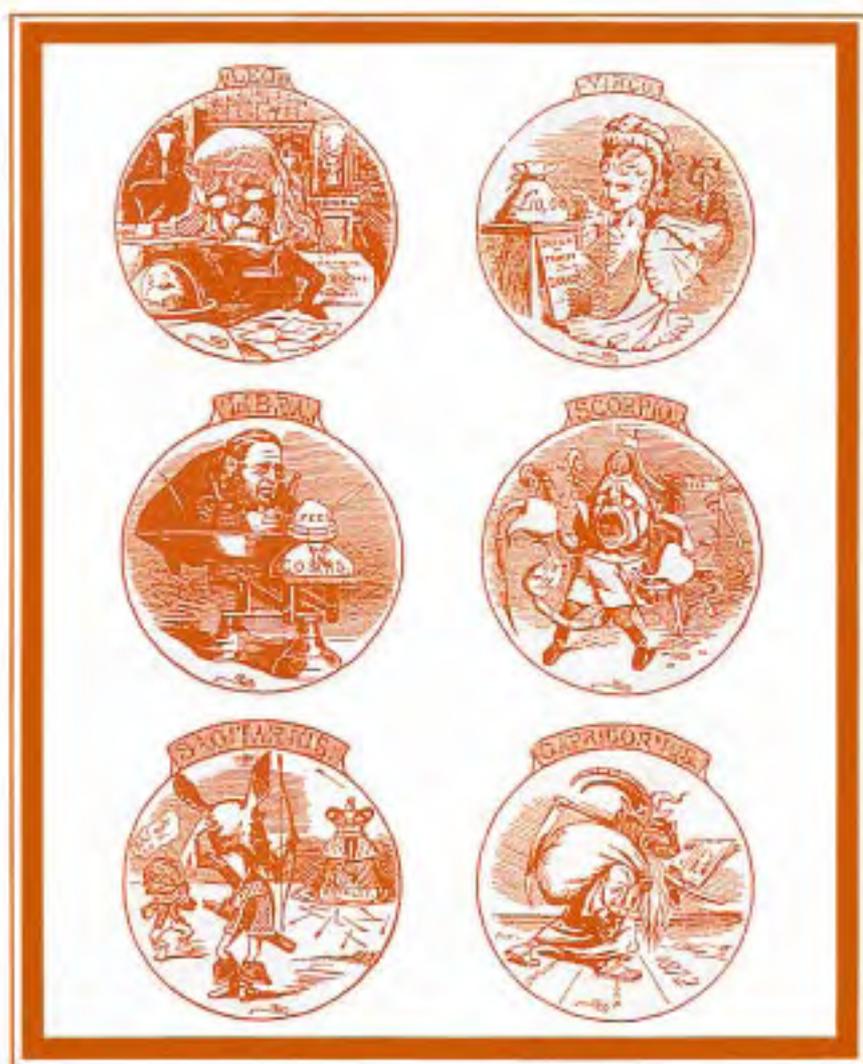


the **Skeptic**

Volume 12, No 1 (Autumn 1992)

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stars and superstition



Astrology
Creationism
Mass Hysteria

CONTENTS

5	News: Astrologers on Couchman
6	Review: Sacred Sex
7	News: Burning Ambition
8	You Gotta Have Faith
10	News Briefs
11	World Round-up
12	Planetary Influences
17	Science and Psience
21	The Skeptical Student
22	Rignac Predictions
23	A History of Mass Hysteria in Australia
27	Astrology: National Survey Results
28	The Skeptic Crossword
29	Theological Speculation
30	A Mathematical Disproof of Creationism
33	Crossword Answers
34	Circular Logic
36	Linguistics: A Response
38	Star Wars
41	Psychic Fair
43	Forum: A Response
44	Letters to the Editor
49	Near Death Experiences
50	About our Authors

From the President

If this issue seems to indicate that we have developed an unhealthy interest in the single topic of astrology, then perhaps it is only a reflection of the distressing increase in belief in this irrational pseudoscience, as shown in the results of the national survey we report on in the magazine. Or perhaps it is yet another example of coincidence, that so many different stories about astrology came our way in the last quarter. It could even be an example of synchronicity, though I take leave to doubt it.

Whatever the reason, there seems to be little question that there is an increasing level of interest in all forms of irrational belief at the moment. Whether or not this can be accounted for by the human need for certainty in an

increasingly uncertain world is not established, though it is a persuasive thought.

If it is the case, then it will not be an easy time to be a Skeptic. Those who peddle irrationality have always had the advantage that they offer hope, and even though it may be falsely based hope, its appeal lies in its simplicity. The history of the world is littered with the shattered lives of those who fell for the seductive appeal of the easy option.

Informed scepticism is not the easy option, it requires thought, but it is the only option for those who believe that irrationalism inevitably leads to disaster.

Barry Williams

the Skeptic

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National Convention

Newcastle is rated as the best city in Australia by the *Australian Business Monthly* (January 1992). All true sceptics will want to check this out, so why not? And what better time than the middle of winter, when the Australian Skeptics National Convention will be at full blast in the heart of sunny Newcastle.

On the weekend of June 20/21, this zetetic extravaganza will shed light, and maybe a little heat as well, within the opulent surrounds of Newcastle Western Suburbs Leagues Club, where every imaginable facility awaits the seekers of truth and beauty.

Mark it in your diary NOW!

Accommodation is no problem: a luxurious motel adjoins the complex and there is a pub on the other side of the block for the less sceptical.

See the next issue of the *Skeptic* for details of the Convention sessions and the special extra-curricular delights, like the Sabbath Vineyard Tour for the Ungodly (book early).

For further information and a reserved place in the sun, contact:

Convention Coordinator

Eric Aitchison
113 Alnwick Road
North Lambton
NSW 2299
Telephone (049) 57 2211.

Victorian Debate

The Victorian Branch of Australian Skeptics and members of the Christadelphian Church will conduct a public debate on the topic "That Biblical Creation is More Credible than Scientific Evolution" on Monday 23rd March at 7.30 pm in Rotunda Room No 4, Monash University, Clayton. Admission to the debate is free and all interested Skeptics are invited to attend and to cheer on the home team.

NSW Talk

The Library Society of NSW will host a talk by Australian Skeptics president, Barry Williams, on 'The Need for Scepticism in the New Age', at the Glasshouse Cafe, Level 7, New Library Building, Macquarie St, Sydney on Wednesday, April 1 (a singularly appropriate date). The time is 6.00 for 6.30, with drinks and light refreshments before the talk.

Entry: \$8.00 for Australian Skeptics and Library Society members, \$12 for non-members. Booking is essential, call 230 1500.

Call for Papers

Any person who wishes to present a paper at the 1992 National Convention is requested to contact the national committee at the address shown in column 1. Include the title and a brief synopsis of the paper.

**Editors: Barry Williams
Harry Edwards**

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ON THE MEDIA

At Large Among the Astrologers

Barry Williams

Shortly before this issue went to press, members of the national committee took part in the taping of a *Couchman* programme (ABCTV) on the topic of astrology. The audience, which probably numbered fewer than 100, consisted of astrologers of various persuasions, both professional and amateur, potential customers from a Sydney high school and a small number of nay sayers. Numbered among the latter were members of Australian Skeptics, members of the British Astronomical Association, Dr Tony Kidman, psychologist and Father James Murray, Anglican priest and religion writer for the *Australian*. While I have often had dealings with astrologers in the singular, this was to be my first experience of the species en masse, and a remarkably instructive experience it proved to be. Far from being a cohesive movement, dedicated to the propagation of some sort of overriding truth, astrology appears to be as schismatic as the Christian church; as faction ridden as the ALP.

This became evident in the preamble to the taping, when the eponymous Peter Couchman sought to define some attitudes. What, he wanted to know, was the attitude of the astrologers to newspaper astrology columns, the so-called sun-sign astrology? Initially, the consensus seemed to favour the view that it was of little value, opinions ranging from the sceptical proposition that it was a load of rubbish, to the astrologers' contention that it was, at best, a

generalised guide to the truth. Seeking to expand on this a little, Couchman asked whether the consensus was as it appeared to be, at which point a number of the astrologers (evidently those who made at least part of their income from preparing such columns) realising that they may be admitting on national television that their most public face was a sham, began to qualify their statements with alacrity (though with little consistency). Other factions appeared to adhere to the view that sun-sign astrology was nothing but 'a bit of fun'.

This lack of consistency, it soon became evident, is the most distinctive characteristic of the genus *homo astrologus*. The question of whether the position of stars and planets at the moment of birth did indeed have an effect on human actions was met with unequivocal agreement from the astrologers. When this display of unanimity brought forth the logical follow-up observation, that two people born at the same time in the same hospital should then have identical personalities, qualification and equivocation became thick on the studio floor. Among the reasons offered as to why this identity of personality was not so, were 'free will', 'genetic influences', 'ethnic differences', 'environmental diversity' and 'parental control'. Indeed, in the face of the obvious fact that different people, despite the propinquity of their births, do not display identical, or even similar personalities, the astrologers used

precisely the same arguments that anyone else would to account for the facts. They did not seem to notice that their qualifications thereby effectively removed any requirement for the central tenet of their faith.

A similar refusal to face facts was shown by the insistence of some of the astrologers that no scientific studies had ever been conducted into their art. When the opposition mentioned any number of studies, rather than seeking further information about the studies, the astrologers reverted to the political method of debate: i.e. shouting louder than your opponent to carry the day. An amusing incident occurred at this time when a Skeptic mentioned the famous "A Double-Blind Test of Astrology" by Dr Shawn Carlson (*Nature* 318, December, 1985). One of the astrologers produced a copy of the paper from *Nature* and, loudly proclaiming the study to be flawed, said that the results depended on 'personal validation'. In fact, the study showed both that respondents could not select their own professionally cast horoscope out of a possible three, and that professional astrologers could not match horoscopes with personality profiles at levels greater than chance. The irony in the claim is that 'personal validation' is precisely why horoscopes seem to be accurate to both astrologers and their clients.

Peter Couchman made an error in referring to the work of Michel Gauquelin, when he claimed that Gauquelin's study showed that top

sportspeople were ‘overwhelmingly’ born when Mars was in certain positions in the sky. Astrologers rushed to endorse this view and the Skeptical front bench was unable to attract the attention of the host to point out the fact that, even accepting that Gauquelin’s study was uncontroversial (which it is not), his statistics merely showed a significantly higher than chance level of sportsmen were born at these times, a level that fell far short of ‘overwhelming’. Kate Orman, a Skeptic whose article *Star Wars* appears in this issue (p 38), tried very hard to get the floor to quote what Gauquelin actually had to say about traditional astrology. She failed, but for those who do not know it, the quotation is included in her article.

Following a reference to the National Social Science Survey (p 27 this issue), by Dr William Grey, in which he noted the effect of years of education on the level of belief (the higher the education, the lower the belief), the amiable Milton Black, an astrologer from Canberra disputed the evidence, claiming that the majority of his clients were ‘politicians, bureaucrats and top businessmen’. Much hilarity erupted from the opposition benches as the root cause of the nation’s economic malaise was finally exposed.

The *Couchman* programme is likely to be shown in late March and readers are advised to keep an eye out for the claim that the history of astrology goes back for 26,000 years, the unofficial “test” which shows that those who are not astrology groupies cannot select their ‘sun sign’ personality from an untitled list of 12, while those who do subscribe to the belief have a much higher success rate. This is not what the test was designed for, but this is what it shows.

Keep your eye on the programme guides. ■

FILM REVIEW

Sacred Sex

Murray Finch

My reason for seeing this film was, of course, purely academic and the \$6 I expended on a half price day was money well spent, both for a good laugh and an insight into New Age lovemaking. Billed as “True Stories of a New Sexuality”, *Sacred Sex* has been showing for three months, so a lot of people must be turning on, tuning in and dropping their sarongs to discover new pathways to enlightened erotica.

I have no objection to the film itself – for what it purports to be, it is excellent. The typical cries of “indecent” came from the expected quarters but, as usual, they were as far from reality as some of the participants in the film. My only concern is that *Sacred Sex*, unlike humorous documentaries such as *Cane Toads*, propagates superstitious nonsense about a subject that has always been surrounded with misinformation. Annie Sprinkle, the ex-porn star who does a one woman “post porn modernist.” show in Berlin and “Sluts and Goddesses” workshops in New York, is one of the stars of the film. She describes sex as being like food, there is “junk sex, health sex and gourmet sex”, but what we see is a smorgasbord of New Age fruitcake.

The ancient ways, long since lost to materialist western culture, are being rediscovered by those with cool karmas and open outlooks. Sexually active sceptics don’t know what they have been missing out on! Driving Chi energy up the spinal column to the brain can bring on a “total body orgasm” and a fusing of the spiritual and physical that will

leave you glassy eyed for a week.

Thankfully there are kind souls who can guide us to these new peaks. We are taken through English psychologist Allan Lower’s six day seminars in Hawaii, where couples writhe around releasing their fears and inhibitions. Watching people getting hysterical about bad relationships with their parents becomes monotonous after a while, but what would have been interesting was a disclosure of the cost of the elaborate exercise. Time spent with New Age Gurus does not come cheap.

Leaving aside the sexual energies unknown to science (SEUTS) and the assorted New Age “isms”, *Sacred Sex* offers an insight into another aspect of the New Age which could do with greater exposure. As one workshop-running couple explained the joys of sacred sexuality I was struck by the narcissistic opulence of their new-found sexual Nirvana. As they sat carefree in the spa bath on the verandah of their secluded bungalow, the snow covered mountains of Colorado as a backdrop, I thought of all those other poor unenlightened folk who have their relationships cluttered by mundane responsibilities, like paying the bills. If life is not satisfying we should be at least able to delude ourselves, if only for an hour or so each Sunday night in the bath. But, unfortunately, as *Sacred Sex* inadvertently shows, so much of the New Age is about people paying a lot of money to self-appointed gurus to do the deluding for them. ■

SPORT

Crows Train at Blistering Pace

Allan Lang

The Adelaide Crows football team had planned a motivational exercise for 18 January 1992. One team member, Nigel Smart, suggested it would be a smart idea to have Canberra motivator, Paul Blackburn, conduct a firewalk seminar to demonstrate the power of mind over matter. Someone thought this would be a good idea and Blackburn was flown over to teach the Crows to tap their inner strength and to will the body not to burn by relying on the body's aura to protect it from the heat.

On the night, the fire and the Crows were prepared and Nigel Smart strode off over the ten metre pit. About two metres from the end he began to realise that something was not quite right. The flow of mental energy he was directing to the soles of his feet was failing to balance the energy of the coals. The extent of Smart's injuries was not completely clear. Chief football writer on the *Advertiser* said Smart's feet were badly blistered with "only third degree burns".

It must be said that when news of the event was revealed most local commentators were critical of the scheme. Comments like "pseudo-scientific drivel" were made. Eight out of nine letters to the *Advertiser* were critical of the concept of the firewalk. However there were a few exceptions in defence of the New Age. One letter to the the *Advertiser* congratulated the Crows' leader for "openness of mind to search for new ways of developing self-awareness and exploring human potential".

One sports expert pointed out on radio that it was not actually a rash stunt, as the Crows had had four hours of psychological preparation for the event. Psychological preparer Paul Blackburn blamed the incident on Smart's fateful lapse in concentration, but thought Smart would be a better human being as "it was an 80% successful walk".



Blackburn's maths were at least better than those of Adelaide football manager, John Condon, who gave the reason why he thought the walk would be safe; "We were told there was only a five percent chance of being burned – but then not five percent of the population are AFL footballers are they?"

About the only person unaware of the failure of the walk was Nigel Smart, who crowed about his success in walking unharmed over eight metres of hot coals. "I still can't believe I actually did it and came through unscathed." "When you consider how hot the coals were I wasn't burnt at all." "It was bad luck for the other guys they didn't get to

try it." "It just shows that if you put your mind to something you can achieve goals you wouldn't believe possible." "I think you can achieve anything if you know how to put your mind to it."

Smart's statements are identical to those he might have used if the walk had been successful. So one must wonder what this firewalk could possibly have proved, as anything that happened would appear to have had no effect on Smart's mental state or attitude.

"Firewalking" is an exercise in marginal safety. The temperature is generally lower than claimed. (The walks are staged at night so that the dull red glow of the coals can actually be seen.) The walk is done quickly so that the chance of being burnt is low. The first person is usually fortuitously unburnt. Any later burnees are generally too ashamed to admit they were not spiritual enough.

On the night of the televised Crow-walk, the coals appeared to be hotter than usual, probably closer to the usually claimed 600°C than to the 400°C some sources suggested they were at. In these conditions the safety margin decreased, to the extent that burning was probable in under ten metres, rather than unlikely.

