

THE SKEPTICAL INTELLIGENCER.

VOL 3 ISSUE No. 1 JULY 1998



The Magazine of ASKE

ASSOCIATION for SKEPTICAL ENQUIRY



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I

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a long way behind. Moreover the two wakes pass through the interference enhanced, as if they were the result and not the cause of the disturbance. Observers can be forgiven for mistaking this phenomenon for Nessie. In 1992 a tourist at Urquhart Castle videoed an interference wave which rolled over and over in the same spot. Wakes and disturbances will also break in the shallows of the lake where observers often see a sudden and apparently mysterious upsurge of water. With no vessel insight, it is understandable that such events will be interpreted as evidence for the Monster.

Once it was generally believed that a large aquatic species lives in Loch Ness, it was inevitable that reports of such a creature would be received. Such reports then reinforce the myth, guaranteeing further reports. Ignorant of the tricks that Loch Ness can play, observers under the influence of the myth are bound to see Nessie in every anomalous stimulus. It is even likely that reports of monsters in other Scottish lakes, and in lakes in other parts of the world, have been generated by the Loch Ness myth, or at least by similar phenomena. Loch Ness has not spawned a Monster, but it has spawned a monstrous myth.

References

- Baker, P. and Westwood, M. 1962. Sounding out the monster. *The Observer*, 26 August 1962.
- Boyd, A. and Martin, D. 1994. Creating a monster. *BBC Wildlife*. April 1994: 22-23.
- Campbell, S. 1984. The Surgeon's Monster Hoax. *British Journal of Photography*, 131: 402-405 & 410.
- Campbell, S. 1986. Monster or boat? *Photographic Journal*; 126(2): 54-58.
- Costello, P. 1974. *In Search of Lake Monsters*. London: Garnstone Press. Reprinted by Panther. 1975.
- Creasey, D. J. 1977. On the use of sonar in Loch Ness searches. *Progress in Underwater Science*; 2: 91-98 (see also discussion at pp 100-102).
- Demak, R. 1984. The (Retouched) Loch Ness Monster. *Discover*, 5(9): 6.
- Grimshaw, R. and Lester P. 1976. *The Meaning of the Loch Ness Monster*. Birmingham: Centre for Contemporary Cultural Studies, University of Birmingham.
- Inverness Courier. 1933. From a Correspondent. *Inverness Courier*, 2 May 1933.
- Klein, M. and Finkelstein, C. 1976. Sonar serendipity in Loch Ness. *Technology Review*, 79(2): 44-57.
- Langton, J. 1994a. Revealed: the Loch Ness picture hoax. *The Sunday Telegraph*, 13 March 1994: 1.
- Langton, J. 1994b. 'Nessie and a big-game hunter's monster ego'. *The Sunday Telegraph*, 13 March 1994: 3.
- Loch Ness Investigation Bureau. 1966. *Report on a film taken by Tim Dinsdale* [Leaflet]. Loch Ness Investigation Bureau.
- Razdan, R and Kielar, A. 1984-85. Sonar and photographic searches for the Loch Ness Monster: a reassessment. *Skeptical Inquirer*, 9: 147-158.
- Rines, W. H., Edgerton, H. E., Wyckoff, C. W. and Klein, M. 1976. Search for the Loch Ness Monster. *Technology Review*, 78(5): 25-40.
- Sagan, C. 1976. If there are any, could there be many. *Nature*; 264: p 497.
- Sheldon, R. W. and Kerr, S. R. 1972. The Population Density of Monsters in Loch Ness. *Limnology and Oceanography*; 17: 796-798. See also comment in vol.18: 343-46
- Shine, A. *Loch Ness Project Report*. Drumnadrochit: Loch Ness Centre.
- Tucker, D. G. and Braithwaite, H. 1969. Sonar picks up stirrings in Loch Ness. *New Scientist*, 40: 664-666.
- Tucker, D.G and Creasey, D. J. 1970. Some sonar observations in Loch Ness. *Proceedings of the Challenger Society*, 4: 91-92.

Pellagra and The Origin of a Myth: Evidence from European Literature and Folklore

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of Rhode Island, his main area of scholarly interest is twentieth-century female British authors, including A. S. Byatt, Jeanette Winterson, and Angela Carter.

Although medical publications contain examples of clinical vampirism¹, blood-drinking tyrants are an unlikely basis for the European vampire folklore. Such individuals, although noted in history, were rarely encountered. More likely, the vampire legend developed out of communities' mounting fear of a disease they encountered daily. Because their understanding of medicine included aspects of magic, eighteenth and nineteenth century villagers used their belief in fables, such as vampires, to explain the unknown. Although various diseases ravaged parts of Europe during this period, a discongruity exists between the causes of the diseases and villagers' explanations for them; frequently a lingering disease was seen as having a supernatural cause, with the first victim labelled as a vampire². Notably, the vampire belief has always been a theory of contagion; the term *nosferatu*, popularized by Bram Stoker's *Dracula*³, is an archaic term derived from the Greek *nosophorus*, which means 'plague carrier'⁴.

Several diseases, including rabies⁵ and tuberculosis⁶, have been linked to the genesis of vampire folklore. In particular, the speculated relationship between erythropoietic porphyria⁷ and vampirism has received a great deal of media attention - much to the displeasure of porphyrians worldwide⁸. None of these diseases satisfactorily presents clinical signs that would have been necessary to instigate the widespread European folkloric vampire belief. Although our interest is not to 'medicalize a myth'⁸, pellagra, a dietary deficiency of niacin and tryptophan, makes intriguing arguments for being the originator of the vampire myth. First recognized in 1735, pellagra was the scourge of Europe and then the United States for two centuries⁹. Pellagra is still seen occasionally in scattered populations of southern Africa, Egypt, and India^{10,11}.

After American corn (maize) was introduced to Europe, the food calories yielded per acre increased greatly over what had been provided previously by rye and wheat¹². The use of corn as a staple crop spread gradually from the Iberian Peninsula to eastern Europe⁹. At that time, where corn went pellagra was sure to follow, for cornmeal became the main source of energy for poor people. Although popularly observed and described in Spain and Italy, pellagra was uniquely

macabre in eastern Europe, where poverty, cultural viewpoints, and a lack of medical knowledge kept the disease from being diagnosed until 1858⁹. For years, an infectious or genetic cause was suspected, but pellagra is generally the consequence of a diet which relies upon corn as a staple because the niacin and tryptophan in corn are bound and have poor bioavailability. Clinically, the disease is identified by the 'four Ds' - dermatitis, dementia, diarrhoea, and death.

Like all folklore, the legend of the vampire has evolved throughout the centuries. Our current vampire image has its origin in the folklore and writings of eastern European countries beginning in the early 1700s^{2,4}. The novel *Dracula* is often considered a handbook of vampire characteristics, for its author did extensive folklore research before writing his masterpiece. Published in 1897, Stoker's work is renowned for masterfully combining all of the European folkloric beliefs into one persona. Because *Dracula* will be familiar to many readers, we take references from this classic as well as from European folklore to argue that European pellagra epidemics were responsible for the vampire belief.

Dermatitis

The dermatological consequences of pellagra persuasively suggest a relationship with vampire folklore. Just as vampires must avoid sunlight to maintain their strength and keep from decay, pellagrins are hypersensitive to sunlight, with the margins of their dermatitis sharply demarcated. Sun-exposed areas at first become red and thick with hyperkeratosis and scaling. This is followed by inflammation and oedema, which eventually leads to depigmented, shiny skin alternating with rough, brown, scaly areas. With repeated episodes of erythema, a pellagrin's skin becomes paper-thin and assumes a parchment-like texture¹³. Early in *Dracula*, Stoker characterizes the Count - who had avoided sunlight and went out only at night - as a man of 'extraordinary pallor' without 'a speck of colour about him', yet he had a 'bloated face'³. Meanwhile, Dracula describes himself as 'a blot on the face of God's sunshine' and notes to his guest Jonathan Harker: 'I love the shade and the shadow'.

In addition, pellagrins are said to have a 'foul mouth'⁴. (In fact, the association between vampire folklore and garlic may have developed from villagers' practice of homoeopathic medicine²; that is, they intended to 'fight fire with fire'.) This pungency of breath is perhaps best exemplified by canine black-tongue¹⁵, the animal model of pellagra. Dogs that lack niacin in their diet develop a version of pellagra characterized by bleeding sores in the mouth. The blood which does not run from their mouths becomes dried and crusts on their tongues - hence the term black-tongue.

In humans, the tongue of a pellagrin is marked by glossitis and excessive redness, causing an intuitive association with blood. Because of tongue oedema, tooth imprints are often left on the tongue, suggesting to an observer that a pellagrin has protuberant teeth or fangs. Similarly, pellagrins develop an inflammation of the lips which become red and cracked¹³, reflective of Stoker's description of Dracula's lips which showed 'remarkable ruddiness' and 'the ruddy colour, the voluptuous lips' of the three vampire brides³.

Dementia

Because niacin is not available for metabolic processes, neurons in the brain degenerate with development of dementia. Clinical symptoms - including insomnia, anxiety, unjustified aggression, and depression - are of the manic-depressive type and can be severe enough to demand admission to a psychiatric hospital^{14,16}. These symptoms are characteristic of the folkloric vampire who does not sleep at night and is morose or irritable. Perhaps because of the unpredictable behaviour of pellagrins, villagers grew to fear the possibility of a violent attack during the night. In *Dracula*, Dr Seward comments on his patient R N Renfield, who is not a vampire in the novel but worships the Count and engages in repulsive behaviours, hoping to impress Dracula: 'sanguine temperament; morbidly excitable; periods of gloom...a possibly dangerous man'. Later, Seward notes that Renfield is 'an undeveloped homicidal maniac' who would '[sit] in a corner brooding'

An often overlooked aspect of pellagra is that pica may occur concurrently¹⁷, perhaps as a desperate attempt to include niacin in the diet. Pica is a pathological craving for normal foods or for substances not usually regarded as foods. Most often, consumption of ice and clay are reported although more bizarre

substances have been noted. With echoes of early burial and entombment procedures, pellagrins tend to crave vinegar and spices¹⁴. And in *Dracula* Dr Seward describes Renfield as being zoophagous (i.e. life eating) because he eats flies, spiders, and sparrows. Although Renfield is maniacal, his obsessive craving could be considered an extreme case of pica.

Diarrhoea

Diarrhoea has never been discussed as an aspect of the vampire myth; however, one would expect limited references from nineteenth century sources regarding bodily functions such as excretion. According to legend, vampires do not consume food, for they need only blood to survive. In reality, anorexia, weight loss, and refusal of food are common among pellagrins because of the mucous membrane lesions, particularly in the oesophagus, stomach, and colon¹³⁻¹⁴. In *Dracula*, the Count continually apologizes for not dining with his guest Harker: 'You will, I trust, excuse me that I do not join you; but I have dined already, and I do not sup'³. Later in the novel, Mina Harker describes: 'I could not eat; to even try to do so was repulsive to me'. In addition to dysphagia, circumstances such as poverty, poor hygiene, and inadequate cooking methods were probably common among pellagrins, further worsening their disease state. These factors also promote the risk for parasitic infections, reflective of the vampire's legendary association with vermin.

Death

Historically, allegations of vampirism were from communities that had a great number of people dying from a chronic disease⁴. Vampires were seen as the malefactors of the inexplicable, even though folkloric vampires were never caught in an attack². Instead, the main reason for identifying a person as a vampire was a wasting disease. Vampire folklore holds that those who die leave behind relatives and friends with whom they have unfinished agendas: strong emotional connections cause the recently deceased to leave their graves and seek vengeance against family members and neighbours who mistreated them during life. If pellagra had been the culprit as the cause of death, then the deceased's relatives and neighbours would probably have had similar diets; as a consequence, their own development of pellagra would have been interpreted as the dead returning for revenge.

A disparity between the folkloric vampire and the contemporary vampire image is the fate of the vampire's victims. In general, a single attack by the folkloric vampire was not fatal. Instead, vampires were seen as absorbing the vitality of family members and neighbours over a long period by repeated assaults. A progressive disease, untreated pellagra typically leads to death in four to five years; nevertheless, death from pellagra may come suddenly, even when clinical symptoms appear to be mild¹³.

Blood is crucial for life, and a pellagrin who became anaemic because of gastrointestinal bleeding may have given the impression of being 'the living dead'. The association between blood loss and ensuing death is portrayed by Renfield who, after 'licking up like a dog' the blood which fell from Harker's wounded wrist, proclaims: 'The blood is the life! the blood is the life!'

Further Evidence

Additional reasons from *Dracula* and folklore connect pellagra with the vampire belief. For example, according to the *Oxford English Dictionary* the word vampire first entered English in 1734, the year before pellagra was noted a royal physician as a 'disgusting indigenous disease among Spanish peasants'^{2,18}. And before reaching Castle Dracula, Harker consumes a breakfast including 'a sort of porridge of maize flour which she said was "mamaligia"³. Besides water, mamaligia has cornmeal as its primary ingredient. If this meal was consumed as a staple by impoverished eastern Europeans, pellagra would not be an unexpected consequence.

Also, reports of European folklore have shown that seeds were used as a protective measure against vampires. The legendary motive for using seeds was that vampires would be inclined to count them and would therefore neglect to find new victims. In particular, seeds of millet were popular^{2,4}. Of all seeds, it is ironic that millet would be chosen as an apotropaic because it has an excess of leucine. A dietary excess of this amino acid blocks the conversion of tryptophan to niacin¹⁰ and would thus worsen the pellagic state.

Often referred to as 'the springtime disease'¹², pellagra increased in the spring when the new crops were not yet ready and cornmeal was a large part of the diet. According to tradition, St George's Day, in late April or early May, was the day on which vampires would gather at the edge of a village to plan their

wicked activities for the next year. To complement the association of spring with the vampire myth, Jonathan Harker is told upon his arrival in Transylvania: 'It is the eve of St. George's Day. Do you not know that to-night, when the clock strikes midnight, all the evil things in the world will have full sway?'³

Conclusions

As Mary Shelley writes in her foreword to *Frankenstein*: 'Everything must have a beginning, to speak in Sanchean phrase, and that beginning must be linked to something that went before'¹⁹. Was pellagra responsible for instigating the vampire myth? For now, that can be only a matter of conjecture. Although one could argue that an inadequate intake of several essential nutrients could cause symptoms such as glossitis, anaemia, anorexia, and pica, considerable historical evidence indicates that pellagra was more widespread than any of the other diseases caused by deficiencies of water-soluble vitamins²⁰.

Because all legends change with time, one cannot reconcile all aspects of the vampire myth with the evidence from pellagra. For example, pellagra does not account for the use of the Crucifix, the Eucharist wafer, or holy water, which have long been cited as protective against vampires (even though folkloric vampires never reacted violently to the Cross²). These aspects of the myth may have been developed by clergy members and villagers who assumed that those who became ill and died were heretics receiving punishment for their sins. Furthermore, the pious reasoned that very sinful people, such as alcoholics (who probably had a poor diet), were most likely to be vampires and would return from the dead².

Even though the practice was forbidden by the Church, hysterical communities did disinter graves to examine bodies for evidence of vampirism; not surprisingly, almost all exhumations yielded a perceived vampire. Most frequently, a reputed vampire's face would be recorded as being red and marked with fresh blood^{2,4}. Intriguingly, the second tell-tale sign of vampirism was a ring of cornmeal around the mouth of the deceased⁴. As odd as this association with vampirism is, perhaps eighteenth and nineteenth century villagers had a better understanding of nutrition and epidemiology than we now give them credit for.

