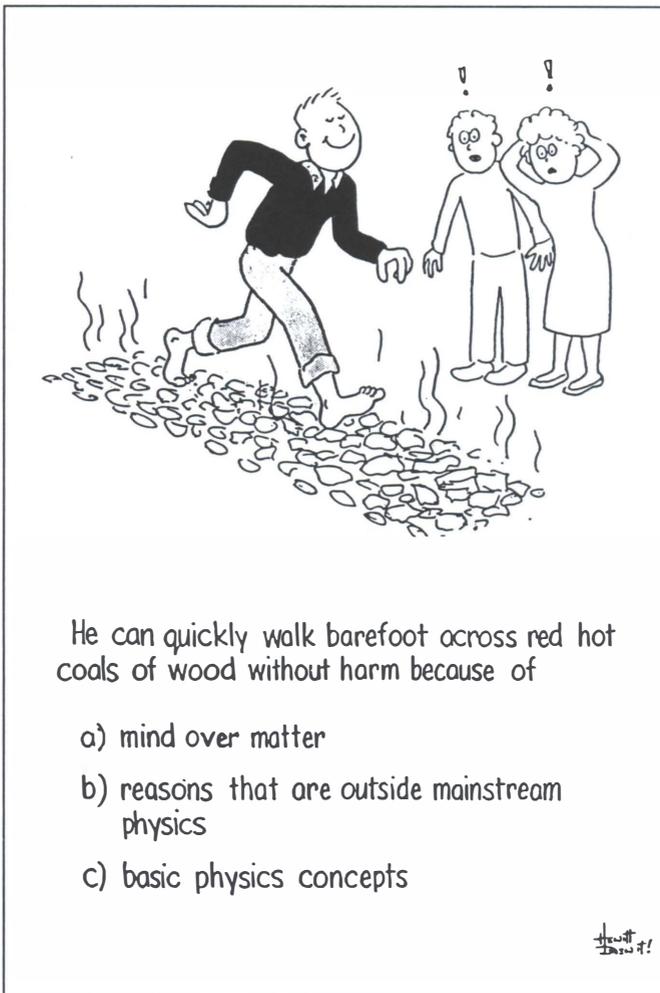
Many scientific discoveries have already been made that far outstrip the imagination of science-fiction writers or of pseudo-scientific claims. Was there any prediction of the enormously energetic astronomical phenomena, such as supernovas, quasars, or the Big Bang itself? Did any nineteenth century writer foretell the invisible radiation of the electromagnetic spectrum, from radio waves to X-rays? Was there any hint before 1953 of the elaborate genetic code encapsulated in DNA molecules? Going back, what did Mediaeval theologians, with their elaborate systems of the orders of angels, ever say about microbial life, or the moons of Jupiter?

It's tempting to assume that one can arrive at the truth simple by thinking about it, or better, by receiving an inspiration. However, experience has shown us that there is no substitute for doing the work, making the tests and checking for errors. It is a slow way. It is difficult, but it is the only way to discover the difference between sense and nonsense.

One theme that runs repeatedly through the history of science is the unity of nature. When Newton showed that the moons and planets obeyed the same laws of mechanics as cannonballs on earth, he made astronomy part of physical science. Two centuries later, James Clerk-Maxwell showed that electricity, magnetism, and light were all governed by the same laws. Maxwell also worked to prove that heat and sound could be explained by the mechanical motion of atoms and molecules. In this century, the laws of atomic physics have been

used to explain the basis of chemical reactions. In our generation, molecular biologists have gone a long way toward explaining living systems in terms of their chemistry. All of these disciplines rest on an elaboration of the same basic laws.

Psychology, the study of the workings of the mind, has not yet quite been incorporated under this general framework, although progress is being made. This field is in about the same state that medicine was in before the germ theory of disease was introduced. Thus laypeople can be led to believe that any fad, theory or personal insight is just as



likely to be true as the knowledge of leading experts. Just as medical cults which existed in the last century were based on theories of bone displacements or infinitesimal doses, so there are psychological schools at large today which have about equal claim to validity. Some of these theories may, or may not be validated by discoveries yet to be made.

The cult of parapsychology already has a venerable history. It has sufficient backing to be represented by teaching and research departments at creditable universities. The late physicist Richard Feynman has compared the activities of such departments with the 'cargo cults' of post-war New Guinea. There the natives built runways equipped with observation towers and dummy aeroplanes, hoping to induce magical aeroplanes to land with valuable goods for the believers. According to Feynman, these departments go through all the ritual of the scientific method, but they must be missing some essential point, because the planes never seem to land.

If the activity of the mind is to be explained in terms of the physical sciences, then it must have to do with the chemical activity of nerve cells of the brain. There is certainly evidence that this is probably the case. The brain is a network of billions of such specialised cells, each with connections to sometimes thousands of others. It will be a formidable task to trace down all these connections, and to associate their activity with the process we call 'thinking'. But if it is true that our intelligence is based on the physical network of nerve cells, then it is very unlikely that any thinking can take place in the absence of these cells.

What, then, are we to make of reports of 'out-of-body' experiences, 'disembodied spirits', 'thought transference', and the like? These concepts, even if they could be verified, would contradict the whole program of understanding a unified nature in a way that no other scientific discovery has. I rather suspect that the proponents of paranormal psychology have the same lack of imaginations that characterized other extra-scientific writers. The complete explanation of how the mind works, when it is finally worked out, will probably leave the parapsychologists looking like practitioners of medical cults of the past.