Australian Skeptics would dearly love to test the mind powers of any promoter of firewalking, using a metal plate heated to considerably less than half the temperature of coals, but we are not holding our breath. ■

HEALING

You Gotta Have Faith

Chris Jones

Recently, intrepid members of the Victorian Branch bravely sacrificed their Sunday morning sleep-ins in the pursuit of truth and enlightenment. A faith healer named Len Hawes had come to town on a crusade to restore both the bodies and the souls of believers. His crusade had been publicised in the *Melbourne Age* and was supported by the Eastside Assembly of God (AOG). The church had also circulated a leaflet, which detailed some of his ‘healings’ – spinal and sporting injuries healed, deformed feet straightened, and a stomach “replaced by God” after the old one had to be removed because of cancer. Normal, every-day stuff! The leaflet even claimed that the stomach replacement had been “verified by the hospital”.

After viewing this leaflet, the Victorian Branch wrote to the pastor of the church mentioned, seeking verification of the claims. More of this later.

The service began at 10.00 am, with the church pastor leading the singing and generally revving up the crowd, which would grow to more than 200 before Mr Hawes took over. The pastor stressed time and time again that we must disregard our own feelings and instincts (rationality?) and instead surrender ourselves to the supernatural. We were also told repeatedly that our lives were empty and without purpose without God. Interestingly enough, the pastor also made the point that any donations given to Mr Hawes were not “payments for services rendered”, but were merely

to help support his ministry. I felt this was interesting because part of our letter to the pastor mentioned the subjects of fraud, consumer protection and obtaining financial advantage by deception. The pastor added that no collection would be made for Mr Hawes at this service, but that there would be a collection at that night’s session. After more singing, hand clapping and praying, the pastor introduced the star of the show.

Mr Hawes was a short, neat, well dressed man – dressed well enough to be a bank manager, though probably not well enough to sit on the Board of Directors. Similarly, when he spoke, he did so quite well - committed, without being imposing; articulate, without being scholarly. There was even the touch of the larrikin in his presentation, as well as a good deal of schmaltz. I gained the impression that this fellow worked very hard at presenting himself as a ‘regular guy’.

Emotional healings

Mr Hawes began his address with a word right from the top – the Holy Spirit had spoken to him that very morning and there would be ‘healings’ today. Indeed, he said that he had never conducted a meeting where there had not been healings. Most of his healings, however, were emotional “on the inside”, and that members of the congregation would know if they had been healed. He told the story of Lazarus and his raising from the dead by Jesus. He spoke at length about how his God was a loving god, not a threatening god and

about how he was a positive minister, not a threatening minister. Then he proceeded to tell us that we were forlorn, doomed, devoid of purpose and general no-goodniks without his God. (He told us this in a positive, loving, non-threatening way, of course.)

After some more singing and a bit more ‘non-threatening’, we finally arrived at the business end of the service. Strangely, Mr Hawes announced that there would be no ‘physical healings’ at this service, only ‘emotional healing’. The ‘physical healings’ would occur, according to Mr Hawes, at that night’s service. I say strange because there were some obviously disabled people in attendance and if, as he claimed, the (Holy) spirit was willing, it was hard for this heathen to see what difference a few hours would make. I couldn’t help wondering if perhaps he had been tipped off about those nasty Skeptics lurking in the crowd.

He began the healing by choosing half a dozen people from the crowd, appearing to select people who were already in a highly emotional state. Mr Hawes spoke briefly to the people who came forward, laid his hands on their heads and embraced them. For some reason, he asked a female church elder to embrace the females who came forward. After ‘treating’ the first group (of his choosing) he called on anyone else who wished to to come forward. Dozens responded.

It was clear that many of the people who came forward were of sincere belief and were moved by

the proceedings. Some even appeared to pass out, falling back into the arms of waiting church members. People in the crowd with obvious physical disabilities, a man in a wheelchair and a woman using a crutch, were received by Mr Hawes. These people showed no discernible improvement after the healing. As for the people who seemed deeply moved by the service, I can only conclude that what we had witnessed was a form of catharsis – a release of emotion – brought on by their own will to believe, the power of repeated suggestion and crowd hysteria. I saw no evidence whatsoever of supernatural forces at work.

After the service, Committee members had the opportunity to meet Mr Hawes, who advised us that a well known interstate hospital could verify his ‘replaced stomach’ case and that he was in the process of preparing a booklet, detailing his most notable ‘healings’. He stated that most of his healings were of an emotional nature. They are, therefore, impossible to quantify, assess or verify from a sceptic’s perspective.

After our encounter with Mr Hawes, we decided to investigate his claims. We wrote to the hospital which Mr Hawes told us could verify his ‘replaced stomach’. The hospital had no knowledge of him or his ‘healings’ but wrote that they would investigate further if we provided specifics, such as patient’s name, hospital unit number, etc. Now it is obvious that, if anyone had grown a new stomach after having had it removed, then that would be very big news in all the medical journals, regardless of who was responsible for the act. No such claims have appeared in any medical journal that we are aware of.

Again, we wrote to the pastor at

the Eastside AOG, who had not responded to our first letter. This time he answered, though his reply held little joy for us. He offered no verification of Mr Hawes’ claims, merely speaking of our “prejudice against the supernatural power of God”. He took umbrage at our calling Mr Hawes a ‘faith healer’, insisting that Christ is the healer, working through Mr Hawes. At the risk of upsetting believers, I must confess that at this point, I find this distinction mere bagatelle. Our first concern is that if healings are allegedly occurring via supernatural means, then surely we must begin by verifying that they actually take place before we worry about who gets the Thank You card. The pastor did give us Mr Hawes’ address and suggested that we take up the matter of verification with him. I find a reference here to Pontius Pilate to be irresistible.

Correspondence

Numerous letters to Mr Hawes remain, at the time of writing, unanswered. We also wrote to the General Superintendent of the Assembly of God, the Public Officer of the Eastside AOG and again to the pastor at Eastside, seeking any verifiable evidence they could provide to support the claims made in their advertising literature. The only reply we have received to date is from a firm of Melbourne solicitors, acting on behalf of the AOG. No solid evidence was offered to support the authenticity of the claimed ‘miracles’. Word of mouth and anecdotes still appear to be the predominant mode of verification offered. The solicitors wrote that they will advise us as soon as they have something concrete to report and we await their further correspondence with keen interest.

It is appropriate at this point to

consider some of the legal aspects of this case. According to legal opinion we have received, the wording of the leaflet publicising Mr Hawes’ visit was suitably ‘hedged’ so as to make any action under Consumer Affairs or the Trade Practices Act practically impossible. Since the alleged healings occur “in Jesus’ name” (Christ is the healer), it could not be argued in law that Mr Hawes is practising or even claiming to practise medicine. It must be borne in mind here that we are dealing with the law, not science and the onus would thus be on us (the plaintiffs) to prove the falsity of the specific claims. This is unlike the rule in science, where the burden of proof of a claim is always on the claimant. Given the fact that even the seemingly specific claims appear to evaporate like the morning mist when any attempt is made to nail them down, it is not difficult to see the problems that would be encountered in a law suit. As for disproving claims of emotional healing, the word futile does not even begin to describe the task.

Finally, some personal observations. According to the pastor and Mr Hawes, their God is solid and all encompassing, believers are totally secure in their faith and only the hopelessly myopic could fail to see clear evidence of their God in all things. If this is the case, I can’t help wondering why it is felt necessary to resort to what, in the eyes of this observer, amounts to emotionalism, mass hysteria and unsubstantiated claims to promote their beliefs. As for being ‘secure in their faith’, to me, these shenanigans point more strongly towards ‘grasping at straws’.

Indeed, one of the most disturbing aspects of this case was the apparent reticence of the church pastor to critically (and sceptically)

investigate the claims made by Mr Hawes, before allowing him access to his congregation. It was clear from his correspondence that he held the view that only those with “bias and prejudice against the supernatural power of God” would be so crass as to ask the maker of extraordinary claims to provide even a scintilla of extraordinary proof to support them. It is my view that the pastor should be actively encouraging independent verification of claimed miracles, as such verification would be an extremely powerful testament to his faith. And one question puzzles me more than any other. If no evidence or proof is sought, how do these people distinguish between a ‘genuine’ faith healer and someone who, having no religious belief at all, but who is a good con-man, comes among them using the same sort of jargon as the genuine article? Scepticism seems to me to be just as necessary in the religious area as it is in any other.

Could it be that, despite the passionate affirmations of faith we hear from such believers, they hide within themselves a measure of insecurity? A nagging fear that their world view may not be accurate and that a critical examination of any part of it may bring the whole thing crashing down around their ears?

The more I think about this case, the more I appreciate the gulf that exists between the sceptic and the believer. As we were leaving the church, Mr Hawes said to me that he did not know how anyone could possibly live without some sort of religious faith. What I’d like to know is how people who would no doubt give a vacuum cleaner salesman a grilling fit for the KGB before buying his product, are perfectly willing to accept an entire life philosophy on the basis of nothing more than promises, unsubstantiated claims and faith. ■

News Briefs

Faith killing

In case anyone is inclined to regard ‘faith healing’ (see preceding story) as being relatively harmless, we reprint an item from the *Christchurch Star* (November 9, 1991) as reported in the *New Zealand Skeptic* (December 1991).

Girl died after insulin stopped

WELLINGTON (PA)

A diabetic girl died in Wellington Hospital after her parents stopped her supply of insulin in the belief that she had been healed by a Christian faith healer, coroner Erica Kremic said in the coroner’s court here.

Mrs Kremic said the seven-year-old girl died in the intensive care unit of Wellington Hospital on June 26 last year of brain swelling secondary to diabetic ketoacidosis.

The girl’s family belonged to the Petone Christian Fellowship. Fellowship leader Brenton Williams prayed over the girl on Sunday June 10, saying God told him the girl would be healed if he prayed over her.

The same issue of the NZ Skeptic also reported on the tragic case of the death of a five-month-old baby who died of meningitis following the refusal of her mother, a registered nurse and believer in homeopathic medicine, to administer antibiotic medicine prescribed by a medical practitioner.

Readers are urged to keep an eye out and notify us of any examples of these dangerous practices causing deaths in Australia. ■

Sinking Arizona

The Australian batting debacle in the one day cricket match against India on December 9 caused Channel 9 to be left with some air space which required a filler. Into the resultant hole, which should have been filled with images of ‘the run-stealers flicker(ing) to and fro’, was inserted an episode of the American programme, *48 Hours* (a rather long winded *60 Minutes*) which dealt with the New Age colonisation of a town called Sedona in Arizona.

Listed among the practices indulged in by the vapid denizens of that rather beautiful part of the world, which included those old standbys, astrology, UFO abductees, crystals, fire walking, channellers and the speaking of banal gibberish (the native language of the New Age), was the visiting of sites of ‘vortexes’.

These sites, which supposedly ‘empowered’ those who visited them by energies, some of which were electromagnetic, all seemed to be located among the most outstanding pieces of scenery and, as a somewhat sceptical local journalist noted, were never found in the ugly parts of town.

The top line of the show was enunciated by the pink-Jeep-driving, ‘vortex travel guide’, when passing the city limits sign. Pointing to the sign, she said “It is really amazing that the name Sedona spelt backwards is Anodes, which has to do with electromagnetism.”

As a convert to this form of symbolic logic, I can now state unequivocally that the New Age movement was founded by an individual named Gabtar Gnivar.

BW

VIEWS

World Round-Up

Harry Edwards

The following is a selection of items which have appeared in the publications of some of the sceptics groups from around the world. There are now more than 35 local groups within the USA and more than 40 groups in other countries. Australian Skeptics is proud to be one of the largest of these groups.

* * *

Creation Scientists announced the discovery of Noah's Ark buried in thirty feet (about 10m) of silt at the bottom of the Gulf of Mexico. The remains bore the distinctive burn marks and radioactive traces of having been struck by a large interstellar object.

Mark Halo, the expedition leader, called it a miracle that any part of the vessel was found at all, given the size of the object which struck it. He suggested that the heavy dinosaurs fell overboard during the violent storms which must have followed.

Since the object apparently hit the Earth some 65 million years ago, rather than the traditional six thousand years, an immediate splintering of the research ensued. Halo denies that anyone swung heavy objects at anyone else.

A lawsuit will be filed in Berkeley to determine which side is right.

Basis (Bay Area Skeptics, California)

* * *

Did you know that if enough pressure is put on the two ends of any spoon or key, it will sooner or later bend or break?

South Shore Skeptics (Ohio)

* * *

August 16 was the anniversary of Elvis Presley's death and the occasion for another syndicated special featuring Bill Bixby. This one focussed on the theory that Elvis is still alive and in the witness relocation programme. Poor Bill Bixby has fallen a long way since he co-hosted that special on the supernatural with James Randi. At the very least, he could have quoted the Memphis coroner, who once said of Elvis, "If he wasn't dead before I did the autopsy, he sure was dead when I finished".

The North Texas Skeptic

* * *

There's every likelihood that the clever fellow, described by Bishop d'Arcis in 1389 as having concocted the Shroud of Turin, did not use human blood to tart it up, but blood from a slaughtered beast. Perhaps he waggishly meant to give a literal reading to traditional Christian allegory about the "blood of the lamb".

If at some future date Shroud blood is cloned into something that prefers "Baaaah" to King James Aramaic, we can only guess at the catalogue of Shroud Crowd excuses – the philosophical, "Oh, science is fallible" (religion obviously isn't), the historical, "The only cloth Joseph of Arimethea could find was an old butcher's apron", the theological, "What more fitting way for our Lord to reveal Himself to the modern age than as a cross-bred Merino wether?"

Dennis Dutton

New Zealand Skeptic

* * *

Where's the harm in believing in (astrology, UFOs, etc.)? Most skeptics have heard that response more often than we'd like. A horrifying example of the harm that such beliefs can do comes from a recent report in the *Washington Post* (May 13, 1991). Writing from Beijing, *Post* foreign service reporter Lena H Sun reported that the abortion rate in China is up because many Chinese believe that children born during this lunar year, the Year of the Sheep, "will be plagued by a lifetime of bad luck". In the city of Tianjin, Sun noted, the birth rate is down 25% and the abortion rate up 60% for the first quarter of 1991 compared to the same period in 1990.

National Capital Area Skeptical Eye. (Washington D C)

* * *

A woman who suffered a bop on the head attempted to sue for damages as a result of her alleged loss of psychic abilities. She sued for \$150,000. She got \$1,200 for medical bills. She should have seen it coming.

Rational Enquirer

(Western Canada)

* * *

The purpose of science is to make a better mouse trap. The purpose of nature is to make a better mouse.

Anon

* * *

If all the people who went to sleep during political speeches were laid end-to-end, they would be a lot more comfortable. ■

ASTROLOGY

Planetary Influences

Barry Williams

Does the Solar System contain a tenth planet? This is not one of those deeply philosophical questions like “Where do flies go in winter?” which have puzzled mankind since time immemorial, rather it is a question which it has only become sensible to ask within the lifetimes of some of our readers (Harry Edwards for instance). An article by Nigel Henbest in the November 30 edition of *New Scientist* indicates that the answer is probably “No”, but to find out why we ever thought it might be “Yes”, we need to cover some of the history of planetary discovery. Importantly, we need to ask what, if anything, the answer would mean for astrology?

Astronomy in History

As long as history has been recorded, and almost certainly for a lot longer than that, humans have been aware of the existence of the six planets that we know as Mercury, Venus, Earth, Mars, Jupiter and Saturn. Admittedly, for most of that time, most people thought that the Moon and the Sun were also planets, but did not recognise Earth as being one.

There is no record of when these planets were found to be different from the stars, but it is obvious that anyone studying the night sky would notice that some ‘stars’ do not stay within the same relationships, night after night. Our word ‘planet’, for these peripatetic ‘stars’ comes from the Greek word for ‘wanderer’. Nor do we know in what order they were discovered, but it is likely that it was Venus, Mars, Jupiter, Saturn and Mercury, because that is how conspicuously they appear in the night sky.

We do know that Earth was first recognised as a planet by the Greeks circa 500 BC, though this information appears to have been discounted for two millennia and then it only became common knowledge after 1543, when the Polish monk, Nicolaus Copernicus, proposed a heliocentric universe. This theory argued against the geocentric model which had been widely accepted for thousands of years and which had been formalised fifteen hundred years before Copernicus by the great Alexandrian astronomer Ptolemy. The heliocentric system had been held to be an inalienable truth by various systems of mystical thought (including the

Christian church) for most of that time.

Copernicus’ idea came to be accepted because it worked better and made fewer untested assumptions than did Ptolemy’s system, which required increasingly obscure artificial fixes in order to accord with more accurate observations.