References

1. Jaffe PD, DiCataldo F. Clinical vampirism: blending myth and reality. *Bull Am Acad Psychiatry Law* 1994; **22**: 533-44
2. Barber B. *Vampires. Burial, and Death: Folklore and Reality*. New Haven: Yale University Press, 1988
3. Stoker B. *Dracula*. New York: Penguin, 1993
4. Melton JG. *The Vampire Book: the Encyclopaedia of the Undead*. Detroit: Visible Ink Press, 1994
5. Heick A. Prince Dracula, rabies, and the vampire legend. *Ann Intern Med* 1992; **117**: 172-3
6. Sledzik PS, Bellantoni N. Bioarcheological and biocultural evidence for the New England vampire folk belief. *Am J Phys Anthropol* 1994; **94**: 269-74
7. Boffev PM. Rare disease proposed as cause for 'vampire'. *NY Times* 31 May, 1985; A15
8. Winkler MG, Anderson KE. Vampires, porphyria, and the media: medicalization of a myth. *Perspect Biol Med* 1990; **33**: 598-611
9. Sebrell WH. History of pellagra. *Fed Proc* 1981; **40**: 1520-2
10. Cotran RS, Kumar V, Robbins SL. *Robbin's Pathologic Basis of Disease*, 4th edn. Philadelphia: WB Saunders, 1989
11. Malfait P, Moren A, Dillon JC, *et al*. An outbreak of pellagra related to changes in dietary niacin among Mozambican refugees in Malawi. *Int J Epidemiol* 1993; **22**: 504-11
12. Bollet AJ. Politics and pellagra: the epidemic of pellagra in the U.S. in the early twentieth century. *Yale J Biol Med* 1992; **65**: 211-21
13. Hendricks WM. Pellagra and pellagralike dermatoses: etiology, differential diagnosis, dermatopathology, and treatment. *Semin Dermatol* 1991; **10**: 282-92
14. Dumitescu C, Lichiardopol R. Particular features of clinical pellagra. *Rom J Intern Med* 1994; **32**: 165-70
15. Spencer TN. Is black tongue in dogs pellagra? *Am J Vet Med* 1916; **11**: 325
16. Carpenter KJ, Harper AE, Olson RE. Experiments that changed nutritional thinking. Paper 9: Pellagra is not infectious! *J Nutr* 1997; **127**: 1032S-1034S
17. Danford DE. Pica and nutrition. *Annu Rev Nutr* 1982; **2**: 303-22
18. Etheridge EW. *The Butterfly Caste: a Social History of Pellagra in the South*. Westport, CT: Greenwood Publishing, 1972: 9
19. Shelley M. *Frankenstein*. New York: Bantam Books, 1991: xxiv
20. Jukes TH. The prevention and conquest of scurvy, beri-beri, and pellagra. *Prev Med* 1989; **18**: 877-83

Clinical Findings in Three cases of Zombification

By Roland Littlewood and Chavannes Douyon

This article first appeared in The Lancet (Lancet 1997; 350: 1049-96) and is copyright by The Lancet Ltd. It is reprinted by kind permission. Roland Littlewood MRCPsych is Professor of Anthropology and Psychiatry at University College, London. Chavannes Douyon MD is a medical practitioner at the Polyclinique Medica, Port-au-Prince, Haiti

Zombification became a subject of popular Western interest during the occupation of Haiti by the USA between 1915 and 1934.¹ The current United Nations intervention has again focussed attention on a phenomenon regarded as exotic and improbable by the media, yet one which is taken by most Haitians as empirically verifiable. Along with the related religious practice of *vodu*, it has been implausibly related by US physicians to the current epidemic of AIDS in Haiti.² Haitian medical practitioners regard zombification as the consequence of poisoning; the clergy as the product of sorcery. Zombis are frequently recognised by the local population, and estimates of their number are of the

order of up to a thousand new cases per year (L P Mars, personal communication).

Zombification is a crime under the Haitian Penal Code (Article 246) where it is considered as murder although the zombified individual is still alive. Local interpretation is that either by poisoning or sorcery, a young person suddenly and inexplicably becomes ill, is subsequently recognised by their family as dead, placed in a tomb, stolen by a *Boko* (sorcerer) in the next few days, and secretly returned to life and activity but not to full awareness and agency.^{3,4} Haitians are seldom buried but placed in painted concrete family tombs above ground which in country areas are on

family land next to the houses; they are vulnerable to being broken open.

Local beliefs about body, mind, and spirit recognise a separation of the *corps cadavre* (physical body) with its *gwo-bon anj* (animating principle) from the *ti-bon anj* (agency, awareness, and memory).³⁻⁵ In zombification, the latter is retained by the sorcerer, usually in a fastened bottle or earthenware jar where it is known as the *zombi astral*. The *Boko* either extracts it through sorcery which leaves the victim apparently dead, or else captures it after a natural death before it has gone too far from the body.^{1,3,4} The animated body remains without will or agency as the *zombi cadavre*, which becomes the slave of the *Boko* and works secretly on his land or is sold to another *Boko* for the same purpose. It is induced to remain a slave only through chaining and beating, or through further poisoning and sorcery. This *zombi cadavre* is the zombie popularised by Western cinema and indeed is referred to locally by that name. In Haiti, the term is also used in metaphor to refer to extreme passivity and control by another.

Explanations as to how a *zombi cadavre* may escape back to its original family suggest that either the bottle containing the *zombi astral* breaks; or the *Boko* inadvertently feeds his zombi salt; or he dies and the zombi is liberated by his family; or, rarely, the zombi may be released through divine intervention. On release, their mental and physical status remains the same, and they are vulnerable to recapture and continued enslavement; few *Bokos* or doctors claim to be able to return a *zombi cadavre* to its original state of health and agency, and the matter is reserved for the mercy of *Le Grande Maitre* (the rather remote God recognised by *vodu* practitioners who is only invoked briefly through Latin prayers before they begin their ceremonies). Zombis are recognised by their fixed staring expression, their nasal intonation (which they share with manifestations of the spirits of the dead); by repeated, purposeless, and clumsy actions; and by limited and repetitive speech. They are regarded with commiseration; fear is reserved for the possibility of being zombified oneself. Concern that a deceased relative may be vulnerable to zombification justifies prevention through decapitation of the corpse before burial, or poisons and charms placed in the coffin.

Anthropological accounts of zombification usually just detail local explanations³ or follow them to

explain sorcery as a psycho-social or biological phenomenon.¹⁻⁵ There has been medical interest in the possibility that zombification may be an empirical state - catalepsy or motor paralysis - which is induced by neurotoxins followed by retrieval and revival of the "dead" person extracted from the tomb.^{5,6} Among the poisons which have been implicated is tetrodotoxin (from the puffer fishes *Spherooides testudineus* and *Diodon hystrix*) with *Datura stramonium* used to revive and then control the zombi.^{5,6} Tetrodotoxin has been studied biomedically in Japan where the puffer fish is a delicacy whose consumption may result in apparent but temporary death.^{6,7} Other ingredients mentioned by Haitian *Bokos* as zombifiants include human remains, a polychaete worm, toads, lizards, and tarantulas.⁵ No in-vivo research has been carried out with the suggested toxins, and whilst Haitian medical practitioners are familiar with the phenomenon of zombification,⁸ they have not published its clinical characteristics. Studies of the one well-documented instance of a returned zombi^{5,8} concentrated on his symptoms at the time of presumed death, little on his mental and physical state at the time of the post-return interview (although a lay observer⁹ did not remark any abnormality at this interview). Another well-known case who was hospitalised has been argued as an instance of mistaken identity.^{1,4} Local doctors suggest that zombification can be recognised only by the absence of any characteristic features of mental illness and by verbal and motor preservation. Do zombis manifest any characteristic clinical pattern? Are they the deceased individuals their relatives claim to recognise?

Methods

Three cases of zombification in southern Haiti in 1996-97 were examined in their homes and their histories taken from relatives and others in Creole. The temporary presence of a private computed tomography scanner from the Dominican Republic allowed two of them to be taken to Port-au-Prince to be scanned. To avoid mistaken identity by a bereaved relative, DNA samples were obtained in two instances. Local *Bokos* who practised zombification were asked to comment on the cases.

Findings

Case reports

FI was around 30 years old when she died after a short febrile illness and was buried by her family the same day in the family tomb next to her house. 3 years later she was recognised by a friend wandering near the village; her mother confirmed her identity by a facial mark, as did her 7-year-old daughter, her siblings, other villagers, her husband, and the local priest. She appeared mute and unable to feed himself. Her parents accused her husband of zombifying her (he was jealous of her after she had had an affair). After a local court authorised the opening of her tomb, which was full of stones, her parents were undecided whether to take her home and she was admitted to the psychiatric hospital in Port-au-Prince.

On examination, she looked much younger and thinner than in an earlier family photograph. She kept her head in a lowered position, and walked extremely slowly and stiffly, barely moving her arms. On examination, her muscles had reduced tone, but there was no waxy flexibility. Apparently lacking motivation and unable to signal any wishes, she did not reply to questions but would occasionally murmur some incomprehensible but stereotyped words, and was indifferent to passing events. She required assistance to feed herself. Electroencephalogram and central nervous system examination were unremarkable. She did not co-operate with a psychological assessment, nor with attempts at social rehabilitation. She did not respond to neuroleptics. On being taken to a market for an outing, she was immediately recognised by the crowd as a zombi.

The presumptive diagnosis was catatonic schizophrenia (which is locally a not uncommon psychiatric illness¹⁰).

WD, 26 years old, was the eldest son of an alleged former *tonton macoute* (secret policeman) under the Duvaliers' regime. The father was our principal informant together with WD's mother and other villagers. When he was 18, he suddenly became ill with a fever, "his eyes turned yellow," he "smelled bad like death," and "his body swelled up". Suspecting sorcery, his father asked his older brother to obtain advice from a *Boko*, but WD died after 3 days and was buried in a tomb on family land next to the house of a female cousin. The tomb was not, as was customary, watched that night. 19 months later, WD reappeared at a nearby

cock fight, recognised his father, and accused his uncle of zombifying him. He correctly recalled comments made by his family at the funeral. He was recognised as a zombi by the other villagers, the local Catholic priest, and the magistrate. He remained at his father's house, his legs secured to a log to stop him wandering away. His uncle was arrested at his father's request and sentenced by the provincial court to life imprisonment for zombification, confessing that he had been jealous of his brother who had used his literacy to register all the family land in his own name. WD's father's story was supported by the villagers, the judges and priest involved in the court case, the local coffin maker, and by examination of WD's death certificate and the proceedings of the uncle's trial. The uncle escaped from prison during the political turmoil of 1991. We traced him and he agreed to an interview in exchange for protection. He denied sorcery or poisoning, saying the case was a trick on the part of WD's father to expropriate his property entirely, and his confession had been induced through torture by the police. The female cousin denied involvement in WD's zombification but refused to allow us to open the tomb on her land.

WD was a slightly built man, constantly scowling, looking younger than his age, much thinner than in an old photograph his parents showed us. He spent most of his time sitting or lying in a characteristic position, lower limbs to the left, upper limbs to the right, rarely speaking spontaneously and only in single words which were normal in form and content. He could not describe his period of burial or enslavement but agreed he was *malad* (ill) and a zombi. He could be persuaded to walk with normal posture and gait, steadily but slowly. His parents reported that he was not incontinent and would tell them when he was hungry, but they had to bathe him and change his clothes. His eyes scanned around him with clear intent, his hands picking aimlessly at his nails or at the ground, and he avoided eye contact. His wrists were scarred all around, consistent with abrasions caused by chains or wire. A hyperextended fourth finger was identified by his mother as the consequence of a childhood accident. There was a small circular hole, 5 mm in diameter with scar tissue over his sternum which occasionally oozed pus and which had been present since his return; his father said he thought this was where poison had been administered to keep him quiescent during his 18 months of slavery. General and central nervous system

examination was unremarkable except for slight muscle wasting. He had difficulty identifying familiar objects when placed unseen in his hand, but would name them when he saw them. His parents reported periods of anger and irritation when he would ineffectually hit and kick out at others generally after being teased, and *malkadi* (fits) during his sleep about once a week when he would cry out and his limbs would go into rigid spasm. There was no evident thought disorder, hallucinations, or catatonia.

The presumptive diagnosis was organic brain syndrome and epilepsy consistent with a period of anoxia. His fits reduced to one a month with phenytoin 100 mg a day.

MM, aged 31, was the younger sister of our principal informant who described her as formerly a friendly but quite and shy girl, not very bright. At the age of 18, MM had joined some friends in prayers for a neighbour who had been zombified; she herself then became ill with diarrhoea and fever, her body swelled up and she died in a few days. The family suspected revenge sorcery. After 13 years, MM had reappeared in the town market 2 months before we met her, with an account of having been kept as a zombi in a village 100 miles to the north, and having borne a child to another zombi (or perhaps to the *Boko*). On the death of the *Boko*, his son had released her and she travelled home on foot. Her brother, a nominal Catholic had converted to his own version of evangelical Protestantism. On his sister's return, he recognised her as a zombi and started a daily healing service involving the rest of the family and fiends in glossolalia and laying on of hands.

MM looked younger than her age, with a small head and ears, thin and slightly built. She readily responded to attention, asked questions spontaneously, giggled frequently, and laughed inappropriately. General, central nervous system, and mental state examination were unremarkable except for a round sternal scar 1 cm in diameter. Her speech was fairly limited but appropriate with grammatical short sentences. She agreed she was ill but not that she was a zombi. She was not regarded by her neighbours as a typical zombi because of her resonant affect and responsiveness to others. Her brother said she was duller (*pa-intelijan*) than she had been formerly. She was not able to sign her name and appeared to us to be of low intelligence. She readily gave a vague account of her imprisonment which agreed with that given by her

brother. Her self-care was normal but her family reported that she enjoyed being cared for and cuddled. Our presumptive diagnosis was learning disability, perhaps fetal alcohol syndrome.

With MM's agreement, we took her to the area where she said she had been kept as a zombi. She was immediately recognised in the market as a local woman known to be simple who had been enticed away 9 months previously by a band of *rara* musicians during the lenten carnival. Both families now insisted that MM was theirs and accused the other family of zombification. MM's daughter and brother then appeared, who closely resembled her in physical appearance, mannerisms, suggestibility, and minor learning disability. She recognised her daughter whom she had previously named correctly to us but she still insisted its father was a fellow zombi. The villagers said she had been formerly married to a local man but we were unable to locate him. MM appeared to recognise her cousin as the *Boko's* son, but the villagers ridiculed the idea.

We assumed that MM's case was one of mistaken identity. She had apparently been abducted, or wandered away from her home and eventually ended up where she was recognised as a deceased and now zombified sister.

The Bokus

We interviewed two sorcerers and attended the *pilay fey* (sorcery protection) ceremonies of the first. Like most sorcerers, he had his own temple as well as being the convenor of one of the secret societies (*zobop*, *bizango*, *cochon gris*, *secte rouge*) which have been implicated in zombification^{5,7} and which are illegal under sections 224 and 227 of the Penal Code. The second *Boko* had converted to Protestant evangelism, is now a well-known opponent of *vodu*, and holds dramatic church meetings at which he gives lurid accounts of his past sorcery. Neither had been implicated in the above cases; both knew the other by reputation and maintained surprisingly cordial relations. They agreed the cases we described were plausible, and they recognised as part of their own pharmacopeia both a puffer fish and a branch of *Hippomane mancinella* (zombi apple, manchineel) which we supplied and which is commonly cited as the astringent used by a sorcerer in topical application of a poison.⁹ The first *Boko* showed us bottles which contained

captured *zombi astrals* but said he had sold all his *zombis cadavres* to local cultivators and other *bokos* (a common explanation when questioned by outsiders);⁹ contact with them would be dangerous for us. Both provided the names of other plant and animal ingredients similar to those obtained by Davis.⁵ They were quite open about their sorcery and referred us to other *bokos* for confirmation of their abilities, noting that while they had achieved their results through poisons acting at a distance, the same poisons could be applied topically or inhaled to produce zombification. They had no ideas about the sternal scars of WD and MM, nor do ethnographic texts mention such marks.

Tests

DNA fingerprinting¹¹ suggested that WD was not the son of his putative parents; nor was MM related to either of the men who claimed to be her brothers; but she was likely to be the mother of the child whom she said was her daughter.

Computed tomograph scans on WD and MM were within normal limits.

Conclusion

It is unlikely that there is a single explanation for all zombis. Mistaken identification of a wandering, mentally ill, stranger by bereaved relatives is the most likely explanation⁴ - as in the cases of MM and WD. People with a chronic schizophrenic illness, brain damage, or learning disability are not uncommonly met with wandering in Haiti, and they would be particularly likely to be identified as lacking volition and memory which are characteristics of a zombi. Interpretations of mental illness as an alienation of some vital faculty of agency are common in Central America and in the Caribbean.¹² The ready local recognition of zombis, as with MM, and their generally considerate treatment might be seen as an institutionalised restitution of the destitute mentally ill: recognition and incorporation of a zombi into a family provides public recognition and sometimes material advantage. What is more difficult to understand is the apparent acquiescence of the "returned relative" not only to being a zombi but to being a "relative".

The local understanding that the unexpected death of a young adult is never a properly natural death (*mo bondiay*),^{12,13} together with the frequency of sorcery suspicions and the number of people who told

us they were engaged in attempts at zombification, suggest the breaking open of tombs by *bokos* is widespread. The use of human remains in sorcery is so common that most country tombs have been broken into, and the majority of *oufous* (temples) we examined contained human skulls and other body parts. Given that death is locally recognised without access to medical certification, and that burial usually occurs within a day of death, it is not implausible for a retrieved person to be alive. The use of *Datura stramonium* to revive them, and its possible repeated administration during the period of zombi slavery could produce a state of extreme psychological passivity.