We know that our sensory perceptions can deceive us from time to time. Who has not had dreams, misunderstood the meaning of something seen briefly, and maybe even experienced some sort of hallucination? Were these experiences real in the same sense that $2 + 2 = 4$? This is why scientists insist on *objectivity* in observations. An objective fact is something that all observers can agree upon. Those of us who can see, and are not colour blind, would probably agree that grass is green. We can make it more objective by stating that the light reflected from the grass, when passed through a wedge of flint glass, is bent by a certain angle. The blind person can then detect the presence of green light by adjusting an apparatus which contains a wedge of flint glass. This is more useful than an explanation based on a description of the sensation of seeing green. The experiences of a single observer, which cannot be shared with others, cannot be regarded as an objective observation.

All the great discoveries of science are, and were, easily reproducible. As soon as Wilhelm Roentgen suspected X-

rays, the description he published of his observations and methods enabled scientists and inventors worldwide to make their own X-rays *within weeks*. Before a month had passed, hospitals were diagnosing broken bones and shoe salesmen were determining good fits using these X-rays, even though no one could 'explain' them. When news that Lise Meitner had observed the fissioning of the uranium nucleus came out of Germany in 1938, scientists from Sweden to California were able to verify it overnight with their own fission chambers. When Jocelyn Bell and Antony Hewish announced the discovery of pulsating radio stars in 1967, observatories at Harvard and in Australia quickly found their own pulsars. When the evidence is good, scientific agreement can proceed as quickly as the news can travel.

Contrast this with the typical case of a pseudoscientific claim, where the effect which is claimed cannot be reproduced, and the circumstances of observation are often questionable. Remember, it's not the *quantity* of the observations that count, it's the *quality*. If the effect is real, we can expect that other qualified workers could reproduce it on their own and there will be no argument.

Part of the problem is that pseudo-scientists usually know what they want to conclude, and they set about working toward that conclusion no matter what the evidence. This attitude smacks of religious belief more than of science. While it is true that scientists often begin an investigation with a working hypothesis, the objective scientist knows when to give up an idea.

When Luis Alvarez found the evidence that a mountain-sized object had collided with the earth 65 million years ago, at the time dinosaurs disappeared, he called his rival, Mal Ruderman at Columbia who had championed an opposing theory. 'Congratulations', Ruderman replied, 'You are right, and I was wrong'. Albert Einstein described his use of 'cosmological constant' in general relativity as 'my greatest mistake'. Even the smartest scientist of our era was not afraid to admit error. Recently I heard Stephen Hawking, the world's leading expert on general relativity and cosmology, admit that his own graduate student had revealed Hawking's error in thinking that time might run backward during the contracting phase of the universe. 'I was wrong', Hawking confessed.

Contrast this to the response of astrologers to what might be termed a crucial experiment in their field. My colleague, Shawn Carlson, ran a test in which he asked a sample of practising astrologers to match a personal description of several subjects with the subject's date of birth. The result of Carlson's study, published in *Nature* showed that the astrologers' group did no better than guessing at random. Did any of the astrologers decide to stop practising on the basis of that study?

Carlson says that he is willing to stake his life on the validity of our understanding of aerodynamics, and he does, every time he boards an aeroplane. An astrologer should at least have the courage to change his or her opinion.

Professor Gilbert Shapiro wrote this article for *The Beacon*, the newsletter of the East Bay Skeptics Society, from which it is reprinted with kind permission.

Psychic Diary

Toby Howard

Getting to the root of the problem

IT'S NOT THAT OFTEN, at the vegetable counter in Sainsbury's, that one comes across a reference to the most powerful of all plants in the history of magic and alchemy. The other day, while shopping for potatoes, I picked up one specimen which, with its eyes and warts, looked for all the world like that dynamic new symbol of the restructured BBC, Mr Blobby. The stranger next to me saw it differently. He said to me: 'What's that, a *mandrake*'?.

A mandrake? Well, why not? The mandrake, *Atropa mandragora*, also known as 'sorcerer's root', 'devil's candle', 'earth-mannekin' and 'the little gallows man', does, like the humble potato, belong to the order *Solanaceae*. But unlike the potato, the mandrake has a long history in the occult, stemming largely from the fact that its root has some slight resemblance to the human body, and that it has a most pungent odour, which some find very pleasant, and others disgusting.

The Greeks knew that the mandrake was a dangerous plant. Its root contains a juice with narcotic properties, and it was stewed in wine to make a potion which was used as an anaesthetic. Theophrastus, pioneer botanist and pupil of Aristotle, states in his book *Enquiry Into Plants* that before attempting to uproot a mandrake, three circles should be drawn in the earth around it with a sword, and the digger should then face West, while an assistant, whispering erotica to the plant, pulls it out of the ground. The sort of essential advice you just don't get anymore on *Gardeners' Question Time*.

By the Middle Ages, superstitions surrounding the plant had developed much further, and it was now treated with far greater caution. In alchemical terms, the strange shape of its root was now seen to be that of the homunculus. It was also believed that the plant grew underneath gallows, seeded by the emanations of the hanging bodies of executed criminals. The recommended method for digging up the plant was to use a dog tied with a rope to the carefully loosened root, and then to entice the dog to strain for a piece of meat held just too far away, so that it would pull up the root in the process. The dog was killed by the blood-curdling shriek emitted by the mandrake as it left the earth; the digger, his ears plugged with cloth, survived, and grabbed the mandrake, burying the dog in its place. Definitely not a good deal from the dog's point of view.

Once obtained, the mandrake had a host of magical uses. If properly looked after, washed weekly in wine and wrapped in a red or white silk cloth changed every full moon, it was a



powerful talisman. It would bring good luck to its owner; it could produce gold; make barren women pregnant; and more sinister, the already human-looking roots could be carved to make an effigy for working ritual magic against a specific enemy. Also, spirits could be enticed to enter the root, to make a 'familiar' to boost the power of the witch. But principally, the mandrake was for working love magic, either as a personal aphrodisiac, or to attract from a distance the attentions of a desired member of the opposite sex.