Further theoretical and observational refinements were added to the Copernican model by the Dane, Tycho Brahe (who had an artificial nose), and his German assistant, Johannes Kepler. In 1610, telescopic observations by the Italian, Galileo Galilei, provided the evidence that finally confirmed the theory. Most importantly, Galileo observed that Venus showed phases like the Moon and certain of these could be explained only if Venus orbited the Sun in an inferior position to the Earth. No amount of tinkering with the Ptolemaic system could account for this fact.

Time running out for Astrology

Until the advent of all this scientific discovery, astrology, now known to be the illegitimate step sister of astronomy, had been having a field day, or more precisely, a few field millennia. It is moot whether astronomy or astrology came first, though the proponents of the latter usually claim that the scientific discipline is a descendant of their art. On the other hand, and more logically, it can be argued that observation must have preceded prediction, so astronomy should be considered as the senior study.

Certainly it is reasonable to assume that an original purpose for studying heavenly phenomena was to determine the arrival of the seasons, vital information when our species first took up agriculture. It is logical to infer that, once the idea of predicting seasonal changes had been accepted, and shown to be reasonably accurate, then the idea that these heavenly bodies could exert some influence on human affairs, particularly those of important individuals, would appear to be a logical next step. Here we can see the genesis of the dichotomy which still characterises the division between the two studies. There undoubtedly is a relationship between the appearance of the stellar patterns and the seasons, but where astronomy has come to recognise this association

as coincidental, astrology has always falsely postulated a causal connection.

Not that it really matters which came first, as most astronomers, from Ptolemy up until Kepler, dabbled in astrology and who can blame them? Generally, until the 16th century, the two studies were intertwined and while there probably wasn't much of a living to be made in straight astronomy, at least astrology had the potential, as it still does, to raise a few units of currency for its practitioners and to keep them from starvation. In any case astrology had the arguably useful cultural aspect of making predictions which, while not necessarily very accurate, were likely to be as good as any other predictions available at that time. Astrology, in common with other methods of divination and prediction, then, as now, couched its claims in generalities and obscure jargon and no doubt scored its greatest triumphs by means of *post facto* validation.

The new methods of science were, however, spelling the death knell for astrology as a serious study and the age of astronomy as a separate and powerful discipline was about to dawn.

Naming the Planets

We owe the names of the five 'classical' planets to the Romans who named them after their gods who, in their turn, owe many of their characteristics to the equivalent Greek gods. Mercury was the messenger of the gods (Greek Hermes); Venus the goddess of love (Aphrodite); Mars the god of war (Ares); Jupiter the supreme god (Zeus) and Saturn, an Italian agricultural god, was later linked with the Greek Kronos, the god of time, who was, among other things, Jupiter's old dad.

There is no reason to suppose that the Romans saw the planets as the actual gods whose names they bore; they were merely one of many manifestations of these superior beings. Polytheistic religions have a tendency to ascribe distinct individual (and all too human) personality traits to their gods (monotheists seem to prefer schizoid deities) and this was certainly the case with the Greeks and Romans. Nevertheless, astrologers ascribe influences to the planets which were in fact part of the characteristics attributed to the Roman (or Greek) gods. Those whose lives are allegedly influenced or controlled by Jupiter are described as jovial, while the terms mercurial, venereal, martial and saturnine, also part of the astrologer's stock in trade, can be traced to the personalities of their respective classical gods. Interesting as this excursion into classical mythology might be, we must return to the scientific exploration of the Solar System which put the writing on the wall for

astrology and other magical systems of thought.

The Age of the Observer

Galileo, using his telescope, discovered the first new extraterrestrial objects (apart from comets and meteoroids) seen since prehistoric times. These were not new planets, but four satellites of Jupiter later named, following the classical tradition, Io, Callisto, Europa and Ganymede. The first three were named for women seduced by Jupiter (who was not only jovial, but a prize lecher), and the latter for a young man, made an immortal and the gods' cup bearer by Jupiter. In the Greek version, he also was seduced, but the Romans tended to be a bit wowsery about this sort of thing and it is rarely mentioned. Astrologers at the time may have been interested but their modern successors do not seem to regard these new bodies as having any great significance, which is odd considering the importance they attach to our own moon.

Galileo's discoveries were not so much critical in the scientific explanation of how the solar system worked, as they were vital in changing the mode of European thought. Until this stage of our history it was obvious that the Earth, and by extension us human beings, was the centre about which everything revolved. The Earth, including all of its imperfections that we were forced to acknowledge, was seen as man's domain, while the heavens, perfect and unchanging, were God's domain, though it is important to remember that they revolved about **our** centre. This very cosy cosmology, which says more about human conceit than it does about God's plan, was obviously incorrect when it was shown that there were celestial objects actually revolving around another planet.

Information such as this undermined the authority of the conservative bureaucrats of the Christian church who persecuted Galileo, though not being a group to hold a grudge, they finally forgave him for being right. (The fact that the forgiveness took the best part of four centuries can be attributed to the slowness of the mills of God.) But it was not only the church whose perspective was overturned by the advent of a scientific world view, it was equally a blow to other forms of magical thinking, including astrology, which went into a decline for centuries. Astrology could not accommodate itself to the scientific view, holding steadfastly to the idea of the geocentric universe and to the notion that the sun and moon were planets, as it has ever since.

The advent of the telescope and the new world view led to further 17th Century exploration of the Solar System with the discovery of the rings and five satellites

of Saturn. Saturn's retinue of satellites were given the names of individuals associated with that deity and again astrologers did not take much account of these bodies.

The publication by Isaac Newton of his *Principia Mathematica* in 1687 put the study of the Universe onto a more solid theoretical footing and this, coupled with the discoveries made by many gifted amateur observers, greatly increased the sum of human knowledge.

With all this observation going on it was almost inevitable that other planets, if they existed, would be found. Yet it was not until 1781, almost a century after the publication of the *Principia*, that the next planet was discovered.

The Hanoverian born British astronomer William Herschel was not the first to see this new planet; it had already been catalogued by several others as a star, but he receives the credit for the discovery. Herschel himself was looking for stars not planets, and first reported his sighting as a comet, however, he later determined it to be a new planet. Herschel at first named it for his patron George III though, fortunately, wiser heads prevailed and the established practice of naming celestial objects after figures from classical mythology was adhered to, resulting in the planet being officially designated Uranus.

Uranus, Greek god of the sky, was the father of Kronos (Saturn), and was later castrated by him (unpleasant sods, these Olympians). Herschel also discovered two satellites of Uranus and two new satellites of Saturn. Shortly after this, at the beginning of the 19th century, several new bodies were discovered which, while they directly orbited the sun, were designated as asteroids. Named Ceres, Pallas, Juno and Vesta, these bodies, and thousands of others, revolve around the sun between the orbits of Mars and Jupiter, in the so-called Asteroid Belt and are generally considered by astrologers to be insignificant, for reasons best known to themselves.

Enter the Theoreticians

Science was now getting into its stride; the effect of gravitational interaction was becoming well understood, leading to concern among mathematicians that Uranus was not following the orbit that theory predicted for it. John Couch Adams in England and Urbain Leverrier in France calculated that another planet must be orbiting further out than Uranus, whose gravitational interaction would account for the discrepancies in its orbit. Adams and Leverrier knew nothing of each other's work and each was relying on observations by various observers, using telescopes with varying degrees of resolution and computing without the aid of computers. When this is considered, together with the fact that the mass, the orbit

and the position of this hypothetical planet were unknown, then its discovery by the German astronomer Galle in 1846, following Leverrier's directions, was a truly remarkable demonstration of the power of scientific prediction. This planet, Neptune, was less than 1° of arc from Leverrier's predicted position and less than 1.5° from that of Adams.

Neptune was named for the Roman god of water, who was linked to the Greek god of the sea, Poseidon.

The foregoing shows how the scientific approach was developing. Observations led to certain conclusions being drawn – Uranus was a planet. Further observations led to refinements in the theory and further conclusions were drawn – there should be another planet because its effect could be shown. Careful calculations indicated where the planet should be; and there it was.

It should not be thought, however, that all scientific investigations brought immediate or successful results. Leverrier noticed discrepancies in the orbit of Mercury and proposed an inner planet, which he tentatively named Vulcan, whose gravitational attraction could explain the perceived errors. There were even several claimed sightings of this hypothetical planet, though they finally amounted to nothing.

The mystery of the variations in Mercury's orbit were not finally resolved until Einstein, in the early part of the 20th century, proposed his General Theory of Relativity which predicted just such an orbital discrepancy. This was confirmed when Arthur Eddington's observations in 1919 provided the first empirical proof of Einstein's theory. An amusing, though probably apocryphal, sidelight to this story concerns a question put to Eddington, that he was one of only three people who understood relativity. Eddington is alleged to have paused for some time and when his questioner put the question again, replied "I am trying to think who the third might be".

Nor did later investigations of Neptune's orbit exactly confirm the predictions of Leverrier and Adams. In this context, it should be remembered that Neptune has not yet completed one full orbit since its discovery in 1846 and will not do so until 2011.

The crowded Solar System

The story of planetary discovery does not end with Neptune, as it soon became obvious that its orbit and mass was insufficient to account for the perturbations in the orbit of Uranus. Many astronomers took up the search for a transneptunian planet, prominent among whom was the American Percival Lowell, who set up his own observatory in Arizona and dedicated the

remainder of his life to the search. It was the use of astronomical photography which finally led, some years after Lowell's death, to the final success of this venture. In 1930, his assistant Clyde Tombaugh, after exhaustively (and probably exhaustingly) searching thousands of photographic negatives, found a new planet, which was named Pluto after the god of the underworld. The selection of the name, from among many possible gods, was specifically to honour Lowell, the first two letters of Pluto being Percival Lowell's initials. Pluto has a highly elliptical orbit, at a high angle to the ecliptic plane (17° compared with Mercury at 7° and all the other planets which are within 2°), and for most of its orbit it is the most distant known object in the solar system. At the moment, however, its orbit lies closer to the sun than that of Neptune, as it does for about 20 years of its 240 year span.

The story becomes even more interesting when we look at the non-planets which have been discovered in the past two centuries. There are now more than 3,450 named asteroids, mostly lying within the Asteroid Belt, although some have highly eccentric orbits, including a number known as the Apollo Group (rather chillingly described as 'earth grazers' and a large one and several smaller ones of which came very close to the Earth in 1991), two groups of Trojan asteroids which share Jupiter's orbit, leading and lagging the planet by 60° , and the recently discovered Chiron whose highly elliptical orbit lies between those of Saturn and Uranus.

Curiously, the only one of these that seems to mean anything to astrologers is the last, and it is sometimes calculated in horoscopes. This is curious because, while it is far from being the largest asteroid, it is certainly the most distant yet discovered.

Failures of Astrology

While the science of astronomy was making its great discoveries, what of astrology? As it happens, nothing much was occurring on that front. Three new planets had been discovered which had never been known during the heyday of astrology and, following tradition, they were assigned the names of classical gods. The astrologers were thus forced to delve into classical history to discover the attributes of those gods so as to find out what the new planets meant. Now there are a few obvious things wrong with this approach. At least the ancient planets had had a long association with the gods whose names they bore, and it could be argued that somewhere in the mists of antiquity there had been some connection between the gods, the planets and human affairs (remembering that there was still a good

deal of mystical thinking around in the 18th and 19th centuries). But here we had planets whose names had been arbitrarily assigned and which had never been associated with those gods by the ancients, who did not even know of their existence. Nor did their discoverers regard these finds as representing the relevant gods. Indeed, the name of Pluto was selected purely to honour one of its discoverers. So the characteristics the planets were supposed to confer had no precedent in history, nor in the manner of their naming. It was all purely a matter of whim. Nonetheless, the characteristics of the gods concerned were those that the astrologers chose.

The second fatal flaw in the astrologers' case lies in the central claim made for their art, that of prediction. Traditionally astronomy had been merely an observational science while astrology made predictions. Now it had been shown that astronomy had a powerful predictive ability and where was astrology? It could logically be assumed that astrologers should have noticed that some human characteristics were not accounted for by the known planets and they should have suspected, not only that other planets existed, but approximately where they were located. Astrologers make great play of the importance of the angles subtended by planets, yet it was not an astrologer who pointed the observers' telescopes in the right direction – that was left to the mathematicians.

Moreover, if the planets have an influence, the length of time taken by the new planets to complete an orbit should present substantial evidence for this. Uranus spends seven years in each sign, Neptune almost 14 years and Pluto more than 20. Indeed Pluto has only completed one quarter of an orbit since its discovery. This offers a huge base population of individuals upon whom the influence of Pluto can be measured very accurately, with whole populations of people showing distinctively Plutonian attributes, changing every 20 years. This is calculable and should pose no problem to any astrologer, yet no such measure of long period personality changes in large populations has been made and no serious claim has been advanced that there is a consistent 20 year cycle in personal characteristics.

Then there is the question of the asteroids and satellites. Several satellites are larger than the planets Pluto and Mercury and certainly they are much closer to us than Pluto is. Also consider Ceres, the largest asteroid, which circles the sun at about 2.5 AU (Astronomical Units: the radius of Earth's orbit = 1 AU), while Pluto's average orbit is 39 AU and it is only approximately three times the diameter of Ceres, yet Pluto is important and Ceres is not. Why? Furthermore,

there is the fact that, while the earliest noted asteroids continued the tradition of being named after figures from classical mythology, obviously such names would soon be used up, so that now asteroids are named after anyone or thing, from the name or home town of the discoverer to anything else that takes their fancy.

At some stage, there must have been an opera buff among the discoverers as we have Turandot, Zerlina, Pamina, Senta, Kundry, Norma, Violetta, Aida and Carmen all discovered at around the same time. Then scientists got a run with Einstein, Darwin, Herschel, Adams and Leverrier among many others as well as such disparate individuals as Tolkein, Tchaikovsky, Mark Twain and Mr Spock similarly honoured, not to mention places such as Kansas, Antarctica, Coonabarabran and Kiev.

The distinction between asteroids (not a particularly appropriate name, suggesting an affinity with stars) and planets is purely an arbitrary one, based on size. Asteroids are more accurately referred to as minor planets, and why shouldn't they? Like planets, they revolve around the sun, some have satellites (the asteroid Pallas has one) and some do not, and it could be said that Pluto has a lot more in common with Ceres than it does with Jupiter. Oddly enough some comets, Halley being the most obvious, are regarded as important by astrologers despite their being far more ephemeral than asteroids.

The question of why asteroids and satellites are not taken into account in the casting of a horoscope has never been satisfactorily answered by astrologers. The usual answers given are long on hyperbole and short on logic, yet the real answer is glaringly obvious. The inclusion of the positions and the angular relationships of thousands of asteroids and satellites would make the casting of horoscopes extraordinarily complicated (imagine a problem with almost 4,000 variables). Moreover, the research required to discover the personality traits of the thousands of individuals named would daunt even the most dedicated astrologer. Yet the question remains and it demands an answer from the astrologers.

If the influence of the most numerous bodies can be safely discounted, then so too can the influence of the planets. After all, logic dictates that if planets influence our lives, then so should everything else in the Solar System. Indeed, this failure to include **all** the influences is sufficient reason to dismiss astrology as nothing more than superstitious twaddle.

It is also fair to ask that if our personality traits can be equated with those of Saturn or Venus, then why

shouldn't they be also linked with Karl Marx, Shakespeare or Carl Sagan (all asteroids)? I leave it to the reader's imagination to determine what influence asteroids No 1703 and 1763 should have. They are named Barry and Williams respectively.

More Planets?

At last, we can return to the question we asked at the beginning, "Is there a tenth planet?". Nigel Henbest strongly suggests the answer is "No". Our reasons for believing that it might exist were the fact that Neptune alone was not enough to account for the deviations in Uranus' orbit, that Neptune itself also deviated and that Pluto was certainly not massive enough to make so much difference. Since the Voyager missions, we now know that the perceived discrepancies in Neptune's orbit were largely caused by miscalculations due to insufficient data. It now appears that the same might also apply to Uranus, based on inaccuracies in historical observations. Astronomers have modelled planets in various orbits to account for the perceived variations in Uranus' orbit and have concluded where such planets should lie.

Extensive scanning of the relevant parts of the sky, using both Earth-bound optical telescopes and the IRAS infrared satellite, have been without success. As a result, the consensus among astronomers is now moving away from a tenth planet and it will be surprising if one is found. Pluto may then indeed be the furthest major body of the Solar System.

As to what that will mean for astrology, the answer must be, "Not a thing". The evidence shows us that astrology is a study with precisely no predictive ability; it is committed to beliefs rooted in ancient mythology which have long been shown to be baseless; its fundamental tenets are arbitrarily derived and owe nothing to reason, logic or evidence; it is a study completely devoid of theoretical underpinning and it gives us no reason at all to think that it even **might** be a valid study.