We cannot exclude the use of a neuromuscular toxin, topically administered together with a local irritant by a *boko*, to induce catalepsy followed by secret retrieval of the poisoned individual.⁵ Japanese evidence of tetrodotoxin poisoning indicates that a full and rapid recovery can occur spontaneously.⁷ This would presumably be consistent with the history of FI who could have suffered anoxic brain damage in the tomb.

That *Bokos* actually enslave zombis on secret agricultural grounds is implausible given the high population density of Haiti. Zombis have never been identified in captivity but only on their return. Under the Duvaliers who mobilised the *oungans* as their secret police,¹⁵ and in the lengthy period of political terror, social instability, and economic blockade during and after the Duvalier regime,^{9,15} there were numerous cases of abduction, torture, sexual slavery, and secret homicide cloaked in *vodu* maintained by state terror and suspicions of sorcery.^{15,16}

A fuller consideration of zombification would require an analysis of Haitian identity and of the wider political articulations of village-level conflict and sorcery accusation. It would be interesting to know how the zombi reflects not only local understanding of psychopathology but Haiti's national history as the black republic^{17,18} of former slaves who have continued to face the ever-present threat of political dependency, external intervention, and loss of self-determination.^{16,18,19}

Financial support for Roland Littlewood's field expenses were from UK television Channel 4 and National Geographic. We thank Chris Ledger, Chantal Regnault, Conrad Gorinsky, and Louis Mars.

References

1. Hurston ZN. Voodoo gods. London: Dent, 1938.
2. Farmer P. Aids and accusation: Haiti and the geography of blame. Berkeley: University of California Press, 1992.
3. Métraux A. Le vaudou haïtien. Paris: Gallimard, 1958.
4. Mars LP. The story of zombi in Haiti. *Man* 1945; **45**: 38-40.
5. Davis W. Passage of darkness: the ethnobiology of the Haitian zombie. Chapel Hill: University of North Carolina Press, 1988.
6. Anon. Puffers, gourmands and zombification (editorial). *Lancet* 1984; **ii**: 1220-21.
7. Torda TA, Sinclair E, Ulyatt DB. Puffer fish (tetrodotoxin) poisoning: clinical records and suggested management. *Med J Austral* 1973; **1**: 599-602
8. Douyon L. Les zombis dans le contexte vodu et haïtien. *Haiti Santé* 1980; **2**: 19-23
9. Thomson I. Bonjour blanc. London: Hutchinson, 1992.
10. Douyon L, Introduction aux traitements des maladies mentales en Haïti. *Bull Centre Psychiat Neurol* 1972; **11**: 5-8.
11. Jeffreys AT, Wilson A, Thein SL. Individual-specific 'fingerprints' of human DNA. *Nature* 1985; **316**: 76-79.
12. Littlewood, R. Pathology and identity: the work of Mother Earth in Trinidad. Cambridge: Cambridge University Press, 1993.
13. Brodwin P. Medicine and mortality in Haiti: the contest for healing power. Cambridge: Cambridge University Press, 1996.
14. Diederich B, Burt A. Papa Doc: Haiti and its dictator. Harmondsworth: Penguin, 1972.
15. Aristide JB. Tout homme est un homme, tout moun se moun. Paris: Seuil, 1993.
16. Human Rights Watch. Thirst for justice: a decade of impunity in Haiti. New York: HRW, 1996.
17. St John S. Hayti or the black republic. London: Smith, Elder and Co., 1884.
18. Nicholls D. From Dessalines to Duvalier: race, colour and national independence in Haiti. Cambridge: Cambridge University Press, 1979.
19. Larose S. The meaning of Africa in haitian vodu. In: Lewis IM, ed. Symbols and Sentiments. London: Academic Press, 1977

SKEPTICAL ALLIES

HealthWatch: Unravelling Fact from Fiction in Health

By John Garrow

Professor John Garrow, MD, PhD (St Andrews), FRCP (Ed), FRCP (Lond) is the Chairman of HealthWatch and editor of the European Journal of Clinical Nutrition. Formerly Professor of Human Nutrition at the University of London, Hon consultant physician at St Bartholomew's, St Mark's, Royal London and Northwick Park Hospitals; Head of Nutrition Research Unit at the MRC Clinical Research Centre, Harrow, he is also a member of Department of Health Committee on Medical Aspects of Food Policy and the author of over 200 peer-reviewed papers on human nutrition.

If you read the newspapers, watch television or listen to the radio you may, during the last year, have discovered that the risk of breast cancer among women taking hormone replacement therapy (HRT) is more than twice that of women not on HRT. Or that material extracted from sea shells binds twelve times its weight of fat, so by eating 1 g of this material before meals you effectively reduce by 12 g the amount of fat you can absorb from the meal. Or even that by taking a daily capsule of 100 mg of phospholipid you can reverse the usual deterioration of brain function with age, such as failing memory.

Unfortunately, all these statements are unsupported by scientific evidence; indeed I would say that they are all untrue¹.

Let me here declare an interest. I am the present chairman of a Registered Charity called *HealthWatch*, whose aims are to encourage the development of good practices in the assessment and testing of treatments, and the conduct of clinical trials generally. We also hope for consumers to be given correct information with which to make their choices amongst healthcare products and services on offer.

Hence our frustration when media reports on these important issues can be so wildly incorrect.

How can the media behave so irresponsibly in giving wide exposure to views which they certainly must suspect are incorrect? An answer to this question was recently provided by leading medical journalist Annabel Ferriman, recipient of the 1997 *HealthWatch* Award (awarded annually to the person who, in the opinion of the Executive Committee of *HealthWatch*, has done most in that year to provide to the public reliable information on healthcare.)

"Newspapers," she observes - and the same could be said for magazines or the broadcast media - "are not universities. They do not pay journalists to research into medical matters, fully inform themselves and then occasionally impart some of their wisdom to the British Public." Rather they are paid to get the news out first, to make the story simple (even when it is really far from simple), and to avoid neutrality on an issue. The journalist who reported that HRT more than doubled the risk of breast cancer was first with this simple and emphatic report. It was bad luck that the real risk was increased by 2.5%, not 2.5 times, so the report was wrong by a factor of 100, but the newspaper has never felt it necessary to retract the story or print an apology or explanation. Perhaps we can understand, and even forgive, arithmetical errors by journalists under severe time pressure, but how can we explain unjustified health claims in reputable papers for unlicensed healthcare products? One would not expect such ill-informed and unreliable copy from journalists reporting on politics, or economics, or sport, or even in weather forecasts. So why do health correspondents so often get the story so wrong? One answer is suggested by broadcaster Nick Ross, President of *HealthWatch* and one of its founder members. "Most people know, deep down, that magic cures can't possibly work. But they're attracted to the unknown and mysterious and they yearn for that Hollywood-style happy ending, no matter how improbable." Which is why, says Ross, the media feel compelled to portray bizarre and unproven remedies in a positive light instead of trying to expose nonsense. "I'm bewildered and appalled sometimes that journalists can appear so scientifically illiterate. But then they're giving people what they want - a story. Readers and viewers don't like having their beliefs knocked down.

"You only have to look in the small ads of any newspaper. I've just seen an advertisement for a treatment that will non-surgically increase the size of a man's penis. People must know it's all tosh. But they also like to believe that the impossible might just be true."

The idea of starting *HealthWatch* was first put to Nick Ross eight years ago by the eminent cancer specialist Professor Michael Baum. "Michael told me about some tragic cases he'd seen at his breast cancer clinic - women whose condition had disintegrated into suppurating sores because they'd shunned conventional treatment in favour of various alternative therapies that were just not working." Ross was among a small group of professionals who met to share Professor Baum's concern at patients risking their health, not to mention wasting their money, on unproven treatments. In 1990 *HealthWatch* was born, with Ross appointed joint president with Michael O'Donnell

HealthWatch are often accused of being antagonistic to alternative medicine, but that is not true. We support alternative medicine in those situations in which it has been shown to work: for example chiropractic has been convincingly shown to be superior to conventional physiotherapy for certain types of low back pain (Meade et al, 1995). Unfortunately the case for evidence-based medicine is less well established among practitioners of alternative medicine than it is among conventional medical practitioners. That is not to say that most people pushing unproven therapies are out to rip their patients off, says Nick Ross. "In the US there is more of a problem with genuine fraudsters, whereas in this country you're more likely to find ineffective treatments being sold by people who are completely sincere in the belief that they are helping the patient." Ross is particularly concerned at the growth of some Chinese traditional medicines. He has been to China himself and seen how the methods are practised there. "Traditional treatments survive in rural areas largely because there is a lack of trained doctors and facilities. I've seen a pharmacy the size of a small larder at a medical centre serving a population of 300,000. Most doctors I spoke to used traditional remedies because they couldn't do anything else - given the choice, most preferred scientific medicine."

Not so, however, the media. A distinguished radio journalist confessed to me that he resented spending so much money on royal jelly, but he found he

needed to take it to provide him with the energy to do his job. I put a plan to him (as a fellow-Scot) which was certain to save him money. If he gave me a months supply of royal jelly I would have it sealed into capsules, with an equal quantity of different coloured capsules which contained an inactive (and very inexpensive) material. For two months he would take the capsules, and keep a score of which coloured capsule was associated with the greatest energy. If he found the capsules with royal jelly really were better I would pay him £10, but if there was no difference, or the placebo capsules were better, he could thereafter derive his energy from a much less expensive material than royal jelly. I thought this was an offer no true Scot would be able to refuse. I was mistaken!

Annual membership of Health Watch costs £16 (tax deductible). Application forms can be obtained from the Membership Secretary, PO Box BM Health Watch, London WC1N 3XX, tel 01483 503106. Access the HealthWatch web site on:<<http://www.biochem.ucl.ac.uk/~dab/healthwatch.html>>.

Note

1 In the case of the sea shell-derived fat-absorbing compound, there are prosecutions pending.

Reference

Meade T. W., Dyer S., Browne W., Frank A. O. 1995. Randomised comparison of chiropractic and hospital outpatient management for low back pain: results from extended follow-up. *British Medical Journal*; 311: 349-51

BOOK REVIEWS

Music - The New Age Elixir?

by Sandro G. Masoni

Sandro Masoni is an Italian sceptic, and composer of a "skeptics' hymn", Il Rasoio di Ockham, the first minute of which members of ASKE can hear at <<http://192.135.16.222/ockham.aiff>>. He is also a member of ASKE.

Lisa Summer with Joseph Summer. *MUSIC: The New Age Elixir*. Buffalo: Prometheus Books 1996. ISBN: 1-57392-104-1. 303 pages, £22.00.

Contents: Preface: Right Alertness/Praxis: Right Speech/Afflatus: Right Purpose /Systems: Right Concentration/ Acoustics: Right Understanding /Vibrations: Right Effort /Research: Right Vocation /Testimonials: Right Conduct/Notes /Bibliography

Traditionally - at least here in Italy - musicians are seldom expected to display expertise in fields outside that of music itself. So, my own expectation was that New Age "musical healers" would prove to be creatively inspired folk, capable of producing beautiful music but sadly unaware of scientific or medical principles and problems. To my surprise and disappointment, not only is the average "musical" New Ager ill-informed about science and medicine, they appear to be ignorant of the fundamental principles of music as well.

Leaving my own reaction to its subject matter aside for a moment, thanks to this substantial and entertaining book, the interested reader can be amazed by a multitude of surprising claims that address the way music is produced, what it consists of, how it can influence our health (for good or ill), and so forth... More realistically, *MUSIC: The New Age Elixir* can be seen as an opportunity for the sceptical reader to keep informed about the range of the bizarre beliefs circulating today relating to music in some sense (some of which, incidentally, are very funny indeed), to derive some

satisfaction from the comprehensive debunking of these outrageous claims, and finally to learn something new about human nature as it touches on belief systems and credulity.

Readers of sceptical articles are used to finding themselves reading expositions of familiar scientific fields such as quantum mechanics, statistics, or chemistry in response to their frequent misrepresentation in the service of the paranormal. This time the scientific discipline mangled by New Agers - and 'repaired' brilliantly by Lisa and Joseph Summer - is Acoustics, a refreshing topic seldom addressed in this context.

Examining music from the New Age viewpoint, "oddities" surface even before a piece of music has come into existence; one of the claims made is that an 'unmusical' person may be lucky enough to receive new compositions directly from one or more dead composers! It must be admitted that, so far, such compositions have added very little of substance or value to the catalogued works of the departed composers, but perhaps this is forgivable, since even the greatest genius might not be expected to be in good shape after their own death!

Having transcribed a piece of music (from whatever source), we are then led to examine its very structure and form. Not all readers will be aware of the fact that all musical scales (related to the ways our various cultures have decided musical instruments should be tuned over history) consist of variants of the harmonic series that can be derived directly from theoretical acoustics; that is, that they derive from something with a fundamental significance beyond simple human preference. It is certainly (and rather unsurprisingly) true that many "music healers" are not aware of this fact. Less defensibly, they often mistake one or another of the "man-made" variant scales for the "natural" one itself. Evidently, even in the musical field New Agers make the same mess of the "natural vs. artificial" dichotomy as they usually do when they address chemistry, for example. This reaches ludicrous levels of confusion when - as described by the author - several "music healers" refer to Eastern philosophical and medical principles (e.g. the chakra system) and apply them to music, but to the *Western* models of scales and harmony rather than the Eastern tastes with which, presumably, they might be expected to be "more

in tune". Perhaps Eastern music doesn't suit their taste very much (or their theories quite as well)?

Returning to my own personal preference once again, I particularly enjoyed the section which describes a lot of funny (and pretentious) nonsense that is taken seriously in this field - and is sharply commented upon here by the authors. For example, which of the great composers' pieces are supposedly the most efficacious in terms of music-healing practices, and why; and what should be on the list of the great many definitely "unhealthy" types of music that could afflict the unwary listener? (Music buffs beware - this latter point might explain a lot about the world!) Several quoted authors of books on music healing, we learn, discuss at length who among the celebrated composers are the more "elevated and spiritual", even distinguishing different periods in each musicians' career, as any good critic should do. Sadly, these lofty speculations sometimes fail to consider the clues provided by lyrics in, for instance, various W. A. Mozart's operas, (which can be fairly earthy or indeed obscene, to the delight of many of us), and they often reflect a fundamental misunderstanding of plots and characters.

Reading on, we come upon the familiar "tables of correspondences" - no quackery seems to be able to do without them. So, we are informed not only of the particular relationship between musical notes and colours, for example, but also of the (maybe even stronger?) relationship between pitches and - guess what? - *energies* (that favourite of all New Age words)... In fact, there seem to be lots of correspondences and overlaps between music as it is considered by most New Agers and the rest of their paranormal repertoire. Here's a list of examples (all these themes are dealt with, or at least referred to, in the book):

- music and astrology;
- music and channelling;
- music and fairies;
- music and gems;
- music and Kirlian auras;
- music and lucid dreaming (or something like that);
- music and out-of-body experiences;
- music and *The Secret Life of Plants* (if you know what I mean);
- music and various alternative medicines (of course).

To the sceptic, the common theme that runs through all the claims dealt with in this volume is one of subjective speculation misrepresented as objectivity -

not very rare among New Agers, in my experience. The Summer's book highlights the numerous fallacies and gross errors from a historical, scientific, or purely logical point of view. But never mind. In fact, I am inclined to think that personal preferences, *if clearly acknowledged as such*, are rather important when one discusses music. It is the attempt to take such speculation into the

realms of cosmic significance that renders this aspect of New Age thought both pitiful and laughable.

Despite searching, to my amazement I couldn't find references in this book (with its notably rich bibliography) to the Spice Girls; any question about them and their musical value remains so far unanswered even by the most credulous, it seems.

Baffled by 'Mysteries of the Ancient World'

By Mark O'Leary

Mark O'Leary is a molecular biologist turned computer network specialist. He is also an assistant editor of the Skeptical Intelligencer and a member of ASKE.

Mysteries of the Ancient World' addressed in this review: Bahn, Paul G. 1997. *Geoglyphs*. London: The Orion Publishing Group. ISBN 0-297-82316-7. Bauval, Robert. 1997. *The Pyramids: Star Chambers*. London: The Orion Publishing Group. ISBN 0-297-82313-2. Hulse, Tristan Gray. 1997. *The Holy Shroud*. London: The Orion Publishing Group. ISBN 0-297-82301-9. Palmer, Douglas. 1997. *The Extinction of the Dinosaurs*. London: The Orion Publishing Group. ISBN 0-297-82302-7. Pennick, Nigel. 1997. *Leylines*. London: The Orion Publishing Group. ISBN 0-297-82306-X. All £1.99.