A good skeptic should conduct controlled experiments, and I was keen to visit a specimen of 'the little gallows man' in the field, to perhaps put its aphrodisiac properties to the test—purely in the name of Science, you understand. But alas, *Atropa mandragora* is not indigenous to our country. The plant known as the 'English mandrake' is not the real McCoy at all, but rather white or black bryony, two varieties of hedgerow plants which have fleshy roots similar to the true mandrake, but lacking the central bifurcation which provides the basis for a 'human' appearance. I suspect English mandrakes do not scream when uprooted, but instead utter a quieter, and more British, 'ouch'.

Unfortunately, Sainsbury's doesn't sell mandrakes of any description. Nor, sadly, is there a counter marked 'Aphrodisiacs'. They do, however, stock a wide range of herbs which, according to *The Occult Properties of Herbs* (W B Crow, Aquarian, 1969) are actually powerful aphrodisiacs: garlic, lentils, onion, artichoke, asparagus, horseradish, cabbage, carrots and celery.

I'll think I'll stick to Mr Blobby the potato...

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

Skeptic at Large

Wendy M Grossman

Pseudoscience in the FOREST



LATELY—my last few airline flights—I’ve been listening to the in-flight comedy channels. This was how I discovered Bob Newhart and his monologues. These are things where he takes one side of a conversation and leaves you to imagine the rest. There’s one that shows up quite often, where he takes one side of a conversation with Sir Walter Raleigh, who has just discovered tobacco and is sending eight tons of it over to England as an early sample.

Now, as Newhart points out, the uses of tobacco aren’t exactly obvious: you stick it up your nose, or roll it up in paper, stick it in your mouth, set fire to it, and breathe in the smoke. One wonders exactly how these uses were discovered. But these days smokers are a persecuted species, we know that. And I have a suggestion: I think smoking should be reclassified as a religion. In some ways this is already beginning to happen in any case.

Take FOREST, for example. According to FOREST, there is no medically proven link between passive smoking and lung cancer. Twenty years ago, the tobacco industry generally was saying the same thing about smoking itself, even, as the 1970s book *Smoke Rings* points out, in the face of medical evidence showing the opposite. This article of belief is both pseudoscientific and incomplete: lots of other medical conditions such as heart disease and emphysema are either caused by or worsened by exposure to tobacco smoke, and the children of smokers are well known to have more bronchial and respiratory problems. But point this out, and you run the risk of being labelled a ‘health fascist’, although this term is mostly reserved for government ministers and doctors who set targets for reducing smoking.

Reclassifying themselves as a religion would solve a number of problems for smokers at a stroke. For a start, there could be no more talk of government talk of setting targets for reducing smoking: we don’t set targets for reducing the numbers of Jews, Christians, Muslims, or even Hare Krishnas, who like smokers practice their religion publicly and sometimes disruptively.

Medical practitioners who refuse to treat smokers for illnesses linked to smoking would be guilty of religious persecution. Better still, smokers could have their own medical practitioners, just like Christian Scientists do, who understand and cater to their religious practices.

Best of all from the smokers’ point of view, they would be able to make a persuasive argument that the government would have to stop taxing cigarettes and tobacco, since that would be equivalent to taxing religious practices. The money thus saved could be collected by the temples smokers would set up for their religious services (which would no doubt

replace singing hymns with ritualistic smoking) and used to fund a variety of smoking community needs.

All this would have useful implications for other types of drug use and addictions. Marijuana smokers, for example, could claim status as a heretical sect, as could crack smokers (these might be the dangerous fanatics that all religions have to have). Alcoholics would have to found their own religion, of course.

All this would mandate changes for the self-help movement, too, some of which already has some religious aspects. Members of any 12-step program, for example, call on the help of a Higher Power (defined however each individual member likes, so it doesn’t have to be specifically a god-like figure) to help them stop doing whatever destructive things they’ve been doing—drinking, gambling, overeating, smoking, or inflicting their chaotic emotional states on their loved ones.

Such self-help groups rarely talk about scientific evidence: telling someone smoking or drinking is bad for them generally doesn’t help them stop in any case. They rely instead on shared experiences first of all to show that quitting is possible and second of all to help members with specific problems by giving them a chance to hear how other members have coped with the same problems.

In this sense, reclassifying smoking as a religious practice merely confirms the setup we already have, except that smokers and anti-smokers could battle it out among themselves without reference to anything or anyone else. They don’t need science for this, and don’t use it. The time society at large now spends getting wound up in these battles could be given to finding homes for the conscientiously objecting non-smoking children of smokers, say. Meanwhile, the tobacco industry would be saved a lot of marketing costs, since the temples would obviously want to do their own missionary work to find new members; they could take over the third-world outreach work already set in place by the tobacco companies.

They would do well to take as their role model in all this the Catholic Church, which deems the health risks of pregnancy and overpopulation irrelevant in its campaign against birth control on moral grounds. You’ll have to decide for yourself whether that’s better or worse than their present role model, which seems to be those creationists who insist that ‘evolution is only a theory’ and classify their own theories as scientific.

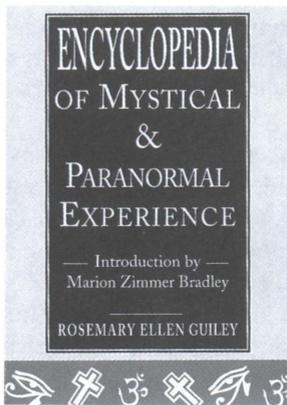
Wendy Grossman is a member of the UK Skeptics, and a writer and folksinger. Her CompuServe ID is 70007, 5537.