History recorded the beginning of the end for astrology when human beings began to understand how the universe actually worked. It traced the decline of astrology over the succeeding centuries as human knowledge increased, yet it shows a curious upsurge at the very time when the gains in our knowledge of the workings of nature are at the highest level in history. Astrology should be long dead and buried, yet it still has many adherents. Why this is so is a question beyond the scope of this article and can only be answered by those who study the strange workings of the human mind.

Of only one thing can we be certain; the answer will never be found in the stars. ■

PHILOSOPHY AND THE PARANORMAL (I)

Science and “Psience”

William Grey

This is the first in a series of four articles in which Dr William Grey of the Department of Philosophy, University of New England, Armidale, examines some fundamental issues raised by psychic and paranormal claims. Following articles will appear in the next three issues.

Introduction

Philosophical inquiry can be divided into a number of different components. A typical introductory course, for example, might examine arguments for the existence of God, free will and determinism and individual identity. Such compartmentalization may however disguise the fact that philosophical questions are often interdependent and multiply connected. The issues I will examine in this series of articles concerns an intersection of two important branches of philosophical inquiry: epistemology, or the theory of knowledge (which examines the nature of knowledge and human understanding, and the proper methods by which knowledge may be acquired), and metaphysics (which is concerned to provide an account of the basic structure of reality: what sort of world do we inhabit?). I will also address some issues concerning methods of inquiry.

Psychic and paranormal claims raise questions about knowledge and belief which have been central preoccupations of philosophers. In particular, the question of miracles (which I will consider in the third article), and the arguments developed by the eighteenth century Scottish philosopher David Hume (1711 – 1776) are of immediate relevance when we try to assess the credentials of paranormal claims. They are also of quite general interest when we try to decide how we ought to proceed when confronted with conflicting testimony.

I will adopt a scrupulously critical approach to the topics discussed; an approach which is characteristic of scepticism. In the final article I will say something about the sceptical stance and its role in systematic inquiry, and I will also include some personal (but not too idiosyncratic) reflections on the purpose and value of philosophical inquiry.

A continuing theme in this series of articles will be repeated reference to “science”, and we will have to

examine just what it includes and what it rules out. Science provides us with a body of knowledge which purports to explain why things happen as they do: why rivers flow, why flowers grow, why clouds snow, and so forth. Science, and physics in particular, is an extraordinary triumph of the human mind. Yet despite its achievements, the understanding which science provides seems in some ways unsatisfactory. Science, for example seems to provide an account of how things happen in terms of chains of causes which leave no room for human choice—that at least is how a notorious philosophical problem about freedom and determinism gets going. There are a number of strategies for avoiding (or attempting to avoid) the apparent collision between what physics tells us about the world, and the content of our experience. (The problem of squaring the facts of physics with our experience of the world is however one which I shall not address.)

The Nature of the Paranormal

The paranormal (or “psi”) embraces a wide variety of claims. I certainly will not be able to discuss all the disparate phenomena which the word ‘paranormal’ has been taken to include. One reason for the heterogeneity of the class of paranormal phenomena is that it tends to be characterized by exclusion; that is it consists of what does not fit into the accepted categories which we use when we try to explain what happens in the world. Given this negative mode of characterization, there is no reason to suppose that there might be a single common feature which all supposedly paranormal phenomena share. There are nevertheless some common patterns.

In general, paranormal phenomena involve (or appear to involve) anomalous causal connections between a conscious subject and the world. In the case of extrasensory perception (ESP) it appears that subjects acquire knowledge of their environment through some non-standard pathway. The causal direction is from world to subject. In psychokinesis (PK) the subject seems to affect the world through a deviant causal path: the causal direction in this case is from subject to world.

It is important to distinguish at the outset between parapsychological experiences and paranormal

processes. The former are a phenomenological reality; the latter a contested hypothesis invoked to explain them. The psychologist Harvey Irwin cautiously defines parapsychology as “the study of experiences having the appearance of being in principle outside the realm of human capabilities as conceived by conventional scientists” (Irwin 1988, p. 3). Parapsychology thus conceived is clearly a legitimate field of empirical inquiry. It would require extraordinary ignorance—or heroic scepticism—to deny the reality of parapsychological experiences.

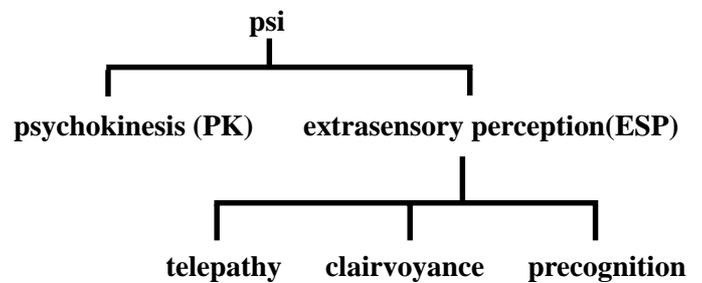
It remains of course an open question whether there are any objectively real paranormal phenomena which provide the basis for these experiences. It is important that sceptical conclusions about the existence of psi phenomena should not lead one to deny the veracity of experiences which people characterize as parapsychological. The experiences are real enough; what is in dispute is how they might best be explained. In a similar fashion, we can reject the existence of phlogiston without denying combustion; we provide an alternative explanation of the phenomenon.

Paranormal claims present a challenge to the dominant orthodoxy of mainstream science. The Cambridge philosopher C.D. Broad (1887 – 1971) suggested that parapsychology, an important branch of paranormal inquiry, presents a challenge for at least five deeply entrenched metaphysical assumptions: (a) that future events cannot affect the present before they happen (backward causation is forbidden); (b) that a person’s mind cannot effect a change in the material world without the intervention of some physical energy or force; (c) that a person cannot know the content of another person’s mind except by the use of inferences based on experience and drawn from observations of their speech or behaviour; (d) that we cannot directly know what happens at distant points in space without some sensory perception or energy of it transmitted to us; (e) that disembodied beings do not exist as persons separable from physical bodies (Broad 1949; cited in Kurtz 1981, pp. 6-7).

Paranormal claims thus present a challenge to some widely accepted beliefs. This in itself is no objection to paranormal claims. After all, many of today’s scientific orthodoxies were yesterday’s heresies. But as Hume (1748) insisted extraordinary claims demand extraordinary evidence. And these are extraordinary claims.

It is not easy to fix a precise meaning for ‘paranormal’. The word suggests something hidden or mysterious, or the operation of a kind of agency or

principle which functions outside the the normal range of expectation or experience. It also suggests something beyond the scope of currently accepted physical theory. ‘Paranormal’ in this sense is a term recommended—if not coined—by the French-born American philosopher C.J. Ducasse (1881- 1969); see Ducasse (1954). A rough map of the territory can be set out as follows:



Psychokinesis is the power to affect physical happenings through thought, or an act of will alone, without the mediation of bodily action. Clairvoyance is the ability to acquire knowledge of happenings through means other than the normal sensory channels. Telepathy and precognition could be treated as special cases of clairvoyance, where the knowledge acquired concerns the thoughts of another person (in the case of telepathy) or knowledge of the future (in the case of precognition). But nothing will hinge on whether or not we decide to treat them as separate categories. As well as these two broad categories of “psi” phenomena (ESP and PK), there is a third major area of paranormal concern, which relates to the possibility of experience or existence transcending the temporal or spatial location of our bodies. Questions about “out of body experiences”, disembodied existence, reincarnation and the possibility of life after death, are instances of this kind of concern. These raise important issues for our understanding of personal identity, and in particular the metaphysical question of mind-body dualism.

The possible existence of “psi” phenomena, and the implications of such phenomena, have generated a great deal of interest. No doubt this interest will continue. “Psi” phenomena raise the possibility of alternative ways of knowing and doing, which we can characterize as alternative epistemologies and alternative technologies. That is, we confront the possibility of radically different ways of acquiring knowledge about the world and radically different ways of doing things—different, that is, to our ordinary norms and practices.

Let me illustrate. An orthodox way of finding out about the world is to use observation and experiment; that is, to conduct an empirical inquiry. Scientists earn

their livings variously doing just that. The scientific method is supposed to provide us with exemplary procedures (which can be set out as a set of methodological canons or principles) which tell us how to find out about the world. There are competing accounts of the details of just how we should proceed if we are to conduct a scientific inquiry properly, but not only do mainstream theoreticians and experimentalists not employ paranormal means for discovering or testing their theories about the world, they usually regard the whole realm of the paranormal as misguided or useless—or worse.

I will say something (albeit a bit arm-waving and schematic) about scientific inquiry in a later article. However we characterize the precise nature of the scientific method, proponents of psi standardly claim that the currently accepted methods of science are too restrictive or limited. Science is pretty disappointing in telling us about the future, for example. So here (it might be suggested) we can seek supplementary aid from stellar configurations (astrology or astromancy) or tarot (cartomancy). Or perhaps we can turn to dreams (oneiromancy) to provide us with reliable portents of things to come. These are controversial claims (to put it mildly), and for this reason we can characterize them as alternative (or deviant) epistemologies. How do we set about evaluating these alternative ways of finding out about the world? That is one of the central questions which we will address.

Alternative technologies provide alternative ways of doing things or achieving certain results. Medicine, for example, uses immunization as a technique for disease prevention. That is an orthodox medical technology. Naturopathy and homeopathy are alternative medical technologies. If they are effective it is important that we should know about them, as they can be exploited to provide a cheap means of promoting health and reducing morbidity. If they are useless or positively dangerous again it is important that we should know about them, in order to avoid them. While I am not going to look at alternative medicine, I will look at the sorts of principles or criteria that might be relevant to determining whether these alternatives make any important claims on our attention.

These characterizations are fairly loose. No matter. I will sharpen them (a bit) in what follows. But we can get a rough idea of the scope of our inquiry, which divides into two areas: alternative (or eccentric, or deviant) epistemologies, and deviant technologies. The categories overlap, since some alternative technologies aim at discovery, that is, providing us with new

knowledge. Dowsing, for example, is thought by some to be a technique for finding hidden resources—water or precious objects.

Thus the field of psychic and paranormal claims divides into two different sorts of activity and claim, which can be characterized as the difference between deviant ways of acquiring knowledge, and deviant ways of doing something. There are those—the “knowers” (such as psychics, clairvoyants, psychometrists) who claim to have special powers, or special techniques for finding out about the unknown (especially the future). The techniques for precognition and prognostication are enormously varied. Alternative technologies (the province of the “doers”) include the panoply of perpetual motion machines, healing techniques (homeopathy, naturopathy), energy polarizers, and the like. They are often the basis of notorious scams, and feature from time to time in the inquiries of consumer advocacy groups, such as the ABC television program *The Investigators*.

To make the discussion manageable I will consider only claims which are testable. If someone, for example, claims that God created the world in 4004 BC, or that the Shroud of Turin was used to wrap the body of Christ, then we are presented with claims that can be critically assessed by relating the claim to a body of relevant factual evidence which will support, or undermine, the claim. If however the believer says that there is a benign force which pervades the universe, this claim is too vague to be tested, and it therefore cannot be the subject of empirical inquiry.

Finally, we should note that some paranormal claims make more insistent claims on our attention than others. Phrenology (the belief that personality and dispositions are reflected in the size and shape of the head) has been thoroughly investigated, and (most would accept) thoroughly discredited, though no doubt even phrenology still attracts a few adherents. But there are certainly disputed cases. Meditation, acupuncture, hypnotism and telepathy, for example, are activities or phenomena whose credentials, many people believe, are unclear. Whether or not the jury is still out may itself be a matter of dispute.

There is a very fuzzy, and shifting, boundary between epistemologically disreputable fields of inquiry (phrenology, say) and the most impeccably respectable. Physics is mentioned with monotonous regularity as the archetypically exemplary field. Indeed it has been suggested that there is a tendency for many other disciplines to suffer from what has nicely been called “physics envy”.

The Challenge of Psi

Why bother to address these topics? They are of widespread interest and a perennial source of fascination for many people. They are also of great philosophical interest, as I hope to show. They are of personal interest because many people believe they have had some experience, such as an accurate premonition in a dream, or a telepathic message from friend or loved one, which cannot be satisfactorily explained in the terms which science-based understanding provides. Our physical theories say that the world is at bottom material, and we explain what happens in terms of the recurrent patterns which constitute the physical laws. Sometimes things are known, or happen, which cannot be accounted for in terms of the sort of physical interactions sanctioned by physics. Or so it seems.

This personal interest immediately leads us to the general interest of psi. If there is a dimension of experience which cannot be accounted for with the help of our science-based understanding, this surely shows that physics at the very least is incomplete—things happen which it is simply unable to explain. Or perhaps the whole of our science-based understanding is mistaken! Perhaps the principles which determine the way the world works are quite different from what we take them to be. It may be true that physics does not have the resources to provide a complete account of what happens in the world. But we need to be very careful about what does and does not follow from this fact. (I will return to it in a later article.)

This general problem—the possible limitations of our scientific world view—immediately raises major philosophical issues: it raises metaphysical issues about the sort of things that exist in the world. Physics tells us that there are four forces which govern how things interact—gravity, electromagnetism, and the strong and weak nuclear forces. Are these four enough? Does physical theory provide us with a complete description of reality? It also raises epistemological issues: can our science-based methods of inquiry be accepted as reliable methods for finding out everything which we want or need to know about the world? If not, in what way do they need to be supplemented? In particular, are there other reliable ways of knowing (precognition, clairvoyance or whatever) which we need to take account of, but with which physics is unable to deal? Or maybe there are no physically inexplicable phenomena; perhaps we need to develop a better physical theory to take account of all the details of the world which we inhabit.

I am not going to get to the bottom of all these issues in the space of these articles. But we will (I hope) develop

a better idea of the possibilities. The topics are important even if it turns out that all claims about paranormal are completely mistaken. Ducasse (1954, p. 811) has pointed out that, should this be the case, it tells us something important about delusion and deception, and the proneness of human understanding to fall into error in a particular kind of way.

Having set out the scope of the inquiry, I will go on in the next article to say something about the way in which scientific knowledge develops and how psychic explanations are, at bottom, a pathological manifestation of the very same patterns of thinking which enable us to develop our best theories about the world.

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Gippsland UFO

Thanks to Geoff Schmidt of Melbourne for the following story about UFOs in the southern state.

During the first week of December, the latest UFO raid took place between Sale and Seaspray in Gippsland. An intense light was seen, the dog started barking with what sounded like alarm, so send for the police. (The police of course are experts at everything from aliens through midwifery to zoology.) But the aliens had the police sorted out. With cunning use of a death-ray, they caused the whole electrical system of the police car to fail. Aliens 1; Earthlings yet to trouble the scorer.

Then along came ABC Radio to spoil everything. The bright light was a planet whose light was diffused through an abnormal amount of atmospheric haze, the dog was going crazy because of a koala in the yard, and the police car's fusible link in the wiring had failed.

Yet again the facts have ruined a good story.

EDUCATION

The Skeptical Student

William Grey

In 1991 Dr William Grey (see previous article) devised a new course ‘Science and the Paranormal’, which was offered as a component of first-year philosophy at the University of New England. The course appeared to have been successful—until that moment of truth, the end-of-year examination. The following is a selection of the students’ views.

* * *

Scepticism is a pessimistic view of believing in nothing and doubting everything. Sceptics are often accused of being epistemic in view. They definitely take some things to the nth degree. Nothing is accepted without evidence. Reproduction under test conditions is critical to belief or acceptance.

* * *

Scepticism is creating a doubt on issues which have been proven as real or beyond doubt. There are many types of scepticism (1) state of mind, (2) cynicism, (3) scepticism, (4) sceptic.

* * *

The critical sceptic is a healthy sceptic, and it is probably advisable to be this way, but you would not want one for a friend. A sceptic will be largely disliked because they are untrusting and suspicious of even closest friends and relatives. Advantages of scepticism are few. You will not learn much, as we learn from mistakes.

* * *

A sceptic is constantly arguing to try to prove their doubts. It would be hard for a sceptic to come to a conclusion, as everything would be doubted; *a fortiori* critical sceptics often conclude nothing. A sceptic would never have to have an argument to prove their beliefs, as there are no beliefs to prove. Any sceptic worth their salt can’t avoid becoming a dogmatic sceptic.

* * *

There is a danger of a very lonely social life attached to scepticism. The life of a sceptic is tedious and boring. However although the majority of sceptical attitudes are found to be annoying, they are necessary and should be adopted at all times.

* * *

A sceptical approach should be taken to all that life and afterlife involves. It would be wrong to think that pseudoscience should be discarded just because it uses different mannerisms. Paranormal events should not be treated as non-existory and fraudulent. You are unlikely to doubt a telepathic message when you have received one. If someone can see into the future then it is important that we know about it.