Introduction

What theme unites the extinction of the dinosaurs, the Knights Templar, prehistoric landscape art, the Cities of the Inca and the Pyramids of Giza? Some overarching conspiracy theory to end all conspiracies? Sadly, the answer is more prosaic: publishers Weidenfeld and Nicholson see all of these as *Mysteries of the Ancient World*, and in a series of small, lavishly illustrated books they aim to offer a:

"dramatic re-evaluation of man's history, using the high-tech tools of modern archaeology, geology and astronomy".

Each volume is on the order of a pamphlet or essay running to 40 pages. The typesetting, vocabulary, balance of illustrations (which dominate over text), and pricing (firmly in the 'pocket money' range) suggest to me that they are targeted at the younger end of the market. I was met with some surprise by the representative of the publishers to whom I suggested this. In their view these are "*definitely adult books*"

aimed at "*fifteen-year-olds and up*". However, I imagine that many younger readers will encounter this material as part of their reading for a class project at school, or as their first personal purchases in the field of the mysterious (primarily due to the low price being displayed prominently on the front cover of the volumes). Whoever the reader, the series represents a fine opportunity to introduce at least a flavour of science and critical thinking alongside some fascinating historical topics.

Geoglyphs

I'll begin with *Geoglyphs* by Paul G. Bahn. This booklet collects together some dramatic images of the surviving landscape art which various peoples around the world have produced throughout history. On the negative side, and as one might expect from an accompanying text of limited length, there is little room for more than brief descriptions of the features themselves. Also, the geographical focus is somewhat eccentric. Any such piece is bound to address the

'controversial' Nazca lines of Peru (which are indeed strongly featured), but elsewhere it is hard to justify the balance: a single sentence on the earthen mounds of the North-eastern USA as compared with 11 pages on the chalk figures of Southern England, for example. These are minor faults, however. Throughout the text the author shows that there is more for the reader to learn elsewhere, and gives a few tantalising glimpses to whet the appetite for that research. For example, we learn that the "Rude Man of Cerne" at Cerne Abbas owes his heroic physique more to over-enthusiastic restorers in 1908 than to its unknown original artists. For me, the highlight is the understated and elegant way the author armours his readers against the various outlandish "alien landing strip" theories his readers may encounter if they look further into the Nazca geoglyphs. It is explained how simple, available technologies readily allow the construction of figures on the required scale, making it unnecessary to assume that the builders ever saw their work from above:

"In the same way, the cruciform design of European medieval cathedrals is best appreciated from the sky, but their builders never saw them from that vantage point".

The overall volume fulfils the role of an introduction and overview to an interesting and engaging area of study. There's little sign of the expected "dramatic re-evaluation", though.

The Extinction of the Dinosaurs

One might have higher hopes of such a re-evaluation in the volume entitled *The Extinction of the Dinosaurs* by Douglas Palmer. Surely, this is a field where the wealth of evidence and theoretical speculation on the mass extinction event(s) would benefit from precisely the treatment this series aims for. Sadly not. In the 40 pages of this book, its supposed subject is not introduced until page 32, under the charming heading of "Dino Demise". Admittedly, this section adequately covers the current consensus view of the Chicxulub impact as

"the final coup de grace to an already declining group of animals caught up in a global phase of environmental change that originated in the oceans",

but it gives short shrift to any of the previous or current

alternative interpretations of the geological and fossil evidence.

I doubt many young readers will make it this far. The preceding part of the text is a dry account of the early history of British fossil hunting, down to the "invention" of dinosaurs. Twice as much room is devoted to describing Richard Owens' 19th century efforts to exhibit the reconstructions of his newly-named "dinosaurs" in Crystal Palace and Central Park as to the 'Ancient Mystery' in question. The overall impression is that of a cut-down version of the introductory chapter to a much larger work, to which a couple of paragraphs have been appended to make it fit the title.

Following the burst of popularity the subject has enjoyed since *Jurassic Park*, it is something of an achievement to render dinosaurs "dull"; but the few points of relevant information are buried in a historical account (among period engravings that show what we now know dinosaurs did *not* look like) in such a way as to discourage all but the most dutiful young reader. The most charitable view is to consider this to be a good essay detailing the first few major fossil finds and their discoverers, published under a misleading title. However, anyone buying on the strength of that title is bound to be disappointed.

Leylines

At first glance, the most openly sceptical of the books I looked at was *Leylines* by Nigel Pennick. This is another 'Ancient Mystery' that offers a wealth of beautiful photographs to the reader, and the essay that ties them together is concise, factual and engaging. Once again there are thought-provoking insights, such as:

"Since earliest times, straight tracks and roads were associated with the idea that leadership is the ability to set people or things in a straight line. So, in English 'ruler' means both a straight-edged measuring rod and a person with the power to command"

A number of claimed examples of alignments are reviewed, through 3000 BC to modern times, and then the history of their study is described, beginning inevitably with Alfred Watkin's *The Old Straight Track*, the first book by the inventor of the term 'ley'. The enthusiasm provoked by Watkins nearly died out in the early '50s, but was revived in 1961 by Tony Wedd, to whom we principally owe the modern conception of the

'leyline' associated with UFO flights and mystical energy currents. The authors opinion of Wedd's contribution is perhaps illustrated in the supplementary details we are given of Wedd's career:

"Wedd and his friends communicated psychically with an invisible entity whom they said was a UFO inhabitant called Attalita. From this contact, he received the design of the Coffoostyn, a 'cosmic coffee pot', the always-warm 'Wenceslas Boot' and other 'alien machines' that he spent much time and money unsuccessfully attempting to construct."

Pennick then traces the resurgence of leys with the new title of 'Earth Mysteries' under the aegis of the New Age movement. Curiously, this was marked by the invention of a spurious 'creation legend' for the field centred around Watkins, transforming this amateur photographer with an interest in maps into a mystic who rode the ancient landscape on horseback, courting spiritual revelation.

Finally, we are shown how dowzers have been attracted into the mystery through that synthesis of unrelated ideas common to New Age thought. Leylines apparently turned out to be dowsable, and:

"Eventually, the dowzers theories grew into claims that there are vast energy grids that cover the entire planet, including the oceans. Unfortunately, different individuals supported the existence of different grids that were incompatible with each other, and much futile argument resulted. It continues to-day"

This image of confusion brings us almost up to date with the current state of this field.

However, the book closes with a discussion of statistical investigations of alignments made in recent times, such as those conducted by John Michell on the alignments of West Penwith and later studies on the Devil's Arrows formation in Yorkshire by Behrend and Forrest. On the strength of these, the author concludes unambiguously:

"some lines are scientifically tested, and proved genuine"

I imagine that I will not be alone in initially taking this statement at face value, in deference to the author's previous apparent objectivity. However, Michell's work in particular proves severely flawed upon deeper

investigation¹, and deserving of brief discussion in this review.

Michell lays out a rigorous methodology that is made much of in favourable citations of his work; but in practice many aspects of the care he aspires to are abandoned. In particular, the intention to limit alignments solely to those connecting confirmed Megalithic sites is apparently forgotten in the results. Thus, we find many relatively modern features (crosses, churches, stretches of trackway) taken as forming parts of the discovered alignments. These anomalies are not applied in any consistent fashion. We can only conclude that the statistically significant alignments he sees in this landscape are artefacts of an apparently conscious choice of 'admissible' prehistoric sites from a region richly populated with potential targets, combined with the inclusion of selected 'recent' features on the questionable grounds that these features may have marked (and presumably obliterated all trace of) sites of prehistoric origin. Bellamy and Williamson (1983) underline the problem with this *post hoc* reasoning;

"These [modern features] are prehistoric because they align; the others are not because they do not".

Additional Michell alignments that do not rely on such modern points are themselves undermined by the amazing fact that Michell has "discovered" (and incorporated into his work) a large number of stones that have never previously been identified as Megalithic sites, despite West Penwith having been subject to intensive study, including one of the most detailed archaeological area surveys in the country. Such fortuitous discoveries must be suspect in a boulder-strewn countryside with a long tradition of erecting stone cattle rubbing posts and earth-and-stone 'hedges'. However, Michell is unshakeable on this point. For example (emphasis mine);

"stone 20 [...] is not listed by [...] any other authority. Yet it stands on 4 good alignments and must surely be ancient".

(This "ancient" appearance is one of the distinguishing marks that Michell uses to spot the Megalithic origins of otherwise unremarkable boulders, even though the age of both megaliths and random natural rocks alike is to be measured in millions of years). Taking all of these considerations into account, Michell's alignments are

reduced to a much smaller set of lines, all but one of which pass through stone circles (by their nature rather broad targets to aim for and encounter by chance). As Bellamy and Williamson (1983) conclude:

"it is clear that the alignments are coincidental rather than intentional [...] However ley material is examined, whether it be by calculation, simulation or whatever, the case for ley lines appears to be hopeless, for there does not seem to be any evidence of their existence."

It is in the light of such objections that we must assess the unquestioning certainty of Nigel Pennick regarding these studies. Whilst obviously dismissive of the more glaring myth structures built around the alleged leyline phenomenon by the UFO and New Age movements, the author's overall conclusion in this book seems to be that there is a real archaeological observation here that explains at least a small subset of the claimed alignments. This is a hypothesis that at best remains unproven by reliable investigation despite many attempts, and the failure to highlight the speculative nature of this contention (if indeed Pennick is aware of it) is a serious flaw in an otherwise excellent essay. I suspect it derives from the urge to find some organising principle or grain of truth at the heart of this great structure of myth and pseudo-scholarship concerning the ancient landscape that has fascinated us for over half a century¹.

The Shroud

At the other end of the spectrum that spans the sceptical to the credulous is the topical volume *The Holy Shroud* by Tristan Gray Hulse. The final sentence of this piece reads:

"Far from being solved, for most open-minded people, the jury is still out on the Holy Shroud of Turin, and is likely to remain so for some considerable time."

This is a debatable sentiment in itself, but sadly it is also the only point in the text to reflect anything other than the near-certainty of a divine origin for the shroud. Elsewhere the piece takes pains to dismiss negative opinions and evidence and to emphasise the positive.

The bare facts of the story of the shroud as laid out here are fascinating: It is first recorded in 1357, being exhibited to pilgrims by the widow of Geoffrey de

Charnay, its previous origins a mystery. It passed from the care of this family to the House of Savoy in 1453, who placed it in their family chapel. A fire there in 1532 damaged the shroud. It came to be moved to Turin, and was housed there in the Savoys' palace chapel until it was finally moved to the cathedral in 1694. It remained the property of the Savoy royal family until 1983, when it was bequeathed to the Pope. Through this long history it was an item of veneration, but it became the purported principle relic of Christ only after the first photographic investigation by Secondo Pia in 1898 produced an shrouds image in negative that was more readily perceptible as a human face. To the author, these negatives show the

"fully rounded, and extraordinarily detailed portrait of the Man on the Shroud [...] an image of startling clarity and sophistication [...] many have readily believed, that could not have been deliberately fabricated today, let alone by a medieval forger."

Hardly a balanced representation, particularly in view of some of the evidence pointing towards precisely such an origin for the Shroud. In the year of its first exhibition, 1357, the local bishop of Troyes is said to have forbidden further showings, and when papal permission to exhibit once again was obtained in 1389 after his death, a protest was lodged by the new bishop, D'Arcis (a blood relative of the exhibitor), on the grounds of a memorandum from his predecessor stating that the shroud was a cunningly painted forgery, '*as attested by the artist who had painted it*'. The author finds this unconvincing, largely because no copy of the original memorandum has survived, and spends some time casting doubt on this strand of evidence. This proves difficult to do in the face of carbon dating evidence, obtained in 1988, that the shroud material dates from between 1260 and 1390. The author again finds this too to be far from compelling, and dwells upon alleged breaches of the agreed testing protocol such as the premature leaking of the test results to the press:

"the most disturbing aspect of the whole thing was perhaps the glee with which certain scientists publicly exulted over the downfall of the shroud [...] No mention of the unique and inexplicable nature of the image [...] a rigid scientific orthodoxy had been rattled by the mystery of the Shroud."

Perhaps summing up the approach of this pamphlet is the inclusion of a density map of the pigment over the face image. Much in the way that two dimensional satellite images are extrapolated into a false 3D cloudscape in some TV weather coverage, the density of the colour across the shroud image is displayed as contours forming a 'face-like' surface in a full-page picture included in the book. The caption or main text could have addressed the scientific reasons for producing such an image, or the (few) conclusions that can be drawn from it. The actual text:

"The Shroud image yields up another secret to modern science: 3-D information is encoded in the negative image"

I find this foolish caption representative of the text as a whole - sensationalist, actively misleading and apologetic towards a supernatural provenance for the shroud.

The Pyramids: Star Chambers

The last volume of the series that I shall address directly is *The Pyramids: Star Chambers* by Robert Bauval. Many of us will be familiar with the radical alternative interpretation of (some of) the available evidence that Bauval advocates in books such as *The Orion Mystery*, published in 1994. (The sceptical reader may also, perhaps, be aware of his apparent failure to engage with the body of background evidence that tends to contradict his claims, but further exposition of this contention lies outside the scope of this review).

Obviously conscious of the limited space he has here in which to make his case, Bauval wastes no time in dismissing conventional Egyptology. From Bauval's viewpoint, the Giza pyramids contain:

"in each only a mysterious empty stone coffer, which modern Egyptologists have, perhaps too hastily, assumed to be coffins for dead kings".

Having referred to the unusual beliefs of the Cayce Foundation, we are told that

"Egyptologists and archaeologists, of course, dismiss such ideas as pure fantasy. They see in them nothing but the obsessed dreams of myth-makers and psychics. To them the matter is classified and closed. There is no mystery here".

Perhaps a little of Bauval's feelings concerning the reception of his own ideas is colouring this ungenerous portrayal of the consensus school. Somewhat disingenuously, he now reveals that

"Recently, however, a group of new researchers has challenged such views with new scientific evidence".

Of course, prominent among this group is Bauval himself. What follows is certainly "a dramatic re-evaluation of mans' history", but I shudder to think of this as a student's first exposure to the study of Ancient Egypt. This essay leaves the reader with the impression that the conventional view can only be explained by malice or stupidity on the part of the investigators that do not accept Bauval's ideas. However, a sceptic who has already received a more balanced view of the field elsewhere may find it enlightening to see Bauval's case stated as baldly as is required by the length limit of this essay. Some of the jumps in his argument this imposes are quite dizzying. For example:

"The Great Sphinx of Giza was made to face due east, and thus can be said to be a marker of the equinoxes".

Are England's churches also designed as equinox markers, I wonder?

I do not doubt that as committed a proponent as Bauval fills in the gaps of this and other assertions made here elsewhere in his published work, but unsupported conclusions presented in an authoritative tone could surely have been avoided even in a short essay if a balanced presentation had been the intention.

Conclusions

It's hard to know from the sample of this series available to this reviewer whether the overall intention is to showcase provocative fringe ideas such as Bauval's, or to present accessible introductory overviews from experts in their fields, such as those offered by Bahn or Wise. The selection I've seen offers both these approaches, and I'm left feeling the series as a whole is somewhat schizophrenic. Not that this is necessarily damning, but one has to feel concern regarding how an unwary reader is expected to distinguish the speculative from the robust.

The aim of a reviewer has to be to leave his

reader with an idea as to whether to buy the books discussed or not. I find it hard to make a definitive recommendation here. The short essay is a more refined form than the lengthy exposition, and it is interesting to see 'Ancient Mysteries' addressed in this format rather than the often undisciplined and rambling accounts that the more usual full-length publications offer. None of these volumes are entirely devoid of educational content and they certainly contain some fine illustrations (I can't think of anything outside a second-hand bookshop that offers the same return for the price to those seeking images relevant to these subject areas. So, as an addition to the library of a sceptic, there is interest here, but I return to my concern that at least to me these appear to be childrens books, and as a first exposure to mystery, scientific archaeology and the critical evaluation of evidence these are far from

satisfactory. All in all, an opportunity missed, and not quite the "dramatic re-evaluation of man's history, using the high-tech tools of modern archaeology, geology and astronomy" that we might have hoped for. *Caveat Lector.*

Note

1 See Hutton (1991), pp. 127-128 and Williamson and Bellamy (1983), pp. 102-109 for more extensive critical discussions of Michell's questionable contribution to the field. Thanks to the Editor for bringing these studies to my attention.

References

Hutton, R. 1991. *The Pagan Religions of the Ancient British Isles: Their Nature and Legacy.* Oxford: Blackwell.
Williamson T. and Bellamy L. 1983. *Ley Lines in Question.* Kingswood, Tamworth: World's Work.