Reviews



All the facts—allegedly

Rosemary Ellen Guiley, *Encyclopedia of Mystical and Paranormal Experience* (Grange Books, 666pp, 1993, pbk, £12.99)



The popular perception of an 'encyclopaedia' is that it is a book of facts. The thicker the volume, the more facts, compiled by learned persons and edited by an even more learned person who places the stamp of authority on the whole exercise. For many general-purpose and special-purpose encyclopaedias, this is no doubt close to the truth. We end up with books we can trust. But when the subject is 'mystical

and paranormal experience', we find ourselves in much murkier waters.

In her preface to the *Encyclopedia of Mystical and Paranormal Experience* Rosemary Ellen Guiley writes: 'Admittedly I am not a skeptic, though I seek to be open-minded and consider all possible sides and arguments'. A tall order indeed, but having finished the book I was impressed at the extent to which Ms Guiley stuck to her intention. While her belief in many aspects of the paranormal will irritate skeptics who will hear themselves saying 'Yes, but...' rather a lot, she is not an across-the-board believer. A few illustrations: while astrology gets the thumbs-up, Kirlian photography does not: 'there is no evidence that Kirlian photography is a paranormal phenomenon' (p313); the existence of the human aura is assumed, but it is clearly stated that no scientific evidence for its existence has ever been found; the entry on apparitions mentions several non-paranormal psychological explanations for these phenomena; Carlos Castaneda is looked at with some suspicion, as is channelling; Sai Baba's 'paranormal feats' are carefully described as 'alleged', and so on.

This book by no means offers an overall 'skeptical' look at the subject area. Firewalking, for example, is seen as a most mysterious phenomenon indeed. However it is an excellent quick reference source for highways and byways of the 'paranormal' scene, past and present. There are many useful capsule biographies of prominent figures, and histories of religious movements, occult groups and cults. The story of Joseph Smith and his antics with the angel Moroni and the Urim and Thummim is well-told, and hilarious.

However, the problem of knowing what is a 'real fact' and what isn't, won't go away. There are many statements here, and opinions, which most skeptics would immediately wish to challenge. There are plenty of 'fun facts' too, where universal truth isn't really the issue. My favourite concerns the origin of the word 'gibberish', which the author states is 'derived from a medieval alchemist named Jabir ibn Hayyan, generally known as Geber (c. 721–815), whose writings were largely unintelligible'. Nice, but according to my dictionaries, improbable.

Hard-line skeptics probably won't want to read this book if they are worried about their blood pressure. But I recommend it. You have to get to know your enemies if you're to win the fight. And here we have a pleasant way to go about doing just that.

—Peter Piper

Close encounters of the cult kind

David and Therese Marie Barclay (eds), *UFOs The Final Answer? Ufology for the 21st Century* (Blandford, 1993, 192pp, hbk £16.99, pbk £6.99)

Do UFOs fulfil a deep human need and to what extent is their existence rooted in the human psyche? These intriguing questions form the starting point for this fascinating and thought-provoking book. In *UFOs, The Final Answer?*, David and Therese Marie Barclay have gathered together a unique collection of contributors from experts to cover all sides of the UFO debate. Every chapter examines a particular aspect of ufology, with each contributor presenting their (*sic*) individual perspective and argument. As a whole, the collection provides a serious, in-depth discussion of this controversial subject which will inform, amuse and inspire by turn—and which sets out the evidence to encourage readers to draw their own conclusions.

The reality is that the editors (of whom I have never heard but who founded the British Earth Mysteries Society and the journal *The UFO Debate*) have collected the views of six relatively unknown authors (I know only two of them). None of them are experts. The book is introduced by clinical psychologist Dr R W Shillitoe.

Arthur Tomlinson ('a full-time lecturer' on UFOs) claims that modern UFOs are a phenomenon with a long pedigree, going back into prehistory. He appears to be ignorant of the mythological nature of ancient accounts. *UFO Times*' editor Ken Phillips discusses the psycho-sociology (*sic*) of UFOs, especially the Anamnesis Protocol devised by his Austrian mentor Dr Alex Keul. This is 'a 69-question, time-invariant, culture free, protocol covering the demographic, medical, spiritual, educational and belief orientation components of the UFO witness'!

Robert Moore, BUFORA's Special Projects Officer, claims that all 'true UFO' reports can be explained by the implied interaction of diverse rare mundane stimuli (many of which he describes). He calls this the 'mundane-sythesistic hypothesis'. However, in trying to describe my beliefs, he makes many mistakes.

Freelance UFO writer Roger Ford, in 'what if' style, indulges in the UFO myth and the belief that secrets are being kept from the public. Joseph Dormer, president of Fylde UFO Research Group, likens UFOs to ghosts and claims that those who report both these phenomena do so as the result of suffering hallucinations; he concludes that all UFO events are delusions.

Charlotte A O'Connor, who describes herself as a cosmologist whose main interest is the origin of man (!), concludes that all ufological incidents may derive 'from the depths of the human psyche'. Therese Marie Barclay believes that 'intelligently guided vehicles of a kind not attributable to the efforts of human technology are abroad in the world', and she looks forward to the day when flying saucers land 'to be accepted as genuine'. However she has a point in observing that ufological investigation has become almost as predictably circular as the alleged flying saucers themselves.

In his concluding chapter, David Barclay has a lot to say about scepticism (*sic*). He calls it counter-productive and least defensible. This is because sceptics, according to him, ignore 'mountains of documented evidence' and 'make the unwarranted assumption that their inability to see beyond the ephemeral parameters imposed on consensus reality by present-day enculturation (*sic*) somehow endows them with an infallible "scientific-scepticism" that can define for ever the limits of what can, or cannot, be'. He believes that UFO-sceptics should restrain themselves until such time as the existence, or otherwise, of UFOs has been 'empirically demonstrated'.