* * *

There have been many cases of levitation with saints. One would presume a saint would not resort to trickery. It is irrational that we may believe what we have never seen happen before and which contradicts what we “know”, e.g. water is not solid or walkable on, yet we all believe the story of Jesus walking on water. It is at this moment difficult to accept, but who knows? I would disagree with Hume because I believe in a soul, and if you believe in a soul you must believe in God, and if you believe in God you must believe in miracles, and if miracles can happen so can all the paranormal events that are still being researched today.

* * *

Many deviant belief systems enjoy wide support, especially the occult and astrology, and these cannot be explained by science. Thus science should not be the only basis for inquiry. Science rejects the paranormal. So science is limited and restricted. How can science make any comments about paranormal methods, frameworks, concepts and results?—it knows nothing about them. A healthy scepticism is good, but when it becomes too strong it is unhealthy because there are some very important factors in society that we should know about, e.g. aliens and psychic phenomena.

* * *

To prove the existence of the paranormal is difficult enough, but to prove its existence to a critical sceptic is almost impossible. A sceptic demands unreasonable levels of proof. A telekinetic may be asked to lift an extremely heavy weight; a clairvoyant to predict the outcome of the 2015 Melbourne Cup, and so on.

* * *

Must we believe everything we perceive or are told? This is the world of the septic. Not everything in life is based on hard fact and that does not stop us believing in those things. What we know *a posteriori* (by experience) must be our guide. Some experiences just can't be a coincidence. Hume held an epistemic view and I agree with him.

* * *

A claim is not true if (1) individual eyewitness testimonies differ or change over time, (2) the individual claiming to prove the phenomena is known to have an interest in the area, (3) if the individual delivers his testimony in a hesitant or violent manner.

* * *

As reasonable thinkers, we should keep quiet about something for which we believe there is insufficient evidence. As Hume said, a wise man always rationalizes the weight of the evidence. There is no way in any situation that we can be 100 per cent sure of anything. Copernicus, Newton, Darwin and Galileo all had their critics. There has to be a belief in causation or Einstein may never have wondered what caused the apple to fall.

* * *

You can be positively or negatively sceptical. Adopting critical scepticism when conducting an inquiry can only have the outcome of producing a negative report. Hence the report would not have been produced fairly and would have to be done again by a person who is not too biased to allow positive thoughts, but without swinging to the opposite extreme of gullibilism. If a comet was only witnessed by a group of shearers on payday, although it may have been real it probably would not be accepted as scientific fact.

* * *

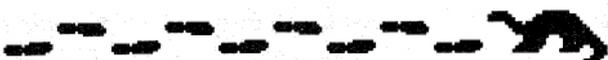
It varies from person to person what is rational or irrational to believe. It is the individual's right to independently decide the necessary level of proof of the existence of anything.

* * *

I appeal to my fellow Skeptics, living their lonely, friendless and dogmatic lives, just why do you think Einstein wondered about falling apples? Ed ■

Paluxy River!

?



ASTROLOGY

More on Jean Rignac

Alan Towsey

In *the Skeptic* (Vol 11, No 4) there was a small item on page 21 headed "Prediction?" about one Monsieur Jean Rignac, of Paris, "Europe's most accurate astrologer" for the past 20 years. His ad, in various magazines "offers

you his help, free of charge, to resolve your serious problems", giving an Auburn, NSW address.

If you write to him, you get a reply about a fortnight later, which speaks volumes for the efficiency of both the Australian and the French postal services, for in that time your letter has gone to his Australian agent in Auburn, been forwarded to Paris, processed and returned by M. Rignac, and sent on again from Auburn to you. (I wish my other mail were dealt with as promptly!)

His four-page letter (in perfect English) is so beautifully typed that it almost looks like a standard printed item (especially with M. Rignac's photo on the letterhead and being addressed "Dear Stargazer" rather than to you personally), but it does tell you your individual star sign – that paragraph does seem a little heavier typed than the rest, though (marvellous things, computers). It also tells you that you have some serious problems, though things will get better. All you have to do is complete the enclosed questionnaire and return it to the International Astrology Centre, Auburn, with a cheque, or MO, or credit card debit, for \$54.45, to cover the cost of his "free" advice.

If you don't reply, M. Rignac shows how much he is concerned for you personally by writing to you again on this important matter about two months later, enclosing exactly the same letter you received originally, and reminding you that you have nothing to lose, because "You have my complete assurance that your money will

be refunded in full if my horoscope does not help you", or, as the original letter puts it, "if, despite my help and advice, your life does not change at all over the next 12 months, just drop me a line and I will refund your money, no questions asked."

BELIEF

A Brief History of “Mass Hysteria” in Australia

Robert E Bartholomew

“Wherever we have strong emotions we are liable to fool ourselves.”

– Carl Sagan, *Cosmos*.

Abstract: A combination of pseudoscience, rumours of perceived importance, fervent wishful or apocalyptic thinking, and ignorance of the fallibility of human perception and memory, have fostered several instances of ‘mass hysteria’ in Australia. Examples include the persistence of mass sightings of the Tasmanian ‘Tiger’, the Adelaide ‘Earthquake Panic’ of 1975–76, the South Australian ‘End of the World’ scare of 1909, and both historical and contemporary sighting waves of unidentified flying objects.

There are numerous Australian examples of mass panics and ‘crazes’ that have been traditionally labelled as ‘mass hysteria’. Most books on social psychiatry and collective behaviour cite cases in other parts of the world, and typically label the behaviour as examples of ‘mass psychoses’ or ‘group irrationality’.

I would argue that such ‘hysterical’ episodes can potentially occur to any group, and that most participants are ‘normal’ people who see what they expect to see relative to their social and cultural expectations. History is replete with accounts. While Australians may consider themselves the exception – that it cannot happen to people in a modern, educated society – there is a rich history of such occurrences. By examining such episodes from the past, perhaps we will be better equipped to recognise and prevent repeat occurrences in the future.

The End of the World

On the night of September 25, 1909, without warning, an extraordinarily brilliant display of the Aurora Australis (Southern Lights) appeared over Adelaide. Thousands of people in the city and surrounding communities became panic-stricken, believing the end of the world was at hand. At Hog Bay on Kangaroo Island, many of those who filled the streets began to

kneel and pray. Many of the thousands who jammed Rundle Street in Adelaide were in near panic before realising the true nature of the display. Others believed that Mount Gambier had erupted. In Kadina, those believing the world was ending “rapidly sought their friends and the shelter of their homes”, as was the similar case in Yass, where many women became “near hysterical”. At Carcoar, several residents thought the phenomenon was a message from Mars. The telephone lines, flooded with calls, overloaded and ceased to function, further fuelling fears that something terrible was happening.

The following account is from *The Border Chronicle*

AT KEITH

Great excitement prevailed in our little town on Saturday night. When the Aurora lights became visible, many thought the end of the world had come, some refused to allow the ministers to retire to rest, others could be heard offering up their last petitions, where the moaning of distressed men and women made the scene a melancholy one. Some rushed over to the station master, thinking they might [find] comfort there, but he, with hands clasped and a sickly expression on his face exclaimed “We’re done man, the telephone won’t work”. However, towards morning things grew quieter, but on some faces the excitement of the previous evening was visible [the] next day.

The Invasion that Never Happened

Between July 10th and early September 1909, Australians reported seeing mysterious aerial contraptions which were generally believed to have been hostile German Zeppelins on a spy mission, as this rumour spread like wild-fire. Reaction to the rumour caused an Australia-wide panic as thousands began interpreting vague aerial stimuli (stars and planets at night) as Zeppelins. Even the everyday actions of some Australians of German descent were reinterpreted by

people with a spy ‘mind-set’.

A similar scare occurred in New Zealand during the same period.

Both ‘hysterias’ were prompted by heated war rhetoric between Britain and Germany. The Germans at the time were the recognised leaders in airship technology. That Germany neither possessed the desire nor the capability to invade Australia and New Zealand by Zeppelin was irrelevant. Of crucial significance was that people believed it was possible, and accordingly, the stage was set for people to begin seeing enemy craft dotting the skies.

Most sightings came from Australia’s east coast. The following account is typical, appearing in *The Sydney Morning Herald*, August 10, 1909, page 7:

A good deal of excitement was occasioned to-night by the appearance of a mysterious light or an illuminated body to the south-east of the town. Quite a number of people gathered in the main street, and speculation was rife as to the meaning of the strange illumination. Above the large light some large body was distinctly visible, as the rays of light were reflected upon its surface. The supposition generally held is that the mysterious floating light is either a large balloon or airship. That this object is not stationary has been proved by getting objects near at hand in line with the light, and in a few minutes it was found to move a considerable distance. Passengers on to-night’s Melbourne express were afforded a view of the mysterious night-light which has been observed floating above the southern highlands and coast between Mittagong and Wollongong during the last two nights. When the express reached Hilltop quite a score of passengers crowded onto the platform at each end of the corridor carriages on the lookout for the “airship”, as it was called. Their vigilance was soon rewarded, for as soon as the express hauled out from the deep cuttings, a large, bright light became visible a few miles away towards the coast. Apparently it was in motion, and could be plainly distinguished from the stars, but the distance was too great to detect the nature of the floating body. Its elevation appeared to be about 2000 ft

In some cases witnesses could even discern the pilot and vividly described the airship wings and/or propellers.

How can so many seemingly rational people begin observing nonexistent objects? The best explanation that modern psychology can offer is that once the Zeppelin invasion rumour began, people looked skyward with intense interest, and not knowing much about perceptual psychology or astronomy, were prone to misperceiving stars and planets. If one stares at these heavenly bodies for a lengthy period, they appear to move. This is known as the ‘autokinetic effect’.

Social psychologist Richard Beeson outlines the process: “A viewer in a completely dark room seeing one pinpoint of light experiences a visual stimulus without its normal attendant visual context. Up, down, back, forward, far and near exist in relation to other stimuli and when this frame of reference is missing, the light is free to roam in one’s perceptual field. It is for this reason that considerable random motion will be experienced by anyone viewing the light.”

The Adelaide Earthquake Panic of 1976

In November of 1975, New Zealand ‘psychic’ John Nash claimed to have received a vision in which Adelaide was to be destroyed by a massive tidal wave and earthquake at midday on January 19th 1976. As a result of his prediction, several people sold their homes. Others left to the hills for the day. While these actions may seem extreme or crazy to us today, it makes good sense when you examine the circumstances. Many of those who sold their homes and moved out, or just left for the day, were first generation Greeks and Italians. Both countries have a long history of devastating earthquakes. They are also highly superstitious populations, with the belief in ‘psychic’ powers and the supernatural typically more prevalent than in Australian society.

Media coverage

Mass media coverage of the predictions was intense, and despite a chiding of the claim by most reporters, for many, particularly recent migrants with an inadequate command of English, the high profile of the prediction only created more consternation.

Movie theatres also got into the act, playing the film “Earthquake” and making references to “the big day” in their ads, such as “Why wait until January 19th?”. Church crusades began featuring sermons solely devoted to what the Bible says about earthquakes, like the one by Leo Harris at the Adelaide Crusade Centre just two days before the predicted event.

Numerous establishments capitalised on the publicity by advertising “earthquake parties”. The Old Lion Hotel

in North Adelaide held a “pre-earthquake party” the night before, with an ad stating “Any rumbling felt on the 19th will only be a shock reaction from our crashing success the night before”. By far the biggest party was held on Glenelg Beach in the presence of South Australian Premier Don Dunstan, who believed that such a publicity move would help to alleviate any fears. In retrospect, the party of some fifteen hundred residents who appeared, and the accompanying local and international hoopla surrounding it, probably made the situation worse.

When January 19th finally arrived ... nothing happened, with the exception of numerous death threats on Mr Nash’s life by some disgruntled former Adelaide homeowners who had up and moved.

It is interesting to note that Nash claimed to have received his vision of doom as Adelaide was “a city of sin”, mainly because the State Government had recently passed a bill legalising homosexuality in private among consenting adults. The Reverend S.J. Harris of the Metropolitan Community Church, which had a large gay population, claimed that Nash was a former member who had tried to convert members to a ‘straight’ life. Nash also reportedly said that God had personally told him that Reverend Harris would be struck down by a severe illness in October 1975, and his church could collapse the following month. Harris later commented: “As it is now January 1976, I being in excellent health and the church growing steadily, it is apparently safe to assume that Mr Nash’s ‘hotline to God’ has run cold.”

Phantom Creatures

My favourite modern example of Australian ‘mass hysteria’ involves sightings of phantom creatures – cougars, Bigfoot, and the Tasmanian ‘Tiger’. A typical example can be found in the sightings of large hairy ape-like creatures (popularly referred to as Yowies or Yahoos) in South Australia which can be traced back to Aboriginal lore.

As of 1986, there were 267 known Tasmanian ‘Tiger’ or thylacine sightings that had been reported to the various Australian wildlife agencies on the mainland, with over 300 separate sightings on Tasmania. There are reports from all mainland cities, including Darwin and, believe it or not, Alice Springs!

A typical report appeared in the Adelaide *Advertiser* of January 26, 1966, describing a Mount Gambier man who claimed that a ‘tiger’ came within 15 yards of his car:

A mysterious animal “like a great, overgrown cat” was seen early today in the Upper South-East. Mr R.C. Barker, of Orr Street, Mount Gambier, was driving between Keith and Naracoorte when he saw the animal “bound across the road like a tiger”. Mr Barker said he saw the cat-like creature by his headlights 44 miles from Naracoorte. “It had black and white or gray and white vertical stripes and was about the same size as a sheep-dog,” he said. “The animal crossed the road and disappeared into some trees.”

All of these sightings have occurred despite the absence of any records of Europeans observing thylacines in continental Australia, as scientists believe they were extinct on the mainland by the time white settlers arrived. Despite 50 years of sightings (the last authenticated ‘Tiger’ died in 1936), no one has yet produced a body or clear photo. As in the case of phantom Zeppelins and hollow earthquake prophecies, the ability of humans to see what they expect, or in the case of the ‘Tiger’ hope to see, is well founded.

Ground Markings

‘Strange’ ground markings which are occasionally found across Australia have often been interpreted within an extraterrestrial context. One hundred years ago, citizens would not have thought twice about the origin of such circles – these ‘fairy rings’ were the obvious result of supernatural spirits.

Prominent Australian UFO researcher Keith Basterfield has conducted an in-depth study of ‘mysterious’ circular ground markings, and found “no strong evidence” that they are caused by UFOs (defined here as an ET spacecraft). Yet this does not stop people from commonly assuming that they are ET-related. There is a variety of causes, from lightning strikes on the ground to the most common cause, fungus that grows in a circular pattern.

One of Basterfield’s most intriguing cases involved strange circular indentations in the middle of a wheat field near Wokurna, South Australia, in December 1973. The 2.4 metre circle was surrounded by flattened wheat in an anti-clockwise direction. After inquiring with experts at the South Australian State Museum, the RAAF and the police forensic squad, the CSIRO determined the probable cause: kangaroos. Animal droppings had been abundant within the circle, and according to CSIRO experts, when resting, kangaroos have been observed to pivot their bodies in a swirling

motion. Many people, however, were quick to label this case as the product of an alien technology.

Ted Philips of the Missouri State Highway Department in the US has made a hobby of collecting cases of alleged UFO landing sites worldwide, investigating 500 first hand. Of the 1000 total known cases from 57 countries, there is not one case to date in which residue left behind could not have been caused by natural processes or 1991 technology.

Recently, the origin and nature of mysterious crop circles have been highly publicised in England. This phenomenon has been occurring for centuries and is explainable via mother nature. Meteorologists may not fully understand the exact mechanism, but this does not mean ETs are responsible. By the same token, just because every detail of the Egyptian pyramids is not fully explained, it does not mean that extraterrestrials were responsible. While possible, it is highly improbable.

The answer to the English circle ‘mystery’ appears to be temporary wind vortices. Consider the following eye-witness account from *The Journal of Meteorology* (May-June) 1984, page 141:

One evening there were about 50 of us skywatching along the Salisbury Road. Suddenly, the grass began to sway before our eyes and laid itself flat in a clockwise spiral, just like the opening of a lady's fan. A perfect circle was completed in less than half a minute, all the time accompanied by a high-pitched humming sound. It was still there the next day.

Mass Hysteria

While ‘mass hysteria’ is a confusing term that has been used to identify a variety of behaviours – crazes, fads, panics, riots – it is important to note that contrary to popular and scholarly opinions, there is not a single shred of rigorous scientific evidence to support the view that any of those involved in mass ‘hysterical’ episodes are mentally disturbed or irrational. In fact, I would argue that is perfectly normal behaviour, and that those involved are typically conforming to group norms.