Studies Show

By Steven Prymachuk

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John H Fennick. *Studies Show: A Popular Guide to Understanding Scientific Studies.* Buffalo: Prometheus Books. 1997. £14.99. Paperback. ISBN: 1-57392-136-X.

Contents: Foreword. Preface. Introduction. Lesson 1: The Rules. Lesson 2: The Nitty Gritty. Lesson 3: Example. Lesson 4: Fancy Footwork. Lesson 5: Esoterica. Lesson 6: The Real McCoy. Lesson 7: Do New Hearts Help? (A Review of a Defective Study). Lesson 8: They're Not All Bad. Lesson 9: So, Should I Drink the Coffee? Glossary. Appendix: An Annotated Bibliography.

This book, written by a statistician, is a must for anyone interested in the interpretation of "scientific" research. (The word "scientific" is enclosed in quotes deliberately because, as Fennick argues, a good proportion of the research deemed to be scientific is, at best, pseudoscientific and, at worst, fraudulent.) Given that many of the examples cited within the text are health-related, those sceptical of the many and varied health claims we are subjected to each week will find it essential reading. In addition, those individuals who, like

myself, work in the health-related professions should be forced to read it, especially given the current importance of evidence-based practice in the delivery of health care.

The book is divided into nine "lessons". Fennick deliberately uses this term instead of the term "chapter" to remind the reader that the material contained within the book "...comprises the practical lessons omitted in the standard texts" (page 16).

In Lesson 1, Fennick outlines five tricks "pseudostatisticians" (a less than complimentary synonym for "researchers") employ to get the results of a study to say one thing - usually what the researcher wants the results to say - rather than another.

In Lesson 2, Fennick attempts to explain, somewhat unsuccessfully, statistical terms and concepts in ordinary language. Even as a reader with a sound background in statistical methods, I found this lesson hard going at times. Those less familiar with statistical and mathematical concepts considering giving up at this point (I suspect there will be many!) should persevere because, as Fennick argues, you could still "... come away from this book with a better understanding of the subject than so-called statistical researchers" (page 17).

Lesson 3 contains a specific example (the number of people killed in road accidents) of how a set of data can be interpreted in many different ways, depending on what information the researcher chooses to look at.

Lesson 4 is a ragbag of a lesson which explores, amongst other things, sampling issues, the meaning of correlation and how "risk" differs from "odds". Risk is explored further in Lesson 5, which is largely a critique of a method known as "quantitative risk assessment".

Lesson 6 is a very interesting lesson in that Fennick takes some real-life data to explore whether smoking and drinking alcohol have any effect on heart disease. Legitimate manipulations of the data and different methodologies produce widely varying results - to the extent that the same data "proves" that alcohol consumption is both good for your heart and bad for your heart. Lesson 7 also explores real-life data, this time questioning whether heart transplantation is as successful as it is made out to be. There are some particularly interesting criticisms of the methods employed by researchers. Note that a question - Do New Hearts Help? - forms the title of this lesson. Fennick doesn't answer this question (nor does he feel it's his duty to do so), but his analysis does make the answer to this question less clear-cut than one might expect.

Up to this point in the book, qualitative researchers might have been jumping for joy, having at last found a book written by an "expert" knocking scientific (i.e. quantitative) approaches. However, Fennick is not blaming the tools (and why would he as a statistician?); rather he blames the worker using these tools. He illustrates this point in Lesson 8. Here, he explores a well-designed, rigorously conducted study (to do with spinal column surgery in young children) and explains why reasonably sound inferences can be drawn from this study but not from many of the other studies cited.

Lesson 9 offers some practical, if tongue-in-cheek, tips for helping us decide whether to take a "scientific" study seriously or not. For those who enjoy a high-fat diet, a glass of wine and the odd cigarette, Lesson 9 offers a certain degree of comfort.

The book claims to be a popular guide and it does, for the most part, avoid in-depth references to mathematical and statistical concepts. However, like many "This Subject Made Simple" books, the author's perception of what the ordinary nontechnical reader might find simple is at odds with reality. To this end, there is a need for the reader to have more than a rudimentary grasp of mathematics; in particular, readers need to be able to read and understand graphs and charts.

The book's other major weakness, is the author's use of American situations when exemplifying the text. Many of Fennick's illustrations do not easily translate to a British audience (baseball batting averages, for instance), though with some guesswork it is often easy to see what the author is getting at. The book does contain a worthwhile critique of use of the scientific method by untrained hands (i.e. non-statisticians). The overall conclusion is that we all should be generally sceptical of studies showing *this and that* unless we know all the factors affecting the study and the limitations of statistical methods.

In summary, a useful - if not essential - text for sceptics, health care professionals and researchers alike, let down a little by technical jargon and its bias towards the American market.

Religion and Science

By Dr Dave Unsworth

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W. Mark Richardson and Wesley J. Wildman (eds.). *Religion and Science: History, Method, Dialogue*. London: Routledge. 1996. 0-415-91666-6, £50 (hardback). 0-415-91667-4, £16.99 (paperback).

This collection of essays is a bold attempt to discover and explore common ground between natural science and theology. The central metaphor of the collection is that of a bridge between two great intellectual disciplines. The essayists attempt to articulate themes and concerns within theology and science which they believe will allow constructive dialogue between these two intellectual enterprises.

The collection is in three sections. The first section provides the historical context for the dialogue between science and theology. The second section examines the similarities and differences between the methods of enquiry used in the sciences and theology. The third section is a series of discussions/dialogues between scientists, theologians and philosophers concerning areas in which science can contribute to theology and vice versa.

The essays draw attention to the diverse traditions from which scientific ideas are drawn, including religious traditions. The argument is that no area of discourse is hermetically sealed from other areas of discourse. Important advances in science and theology come from an interplay between traditions rather than from within the traditions themselves. The essays provide historical and theoretical grounds for being suspicious of claims that science is based upon the simple collection of facts and that truth-irrelevant features of a theory play no part in scientific practice (Wolterstorff *Theology and Science : Listening to Each Other* p. 97).

The book is also confident in its claim that theology is able to make a contribution to knowledge about the world and man. It is not necessarily the case that theology must always back down in the face of scientific discoveries when these apparently undermine specific religious beliefs. Theology is a discourse with a

long tradition, a thriving community and presents a way of thinking about the world which people find useful in conducting their lives. The collection is also to be admired for the argument that "religion keeps science deep"; that is, that religious discourse can help to articulate the sense of awe, wonder and intrigue which feeds the desire for a deeper scientific understanding of phenomena (Rolston *Science, Religion and the Future* p.81)

The authors do not attempt to utilise relativist arguments based upon the disparate and irreconcilable language games or paradigms. They are clear in their assertion that discourse between science and theology is only possible if theological statements have a fact-asserting or representative element which can be articulated as propositions about reality which may be true or false. Theology is about God and His relations to all that is. It is "a science-like discipline whose object is God... If theological meanings are not grounded in theological facts - facts about the character and acts of God, in particular, then they are mere fairy tales ... The central business of theology must be an examination of the claims about God and God's relations to us that give substance to our interpretations of experience. It must be, in short, the science of God." (Murphy *On the Nature of Theology* p.153)

This is a novel and bold approach and one which is to be encouraged. The question the collection poses can be stated simply: are there religious propositions which can be investigated and submitted to critical analysis by non-religious groups and hence form the basis for a dialogue with science?

The answers to this question forwarded by the authors appear to cluster around variations on (1) the idea of God as a causal agent in the world, (2) theology providing a higher order explanatory principle for

disparate phenomena and (3) a revised argument from design.

Wildman (*The Quest for Harmony* p.54) argues that there has been no major theological breakthroughs comparable to those witnessed in the human and natural sciences. As an example he cites the lack of substance which can be given to the idea of God as a causal agent in the world. However, this does not prevent other contributors from looking to the wilder frontiers of science to locate causal gaps which present evidence of God's agency. For example, whilst acknowledging that many biologists advocate that "we are the accidental result of an unplanned process", Rolston (*Science, Religion and the Future* p.65) suspects that there may be room for a debate between theologians and biologists as to whether the watchmaker-design approach which seems appropriate for physics is adequate to account for the chemical evolution of life. Do we need something additional to delimit the possibilities? "There will not be much doubt that there has been a marvellous natural history, but there will be dialogue, debate, conflict over whether and how the story needs an Author". Later in the same essay (*ibid.* p. 73) Rolston is open as to where he sees God in the story: "God is the historian, the author who informs the action, slipping information into the world, making the improbable probable, converting contingency into destiny".

Equally, much attention is drawn to the fact that the universe is "peculiarly hospitable towards life and consciousness" (*Postmodern Apologetics* N. Murphy p. 112). Calculations show that there were a number of factors present at the very beginning of the universe which had to fall within a very narrow range if the universe was to evolve in such a way that it could support life. Murphy postulates that the fact that the universe, against tremendous odds, turned out to be life supporting provides the basis for a revised argument from design. This revised argument depends upon hypothetico-deductive reasoning. That is, that a hypothesis is supported or confirmed by the fact that it is the best explanation we can give of an observed phenomenon. If the hypothesis is true, then the existence of the observed phenomenon follows deductively. In this case, if God exists, then, given that God intended there to be intelligent life in the universe, and that certain physical conditions are necessary for life, it follows that those physical conditions will be

fulfilled. This mode of reasoning is also characterised by Clayton and Knapp (*Is Holistic Justification Enough?* p. 165) as "inference to the best explanation (IBE)" and used to argue from a theory of "top-down" causation to the truth of certain Christian beliefs.

The problem with much of this reasoning is that it assumes that there is a God and therefore defines its task as finding ways in which His reality can be made consistent with the discoveries of science. And if this reality cannot be established by these discoveries, then religious beliefs are put forward as solutions to problems at the very edges of science which science itself, at present, cannot solve. It is indeed awe-inspiring that there is life given the very narrow limits in which it could have evolved. On the other hand, as a chance event this delimited set of conditions was as likely (or as unlikely) as any other set of conditions. We are not sat outside of all possible conditions observing many other possible universes and looking for an explanation as to why a particular set of conditions pertain. We are able to theorise about the preconditions of our emergence simply because we are the result of a unique set of circumstances. However, "uniqueness" does not necessarily imply "divine intervention". Equally, basing the revised argument from design upon hypothetico-deductive reasoning does not overcome the objection that this argument assumes what it is intended to prove. When confronted by phenomena which show evidence of design we are justified in postulating a designer only if we assume that evidence of design necessitates a designer.

The tension between genuine investigation into the nature of the world and the requirement to be open about what sort of possibilities we are able to entertain emerges in the essays. For example, Clayton and Knapp define the task facing Christians as that of making Christian beliefs genuinely discussible by a community which comprises believers and non-believers alike (Clayton and Knapp *Is Holistic Justification Enough?* p. 166). However, this enterprise is bounded by a significant qualification. "And - this is the really hard part - we have to find a way of doing this without thinning out Christian beliefs to the point of breaking their connection with their historical origin; for especially in the case of Christian beliefs, that origin remains the primary source of any claim they have to capture something like the truth". Not only is this "the really hard part", it also exposes an a priori component

of Christian beliefs that will make a genuine dialogue with non-believing scientists difficult. Scientific propositions are refutable. It is a perfectly legitimate aim of scientific practice to "thin out" - i.e. question and falsify - scientific propositions. The historical origin of such propositions is an irrelevance in scientific investigation. In contrast to scientific discourse, Christian discourse appears to contain a core of historical truths which are not legitimate objects of doubt and investigation.

In summary, this is a detailed and thorough exploration of the problems facing dialogue between science and theology. I found much in the essays which was thought provoking. This is particularly so in the *History and Method* sections of the book. In these

sections there were many illustrations of the historical and intellectual interplay between theology and science. The third section was, in my opinion, dependent upon the reader accepting that a good case had been made for the possibility of an epistemologically and ontologically significant dialogue between science and theology. In my opinion this possibility has not been established by the arguments presented in this book. Therefore, the essays in the third section are difficult to reconcile with the book's objective of establishing a dialogue between theology and science upon the basis of propositions about the world which can be investigated, discussed and agreed upon by believers and non-believers alike.

SOME ARTICLES OF NOTE

By Wayne Spencer

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Seth M. Asser and Rita Swann. Child Fatalities From Religion-Motivated Neglect. *Pediatrics*, 1998; 101(4): 625-629. Examines the cases of 172 children from faith-healing sects who died between 1975 and 1995. The parents had withheld medical care and relied on religious rituals instead. The authors conclude that with proper medical care, the chances of survival would have been over 90% in 140 of the cases, and over 50% in 18 of the cases. All but 3 of the remaining children would have benefited in some way from clinical help.

John A. Astin. Why Patients Use Alternative Medicine: Results of a National Study. *Journal of the American Medical Association*, 1998; 279: 1548-1553. This study of 1035 people throughout the United States shows that dissatisfaction with orthodox medicine does not predict the use of alternative medicine amongst people who combine alternative and orthodox medicine. Rather, the predictive factors are: being a "cultural creative"; having more education; having a poorer health status; having higher income; having urinary tract problems, chronic pain, back problems or anxiety;

having had an experience that has changed their world view in a significant way; and subscribing to a holistic philosophy. Among persons who rely primarily on alternative medicine, the picture is different. Here the significant predictors were: distrust of orthodox medicine; desire for control over health matters; dissatisfaction with orthodox practitioners; and belief in the importance and value of one's inner life and experience. 4.4% of the sample fell into this group.

Ikechukwo Obialo Azuonye. Diagnosis made by hallucinatory voices. *British Medical Journal*, 1997; 315: 1685-1686. According to this report, a patient was told by hallucinatory voices to have a brain scan for a tumour and provided by the voices with other pieces of information (including the address of the computerised tomography department of a hospital) that she was supposed not to know. Initially the patient was diagnosed as having a functional hallucinatory psychosis, but subsequent medical investigation confirmed the presence of a brain tumour. The author describes the competing explanations of the case

advanced at a conference by "X-philes" and "X-phobes".

S. Brandon, J. Boakes, D. Glaser and R. Green. Recovered Memories of Childhood Sexual Abuse. *British Journal of Psychiatry*, 1998; 172: 296-307. This is the report of a working party set up by the Royal College of Psychiatrists to enquire into reports of the recovery of long-forgotten childhood sexual abuse and to provide guidance for British psychologists. The report concludes that memories recovered after long periods of amnesia may be false.

Stanton Braude. The Predictive Power of Evolutionary Biology and the Discovery of the Eusociality in the Naked Mole-Rat. *Reports of the National Centre for Science Education*, 1997; 17(4): 12-13. Anti-evolutionists have attacked evolution on the ground that it lacks predictive power. This article describes how Richard Alexander derived from evolutionary theory a number of specific predictions about what were then only hypothesised eusocial vertebrates which were subsequently confirmed with the discovery of the naked mole-rat.

Jonathon Campion and Dinesh Bhugra. Religious and Indigenous treatment of Mental Illness in South India - A Descriptive Study. *Mental Health, Religion & Culture*, 1998; 1(1): 21-29. Based on detailed interviews with ten 'healers', visits to five sites of 'healing', and observations of various religious rituals, this study describes indigenous Hindu, Muslim and Christian treatments of mental illness. For reasons that are not immediately obvious, the authors seem inclined to regard these healing modalities favourably; however, the widespread practice of chaining patients causes them some disquiet.

James Chequers, Stephen Joseph and Debbie Diduca. Belief in Extraterrestrial Life, UFO-Related Beliefs, and Schizotypal Personality. *Personality and Individual Differences*, 1997; 23(3): 519-621. Data derived from a sample of 176 young people attending a further education college in Essex suggest that UFO-related beliefs are associated with higher scores on at least some measures of schizotypy, while belief in extraterrestrial life per se is not. The study also found that 96% of respondents disagreed that alien abduction claimants are mentally ill; 54% agreed that aliens are abducting humans; 36% agreed that alien intelligence is

probably responsible for UFOs; 32% agreed that the government refuses to tell the truth about UFOs; and 1% claimed to have been taken aboard a spaceship.

Frederick Crews. The Mindsnatchers. *New York Review of Books*, 1998; XLV(11): 14-19. Essay-length critical review of three books about alien abduction claims: David M. Jacobs, *The Threat*; Whitley Strieber, *Confirmation: The Hard Evidence of Aliens Among Us*; and Jodi Dean, *Aliens in America: Conspiracy Cultures from Outerspace to Cyberspace*.