This is a badly written book (it has many spelling errors and grammatical mistakes) which will do nothing to solve the UFO mystery. The authors are too embedded in the UFO myth to see solutions (although Robert Moore sees some of them).

—Stewart Campbell

The story of God

Karen Armstrong, *A History of God: The 4000-Year Quest of Judaism, Christianity and Islam* (Alfred A Knopf, 460 pp, hbk, 1993, £27.50)

Surveys show that practically everyone says they 'believe in God'. But what does this mean? Even people who subscribe to the same sect of the same religion may have drastically different ideas about 'God'. And what do people mean if they say they 'do not believe in God'? What do and don't 'atheists' believe? Despite many differences in doctrine and ritual, the idea of 'God' is central to the major monotheistic religions, Judaism, Eastern Christianity, Western Christianity, and Islam—and to Western 'atheism'.

Karen Armstrong approaches the idea of 'one God' in the manner of an intellectual historian, finding common

ideas about God that have been discovered or invented independently within all the major monotheistic faiths. She also shows that, within the history of individual faiths, different ideas about God have developed and contended, and similar trends in thinking about God have been seen in different religions. She attempts to cover these developments over a 4000 year history, from early Judaism to modern Christian, Jewish, and Islamic 'fundamentalism'.

Armstrong describes a 'God of the philosophers', a distant 'first cause' of the universe. This idea dates back to pagan Greek philosophy, and has appeared in the history of Judaism, Islam, and Western Christianity, and many scientists today see the hand of God in the laws of the universe. This God may satisfy reason, but it is very distant from daily life: the parameters of the universe do not often intervene directly in human life.

In contrast to the distant and abstract 'God of the philosophers', Armstrong sees the 'God of the mystics'. Based on personal, subjective, mystic experiences, this 'God' dwells within every person, and is active in the everyday world. Mystic experiences are possible for anyone, and are recognised to have physiological and psychological bases. These common experiences are the foundation for similar conceptions of God that have arisen in Judaism, Islam, and both major branches of Christianity. Armstrong's synthesis of diverse mystic traditions is interesting and helps make sense out of some aspects of contemporary 'new-age' religious activities.

If this dichotomy seems very similar to long-standing ideas about 'Apollonian' and 'Dionysian' religious experiences it is because I have over-simplified. The picture Armstrong draws is far more complicated, as she shows how major ideas about God have played out against the background of culture, politics, and history. As in any history of ideas, the emphasis is on the ideas, not on the social contexts in which they occurred. In this case, there is much to be said for de-emphasizing the details of doctrine, ritual, and ecclesiastic politics. Armstrong shows how these accoutrements are often almost completely unrelated to ideas about God, and at other times are actually symbols for competing ideas about God.

Modern secularism emerged from Western Christian traditions about 200 years ago. This happened, Armstrong contends, because Western Christianity adopted a version of the 'God of the philosophers', who was held to be logically demonstrable, and evident in the world. As materialistic science revealed the complex mesh of nature, many specific claims for such a God were shown to be incorrect. By logically refuting particular claims about God, science has been seen to have 'killed' God.

Armstrong makes clear, though, that the scientific 'elimination' of God makes sense only in the context of a specific conception of God. For instance, mystical views of God do not hold him to be logically demonstrable, nor do they generally conflict with natural science. The ineffable experience of God is profoundly human, and tremendously important to a person's life. The subjective reality of such experiences means that they can not and do not need to be 'proved', and also make the proofs of science irrelevant.

Armstrong shows that believing in God is very human, and probably meets important human needs. She observes that today people seem to be questing for a God that is not so 'personal' as to merely represent human prejudice, yet not so abstract as to be all but irrelevant to daily life. Religious tolerance depends on mutual understanding, and this book makes a useful contribution to such understanding, by challenging the reader to see beyond the limits of his or her own cultural traditions.

—Robert E McGrath

Cross-referenced consciousness

Israel Rosenfield, *The Strange, Familiar, and Forgotten: an Anatomy of Consciousness* (Macmillan, 141pp, £14.99, hbk, 1992).

As a scientific text, with not a word on OOBE, ESP, enlightenment or life-after-death, I cannot contrive the witty, New-Age-bashing review that readers of this magazine might have come to expect. Equally, being a computer architect, with interests in AI, rather than a neurologist, I cannot give the sort of peer-review critique that the author might have been expecting. Hopefully, though, my comments as an interested outsider will be of some interest to both audiences.

This vanilla flavoured scientific text contains a hint of a bitter after taste of 'my peers are wrong to ignore my theories', but I cannot condemn the author for that: all too frequently, major progress is made by maverick thinkers being skeptical of the skeptics. Dr Rosenfield's central thesis is that human consciousness, perception and, above all, memory are all indivisible parts of the same thing. Human memory is not a box of transparencies awaiting projection on the screen of consciousness; human perception is not an external signal processor for some central consciousness-machine.

Though he seems to put himself squarely in the *domain-general* camp, I suspect that his ideas could be applied in the *adapted mind* camp, too. It is intuitively obvious that the brain must be constantly scouring the data from all the senses throughout the whole body, searching for vital clues, when analysing any given situation; but Rosenfield carries this further, and asserts that *everything* that the brain perceives is structured relative to this (normally) slowly-changing body-image; that the feeling of *self* is far from peripheral, being the datum against which all external perceptions are recorded. Moreover, since the brain is part of the body, it contributes to the body image, so what it is perceiving now is structured relative to what it was perceiving the instant before. As well as giving consciousness a network of cross-references from which to make its inferences, this also gives it a mechanism for judging time and history. Furthermore, the model appears appealing, on the engineering grounds of storage efficiency (recording the differences between one scene and the next requires less storage space than the absolute data in the two scenes separately).