‘Mass hysteria’ is commonly believed to occur in ‘primitive’ or ‘backward’ societies. To most people, the term conjures up images of ignorant natives dancing frantically around a campfire while worshipping some stone idol. Yet, the history of the Western world clearly shows that ‘mass hysteria’ is not restricted to ‘primitive’, uncivilised societies. Human beings are

human beings whether they are in an Aboriginal tribe or working on Wall Street. We are tempted to laugh at Aboriginals fearful that a lunar eclipse may portend the end of the world, yet when Wall Street panics, it somehow seems different.

The modern Westerner is no more sophisticated than those living in ‘primitive’ or undeveloped countries. Aboriginals who join in an all-night dance frenzy while half naked and covered with ash can seem far removed from civilised life. Yet, many of the same people who find such behaviour unbecoming, will think nothing of visiting a night club and wearing Western attire: makeup, fingernail polish, wigs, false lashes, bra, shoulder and buttock enhancers, perfume, ear rings and lipstick. The rules have changed, but the same old game remains. It is relatively easy for modern Westerners to criticise the widespread belief in fairies during the last century and view it as a myth, wondering how such ignorant people could have been so gullible as to have been caught up in such actions. Yet, many of these same individuals are unable to see beyond witch crazes and flying saucer scares when they occur.

Whether examining the history of mass panics, fads or scares worldwide, the most appropriate question to ask is not if, but when another chapter in the history of human expressions will be added. Only through the widespread application of a quality educational system do we begin to stand a chance to break the cycle of ignorance that contributes to so many ‘mass hysterias’ and gullible beliefs. ■

A New Age for Croatia?

The Weekend Australian of December 14 – 15 reported from Croatia about Ms Mirjana Gracan who runs the Society for the Holistic Development of Mankind. Ms Gracan reckons that the New Age of peace and harmony is due to dawn any time now and set her HQ up in a village “because of its positive psychic energies”. Shortly thereafter the village suffered an air attack and came within artillery range of Serbian army units.

The Society teaches “women’s eco-awareness, holistic medicine, inner ecology and alternative folk dancing”. Alternative folk dancing, whatever that is, should give a lot of comfort to those caught in the middle of a tragic and vicious conflict. ■

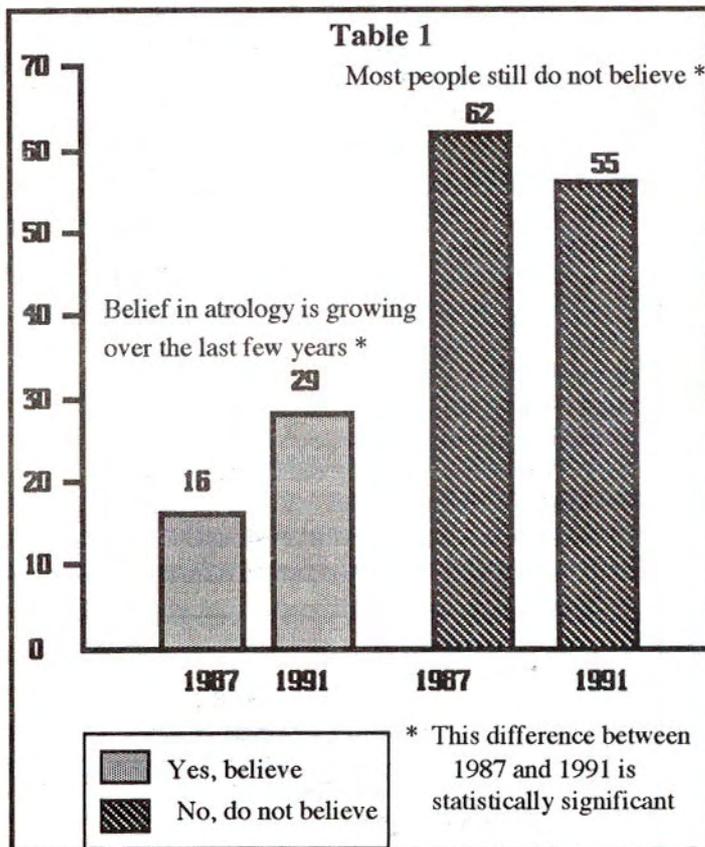
BELIEF IN ASTROLOGY

A National Survey

William Grey

Astrology is becoming more popular. A developmental survey by the ANU's National Social Science Survey (NSSS) has revealed a substantial increase in the level of acceptance of astrology from 16% to 29% in the last four years. The increase was measured by the increase in the affirmative response to the question:

When Dr Jonathan Kelly, Director of NSSS, told me about the follow-up survey, my hunch was that the acceptance of astrology would be trending down, and the substantial increase came as a surprise. My reason for thinking there should be a decline was because of a changing pattern in secondary education.



The initial survey - conducted at my suggestion in 1987 by the NSSS, the most comprehensive survey of general social opinions in Australia - revealed that about 16% of the population gave an affirmative response to this question. (The results of this survey were reported in *the Skeptic*, Vol 8, No 2, pp18-22.)

While most people still don't believe in astrology, the 1991 figure has dramatically increased to 29%. At this stage I only have the aggregate figure, but I hope to be able to provide a more detailed breakdown in a later article.

Educational effect?

One of the most interesting results of the 1987 survey was a steep decline in the acceptance of astrology with increase in level of education. There has been a significant increase in retention rates to year 12 in the secondary education system over the last few years, and I expected this to be reflected in a less credulous population. Perhaps it is too soon for the benefits of the higher levels of participation in secondary education to have had an impact.

Motivation

I really have no idea about what motivates people to accept astrology, though I offered a few speculations in the report of the 1987 survey. One possibility - not canvassed there - is that people who don't feel in control of their lives may be more inclined to believe that their destinies are controlled by outside influences. If women feel less autonomous than men, that could explain the higher level of acceptance of astrology among women - a tendency revealed in the 1987 survey.

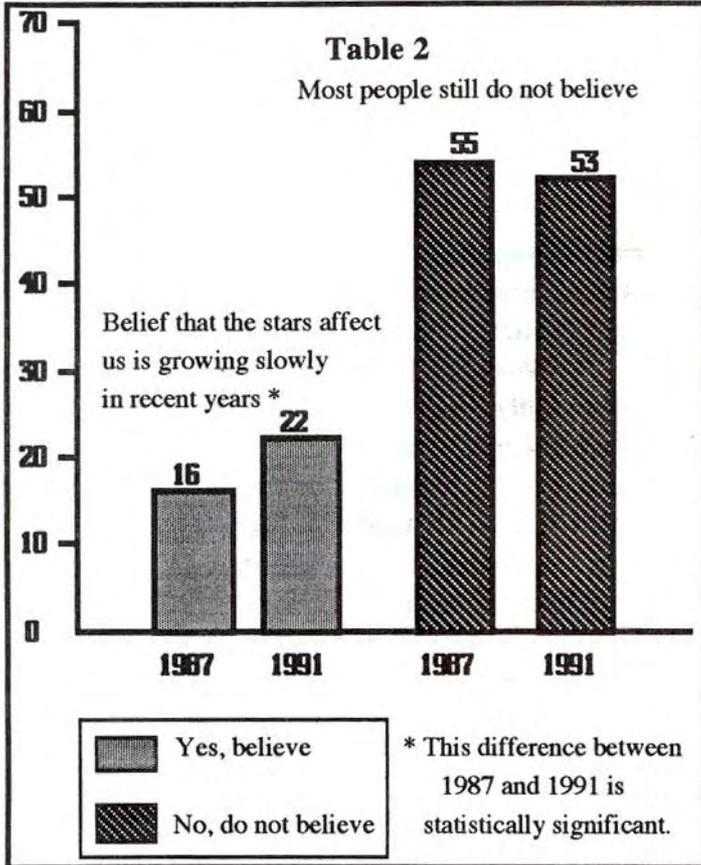
And in times of economic hardship these fatalistic patterns may become more pronounced in the community quite generally. The increase in belief may be related to the recession.

However I am sure that more detailed studies will be needed to explain the patterns of increase and decline in credulity.

The 1991 survey also reveals that about a quarter of the population read the astrology columns regularly, though only about half the readers take them seriously. About a quarter of readers "don't know", and the remaining quarter are sceptical - presumably reading the columns for fantasy entertainment.

Another interesting result is a much more modest increase in the affirmative response to another astrology question:

Do the stars and planets affect our destinies in ways not understood by science?

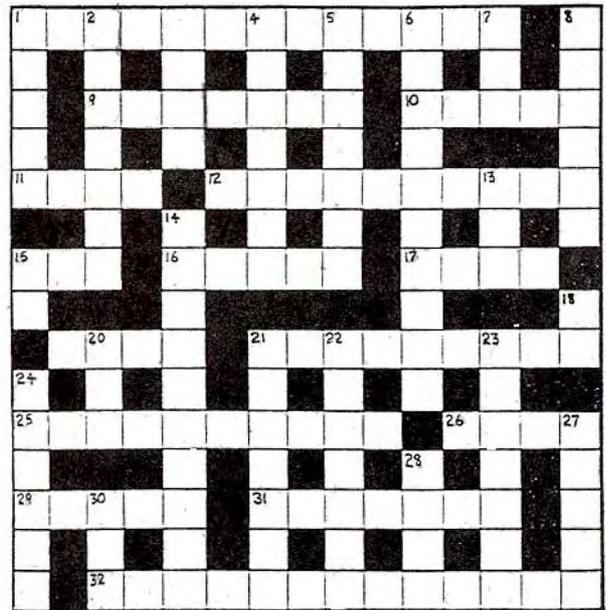


The 1987 survey provided a very close matching response to 1 and 2. The significant gap which emerges in the recent survey is puzzling. It means that about a quarter of those who believe in astrology (7%) actually deny that the stars and planets affect our destinies in any way!

Data are from the National Social Science Survey, 1987 (with 1528 cases) and a 1991 NSSS developmental survey (with 683 cases). Both are representative national samples from all states and territories.

Credit: NSSS, Research School of Social Sciences, the Australian National University.

SKEPTIC CROSSWORD



Across

1. Gunga Din's paper is the "Alternative Times". (3,2,8)
9. Cleaner vehicle was Planck's constant companion. (3,4)
10. Mixed up, for example, with a proprietary interest in the black land. (5)
11. Patterson baffles me with fibs. (4)
12. Harsh criticism results from you and I changing structures. (10)
15. The times are back. (3)
16. The boundary within which I am illuminated. (5)
17. I hear that light commercial vehicles are powered by energies unknown to science. (4)
19. Southern African uses Taronga Park convenience? (4)
21. Found Hindu gospel up a Danish maze. (9)
25. I avoided the mistrial - it was a breeze. (3,7)
26. Crooked former prosecutor given the chop. (4)
29. Obsession of a bloke in action. (5)
31. United Nations activity could be its downfall. (7)
32. K. Pascal's past life is perceived as a paranormal fact. (3,10)

Down

1. Shakespearian spirit is aloft. (5)
2. Former Minoan loses direction? Crap! (7)
3. Smart walk evokes loud anger (see page 7). (4)
4. Designing Mary hesitates to give a discrete amount. (7)
5. A believer in God or a non-believer in God? (7)
6. Remi is having a NDE. (2,8)
7. Fling psychic phenomena when sceptics about. (3)
8. I affirm that I attended the cricket match. (6)
13. Dig up a tor - it's just rubbish. (3)
14. Italian Light Brigade or a Masonic sect? (10)
15. Alien and French. (2)
18. Unconscious Cockney went under cover. (2)
20. We will employ you plurally. (3)
21. A lie is a fact to a multinational body. (7)
22. Shane star in Saudi nocturnal fantasy. (7)
23. Witch left shape? (7)
24. Last word from the holy man on floral sex organ. (6)
27. African tribe reversed policy of 5 Down. (5)
28. Citizen Cane's membrane. (4)
30. Pin back the drop. (3)

Moving?
 Please advise us of your change of address.
the Skeptic -
Don't leave home without it!

SPECULATION

Wallaby Theology

Sir Jim R Wallaby

We Wallabies have never had much truck with the field of theological speculation – probably something to do with not understanding the questions – so it came as somewhat of a surprise to me recently to find my mind wandering in this somewhat esoteric domain.

Lunching at my club the other day, I found myself in conversation with a fellow member, an odd sort of cove, dressed in a purple shirt with his collar on back-to-front. As he appeared to be a bit long in the tooth to be a popular singer, I took him to be some sort of a padre johnny and this surmise, in the event, was proved to be correct. "I am a Christian", he informed me. "What exactly", I asked, "is a Christian?" In my naivete, I had assumed that anyone who said he was a Christian probably was one but, much to my surprise, this is apparently not the case. My companion gave me to understand that to be a Christian, one must believe *inter alia* in the bodily ascension of Jesus Christ into heaven. None of this nonsense about a 'soul', but an actual physical levitation of the corporeal remains into some other place.

Well, anyone can believe anything they like as far as I am concerned, but it does pose a question. If Jesus ascended into Heaven, then how exactly was this accomplished? Was some sort of inherent 'heaven ascending' ability built in to his body, causing him, on his death, to be whisked away? Or was it a miraculous ascension, engineered on the spot by some sort of divine intervention? Either way, it seemed to be a dubious story, but as it was a one-off event which happened long ago and as any chance of finding evidence, pro or con, is extremely unlikely, it can be believed or not as a matter of personal choice.

My companion left me in no doubt as to which version had the imprimatur of his particular sect. Jesus, he claimed, was heaven bound from the moment of his birth, which leads me to the puzzle which caused my thoughts to traverse the thickets of theology.

I presume that this 'heaven ascending' faculty was genetic and that all of Jesus ascended at once, but if he did I am left with a further question. What happened to all of the bits of him that were discarded during his 30 some years of life? I mean, he was a Jew, so presumably

he lost his prepuce in infancy. Moreover, he must have trimmed his hair, beard, finger- and toe-nails from time to time and, like all of us, he must have constantly shed dead cells, hair, etc. Not to forget the sweat and all manner of other secretions and excretions that he exuded over his lifetime and, of course, the blood he lost during his crucifixion. Then we have to consider the minute scavengers who consumed the bits and pieces of sloughed off biological matter, not to mention their predators, all the way up through the food chain. Did they too (or parts of them) ascend to heaven at the appropriate time?

The real question then is this – did all this detritus ascend to Heaven at the time it was shed, or did it all lie around where it was discarded and ascend at the same time as the rest of his body? Logically, if this 'heaven ascending' trait was genetic, then all of this matter should have ascended as it was discarded, which must have caused no end of consternation to the local barbers and manicurists, although it would have precluded the scavenger/ predator ascension. If, on the other hand, it all ascended at once, then there must have been some startled citizens of Judea as all manner of creatures began, like a flock of Middle Eastern UFOs, shooting heavenwards at the time of Jesus' ascension.

Of course, this does pose a problem for that doughty band of true believers who, despite the conclusive carbon dating evidence, still hold that the Shroud of Turin is genuine. If there is indeed any blood on the Shroud, then it cannot be the blood of Jesus.

All things being considered, the one-off 'miraculous divine intervention' option seems to be a marginally more credible story than does the 'inherent ascension' model, though there is not a lot in it. Personally, I think I would settle for the 'neither of the above' alternative.

But, as I said at the beginning, I don't really understand theology and I suspect that someone may have already answered my concerns. Perhaps the answer lies in the Dead Sea Scrolls, which may account for the tardiness of their guardians in releasing their contents.

Can any of our knowledgeable readers shed any light on my dilemma? ■

GENETICS & CREATIONISM

A Mathematical

Disproof of Creationism

Albert R Haig

Abstract

Creationism claims that all of the present human population are descendants of two individuals, 'Adam' and 'Eve', who, it is asserted, lived no more than about 10 000 years ago – 6 000 years being the usual figure. This paper investigates this claim by looking at a particular set of genes which code for a particular group of antigens, and calculating the number of generations required for the distribution of these antigens in the population to reach its present state, assuming that the population is descended from two individuals.

Even making gross assumptions in favour of creationism (i.e. assumptions which greatly minimise the number of generations required), it is demonstrated that it is impossible that the present distribution of antigens could have arisen from two individuals in anything remotely approaching 10 000 years. A conservative estimate would be in the order of 180 000 years (6 000 generations), and this estimate is based on minimising assumptions greatly in favour of creationism; the figure derived in this paper is a significant underestimate. Thus, creationism is shown to be incompatible with genetic fact.

The HLA group of antigens

There is a group of *antigens* found on various cells in the body known as the HLA group of antigens. An antigen is somewhat like a flag or a marker that a cell displays on its surface, which can be recognised by other cells and by antibodies. The HLA antigens are important in self and non-self recognition: that is, the particular HLA antigens on the surface of a cell 'tell' other cells in the body whether or not the cell displaying the antigens is foreign – a bit like a ship flying a flag to identify its nationality. Without the ability to detect the presence of foreign cells and distinguish them from self, it would be extremely difficult for the immune system to respond to threats like infection, where (for instance) bacterial cells must be distinguished so that they can be destroyed. Among other things, the HLA antigens are

the main cause of the phenomena of transplant rejection, where a kidney or other donated organ is recognised by the person's immune system as being foreign, and is consequently attacked.