Current Directions in Psychological Science, 1997; 6(3). Special issue that provides a series of short and lucid overviews of scientific thinking on memory and its distortion. Contains: Steven Jay Lynn and David G. Payne, *Memory as the Theatre of the Past: The Psychology of False Memories* (p. 55); David G. Payne, Jeffrey S. Neuschatz, James M. Lampinen and Steven Jay Lynn, *Compelling Memory Illusions: The Qualitative Characteristics of False Memories* (pp. 56-60); Elizabeth F. Loftus, *Memory for a Past That Never Was* (pp. 60-65); Daniel L. Schacter, *False Recognition and the Brain* (pp. 65-70); Katherine Krause Shobe and John F. Kihlstrom, *Is Traumatic Memory Special?* (pp. 70-74); Maggie Bruck and Stephen J. Ceci, *The Suggestibility of Young Children* (pp. 75-79); and Steven Jay Lynn, Timothy G. Lock, Bryan Myers and David G. Payne, *Recalling the Unrecallable: Should Hypnosis Be Used to recover Memories in Psychotherapy?* (pp. 79-83).

Geoffrey Dean. John Addey's Dream: Planetary Harmonics and the Character Trait Hypothesis. *Correlation*, 1998; 16(2): 10-39. John Addey proposed that harmonic analysis of the data on the character traits of eminent professionals collected by Michel Gauquelin revealed the existence of planetary harmonics. This critique examines this claim at length and finds it wanting.

Geoffrey Dean. Sun Sign Nonsense from Manchester University. *Correlation*, 1998; 16(2): 61-62. Critique of V. W. Michell and S. Hagggett's paper *Sun-Sign Astrology in Market segmentation: An Empirical Investigation*. *Journal of Consumer Marketing*, 1997; 14(2): 113-129.

Geoffrey Dean. The Truth of Astrology Competition: A Summary of Each Entry, and Some Implications for Researchers. *Correlation*, 1998; 16(2): 40-56.

Critical examination of the entries submitted to a competition offering prizes for articles "which put a case for, and demonstrate, the Truth of Astrology". Flaws are found in all.

Jared Diamond. Peeling the Chinese Onion. *Nature*, 1998; 391: 433-434. Summarises the hypothesis that the technological decline of China at the end of the medieval period, and the concomitant technological rise in Europe, can be explained in terms of geography.

Ronald Ebert. Does the Speed of Light Slow Down Over Time? *Reports of the National Centre For Science Education*. 1997; 17(5): 9-11. Critical examination of a creationist claim advanced in an attempt to reduce the apparent age of the earth to 6-7,000 years.

Kenneth L. Feder. Indians and Archaeologists: Conflicting Views of Myth and Science. *Skeptic [USA]*, 1997; 5(3): 74-81. Discusses the divergent views on excavation of archaeological sites and the origins of the Native Americans held by archaeologists and some Native Americans and the conflict these have given rise to.

Rachelle Fishman, Sanjay Jumar and Kelly Morris. Tackling Thorny Issues of Herbal Medicine Worldwide. *Lancet*, 1998; 351: 1190. Three short news items on the regulation and testing of herbal remedies.

Derek Freeman. Paradigms in Collision: Margaret Mead's Mistake and What it is Has Done to Anthropology. *Skeptic [USA]*, 1997; 5(3): 66-73. Freeman exposed Margaret Mead's book *Coming of Age in Samoa* as based on misinformation provided as a prank by two Polynesian informers. Here he discusses the affair and its ramifications.

Adrian Furnham and Bruce Kirkcaldy. Age and Sex Differences in Health Beliefs and Behaviours. *Psychological Reports*, 1997; 80: 63-66. This study is based on 200 subjects who completed questionnaires distributed at several orthodox and alternative therapeutic centres in the Rhine area of Germany. Amongst other things, the results found that compared to men women relied less on a doctor being in charge; expressed greater "nutritional consciousness"; and were more likely to believe in psychological causes of illness.

George W. Gilchrist. The Elusive Scientific Basis of Intelligent Design Theory. *Reports of the National*

Centre for Science Education, 1997; 17(3): 14-15. A 1985 search through the scientific literature found no scientific research papers based on creation science. This paper presents the results of a new literature search. The total was once again nil. By contrast, the number of papers relating to evolution was between 10,333 and 68,832, depending on index used.

A. C. Grayling. Arguing with Aliens. *Prospect*, May 1998: 61-63. A philosopher reviews the new book *Abducted: The True Story of Alien Abduction in Rural England* by Ann Andrews and Jean Ritchie.

Erlendur Haraldsson and Joop M. Houtkooper. Traditional Christian Beliefs, Spiritualism, and the Paranormal: An Icelandic-American Comparison. *International Journal for the Psychology of Religion*, 1996; 6(1): 51-64. 349 Icelandic students were asked about 37 paranormal and traditional religious beliefs. Using the statistical technique called factor analysis, the 37 variables were then brought together into clusters ("factors") that contain items highly correlated with each another but not with the items in other factors. The resulting structure was compared with the picture that had emerged from earlier tests on students in Louisiana. On the whole, a good degree of consistency was found between the two samples, although there was some differences in the relative strengths of the individual factors. Apart from spiritualism, the Icelandic students were more skeptical than the Americans.

James Houran. Preliminary Study of Death Anxiety of Believers Versus Percipients of the Paranormal. *Psychological Reports*, 1997; 80: 345-346. In this study, scores on a belief in the paranormal scale were not associated with lower scores on a death anxiety scale. Also, scores on a paranormal experiences scale did not significantly correlate with scores on death anxiety. The subjects were a convenience sample made up of 14 men and 19 women. The men were found to report significantly more paranormal experiences than the women, to have higher scores on a 'paranormal ability' scale.

Rob Irving. Mexican UFO Invasion. *Fortean Times*, 1998; 109: 34-42. Debunking of video recordings of what purport to be UFOs over Mexico.

Journal of Social and Clinical Psychology, 1997; 16(2). Special issue dedicated to: *Psychological Inquiries Into the Realms of Unusual and Extreme*

Behaviors. Contains: C. R. Snyder, *Bizarre Behavior as Seen From the Social and Clinical Psychology Interface* (pp. 111); B. L. Bottoms and S. L. Davis, *The Creation of Satanic Ritual Abuse* (pp. 112-132); R. F. Baumeister, *The Enigmatic Appeal of Sexual Masochism: Why People Desire Pain, Bondage, and Humiliation in Sex* (pp. 133-150); L. S. Newman, *Intergalactic Hostages: People Who Report Abduction by UFOs* (pp. 151-177); J. C. Hamilton and J. W. Janata, *Dying to be Ill: The Role of Self-Enhancement Motives in the Spectrum of Factitious Disorders* (pp. 178-199); E. N. Aron and A. Aron, *Extremities of Love: The Sudden sacrifice of Career, Family, Dignity* (pp. 200-212); R. F. Baumeister and K. L. Sommer, *Patterns in the Bizarre: Common Themes in Satanic Ritual Abuse, Sexual Masochism, UFO Abductions, Factitious Illness, and Extreme Love* (pp. 213-223); and C. R. Snyder, *Finding Psychological Place: Common Motivations for Uncommon Behaviors* (pp. 224-228). The skeptical essays on satanic ritual abuse and alien abduction claims may, perhaps, be the items of greatest interest to the readers of the *Skeptical Intelligencer*. However, the issue as a whole is well worth reading, if only to put into context Baumeister and Sommer's stimulating and suggestive attempt to find commonalities in the various subjects it addresses. Essential reading for anyone with a serious interest in the alien abduction phenomena in particular.

Ted J. Kaptchuk. Powerful Placebo: The Dark Side of the Randomised Controlled Trial. *Lancet*, 1998; 351: 1722-25. History of medical thinking about the placebo and the placebo effect.

Martin Kottmeyer. Varicose Brains: Entering a Grey Area. *Magonia*, 1998; 62: 8-11. Some possible cultural antecedents of the UFO 'Grey'.

Glen J. Kuban. Sea-Monster or Shark? An Analysis of a Supposed Plesiosaur Carcass Netted in 1977. *Reports of the National Centre for Science Education*, 1997; 17(3): 16-28. A decayed corpse caught near New Zealand in 1977 by a Japanese trawler has been construed by some as a prehistoric sea-monster. This article reviews the evidence and suggests that it was most likely the decayed corpse of a Basking shark.

Lancet Meta-Analysis of Homoeopathy Trials. *Lancet*, 1998; 351: 365-368. Letters by a number of authors concerning the recent meta-analysis published

by the *Lancet*, followed by a reply by the authors the meta-analysis. Amongst other things, Ernst and Barnes (p. 366) identify a number of negative trials omitted from the meta-analysis, while Benveniste (p. 367) laments the fact that a paper he co-authored on the purported transmission of a "specific molecular signal" by a "specially configured amplifier" was rejected by a "reputable journal" because "we could not exhaustively explain the underlying mechanism".

Iddo Landau. Feminist Criticisms of Metaphors in Bacon's Philosophy of Science. *Philosophy*, 1998; 73: 47-61. Several feminist philosophers of science have criticised the work of Francis Bacon on the ground that it utilises sexist metaphors. Landau argues that these critics' examination of Bacon's metaphors is inaccurate and selective, and would not, even if convincing, undermine Bacon's philosophy of science.

Mark S. Lipian. Fading Reveries: Repressed-Memory Madness in the UK. *Lancet*, 1998; 351: 1673-1674. Commentary on the controversy in the UK over "recovered-memory therapy".

Roger Luckhurst. The Science-Fictionalization of Trauma: Remarks on Narratives of Alien Abduction. *Science-Fiction Studies*, 1998; 25: 29-52. Discusses alien abduction claims as an aspect of the increasing "science-fictionalisation" of certain aspects of American culture. The author suggests that abduction narratives are "the science fictionalised products of a felt intermittency of subjectivity in contemporary America".

Marilynn Larkin. Medical Quackery Squashers on the Web. *Lancet*, 1998; 351: 1520. Provides the addresses of several anti-quackery internet websites and comments on the sites.

Michael Martin. Is Christian Education Compatible With Science Education? *Science and Education*, 1997; 6: 239-249. This paper argues that there are actual and potential conflicts between the factual claims of Christianity and the findings of science, and that the teaching of Christian beliefs as fundamental dogmas is inconsistent with the goal of teaching science students to be sensitive to evidence.

James W. McAllister. Is Beauty a Sign of Truth in Scientific Theories? *American Scientist*, 1998; 86(2): 174-183. Argues that beauty is a sign of truth only to the extent that the aesthetic principles used reproduce the properties of empirically successful theories of the

recent past. Trust in aesthetic factors is said to be risky. Moreover, such factors are inherently conservative and may hinder the emergence of theories that display radically new properties.

Charles McCreery and Gordon Claridge. A Study of Hallucination in Normal Subjects - I. Self-Report Data. II. Electrophysiological Data. *Personality and Individual Differences*, 1996; 21(5): 739-747 and 749-758. In conditions of mild sensory deprivation and relaxation subjects who had previously had at least one out-of-body (OBE) experience were found to be more likely than controls to report hallucinations and involuntary imagery. Subjects who reported feeling that they were outside of their bodies also scored significantly higher on measures of schizotypy. The authors suggest that the results can be understood in terms of the "happy schizotype", a phrase used to denote persons "who are prone to anomalous perceptual and other experiences but who are otherwise functional and apparently well-adjusted". Part II of the report reviews electrophysiological data collected during the experiment. These are interpreted as suggesting that the inhibitory mechanisms of the schizotypal nervous system are relatively weak and lead to instability and dissociation in the brain's arousal systems.

David M. Morneau, Douglas A MacDonald, Cornelius J. Holland and Daniel C. Holland. A Confirmatory Study of the Relation Between Self-Reported Complex Partial Epileptic Signs, Peak Experiences and Paranormal Beliefs. *British Journal of Clinical Psychology*, 1996; 35: 627-630. A study of 102 university students. The results are construed as being consistent with previous research by Michael Persinger and colleagues on associations between self-reported complex partial epileptic signs, peak experiences and paranormal beliefs, and with the hypothesis that paranormal and peak experiences are a common function of transient electrical activity in the brain's temporal lobe.

Mary Morton. The Story of a Ghost. *Psychoanalytic Psychotherapy*, 1997; 11(1): 19-27. The author advances a psychoanalytic theory of ghosts, according to which ghosts are a manifestation of the return of the dissociative parts of the self and have their origins in the response to early traumatic experiences where the separation of self and object is denied.

James Munves, Richard Hodgson, Mrs Piper and 'George Pelham': A Centennial Reassessment. *Journal of Society for Psychical Research*, 1997; 62: 138-154. A critique of a famous turn of the century claim about mediumistic powers.

Ann Butler Nattinger, Raymond G. Hoffman, Alicia Howell-Pelz and James S. Goodwin. Effect of Nancy Reagan's Mastectomy on Choice of Surgery for Breast Cancer by US Women. *Journal of the American Medical Association*, 1998; 279: 762-766. The proportion of women undergoing breast-conserving surgery as opposed to modified radical mastectomy dipped sharply around the time Mrs Reagan underwent modified radical mastectomy. The authors found that the decline was sharpest amongst women who resembled Mrs Reagan demographically and could not be explained by the effect of publications in the medical or lay literature. They conclude that their study provides the first evidence to show that celebrity role models can influence decisions about medical care.

Peter Niehenke. A Test of Alice Bailey's Ray Theory of Sun Signs. *Correlation*, 1997; 16(1): 29-31. Alice Bailey was a proponent of a Christian offshoot of Theosophy. This test of her astrological theories was negative.

David Novitz. The Ethics of Scepticism. *New Zealand Skeptic*, 1997; 46: 1-6. On the basis of John Rawls' theory of justice, Novitz argues that skeptics' public criticism of beliefs can be justified if and only if the beliefs are false and harmful, and the criticism of them is impartial.

Massimo Polidoro. Houdini v. The Blond Witch of Lime Street. *Skeptic [USA]*, 1997; 5(3): 90-97. Account of the history of the famous medium 'Margery' (Mina Crandon), with particular emphasis on the conflict between Margery and the magician Harry Houdini in 1924.

Massimo Polidoro and Gian Marco Rinaldo. Eusapia's Salient Foot: A New Reconsideration of the Feilding Report. *Journal of the Society for Psychical Research*, 1998; 62(1): 242-256. The 'Feilding Report', a report of a series of sittings with the Italian medium Eusapia Palladino in Naples in 1908, is sometimes cited as unassailable evidence of the existence of mediumistic powers. In this new critique, the authors argue that the experimenters failed to

implement adequate controls against trickery by a good magician, and that the phenomena recorded were probably the result of Palladino having freed her limbs from the inadequate controls used in the sittings.

Harrison G Pope. Recovered Memories of Childhood Sexual Abuse. *British Medical Journal*, 1998; 316: 488-9. Editorial that welcomes the report by Brandon et al. (see above) and argues that the notion of memory 'repression' is not supported by evidence.

Harrison G. Pope, James I. Hudson, J. Alexander Bodkin and Paula Oliva. Questionable Validity of 'Dissociative Amnesia' in Trauma Victims. *British Journal of Psychiatry*, 1998; 172: 210-215. This review of the evidence available from studies where investigators have followed-up victims of a known past event and then determined their memories of that event concludes that the data do not support the conclusion that individuals can develop dissociative amnesia for traumatic events.

Jennifer E. Porter. Spiritualists, Aliens and UFOs: Extraterrestrials as Spirit Guides. *Journal of Contemporary Religion*, 1996; 11(3): 337-353. The author suggests that extraterrestrials are increasingly being adopted as spirit guides by contemporary spiritualists. She proposes that, for spiritualists, extraterrestrials "exemplify the possibility of successful union between spirituality and science, for not only are extraterrestrials both spiritually and scientifically advanced, but contemporary orthodox science does not allow for their existence".

Linda Rosa, Emily Rosa, Larry Sarnar and Stephen Barrett. A Close Look at Therapeutic Touch. *Journal of the American Medical Association*, 1998; 279: 1005-1010. Report of two series of tests on the ability of practitioners of Therapeutic Touch (TT) to detect the 'human energy field' posited by the theory of TT. No evidence to support the claims of TT was found. The report includes an extensive review of the experimental evidence relating to TT.

Anne Schienle, Dieter Vaitl and Rudolf Stark. Covariation Bias and Paranormal Belief. *Psychological Reports*, 1996; 78: 291-305. In this experiment, 22 believers and 20 non-believers in ESP participated in various combinations in a telepathy test procedure in which a sender attempted to transmit the image of an ESP card to another person. After each

attempt, the sender was given feedback as to whether he or she had been successful. The ECG and EDA (electrodermal activity) of the senders and receivers were monitored. The results showed that the results of both the believers and the unbelievers were at chance levels. However, the believing senders overestimated the overall hit rate, while the unbelievers judged the hit rate accurately. The ECG and EDA results were mainly non-significant, although a significant relationship was found between experienced arousal (ECG) and hit estimates for believers. The authors suggest that covariation bias plays an important role in the maintenance of paranormal belief. They also propose that conscious arousal may contribute to the positively distorted perception of outcomes by believers.