I have never found it convincing, the popular wisdom

that the brain's processing power can be switched over to enhancing the auditory system upon the permanent loss of sight. Rosenfield's theory, indeed, confirms what intuitively feels more likely, that the loss of sight is followed by the gradual loss of a major chunk of consciousness. Part of the framework, against which all thoughts and perceptions had previously been structured, would have been lost.

I am less convinced, though, by Rosenfield's belief that language is as central to consciousness as he claims. He makes no attempt to explain why there are many intellectual ideas which are not expressible in words, which can yet be conveyed in music, dance, and the visual arts.

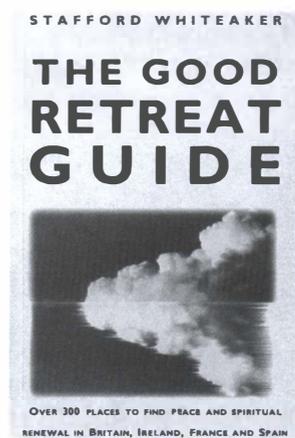
Another weakness of the book is the way in which some of the clinical data only provided partial support for some of the conclusions. I do not know if a more expert reader would have been able to dismiss the omissions as trivial, but as a layman in this subject, I felt that they weakened the power of his arguments. The book is only 141 pages long, in fairly large print; not only do the pages really fly by, but I found that I was able to press on, even on failing to grasp a point, sure in the knowledge that the author would go to great lengths to repeat the point a paragraph later.

Overall, as a reviewer, I consider my time reading this book to have been well spent, and I have certainly been made to stop and rethink some of my ideas on the nature of consciousness. However, paying a book price for the material coverage of a scientific paper would probably make most other readers think twice before investing in it.

—Malcolm Shute

Getting away from it all

Stafford Whiteaker, *The Good Retreat Guide* (Rider, 1991, Revised 1994, pbk, £11.99)



In the normal headlong rush of daily life it's easy to feel assailed on all sides by a menagerie of things all clamouring for our attention. People, telephones, the frenetic imagery of television and advertising, can all too often succeed, and we seem to be driven from one moment to the next, as though life was one long to-do list. Indeed we can even get used to it,

and feel uncomfortable if there is nothing that actually needs doing. Fortunately at times like this we can always turn to *East Enders*, or to sorting our favourite pieces of cardboard into neat piles. If that fails, then the desire to 'get away from it all' can become intense. Unfortunately however, even the best planned holiday in the paradise of Lanzarote, complete with pocket TV, can leave one needing a holiday to recover from the holiday.

Faced with this unsatisfactory situation an increasing number of people are looking for other alternatives. One such alternative is 'going on retreat', which is of course where *The Good Retreat Guide* comes in. At this point some skeptics may be beginning to get suspicious! 'Going on retreat' has a rather New-Agey sound to it. But it need not be so at all: essentially, one could regard the idea of a retreat as a holiday explicitly designed to facilitate inner peace. It provides an opportunity to experience oneself more deeply, or for the religious to attain a deeper communion with their god.

In these times of enlightened management, we even have management retreats. In these, all the managers in a company go away together for a weekend, in order to experience something. Regrettably having once retreated, the managers come back again and so no lasting satisfaction is achieved. Management retreats are not covered by this book. What the book does cover are over 300 places in Britain, Ireland, France and Spain, where a retreat can be had. Each entry takes about two-thirds of a page and gives a brief description of the site and activities. All the necessary details are also provided including religious affiliation (if any), dietary provision, accommodation, special constraints and booking information.

It would appear that a good retreat centre requires peaceful surroundings, a positive and relaxed atmosphere, other people skilled in achieving the desired goal, and some distance between you and your filofax. Some kind of routine is also very handy as we are then relieved of the continual burden of deciding what to do next—an unusual experience which can of itself occasion sensations of bliss and rapture. Such a programme or routine is not usually imposed forcibly on unsuspecting guests, and in this respect a retreat differs noticeably from certain holiday camps.

Holy wars and crusades aside, most of the major religions have some claim to understanding how inner peace is to be achieved, and so it is not coincidental that many places mentioned in the book are monasteries, abbeys or in some way associated with religious institutions—principally Christian and Buddhist. Alternative traditions are also well represented and the entry that is my personal favourite is that of the 'Eagle's Wing Centre for Contemporary Shamanism'. The author himself however was a member of a Christian monastic community.

One thing that is missing in the book is any indication of how or when the information was obtained, whether it represents the experience of the author or was solicited indirectly. Some entries are highly recommended, but we are not given any basis for understanding how such a judgement was arrived at. The 18-page introduction is written in a clear and open style and describes what a retreat is, the kind of activities and atmosphere one is likely to experience, and the meaning of retreats within the major traditions. The treatment is well balanced and factual, and goes to some lengths to dispel false expectations and point out some of the practical difficulties one may encounter.

If you do have any desire to get away from it all for a while, and are tempted by the idea of a retreat, this book would certainly provide a useful introduction and a source of information.

—Adrian West

The frontiers of tolerance

R A Gilbert, *Casting the First Stone: the Hypocrisy of Religious Fundamentalism and its Threat to Society*, (Element, 1993 pbk, £6.99)

'*Dungeons and Dragons* is really Satanism dressed up...'; 'Rock music is the devil's music...'; 'The New Age cult is the world of occultic darkness and spiritual danger beyond belief...'; Christian fundamentalists believe themselves privileged to have an insight into God's intentions which enables them to determine which activities are sinful and which are not: they *know* that God did not intend men and women to perform sexual acts with members of their own sex, to be Catholics or Hindus or Freemasons, or to 'dabble in the occult'—which includes anything from homeopathy to parapsychology via martial arts and handwriting analysis...