These HLA antigens are of course coded for by *genes*, and the particular genes in question are found in a cluster on chromosome 6 in humans. These genes are collectively known as the *Major Histocompatibility Complex* – from now on just the *MHC*. Each person has two sets of genes, one on each chromosome 6, each of which codes for a particular set of HLA antigens. Both sets of these HLA antigens are found on that person's cells. Normally a person inherits one set of HLA determinants (genes) from one chromosome 6 of each parent. Thus, there are only four possible combinations of the HLA determinants of parents, and a child will have one of these four. This is why siblings of a transplant patient are often looked to as donors for tissue, since there will be a one in four chance of the sibling having exactly the same HLA antigens as the patient, and this will greatly minimise the risk of transplant rejection if it is the case.

Crossing over

The reason that we normally receive a mixture of genetic information from each of our parents is a process that occurs during the production of the sperm and the ova known as *crossing over*. If there were no mixing of genetic data between chromosome pairs in a parent during this production process (known as *meiosis*), there would only be four possible different genetic make-ups for the children of a couple – after four children you would have to start having repeats! Fortunately, the mixing of genetic material between chromosomes is extensive, and, consequently, the number of possible genetic make-ups of children of a couple is astronomically large. It will hopefully be clear by now, however, that crossing over does not normally occur within the gene cluster coding for the HLA antigens (the *MHC*), otherwise we would receive a mixture of HLA

determinants from each chromosome 6 of each of our parents, and there would be a very large number of possibilities for the MHC's of the children, rather than the four that we actually find.

However, this cannot be the end of the story, for either evolutionists or creationists. If absolutely no crossing over ever occurred within the MHC, and we were really descended from only two individuals as creationists believe, there would still only be ten different sets of HLA antigens in the population, which is clearly ridiculous (if the four different MHC were *A*, *B*, *C*, and *D*, one could have any of the ten following combinations: *AA*, *AB*, *AC*, *AD*, *BB*, *BC*, *BD*, *CC*, *CD*, or *DD*). The scenario would obviously not be compatible with evolution either. And in fact, crossing over does occasionally occur within the MHC, and the rate of this cross over can be easily measured. It is only rarely that this occurs, but nevertheless it does occur and it accounts for the fact that there are a vast number of different HLA genomes in the population. So in fact to be technically correct, we should say that there is a slightly less than one in four chance that two siblings will have the same HLA determinants, since there is a slight chance of a cross over.

The probability of inheriting an intact MHC

If no cross overs ever occurred, the probability of an individual more than one generation removed from 'Adam' and 'Eve' inheriting a particular MHC from 'Adam' or 'Eve' would be $7/16$. This is because he/she will have two sets of HLA determinants, and there are four possible sets of HLA determinants from which his/her two can be selected. For any given MHC there will be a $3/4$ chance of it not being inherited for each of his/her two MHC, and thus a $3/4 \times 3/4$ or $9/16$ chance of it not being inherited at all. Hence the $1 - 9/16$, i.e. $7/16$ chance of inheriting a particular MHC more than one generation from 'Adam' and 'Eve'.

Now let us take into account the effect of cross overs. Let us call the cross over frequency f . Therefore, the probability of the MHC being passed intact from one generation to the next, assuming that it is passed, is $(1-f)$. The probability of its being passed intact again to the next generation, assuming that it is passed, is also $(1-f)$, and so the probability of its being passed two generations intact assuming that it is passed is $(1-f)(1-f)$. Similarly, the chances of it being passed intact n generations intact assuming that it is passed is $(1-f)^n$. Thus the probability of a person inheriting a particular MHC unchanged from 'Adam' or 'Eve' n generations from 'Adam' and 'Eve' is $7/16(1-f)^n$, or the probability

of it being passed times the probability of its being passed intact if it is passed. This is an important result, so keep it in mind for later.

The probability of an MHC now

The frequency of all the different HLA antigens, and the frequency of the various combinations of these antigens has been measured, and it so happens that in the large majority of cases there is no association between different antigens. That is, the chances of a person having the HLA antigen *X* given that we know he/she has the HLA antigen *Y* is no higher than the chances of him/her having antigen *X* regardless of his/her other antigens. To express this another way, the HLA antigens are completely randomly distributed in the population; they are in a state of equilibrium or 'maximum entropy', to borrow a term from physics. In actual fact there is a minimal association between a few of the HLA antigens, a phenomena known as *linkage disequilibria*; but these associations are very slight and uncommon and for the purposes of mathematical calculations, it is a good approximation that there is no association between HLA antigens. In any case, any disadvantage to creationism entailed by this assumption in the following calculations is very slight, and is more than outweighed by the hugely generous assumptions made in favour of creationism, as will be seen.

Now if creationism is true, the HLA antigens must have started with total association between them (i.e. any determinants on the same chromosome 6 in 'Adam' or 'Eve' would have a 100% chance of being found together, until the first cross over within that MHC occurred), and must have reached their current state of randomness through successive cross overs. We already have derived an expression for the probability of inheriting an MHC unchanged from 'Adam' or 'Eve' n generations from 'Adam' and 'Eve', given a cross over frequency f . Let us consider the probability of inheriting such an MHC now, given the present distribution of antigens. We can then evaluate the number of generations required for the probability of inheriting an MHC unchanged from 'Adam' or 'Eve' to become equal to the probability of inheriting it now (i.e. given the present random distribution of HLA antigens) – that is, the minimum number of generations since 'Adam' and 'Eve'.

At the present point of equilibria the probability of any combination of HLA determinants is equal to the product of the probabilities of the individual HLA determinants in the combination, multiplied by the product of the probabilities of *not* inheriting the HLA

determinants *not* in the combination – that is, multiplied by the product of one minus the probabilities of inheriting those antigens not in the combination. To simplify this, if there were only four HLA antigens, *a*, *b*, *c*, and *d*, which have probabilities of being found in a particular individual of p_1 , p_2 , p_3 , and p_4 respectively, then the chances of getting the combination for example of only antigens *a* and *c* would be $p_1 p_3 (1-p_2)(1-p_4)$. If the probability of a particular combination of determinants was higher than the product of the probabilities of the determinants in the combination times the product of not having the determinants not in the combination, then there would be an association between determinants (i.e. the distribution of determinants would not be random), which we know is false.

Let us call this product *MHC-prob*, to save writing the mouthful above out all the time. Now obviously, the closer *MHC-prob* is to one, the less time it would take for the MHC to ‘disappear’ in the sense of not being found any more frequently than would be expected on a random distribution of the determinants. However, if we arrange the antigenic determinants on one MHC of ‘Adam’ or ‘Eve’ so as to make *MHC-prob* as high as possible for that MHC, we must arrange the other HLA genes on the other three MHC of ‘Adam’ and ‘Eve’, rendering *MHC-prob* for these MHC’s very low. This is because, if creationism is true, all of the HLA antigen genes must have been present on at least one of ‘Adam’ or ‘Eve’s’ MHC, otherwise it would not be present in the population now; and it could have been on at most three of the four MHC, otherwise it would be present in everyone now (which none of the HLA antigens are). Thus if we place all those antigenic determinants with high probability on one MHC, and leave those with low probability off, we must place these low probability genes among the other three MHC, and leave the high probability genes off at least once among these MHC. Thus, if we wish to arrange the antigen genes on ‘Adam’ and ‘Eve’s’ MHC’s so as to take the least time before randomisation occurs (and thus most favour creationism), we must arrange the antigen genes so that the probability of the MHC with the lowest probability of the four is as high as possible. That is, we wish to find the maximum possible value of the MHC from ‘Adam’ or ‘Eve’ with the lowest probability now.

There are 114 known HLA antigens. For the purposes of simplifying the calculations, we will assume there are 112. This favours creationism, since the less antigens there are, the less time it will take for randomisation to occur. Now if the probability of finding an antigen is

greater than 1/2, then the probability of not finding it will be less than 1/2, and vice versa. It should be clear that if we want to maximise the *MHC-prob* of the MHC’s from ‘Adam’ and ‘Eve’, we should place those antigens with a probability of less than 1/2 on only one of the MHC’s, and those with a probability of more than 1/2 on three of the four possible MHCs. How we place antigens with a probability of exactly 1/2 will not matter (keep in mind that each antigen must be on at least one and no more than three of the four MHC). Now in order to make things as favourable as possible for creationism, let us allocate probabilities to each of the antigens in such a way as to maximise the probability of the MHC from ‘Adam’ or ‘Eve’ with the lowest probability. In doing this we are making a gross assumption in favour of creationism, since the actual probabilities of all the HLA antigens are known, and they are a long way from the optimal probabilities we will allocate. This is why the estimate we will derive will be a huge underestimate. It is a measure of the inadequacy of creationism that even making these assumptions, the time period required for randomisation is far too long to be compatible with it, as will be seen.

Let us assume for a minute that allocating the same probability, which we will call p_{low} , to all those genes or absences of genes with a probability less than 1/2, and consequently a probability of p_{high} , (where $p_{high} = (1-p_{low})$), to all those genes or absences of genes with a probability greater than 1/2, will maximise this minimum *MHC-prob*. What value of p_{low} and p_{high} would then result in the highest *MHC-prob*? Well, if we wish to maximise *MHC-prob* for the MHC from ‘Adam’ or ‘Eve’ with the lowest probability, we will place all those genes with p_{low} on only one MHC, and all those genes with p_{high} three times, and, as we do not wish to make one MHC more likely at the expense of making another less likely, we would place 1/4 of the 112 genes or absences of genes with p_{low} on each MHC, and 3/4 of the 112 genes or absences of genes with p_{high} on each MHC. Thus the probability of each of the four MHC would be $(p_{low})^{28} (p_{high})^{84}$, or $(p_{low})^{28} (1-p_{low})^{84}$, as $p_{high} = 1-p_{low}$. What value of p_{low} will result in this expression being as high as possible? Using calculus, it can be proven that this expression is maximum when $p_{low} = 1/4$. Thus the maximum value for the probability of the MHC with lowest probability of the four, assuming that allocating the same probability to all of those antigens with a probability less than 1/2, and therefore one minus this probability to all of those antigens with a probability of more than 1/2, will result in the maximum *MHC-prob* is:

$(1/4)^{28} \times (3/4)^{84}$, i.e. $3^{84} / 4^{112}$.

In this case all of the four MHC from ‘Adam’ and ‘Eve’ would have the same probability of being found now – this is logical, since increasing the probability of one above this would always reduce the probability of another below it, and this is the only way the four could have different probabilities.

But what of our assumption that allocating the same probability to antigens with a probability of less than 1/2, and therefore one minus this probability to those with a probability greater than 1/2, yields the maximum MHC-prob? It may well seem intuitively obvious that this is the case, but we wish to prove it formally. And, in fact, it can be proven using mathematical induction. In simple terms, you may be able to see that varying just one antigen probability above this common probability must lower the probability of the absence of the antigen and vice versa, and that this in turn will lower the probability of at least one of the other MHC’s. Thus raising the probability of one antigen or absence of antigen will always result in the lowering of the probability of at least one of the MHCs. Thus you may see why it is that allocating this common probability, which we have already proven is 1/4, to all those antigens and absences of antigens with a probability of less than 1/2, will yield the maximum value for the probability of the MHC with the lowest probability; all of the four MHCs will have the common probability of $3^{84} / 4^{112}$.

Conclusion

Therefore, we can now state that it would take *n* generations for equilibrium to occur where² : $7 / 16(1-f)^n = 3^{84} / 4^{112}$

The only remaining piece of data required to calculate *n* is *f*, the cross over frequency. Cross overs within the MHC occur in less than 1% of cases, but to make all of our assumptions in favour of creationism, we will allow a cross over frequency of 1%, that is, *f*=0.01.

Thus, $7/16(0.99)^n = 3^{84} / 4^{112}$

This equation is satisfied for any *n* greater than (approximately) 6 000. Naturally, 6 000 generations is much larger than 10 000 years (say around 180 000 years), so it is obvious that, even given the extremely generous assumptions in favour of creationism made above, there is not the remotest possibility of the present distribution of HLA determinants in the population having arisen from two people in anything vaguely approaching 10 000 years. This is a specific instance of the general fact that the present genetic distribution of the human population could not be derived from two people in 10 000 years, and is a conclusive mathematical refutation of creationism based on established and easily verifiable genetic facts.

The genetic information on which this paper is based can be found in any extensive immunology text; I used Immunology - I. Roitt, J. Brostoff, and D. Male, Churchill Livingstone, 1985. Copies of my original paper, which includes details of the mathematics left out here for simplicity, can be obtained by sending me a stamped, self-addressed A4 size envelope.

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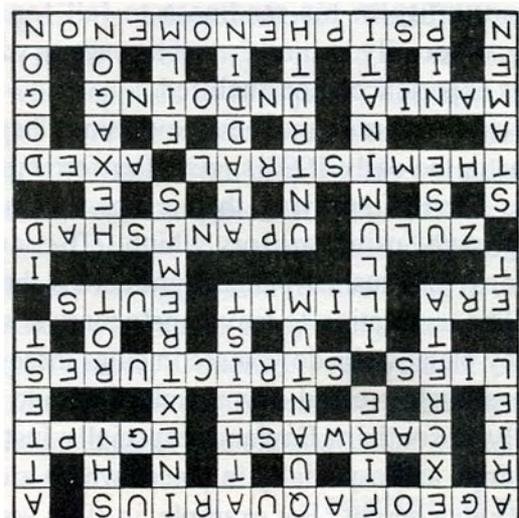
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Footnotes

1. For example, of the 300 possible combinations of known A and B locus alleles (a sub-group of the HLA antigens), 8 pairs show a statistically detectable association.

2. It is worth noting here that we have made two other assumptions in favour of creationism as well. These are to do with cross overs; we have assumed firstly in our $7/16(1-f)^n$ formula that crossing over is a totally random process in the sense that once a cross over has occurred the MHC is completely randomised, and we have assumed that the MHC from ‘Adam’ or ‘Eve’ which has crossed over cannot recur again by chance. In fact crossing over occurs in blocks (blocks of genes are swapped between chromosomes), requiring even more time for randomisation to occur than we will calculate, and there is a chance, albeit a small one, of the MHC in question being recomposed by chance.

CROSSWORD SOLUTION



PHENOMENON

Circular Logic

Bob Stevens

Recently I went to a lecture by Colin Andrews, a co-author of the best crop circle books. He was touring the world, giving presentations, more to raise consciousness of the phenomenon than to make a quick buck. (Although a string of crop-circle appreciation societies who mistrust one another seems to be forming in his wake.)

He was very sincere and enthusiastic; despite being tired at the start, he lectured all evening, then answered a few questions. He had a charming style and was averse to offending or upsetting anybody. The talk was well illustrated by slides, with a couple of phenomena also presented on audio tape and video tape. His conviction that crop circles and other patterns made when cereal crops are pressed to the ground betoken that “something important is about to happen” swayed most of the audience, who whispered “ooh” and “aah” for the nicer pictures.

So what’s happening? What’s the significance? And even if it is all baloney, what’s the harm in it anyway? Read on! As Mr Andrews also quoted, “you ain’t seen nothing yet”.

Colin Andrews is a qualified electrical engineer who until recently was employed as such by one of the British local councils. However, what drives him is the urge to make a mystery from nothing; underlying this his Catholic beliefs show up. Only a well-read scientist could detect gullibility in his readiness to fall for almost anything, especially in branches of science in which he is neither experienced nor qualified.

Crop circles were so much fun, ever since they began to appear in the early 1980s, just after farmers developed the habit of spraying their crops several times during growth, using tractors which left convenient “tram lines” of crushed plants right across their paddocks. The temptation to leave one’s mark is strong - how many blank walls do you see in cities these days? - and sure enough, pressed-down circles began to appear, especially in southern England, especially just before harvest time, and especially in places which are easily viewed from a height. For example, in 1991 you could see 65 crop circles from the top of Silbury Hill, and there were 1,000 circles in only two counties (and very few anywhere else).

Nobody confessed to this agricultural vandalism until 1991, when two old codgers were touted by the media as having made many of the most famous circles over the previous five years. Their case was pretty convincing, but unfortunately their own enthusiasm at being the first

“confessors” led them to falsely claim at least one crop pattern. When they could not satisfactorily explain to Mr Andrews exactly how this pattern had been made, this confirmed his belief that that was a “genuine” pattern, like he always thought it was. He then went on to compare that crop pattern to a Celtic cross, although it bore more resemblance to a ball-bearing race, or to a table set for four.