Michael Shermer. The Belief Module: How We Came to Believe in Magic. *Skeptic [USA]*, 1997; 5(4): 78-85. An hypothesised account of the evolution of a human propensity to believe.

Mary Sormanti and Judith August. Parental Bereavement: Spiritual Dimensions With Deceased Children. *American Journal of Orthopsychiatry*, 1997; 67(3): 460-469. Presents the results of a survey of 43 bereaved parents of paediatric cancer patients that sought details of parents' 'spiritual' connections with their deceased children and their beliefs about life after death. The study was intended to be a qualitative one, and it is difficult to draw conclusions from it. Nonetheless, a series of one paragraph excerpts from the parents' responses provide suggestive insights into the types of experiences construed by bereaved parents as indicating a continuing connection with the deceased.

Bernard Spilka, Kevin L. Ladd, Daniel N. McIntosh, Sara Milmoie and Carl O. Bickel. The Content of Religious Experience: The Roles of Expectancy and Desirability. *International Journal for the Psychology of Religion*, 1996; 6(2): 95-105. Data from 178 people who have reported having religious experiences suggest that the nature of such experiences reflect what the experiencer expects and desires.

Michael Stanwick. A Skeptic's Appraisal of "A Sceptical View of Parapsychology" by Montague Keen. *Journal of the Society for Psychical Research*, 1998; 62: 257-262. A critique of a critical examination of skeptics published in the *Journal of the Society for Psychical Research*. A reply by Montague Keen follows

(pp. 262-3). A further exchange between Stanwick and Keen is forthcoming in the July 1998 of JSPR.

Mary S. Stowell. Precognitive Dream: A Phenomenological Study. Part I. Methodology and Sample Cases. Part II. Discussion. *Journal of the American Society for Psychical Research*, 1997; 91(3): 163-220 and 91(4): 255-304. Detailed examination of the reported experiences of dreams interpreted as being precognitive by five subjects. The emphasis is on the experiences and the subjects and not on the truth or otherwise of the subjects' beliefs that their dreams foretold the future.

Dick Teresi. Monster of the Tub. *Discover*, 1998;19(4): 86-92. Describes the claim that Lake Champlain in North America is occupied by an aquatic monster, and the attempt to explain the object seemingly sighted on a number of occasions as a seich (i.e. a standing wave in an enclosed water basin).

Michael A. Thalbourne. Paranormal Belief and Superstition: How Large is the Association? *Journal of the American Society for Psychical Research*, 1997; 91(3): 221-226. Examination of data from previous studies found a low to moderate correlation between belief in the paranormal and superstition.

Michael A. Thalbourne. Transliminality: Its Nature and Consequences. *Journal of the American Society for Psychical Research*, 1997; 91(4): 305-331. An attempt to replicate an earlier study suggesting that paranormal belief and experience; creative personality; mystical experience; manic-like and depressive expedience; and magical ideation may all be understandable as aspects of a mind which is towards

the high end of a cognitive/personality dimension termed "transliminality". The results are mixed. The authors propose that "transliminality" be redefined as "susceptibility to, and awareness of, large volumes of imagery, ideation and affect - these phenomena being generated by subliminal, supraliminal and/or external input".

Jos Verhulst and Partick Onghena. Periodic Birth-Rate Pattern of the Founders of Quantum Physics. *Psychological Reports*, 1996; 78: 19-25. The distribution of birth years of the physicists involved in the development of quantum mechanics shows a periodic pattern of 7 year 'waves'. The authors reject a connection with either known geophysical and astronomical rhythms with a similar period or social conventions. They speculate that a conjectured human preference to associate with people who differ from one's age by about an integral multiple of 7 years may be responsible instead.

Alida S. Westman. Religiosity Correlates with Failure to Understand Scientific Methods and Findings. *Psychological Reports*, 1997; 80: 161-162. This study of 71 psychology students at a Midwestern US university found a significant correlation between religiosity and failure to understand scientific methods and findings.

Donald U. Wise. Creationism's Geologic Time Scale. *American Scientist*, 1998; 86(2): 160-173. The author argues that "young earth" creationists should be forced to defend their biblical model *in toto*. He then employs the findings of scientific geology to critique a wide range of creationist claims.

COMMENT

Skepticism and Cinema

By Arthur Chappell

Arthur Chappell is a member of ASKE.

I have started compiling ideas for a piece on Skepticism and Cinema, so seeing the title of Mark Lipczynski's article on the same topic (SKEPTICAL INTELLIGENCER 2(3)/(4)) filled me with alarm, but fortunately he focuses primarily on television, rather than film skepticism. Even in doing this, he fails to mention the delightful skeptical *BBC Jonathan Creek* comedy drama series which gives X-Files-like mysteries a perfectly rational, empirical explanation (even if the cases are a touch unlikely in themselves).

The cinema can provide skeptical views. *Inherit The Wind* (1960) deals with the infamous Scopes Monkey Trial between skeptics and creationists in small-town Bible-belt America, while *Elmer Gantry* (1960) depicts the downfall of a corrupt preacher. *Monty Python's Life Of Brian* (1979) shows healthy skepticism of all things miraculous.

Pro-occult films that catch on have a tendency to dramatically fuel interest in the paranormal. The film *The Thing From Another World* (1951) (one of the first to depict the "saucer" shaped UFO) depicts the defeat of an alien invader at an isolated Arctic research station, and ends with a hysterical radio reporter calling upon us to "Watch The Skies! Watch The Skies!" How many impressionable kids rushed to the windows to do just that and see UFOs in every passing aircraft? Spielberg's *Close Encounters Of The Third Kind* (1977) drew upon genuine UFO sightings for its premise, and takes its very title from Hyneck's UFO sighting classification system. Though the film finally gives us a giant chandelier from space that plays ice-cream jingles, it does frequently play games with our sense of perception. The first image we see is two mysterious lights coming towards the screen. It turns out to be a jeep's headlights in a sandstorm. Again, the success of the film gave UFO sightings a dramatic increase. How many people have heard of exorcism before they made

the film, *The Exorcist?* (1973) Now, many priests and various mediums offer to exorcise the spirits from houses where owners take every creaking floorboard and crooked picture on the wall for poltergeist or demonic activity.

Skepticism lacks the occult's power for film audience grabbing spectacle. In *Poltergeist* (1982) the ghosts are seen, in wonderful close-up, to literally eat a house. The film makers know that when they make a film called *Loch Ness*, (1996) the audience will want to see a real monster. A film that ends with the investigator proving that there's "nowt there" would be extremely disappointing and bad for the box office. This is why *Photographing Fairies*, based as it is on the Cottingly fairy photographs hoax that even fooled Arthur Conan Doyle, still shows fairies and depicts at least some of the legendary claims as real, despite the girls responsible for the scam having made a celebrated confession to it all.

Skeptical film makers can only hope to make their sceptical characters interesting and convincing. Stanley Kramer did it well by giving *Inherit The Wind* a sense of brooding menace as the outnumbered hero (Spenser Tracy), takes on the prejudices and superstitions of a multitude. The film's final scene draws an image of truce and compromise, as Tracy is seen putting a Bible and Darwin's "Origin of Species" side by side, to depict how they are not necessarily incompatible. Another film that draws a razor sharp balance between skepticism and belief is *A Matter Of Life And Death* (1946). It begins with a narrative disclaimer of the heaven to be depicted. It actually tells us right away that we are seeing only something believed in. Here is the narration in full: "This is the story of two worlds, the one we know and another which exists only in the mind of a young airman whose life and imagination have been violently shaped by war. Any

resemblance to any other world, known or unknown, is purely coincidental."

The film then begins in earnest. When he jumps from his blazing WW2 fighter aircraft without a parachute David Niven doesn't expect to survive, but he does, albeit with serious brain injuries. As doctors struggle to operate on his brain, Niven has hallucinatory visions of a heaven where he believes himself to be on trial for his life. Every supernatural belief is countered and mirrored by reality. Niven moves closer or further from being a permanent resident guest in Heaven as his medical condition fluctuates and the trial goes for or against him. While many fantasy makers would have had the religious scenes in colour in a black and white

film, Pressburger did it the other way round. Niven's angel laments the shortage of Technicolour in the other world. Critic Richard Winnington captured the mood of the film perfectly. Heaven is seen as "an illimitable Wembley Stadium, surrounded by tinkly music and mists, from which all men of insight, if they were ever careless enough to get there, would quickly blaspheme their way out."

So you see, there is a foundation of good skeptical film making. *A Matter Of Life And Death* was successful enough to be picked as the first Royal Command Performance movie. Skepticism with royal approval?

Response to Jean Brodie's Letter

By Mark O'Leary

Mark O'Leary is a molecular biologist turned computer network specialist. He is an assistant editor of the Skeptical Intelligencer and a member of ASKE.

I hope that Ms Brodie (*SKEPTICAL INTELLIGENCER* 2(3)/(4)) won't consider a response from someone uninvolved in the initial correspondence to be some kind of "ganging up" against her in this sceptical forum, but her letter contains a concise restatement of the majority of arguments against scepticism that I have come across, and it provides an opportunity to review these arguments and the degree to which they are justified.

Firstly, the criticism of the practice of scepticism itself. To Ms. Brodie, scepticism is a "combination of ignorance and prejudice", practised by "the blinkered few who think they have all the answers". These are common charges: that sceptics are ignorant of the body of evidence for paranormal phenomena, that what little evidence we do come across we reject out of hand through prejudice and even fear rather than objective analysis, and finally that we are an arrogant, elitist group who look down on believers with at best pity and at worst, disdain. I believe these charges can

readily be shown to be poorly founded. The very scientific approach we apply demands as wide a possible review of the source material and a methodical, defensible statement of the grounds on which we make our assessment of that material. I find sceptics *at least* as diligent in criticising the efforts of their fellows where they fall short of these ideals as they are of believers' work. Typically, sceptics seem *more* familiar with the literature of the field they discuss than the believers with whom they debate, and are more prepared to cite the sources of their position.

The perception of arrogance and elitism is a personal one. From my own point of view, for example, I see these traits in those psychics who inform me that the phenomena they regularly see in my absence will not occur in my presence, or that I do not have the required spiritual 'equipment' to perceive an aura which is obvious to them. To be told pityingly that one is "less highly evolved" than the speaker in this way is surely the definitive elitist statement! By contrast, even the most

odious sceptic, disparaging an unformed believer implicitly acknowledges that simple effort and research can bring that person to an equal level of knowledge and expertise. There is no qualitative barrier such as those often cited amongst believers, where personality, ancestry, racial origin and other less readily perceptible factors can prove insuperable obstacles to "joining up" with the particular practice or belief in question.

Of course, this observation that poor behaviour can be seen on both sides of the fence does not excuse it among sceptics. It is a shame that, often out of frustration, some sceptics are reduced to less than the patient, calm exposition of the objective evidence and balance of probabilities that I believe we should all aim for. However, this is simply human nature, and our reaction to the messenger's tone should not affect our evaluation of the content of their message (presumably Ms. Brodie would not want us to reject the alternative therapies she champions simply because of the stridence of her defence of them?). Moreover, judging from my experience of the USENET fora, it appears that *ad hominem* attacks and other undesirable elements of rowdy debate are more commonly found in the writings of proponents of the paranormal than those of sceptics.

Ms. Brodie's letter goes on to cite certain towering intellects of the past and their recorded belief in the paranormal, presumably invoking them as expert witnesses whose testimony supports her case. This misses the point that the achievements for which these luminaries are remembered are those that have been replicated and built upon by subsequent generations: their opinions on the paranormal do not fall within this set. Even today, some of the great minds of our generation display quirks and eccentricities that we forgive or tolerate in view of their wider contribution. Insight in one field does not necessarily imply *universal* expertise (and the vast multiplication of knowledge in this scientific age actually argues against it). Therefore, the public pronouncements on the paranormal of such people who have come to prominence through their work in unrelated fields have no more (or less) authority than Ms. Brodie's own, and in fact I would consider them less apposite, since I am aware that I am not viewing the opinions of such historical figures through the cultural and perceptual filters that were prevalent in their age (for example, a Victorian gentleman scientist would presumably have had fewer qualms about taking a witness's tales as fact on the strength of his or her word alone than a researcher from our more cynical

times).

Ms Brodie also comes close to misrepresenting the nature of scientific proof. Scientists do not have "to SEE it first" to know 'it' exists: perhaps the route to the discovery of the outer planets illustrates this point. Even when science cannot prove a phenomenon, that certainly does not lead to the assertion that "it cannot exist". The real world is rarely so cooperative as to offer absolute proofs. The best a sceptic or scientist can usually hope for is to accumulate a body of evidence and develop from it an objective assessment of the likelihood of any given phenomenon. There comes a point where this balance of probabilities tends so far in one direction as to justify acceptance as a "scientific fact", but implicit in science is the concept that a single repeatable observation is enough to throw such 'facts' into intensive review and re-evaluation, however venerable their heritage.

Ms Brodie finds it damning that sceptics find a large number of popularly accepted topics of which to be sceptical. Since scepticism simply involves the application of a consistent standard of evaluation to all fields, the number of beliefs that fail this criterion is not under the sceptic's control. She produces in short order a list of anecdotes supporting the principal fields sceptics object to at present, justified by examples of the main classes of reasons cited for belief in the paranormal. Thus, her UFO has large numbers of witnesses; her encounter with a clairvoyant occurred under circumstances that she considered to be controlled against everything other than supernatural agency; her crop circles don't have absolute documentary proof that they were produced by human agency; and her reading on the subject of past life regression apparently *has* provided such evidence. Briefly taking these in turn: a phenomenon amenable to misinterpretation is as likely to be misinterpreted by great numbers as by an individual; concerning the beach encounter, any competent cold reader could produce a convincing reading of a subject sporting dark glasses (and typical beachwear provides ample opportunity to observe muscle tensions and postural feedback to the spie!!); absolute proof cannot be presented for an event that has already occurred in the absence of reliable recording devices of such proof (but the replication through human agency of the same 'impossible' crop circle phenomena plus the confessions of those who claim to have been responsible for the originals in question gives us strong grounds for suspicion!); and finally the amount of publicity given to

positive investigations of a given phenomenon is rarely afforded to follow-up research that is critical of the original researchers methods, or identifies factors that they missed and which undermine their whole conclusion (I am unaware of any study of regression that has found any data that "could not have been known at the time" that has not subsequently been found to have been flawed).

Within her speciality, Ms Brodie cites the widespread use of alternative therapies as circumstantial evidence for their efficacy, an inferential link that does not withstand logical scrutiny. She also cites their long history in the same context, and with the same flaw. Presumably, the argument is that so many people would not have pursued these practices for so long if there weren't some benefit being gained. I would contend that historically the benefit is most likely to have been that of hope for both patient and carers in the sense of doing something to help rather than facing helplessness in the absence of any effectual means of intervention. Such hope is often apparently fulfilled by the normal operation of the body's immune system in throwing off a disease state, or the self-limiting nature of many illnesses. It is demanding too much of our pre-scientific antecedents to tell the difference between a spontaneous recovery and a miraculous cure through magical means. It is only comparatively recently that we have developed both truly effective means of helping the body fight infection and the ability objectively to compare those means with our ancestors' strategies. The results of that comparison are instructive.

The placebo effect is also misrepresented in Brodie's letter. (Since much of the scientific basis for objection to many alternative therapies revolves around this concept, I would have hoped that someone dismissing such objections would demonstrate a better grasp of this area). The improvements seen in patients given placebo treatments are not simply that "they imagine they have become well": real, measurable physiological improvements are sometimes instituted by placebos, and the complex interactions responsible between mental outlook, the immune system and the disease state in question are beginning to be understood. The point is not that placebos and alternative therapies do not produce real (if typically small) benefit, it is that the alternative therapy's effects do not appear to *exceed* those of placebo, and that the mechanisms claimed for the alternative therapy are not detectably in operation (and often demand the suspension of well-supported physical, chemical or

biological principles).

The final charges are that as a group we "take away hope", and that we do actual harm by preventing people seeking 'alternative' help for their maladies. One might equally respond that alternative therapies may give *false* hope, and may lead to actual harm by preventing people seeking *conventional* help for their illnesses (in the latter instance, respectable practitioners do try to work in parallel with modern medicine; however, the existence of respectable alternative practitioners can give comfort and credibility to the less trustworthy). I feel that implicit in the charge that our removal of hope is a Bad Thing is the admission that in the absence of that hope an alternative therapy simply doesn't work - i.e. that it is based purely on the placebo effect rather than the various fanciful mechanisms cited (for if there were truly a mechanistic explanation for the curative power claimed, surely a patients expectation could not wholly override it?). I am afraid that I do not find the kind of unfounded hope that presumably Ms. Brodie would prefer us to preserve to be a desirable state, and *in extremis* the pursuit of such false hopes may interfere with one coming to a dignified accommodation with approaching death.