Many skeptics will share the fundamentalists' poor opinion of many of these activities, but we are more likely to attribute them to human credulity than to the Devil. So is Bob Gilbert, who combines his Christian beliefs with an interest in the occult which goes way beyond 'dabbling'. These would earn him one if not two 'believer' labels from those who like sticking labels on people: but they would also have to award him a 'skeptic' label, for his wide experience has made him profoundly doubtful of a great many claims and theories, and fools who cross his path are not likely to be suffered gladly.

Yet he suffers them, albeit only sadly. He may not think much of many New Age beliefs, but he would not join the picket lines outside a Psychic Fayre. He may not be persuaded of the validity of post-Gardner witchcraft or Crowley-type Magick, but he would not plant a fire-bomb in a bookshop devoted to those practices. Those who hold such beliefs have, he holds, a right to them so long as they do not insist that others ride the same hobby-horses. It is the dogmatism of the fundamentalists which he deplors. Not simply because he is opposed to bigotry of any kind; not only because he respects freedom of utterance in principle and in practice; but because he sees the activities of the fundamentalists as threats to vital liberties in the community as a whole.

These social dangers of fundamentalism manifest when the fundamentalists translate their beliefs into practice. Gilbert provides an appalling selection of examples—of shoddy thinking, of inconsistency and hypocrisy, of gullible passing-on of unfounded allegations which have every appearance of foatales, of stories re-told without a scrap of supporting evidence and total disregard for probability. At one extreme are silly episodes which might be comical were it not for their implications, such as the occasion when he himself had a lecture interrupted by the College Police at Salem, Massachusetts, because 'evangelical Christians' believed it to be 'satanic'. At the other extreme are the false accusations of ritual abuse which are currently wreaking havoc in so many innocent homes—'Three children crucified upside down and forced into sex acts at a ritual for Satan's birthday...'

Hardly less alarming are the social repercussions which he documents—the politicians who allow themselves to be exploited in dubious causes, the media who are lured into

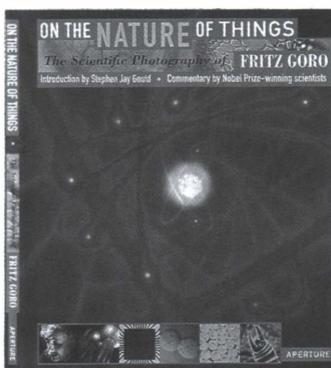
unwitting support for intolerance, providing a platform from which unfounded accusation and irresponsible scare-mongering can be inflicted upon the public.

Every skeptic must have asked him/herself, how far may an individual or a group justifiably go, to discourage views and practices which they believe to be socially harmful? Gilbert, in this passionately felt but soberly written study of activities on the frontiers of tolerance, argues that while we should work in the cause of truth and understanding, we should nevertheless tolerate everything except intolerance. This is a fine and timely book which the skeptic, no less than the believer, will benefit from reading.

—Hilary Evans

Science as art

Andrew Wilkes (Editor), *On the Nature of Things: The Scientific Photography of Fritz Goro* (Aperture, 1993, hbk, \$40)



'Fritz Goro was the most influential photographer that science journalism (and science in general) has ever known—or ever will...' writes Stephen Jay Gould in his Introduction to a book which deserves to become a classic. Goro's photographs are simply stunning, by turns exhilarating, mind-boggling and disturbing.

This book is a tribute to the extraordinary photojournalistic genius of Goro, who worked for almost 50 years for *Life* magazine, photographing some of the greatest technological and scientific breakthroughs of our time. The beautiful colour images span many areas, including light, atoms, molecules, cells and tissues, and marine and terrestrial life, each accompanied by a commentary by an eminent scientist. The book has an energy to it—just when you think the image you're looking at could not be surpassed, turn the page and there is something more amazing: fibre optics illuminate a skull as if it were red-hot, a laser beam is refracted by a microscopic prism, or vapourizes a razor blade, polarized light revealing the beauty of crystals of L-Dopa, moon rocks and semiconductor chips, the geometry of soap bubbles, the fusion of cells...

When the first atomic bomb was detonated in Alamogodo, New Mexico, in 1945, Goro was there to photograph the results, along with Oppenheimer and General Groves, military commander of the Manhattan Project. Shortly after the explosion, all three visited ground zero, a scorched wasteland where only a few twisted pieces of steel marked the site of the tall support tower on which the bomb had been placed. Incredibly, the only protective clothing provided against the radiation were linen coverings for their shoes. Years later, all three men died of various forms of cancer.

In his life, Goro was a dedicated to his art, and to presenting images of science and discovery to the world. Today, in an age where the general public's understanding of science is poor, and where pseudoscience lurks around every corner, books such as this have the capacity to play a vital role in showing that science is not dull and artless.

While the media continues to try and sell us the fiction that there are two types of people, and only two types—scientists and artists—we need only produce the work of Fritz Goro as evidence to refute this tedious fallacy, which is unnecessarily polarising our society and doing so much harm for our future.

—John Yates

Made in the USA

Delos B McKown, *The Mythmaker's Magic* (Prometheus Books, 180pp, hbk, 1993, £19.99)

This book attacks the Scientific Creationists on their own ground. Instead of debunking the factual claims of creationists, it tries to demonstrate the unscientific and illogical nature of the creationist creed of biblical inerrancy. This makes it a useful reference for those who find themselves debating creationists. Debates which feature physical evidence often descend to exchanges of 'Oh yes it is' and 'Oh no it isn't' as the two sides argue about whether their favourite pieces of evidence are frauds. But no creationist can argue about what the Bible says.

The Mythmaker's Magic is aimed at school teachers and governors who might be faced with creationists attempting to introduce 'Creation Science' into the curriculum. Fortunately this unedifying sight is less common here than in the USA, where creationists are making a determined attempt to hijack science teaching. The book consists of a series of loosely coupled essays on various aspects of creationism. Some of them deal with biblical aspects, others with logic, and still others with US constitutional law. The last category will be of little interest to UK readers, but it contains only two chapters out of ten.

One chapter which is worth reading is 'How to dose "Scientific Creationists" with their own medicine'. This sets up a parody of the creationist dogma in which the current Earth is simply the second of three separate creations. The first was described in Genesis and the third is due any day now. The whole thing is based firmly on biblical quotations and neatly explains all the annoying discrepancies between Genesis and reality.

Overall there is a great deal of interesting and useful information in *The Mythmaker's Magic*, but unfortunately it is hidden in long, convoluted sentences (often with parenthetical asides) which wind their way through the paragraphs in such a way as to induce the reader (if I may be permitted to parody) into a game of sentences and ladders. McKown needs to simplify his sentence structure, drop the unfunny jokes and stop using brackets. His philosophy students may have to put up with his style, but his other readers will simply close the book.

—Paul Johnson

Letters



A fair claim

I am sorry that Andrew Colman's article on Marilyn vos Savant's remarkable IQ (*The Skeptic*, 7.5) was so little researched before he plunged in to attack it. My *Guinness Book of Records* (1989) explains how the figure of 228 was achieved, which was precisely by using the method carelessly rejected as old-fashioned by Colman before he goes on to explain how the figure is unattainable using other definitions of the term 'Intelligence Quotient'.

According to the *Guinness Book of Records*, Miss vos Savant achieved the score expected of a 23-year old (almost) when she was ten, giving a quotient, as it was then defined, of $22.8/10 \times 100 = 228$. Although David Wechsler's definition of IQ was introduced nearly 20 years before Miss vos Savant took her test, it was designed principally for adults, for whom, as Mr Colman points out, the simple Mental Age/Chronological Age calculation was inadequate. For children, the original definition continued, and I believe continues, to be widely used.

The *Guinness Book of Records* goes on to say that Miss vos Savant subsequently achieved a score in another test which 'represents a performance at the level of 1 in 10 000 000'. This suggests that her IQ as defined by Wechsler might be 175 or so.

As to whether Miss vos Savant really is peculiarly intelligent or why her often quoted IQ is one derived from tests she took 36 years ago rather than a more recent assessment, these are issues I do not care to address. Neither, perhaps unfortunately, did Mr Colman, because, as it stands, her claim is perfectly acceptable, and his attack merely meretricious.

**Hugh Farey
Bromyard,
Herefordshire**

A call for care

I enjoyed the latest issue of *The Skeptic*, but... It seems to me that Andrew Colman's piece alleging Marilyn vos Savant's 228 IQ to be impossible is flawed. Essentially, it would take a sample size much larger than that from which vos Savant's result is drawn (the entire set of tested and reported people) to establish that the IQ distribution follows a normal distribution sufficiently closely to use the line of argument that leads to a ridiculously low probability for $IQ = 228$. You can tailor an IQ test to give a normal distribution, you cannot *define* it thus, and you can only tailor it to an accuracy given by the sample size being used for adjustment. If Colman wishes to claim that error or whatever is a more likely source of this result, he then has to discuss measurement errors rather than some *a priori* assumption about the distribution being normal to some incredible accuracy. You cannot say anything about minute tails of a distribution from a limited sample size.

Let me make two concrete points to clarify this. One, the IQ distribution cannot be normal, anyway, because IQ results are bounded from below, by zero, and from above, by the maximum test score, unlike the normal distribution.

Two, a reasonable (?) model which could generate a vos Savant score would be one in which a very few people—say 1 in 1 billion—are geniuses, perhaps due to genetic mutation, drawn from a normal distribution with an average of 210, not 100. Such a population component would never show up in mass testing.

I think it behoves skeptics to be a little more careful in their argumentation.

**Martin Hempstead
Southampton**

No extra light

I refer to Chris Nash's review (*The Skeptic*, 7.5) of Eisenman and Wise's book on the Dead Sea Scrolls, in which he asks owners of the Scrolls were *Christians* and whether or not the Scrolls represent the Christianity of AD50 (*sic*).

I have a copy of Theodore H Gaster's *The Scriptures of the Dead Sea Sect* (London 1957). Based on the texts published by that time, Gaster concluded that, not only were the texts composed between 170 and 68 BC, but they were the scriptures of an Essene community at Qumran. In particular he noted that the Scrolls contain no anticipation of or parallel to distinctive Christian doctrines. Nor did the authors believe in a martyred Messiah; they looked forward to the advent of a prophetic and priestly Teacher before the Final Era, but this was not the Second Coming of a martyred Christ. I am not aware that Gaster's conclusions should be modified (or that he modified them) as a result of the release of further Scroll fragments.

The Scrolls are not Christian documents and they throw little light on early Christianity.

**Stuart Campbell
Edinburgh**

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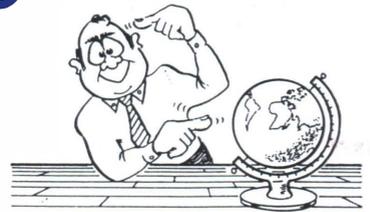
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