Taking an extreme example, patent nostrums for 'curing' cancer (see here Brigden 1995) often inspire sufficient hope in sufferers for them to spend their failing strength and life savings purchasing them. But more or less fleeting hope is hardly an adequate return for the financial and emotional investments made by the victims of such quacks, and our own legal system takes a grave view of those who offer such false hopes to the sick and vulnerable. I hope that anyone would see nothing wrong in 'taking away' the kind of hope offered by cynical fraudsters who knowingly offer useless or even poisonous concoctions as miracle cures. However, this moral issue becomes more clouded when those offering the cures are convinced that they *do* in fact work, even in the face of objective evidence to the contrary. Should one condemn someone who sells distilled water to the sick as a specific palliative *only* if they do so *knowing* that it will do their patients no more good or harm than that which comes out of their domestic tap (see Spencer 1997 on homoeopathy)? The worst that a sceptic can do for the victims of illness is take away hope of a cure from sources that do not stand up to objective assessment. Is the patient really better off hopeful but ignorant of the evidence concerning the treatments they are exposing themselves to, investing their resources in a regime of

debatable efficacy? If one is prepared to advocate promoting ignorance on grounds of increased sense of well-being, the question then becomes one of where to draw the line. If hiding the evidence concerning certain 'medical' techniques is justifiable and desirable, why shouldn't we keep the population 'happy and hopeful' on issues of human rights, foreign policy or ecological status by covering up from the public the occasional 'unfortunate incident' in these areas? That's a path I personally don't want society to go down. I'd rather deal with the world as it is than be protected from it for my

own good, and I don't consider myself (or anyone else) wise enough to be able to choose the alternative approach of contented ignorance on the behalf of others.

References

- Brigden, M. J. 1995. Unproven (Questionable) Cancer Therapies. *Western Journal of Medicine*, 163: 463-469.
Spencer, W. 1997. Homoeopathy. *Skeptical Intelligencer*, 2(2): 21-24.

A SCEPTIC'S ATTITUDE TO SCIENCE AND RELIGION

By Dorothy Rowe

Dorothy Rowe is a clinical psychologist who has done extensive research into how we create meaning. She is the author of 11 books, the latest of which is The Real Meaning of Money (London: HarperCollins £7.99). She is also a member of ASKE.

SKEPTICAL INTELLIGENCER 2(3)/(4) included several articles that discussed the proper relationship of scepticism and religion. I would like to continue the discussion because these issues are central to sceptical inquiry.

BBC Radio Four's *Today* programme has, as far as I'm concerned, only one fault: the religious section called *Thought for the Day* is ring fenced. *Today's* notoriously pugnacious presenter John Humphreys can't interrogate the person presenting the *Thought*, while every other person who ventures on to the programme can be scrutinised for lies, inconsistencies, logical errors, fudges and downright inaccuracies. On *Thought for the Day* and, with Melvyn Bragg's blessing, on the weekly discussion programme *Start the Week*, various church men and women can be heard discussing religion and science in the terms which imply that these are equivalent modes of thought. This is one inaccuracy which ought to be challenged if not by John Humphreys then by the rest of us sceptics. Religion and science are not equivalent concepts of modes of thought. Religion uses the mode of thought called fantasy and science uses the mode of thought called scientific method.

The way we are constructed physiologically means that we are unable to perceive reality directly. All that we can ever know are our constructions, our theories about reality. (See Richard Gregory's *Eye and Brain* (Gregory 1998) and any of Oliver Sack's books for demonstrations of this.) Once we have created a theory, we can choose to examine it in terms of scientific method or we can elaborate it in terms of fantasy. For instance, we might be about to cross a busy road. We form a theory about the best moment to cross the road. We can use scientific method by drawing on the success of our past estimates of the speed of cars; or we can decide that as Mars is in the ascendant and the tooth fairy owes us a wish we can cross the road whenever we like.

Scientific method is composed of the techniques we use to overcome the limitations of our physiology in order to improve our theories about what is actually happening in the here and now. In doing science we are concerned with the past only in terms of what events led to the present event which we are examining, and we are concerned with the future only in terms of how well our understanding of past and present events allow us to predict the future. While we

might long for our predictions to turn out the way we want, we know that the events we are examining are indifferent to our needs and wishes.

Fantasy is the mode of thought which is essentially concerned with our needs and wishes. Fantasy is not concerned with 'what is' but with how 'what is' might be turned into something which accords with our needs and wishes. Fantasy interprets the past and the present in order to create a future we desire.

The difference between scientific method and fantasy is very clear when we see how we treat death in terms of science and in terms of religion. Science tries to discover the causes of death but it can have nothing to say about what death means. While we are alive all we can ever actually know about death is that a body becomes strangely still. What happens after death is a matter of fantasy. We have a choice of two basic fantasies. We can fantasise that death is the end of identity or we can fantasise that death is the doorway to another life. These fantasies are perhaps the most important fantasies we can ever have because whichever we choose determines the purpose of our life.

If you choose the fantasy that death is the end of your existence, then your purpose in life becomes that of making this life satisfactory. There is a multitude of ways in which you can interpret 'satisfactory'; but whatever you choose, the only way you can face the inevitability of death with a degree of equanimity is to be able to feel that your life is somehow satisfactory.

If you choose the fantasy that death is a doorway to another life, you have then to elaborate your fantasy. Will this next life be more pleasant than your present life? If you say no, it will be worse, you now fear death and have to use every method to try to prolong your life. If you say yes, it will be better, you are now faced with the question of justice. Is this new life open to all or only to those who have been sufficiently good? If you decide that there are certain standards that have to be met to qualify for this new and better life, you now have to live your present life in terms of the next. These are the fantasies with which religion is concerned.

I examined some of the ways we elaborate our fantasies about death in my book which I called *The Construction of Life and Death* but which the publishers of the second edition called *The Courage to Live* (Rowe 1989). I got lots of different people to tell me about their fantasies about the nature of death and the purpose of

life, and I arrived at the conclusion that if you want to lead a peaceful life, you need to have an interpretation of death which gives you courage and optimism. Without exception, those people who told me about their fantasies of a vengeful God and a Hell gaping open to receive them were people whose lives were fraught with depression and distress.

Alas, no matter how hard we might try to create a religious belief or a philosophy of life which invariably gives us courage and optimism, just as every event always has both good and bad outcomes, so every belief has good and bad implications. Undoubtedly it's better to believe in a God who's on your side than in one who's out to get you; but what can you believe when a terrible disaster occurs to you?

Whenever a disaster occurs we ask two questions: 'How did this happen?' and 'Why did this happen?'. 'How did this happen?' is the scientific question which is answered by a careful examination of the events which led to the disaster. 'Why did this happen?' is the philosophical question: 'Why in the whole scheme of things did this disaster occur?' This is the question which worries people the most. After the Dunblane shooting the television picture of a bouquet of flowers with the card on which was one word 'WHY?' was shown repeatedly, while many of the flowers given as a tribute to Princess Diana and many of the messages in the condolence books carried the same question: 'Why in the whole scheme of things has this happened?'

There are only three possible answers to this question: it was someone else's fault; it was my fault; or it happened by chance. However, in a Just World nothing happens by chance.

All religions teach that we live in a Just World where goodness is rewarded and badness punished. Religions differ in how they define goodness and badness, rewards and punishment, but they all describe a world which is encompassed by a Grand Design where the good are rewarded and the bad punished. Since the evidence that rewards and punishments are handed out fairly in this life is rather slim religions require an after life to save this hypothesis.

However, when terrible disasters occur to people who are patently good or to children who are too young to have become wicked, many people are not satisfied with the explanation that the good and the innocent will have their reward in heaven. Thus, many

ministers of religion are faced with the problem of reconciling their fantasy that the good and the innocent are protected and rewarded with the brutal reality that the good and the innocent have suffered a terrible disaster.

When I was working in the NHS I encountered a number of ministers of religion who felt that they were telling nothing but the truth when they informed, say, their parishioner that her terminal cancer was caused by her wickedness. These were ministers of one of the fundamental persuasions who rejoice that their God is a God of Wrath who smites the ungodly. Radio Four prefers those ministers of the God is Love persuasion and so, after any terrible disaster, *Thought for the Day* and *Morning Prayer* are filled with people taking vertiginous leaps across the crevasses in their arguments and hoping that no one will notice their fudges, such as where they change the meaning of a term half way through a sentence.

Of course, this is what we all do when we fantasise. When we're lying in bed at night reworking

the day's events into a memory which allows sleep, when we're changing 'what I would have said if I'd thought of it in time' to 'what I did say', we're all leaping crevasses in our arguments and fudging like mad.

However, this is what we do in the privacy of our own heads. If we're going to do it out loud, in public, and present our fantasies as hard, irrefutable facts, we should expect other people to point out the error of our ways. Or at least we should expect to encounter a sceptic or two who'll apply a little scientific method to our woolly thoughts.

References

- Gregory, Richard L. 1998. *Eye and Brain: The Psychology of Seeing*. Oxford: Oxford University Press.
Rowe, Dorothy. 1989. *The Construction of Life and Death* (second edition of *The Courage to Live*). London: HarperCollins.

[Editor's note: at our invitation, a reply to Dorothy Rowe's comment follows]

Are skeptics necessarily atheists?

By Trevor Jordan

Dr. Trevor Jordan is a retired GP who is now undertaking a part-time theology degree. He is also a member of ASKE.

I am grateful to the editors for this opportunity to comment on Dorothy Rowe's piece *A Sceptic's Attitude To Science and Religion*. My credentials for this are that I am a church-going Christian, yet I have declared myself a skeptic by joining ASKE.

Rowe says that skeptics should shun the 'fantasies' of religion. Her argument is based on what she hears in the media: an implication by church men and women that religion and science are equivalent modes of thought. Immediately, Rowe's premise must be challenged. While there are still some individuals who equate scientific discourse and religious discourse, this is no longer the norm. Some fundamentalists might still regard the book of Genesis as a literal scientific treatise which 'explains' creation (and explains away, inter alia, evolution), but modern theological thinking

rightly does away with this view precisely because religion and science are not equivalent modes of thought, and religious writings do not claim for themselves the status of scientific fact.

Rowe characterises science as a concern with the past only in terms of what events led to the present event which we are examining and we are concerned with the future only in terms of how well our understanding of past and present events allow us to predict the future. To some extent the same is true of religion: we look to our past to explain our present state of humanity, and we look to a desired future so that we might order our present behaviour and beliefs. But for religionists this is not a mechanical system of cause and effect. What we do in this life does not determine our fate in the next – 'it is not by works that you are saved'

is the phrase commonly used by Christian religionists. This religious language will probably upset Rowe, and it must be admitted that religious language is a major barrier to understanding religion. This is discussed in Paul van Buren's (1972) essay on the logic of a religion, which suggests that all religious discourse takes place at the edges of language where precision is inevitably blurred. We are forced to use imprecise language because we cannot be precise about something – God – which is by definition indefinable. I am not arguing that fuzzy language and fuzzy thinking are to be condoned in religious discourse, but rather that to have a meaningful religious discussion one must first at least agree what the words mean, and Rowe does not demonstrate an understanding of religious language.

And further, Rowe will argue that there is no next life. She might be right, of course. And she might also be disposed to say that there is no God. Again, she might be right: the existence of God is not provable in this life. The commonly quoted 'proofs of the existence of God' attributed to Augustine and to Aquinas are not proofs at all: both start with the assumption of the

existence of God and then discuss what the nature of that God might be. Augustine and Aquinas begin with a statement of faith – 'there is a God' – and then attempt to understand the implications of that faith. In the words of Anselm of Canterbury, *credo ut intelligam* – I believe so that I might understand.

I cannot, in a short space, offer refutation of Rowe's contentions in detail. But it is simply not good enough to dismiss centuries of religious discourse as mere fantasy. Nor is it logical to refuse to discuss the 'why' of existence and allow only the 'how' as a legitimate subject. Science discusses 'how' – religion discusses 'why.' These need not be incompatible, as Rowe suggests. Belief, after all, is a decision which can be (and not infrequently is) made by intelligent human beings. It deserves to be understood and intelligently discussed, even by skeptics.

Reference

Buren, Paul van. 1972. *The Edges of Language*. London: SCM Press.

RELIGION, SCIENCE AND SKEPTICISM

By Dónal P. O'Mathúna

Dr. Dónal P. O'Mathúna, Ph.D, is Professor of Bioethics and Chemistry at Mount Carmel College of Nursing, Columbus, Ohio, USA.

I write in response to the *SKEPTICAL INTELLIGENCER'S* recent section on religion and skepticism. The articles which I was able to access on your web site <<http://linus.mcc.ac.uk/~moleary/css/>> raise interesting issues which warrant further discussion. I write as someone committed to Christianity, science, and critical thinking. While some may consider me hopelessly confused, I see these commitments as compatible and, in fact, intertwined. Growing up in Ireland in a traditional church setting, I accepted most religious instruction without question. While studying science at Trinity College, Dublin, and later in the United States, my adherence to religious practices dropped off

considerably. I was able to keep my science and my religion compartmentalised until some friends invited me to a Bible study. I was confronted with both my lack of understanding of what I claimed to believe, and the inconsistencies within my own beliefs. After much investigation, I came to accept the central tenets of Christianity, and specifically the message of salvation through faith in Jesus Christ. I believe it was my commitment to critically think through the issues and to search for evidence which has given me confidence in the correctness of my decision.

Wayne Spencer's editorial cited Siegel's definition of critical thinking as a set of dispositions,

attitudes, habits of mind, and character traits. I think many would see science as a similar set of characteristics, representative of a way of approaching problems and questions. Whether the issues are religious, ethical, relational, or physical, critical thinking and the scientific method are tools which allow us to move closer to the truth. Certainly, some questions will be better answered by different approaches, but this should not make certain tools incompatible with certain types of questions.

This brings us to the question of faith. I view faith as the acceptance of certain propositions as true even though the evidence supporting them is not completely verifiable (*Hebrews 11:1*). Here, I take issue with some of my religious friends who view faith as that which replaces or supplants evidence. Faith should be built upon verifiable evidence and reason, and certainly should not contradict these. In this way, I also see faith as very important to science and critical thinking. Beneath all of our layers of evidence is a faith commitment to something. Spencer stated that "at the root of skepticism is a commitment to critical thinking." Is this not a step of faith? Michael Heap states that scientists have no "answers at the back of the book" like theists have in their God. Yet if scientific hypotheses do not correspond with the answers revealed by experiments, they are marked wrong. But wherefrom comes the commitment to reason and a realistic perspective of reality? Again, those are steps of faith we must take. In all these cases, faith is what takes us a little beyond our accumulated evidence, though should always be in accord with our evidence. Doug Bramwell wonders if multiple universes or theories of everything will help resolve arguments about God's existence. But there, he too goes a little beyond the evidence and reveals his faith in science.

My point is that we all have faith in the ultimate grounds of our beliefs, whether scientific or religious. If religious questions are not amenable to rational and critical investigation, both believers and non-believers will be the poorer. Dialogue requires a common language, which is often provided by critical thinking. The post-modern criticism of rationality shows what happens when critical thinking is dismissed: a common ground no longer exists upon which different claims can be evaluated. And then, everything goes! The long-standing tradition of scientists and theologians seeking evidence for their assertions is upheld by a commitment to critical thinking.

Spencer wonders if any organisation challenging religious beliefs will find itself condemned and unable to promote critical thinking in any venue. Christians who cannot accept criticism and respond knowledgeably should note first that the *Bible* calls on them to be able to defend their beliefs (*1 Peter 3:15*). While I acknowledge that many may feel inadequate to this task, this is a problem for Christians, not those who come with legitimate questions and concerns.

My beliefs have often been strengthened by dialogue with those who challenge me to investigate issues further. Sometimes my beliefs have changed. If we as theists and non-theists are to move closer to the truth, we need these challenges and dialogues. And we need to promote critical thinking. The difference is that I think I know why critical thinking reveals truth. I believe the Creator is rational, and has given us reasoning abilities to help us understand and navigate a rational world. Why would critical thinking lead to truth if it is just an evolved ability which gives us survival advantage?

Electronic Discussion List

Courtesy of the German skeptical group the GWUP, ASKE operates an e-mail discussion facility for members only. To join, please send a request to Stephan Matthiesen at <stephan@met.ed.uk>.