Where do crop circles come from? Of the crop patterns in the first Andrews and Delgado book, reviewed in these pages in late 1990, at least 80% align accurately with the “tram lines” made by the farmer’s tractor when he sprays the crop. The fact that there were hardly any crop circles before 1980, and that their alignment with the tram-lines has now risen to a staggering 96%, sheds a lot of light on the mystery of their origin. But there are none so blind as those who won’t see.

Indeed, for those who can’t see the crop for the circles, as it were, the mystery continues to expand and multiply. Thus a crop pattern in the unmistakable shape of the Mandelbrot Set, quite accurately executed near Cambridge (famed for its mathematicians, and well away from the usual crop-pattern area) was pronounced to be “genuine”. Moreover, “genuine” circles can be distinguished from hoaxed ones by their slight asymmetry, by the warm feeling you get when you walk into a circle that’s genuine, by dowsing, by pendulums, etc., and by examining the “crystalline structure” of the flattened plants by a technique called “spagyric” – well, once, anyway. (Funny, I am sure I have read somewhere that genuine circles were noted for their symmetry, not the reverse. You do indeed get a powerful feeling on entering any crop circle, genuine or otherwise – it was apparent from the slides alone. And as for spagyric – well, you ain’t seen nothing yet.)

Sometimes a UFO appears in association with crop circles; dogs bark, people talk about it in pubs, etc. A recent colour video film of “the thing” was duly shown, and was undoubtedly the best UFO film I have seen in over 20 years of investigating that phenomenon. The enthusiasm of those present also came over on the soundtrack. The “thing” was quite small and followed an erratic but lazy flight, up and down, first towards and into and then away from a large but unattended crop circle, landing and taking off several times, then finally flying into the distance. It was clearly about the size of a medium-sized bird. Oh, crikey

On another occasion there were 17 eyewitness

accounts of a UFO near Silbury Hill. Attempts to accurately locate, and hence measure, this and other UFOs have presumably suffered from Mr Andrews' inability to grasp that sightings along a single bearing can give no information beyond a single dimension. By the way, the 17 accounts were all different. Another attempt to create a UFO involved obviously correlated sharply defined marks on a negative – either this was a UFO at the focal plane of the camera, or something with two sharp points scratched the negative.

What do these circles betoken? The faithful, after disallowing the hoaxed ones (and for Dr. Terence Meaden, proponent of a wind-vortex related origin, hoaxes are now the great majority of them), look for signs. The trampled 1986 crop pattern which formed the words “We are not alone” should have been a good start, even if it should have read “You are not alone”. (Amazingly, Andrews now considers this graffito to be “genuine” and not man-made.)

John Michell, the popular British New Age author known for his books on Glastonbury etc. was asked to comment on one very large formation of three circles near his home. He pointed out that the combined area of the three circles was 31680 square feet - and that this number was significant in arithmetic and cosmology and “was symbolic of Jesus Christ” [comments: he means 32768; no it's not; and yes it is, but so are all the others]. While we're near the New Age Mecca of Glastonbury, let's note that the crop circle videos are produced by “Ark Soundwaves Ltd” of that town.

Skeptics, of course, have known all along what the mystery is – in early 1990 we published probably the only serious articles up to that time on the phenomenon. As if in response, crop patterns immediately took on new and ever more wonderful forms - one was reported world-wide and has now been elevated to the status of a Led Zeppelin LP cover and a T-shirt. It would be possible to write a PhD thesis on the crop patterns of mid-1990 and mid-1991 alone, with predictions for likely patterns of mid-1992, based on evolutionary theory and thus disproving creationism too.

But Mr Andrews proposes to look for signs by asking “peoples who are the closest to nature”, these apparently being the Dogon culture of Mali, the Hopi native Americans, and the Australian Aborigines. The Hopi told him “The mother [planet] is crying and is in trouble”; evidently mostly in Wiltshire. He was going to get the Aboriginal drift from Mr Charles Perkins in Canberra; but the Dogon looked like being too hard. (They are the tribe in Mali who are aware that the star Sirius has a small companion, not visible without telescopes. Of all the world's cultures, why choose them?) However, he hedges his bets with good old-fashioned Catholicism, and hopes for a major phenomenon similar to the Fatima appearances of 1917 and Medjugorje in the 1960s. His awe of the Vatican is strengthened because he knows

that a highly secret method of generating abundant free electricity has been locked away in the Vatican vaults for a very long time, but unfortunately he cannot tell us any more about it.

Such is the scientific investigation of crop patterns in 1991. Their major usefulness seems to be that somebody in Britain is trying to flog vials of a colourless liquid “removed from crop circles”, to be worn on a chain around the neck. This is currently “being tested” and Mr Andrews is now able to tell us that “the early results are very encouraging”. The vendor is responding to a proposed ban on his sudden medical breakthrough by demanding that people should have the freedom and right to buy his product.

Otherwise the only “scientific testing” of crop circles is by spagyric, mentioned above. This 300-year-old technique involves boiling a liquid down to a solid residue; when applied to fern juice, fern-like crystals formed and were presumably believed to demonstrate “ferniness”. Crystals from crop circles were distinctly square, but this was shrugged off. It can also be done by reducing human blood to dryness, calcining the residue (heating it very strongly), then re-dissolving it, and then growing the crystals and diagnosing diseases on the basis of their shapes. Optionally, cures can be prepared from the same residue and injected back into the patient (ugh). The inventor of this technique also gave civilisation the sword salve, to be applied to the weapon instead of the wound. Let me echo my question from the beginning “What's the harm in it anyway?”

Actually, there is a use for crop circles. For example, after a crop circle appeared on a Mallee farm in October 1989, pictures of the owner of the farm were in the Press, and she appeared on TV; when she arrived at this lecture, although unannounced, she was escorted in to a reserved seat by the organisers and generally treated like the Queen of Sheba. When it later became generally known that she was present, a sort of respectful hush descended on the audience. I later spoke to her and offered to explain her crop circle; but she refused. With a mysterious crop circle, you can enjoy fame; if it's only a five minute job with a garden roller after the pub shuts, you're just another cockie from the bush.

I cannot resist concluding with the words of Pat Delgado, co-author of the three successful Andrews and Delgado books (plus tapes, videos, placemats, T shirts, etc.):

“In no way could this [particular crop circle] be a hoax. This is without doubt the most wonderful moment of my career ... these crops are laid down in these sensational patterns by an energy that remains unexplained and is laid down by a high level of intelligence.”

.... especially in the opinion of the two old codgers who hoaxed it!



PSEUDOSCIENCE AND LANGUAGE

A Rejoinder

Peter Morton

I want to take issue with Tony Wallace's article (*The Skeptic*, Summer 1991), under the above title, in which he claims that "the study of language attracts as much pseudoscience as health and nutrition," and goes on to attack grammarians and linguists for making claims similar to those in other pseudosciences.

I find Wallace's argument confused, but if I understand him correctly, he is arguing that the advocacy of "rules" for the use of language shares the following three properties with the pseudosciences:

1. Both are cursed with self-appointed authorities, who lay down prescriptions *ex cathedra*;
2. Both make claims which are based on false or non-existent principles;
3. Both are dogmatic, and their "unchanging truths" are really thinly-concealed value judgements, which confuse 'is' and 'ought' and are unacceptable.

I'll take these up one at a time. I submit that all three claims show that Wallace is suffering from some misapprehensions about how linguists (or more exactly, teachers of English usage) regard their own activities.

1. Self-appointed authorities

Wallace cites two examples where individuals were able to persuade people, or at least some of the educated class, that certain common English usages were incorrect. One was the poet John Dryden (don't end a sentence with a preposition); the other Bishop Lowth (don't use double negatives).

That Dryden and Lowth succeeded for a time is a product of cultural history, and had nothing to do with people's propensity to be imposed on by frauds or deluded gurus. In the late seventeenth and early eighteenth centuries people were willing to entertain notions of strict "correctness" in taste, and they drew many of their models from classical antiquity. That is why Dryden, with his immense authority (which he didn't claim himself; it was willingly given to him by his readers) got a hearing, not because he was laying down "scientific" principles. Essentially he was making an aesthetic pronouncement, which people were willing to go along with – for a while.

Since the edict against prepositions at the end of a sentence has long since ceased to run, it is just a straw man for Wallace to knock down, except in cases where it gives a clumsy effect – for example, when two or more prepositions 'pile up' at the end of a sentence. The same is true of the recommendations advising caution in the

case of double negatives. When used excessively for stylistic effect they can be ridiculous, as in George Orwell's parody:

The not unblack dog chased the not unwhite rabbit across the not ungreen field

Or they can produce ambiguity, or at least cause the reader to hesitate, as in:

It is unreasonable not to doubt the Prime Minister's assurances...

Linguists warn against them, not because they flout some divinely ordained "laws of language" but for reasons which are pragmatic and aesthetic.

It is curious that despite his charge against 'authorities' Wallace makes exactly the same kind of *argumentum ad hominem* when he invokes the name of Shakespeare instead of Dryden. It is absolutely irrelevant that four hundred years ago Shakespeare "used such constructions [double negatives] often". It is irrelevant for the very reason that Wallace himself, blind to self-contradiction, gives a few paragraphs later: "every language on earth is in a constant state of change". Of course it is. It is precisely that same process of change that has, in the late twentieth century, ruled against double negatives in formal discourse, as well as other constructions that were once acceptable. Just because Shakespeare, around 1600, had his lamenting Cleopatra say

*The odds is gone,
And there is nothing left remarkable
Beneath the visiting moon*

doesn't mean that we can get away with following our plural subjects with singular verbs. (Even in his own day, Shakespeare's grammar and syntax were thought to be loose and experimental.)

I'd point out that, historically, it has been rare for 'authorities' to be successful in diverting the stream of language into a course more to their liking. This has been so even when they have had common sense on their side. George Bernard Shaw expended much money, and the resources of his considerable wit and polemical power, on trying to get rid of the apostrophe in contractions (doesn't, wouldn't, etc) without the slightest success. About the most one can hope to do, as Orwell pointed out, is to laugh clichés and dead metaphors out of existence, as was done with the 'situation' mania a few years ago.

2. Founded on false or non-existent principles

Even quite extreme kinds of New Age assertions offer

themselves as having a factual basis. They are not just personal statements of belief. (Some, it is true, lack any rational content whatever – but I assume Wallace isn't thinking of these.) Claims like “mineral crystals emit radiations which influence our health” or “it's possible to remember the events of our past lives” are amenable to testing. We call them pseudoscientific claims when their truth is still insisted on despite their having failed the tests.

I don't think most practical linguists are making these kinds of assertions at all. They do take part in some recognisably 'scientific' activities, but the kind of science they do is a bit like that of an old-fashioned entomologist: they go out into the field, gather their specimens, make their collections and try to put them into some kind of rational arrangement. They are not concerned with trying to discover 'laws' of beetledom, or those of language use. Certainly they are not concerned with 'inventing' rules. Their attitude is usually the very reverse of dogmatic. (Just compare the manner of a good guide to English usage, such as David Crystal's, with that of any piece of New Age vapouring.) The most they can do is to note that certain usages are drifting into, or out of, the perimeter of standard English.

3. Dogmatic value-judgements

Wallace says that linguists disguise their 'ought' statements as 'is' statements, and this would not be tolerated in any other branch of academia. This assertion made me rub my eyes in astonishment. Half the university departments in the country are concerned with making value judgements, or trying to establish the grounds on which they may properly be made, from law to philosophy, from education to literature. Language teachers quite explicitly *do* make value judgements, and there is no pretence about it. When they insist that one English usage is better than another, they don't base their recommendations on any deep philosophical principle. Their warrant for doing so is a simple pragmatic one: disagreeable consequences, disliked by most educated people, will follow if you don't master them. Such assertions cannot be condemned as pseudoscientific because they make no claim to be scientific in the first place.

More generally, it seems to me that comparing the prescriptions of English usage with the claims of pseudoscience is not actually very enlightening. I suggest that there is a much better way of modelling the prescriptions of English teachers. It is to see an analogy between their rules, and the rules of etiquette.

The rules of etiquette, like the rules of language, are constantly in a state of flux. It is rapidly becoming acceptable, standard English to use a formerly ungrammatical construction like

Everyone can have a go themselves

just as it has become acceptable for a man not to let

all the women out of a lift before himself. Insofar as they make any sense at all, rules of etiquette help to oil the wheels of social discourse and help to prevent misunderstandings. The same is true as the rules of language.

There is, finally, no better “reason” for not splitting infinitives than there is for not eating your peas off the knife at a dinner party. We don't instruct children that there is some scientific law of affinity between forks and peas. We advise them not to do it because it will look boorish and be embarrassing if they do. “Peas mustn't be eaten off the knife” is not (to labour the point) a scientific assertion at all. Nor is a grammatical rule like “the only admissible second person plural pronoun is ‘you’, not ‘youse’” a scientific, or pseudoscientific, statement. It's no less binding (in the social context) for all that.

Wallace roundly condemns prohibitions of this kind as “absurd”. Very well, then: let him have the courage of his convictions! Let him start using such constructions as

We haven't got none in stock at present in his formal correspondence. If he persists, he will find that ignoring the rules of verbal communication, arbitrary though they are, can have consequences almost as serious as ignoring the law of gravity.

Generally one finds that the only people who scoff at such rules are the well-educated liberal middle classes who have themselves thoroughly mastered the concept of different language registers (and who carefully see to it that their children do likewise). It is only for others that they recommend a non-prescriptive training in language. Wallace never even mentions the question of language register, yet he employs it unconsciously. In writing for *the Skeptic* he instinctively chose an appropriate register, which is markedly different to the kind of English he might employ if discussing the same matters over a beer.

I believe such an attitude stinks of privilege and is profoundly irresponsible: it's a particularly disagreeable case of wanting to pull the ladder of educational opportunity up after oneself. As a teacher of English, I hold that it is my duty to make it perfectly clear to students that the different rules that govern formal and informal English must be mastered, illogical and arbitrary though they may be, and errors in using them will be penalised.

As a grammarian, I have no objection at all to anyone doing as Wallace suggests and “ask[ing] the question which comes most naturally to sceptics: Why?” I encourage it, because I've got my answer off pat: “Because the present conventions of received standard English require it, and because if you ignore those conventions you will be disadvantaged and as an educator I don't want that to happen to you.” ■

ACADEMIA

Star Wars

Kate Orman

The August 1991 issue of Macquarie University's newspaper, *Arena*, was a Skeptic's smorgasbord. The entire issue was dedicated to the Occult – everything from Tarot cards to Ouija boards. My eye promptly lit on the following: "Page 11 Astrology – Geoff Robson–Scott explains some of the science behind the study of the heavens".

Astrologic turned out to be a list of the star signs and the personality traits attached to them, plus a brief essay on astrology. To be fair, the author later complained that his article had been excessively shortened, and too much emphasis had been placed on the "signs". It's a shame they cut it; the text was simply wonderful. Some examples:

"For as long as people have had eyes they've looked at the heavens..." (What did people do before they had eyes?)

"Astrology is not a belief system, a religion, or even a philosophy. It's an independently rational 'symbolic' language dealing with correspondences between the micro and macro spheres."

"...Astrology is totally free of doctrine and dogma. It says nothing at all about causality, and enjoys an almost infinite lateral application at any level of reality."

"A single thread of Astrological delineation is spun by studying a planet, at a particular degree of a sign, in a particular house, with particular aspects to it from other planets, and tying this up with 'rulership' association with other parts of the chart."

Add to this the Uncertainty Principle and Chaos Theory, and you pretty much have the gist of the article.

The following issue of *Arena* contained a long letter from me (actually, I got a bit carried away; it rivals the original article in size). I opened with Barry Williams' Rule of Thumb from *the Skeptic* (Vol 11, No 3) ("If it

sounds like crap, it probably is") and went on from there. Here is part of the text:

"The idea is that the sign you are 'born under' influences your personality, through some force unknown to science (and, indeed, to astrologers, as the article admits). If you're born under Leo, like I was, you're supposed to be lion-like - with 'the will to create, self-confidence, self-reliance, action, the sex urge'.

Two problems... One is that Leo looks less like a lion and more like a bent coat-hanger. The Leo characteristics are all very flattering, but what might be the characteristics of someone born under the bent coat-hanger? 'You are thin, wiry, misshapen, useless, and tend to accumulate in cupboards.'

The second problem is this: the stars in Leo only look like they're close together when we see them from Earth; remember that the Universe is three-dimensional. It's just a coincidence that, seen from Earth, they happen to look like a lion (or a coat-hanger). Some of the stars that make up the lion are millions of light-years further away than the others."

I went on to use a "What if?" to explore a world in which astrology really worked, pointing out the failure of astrologers to predict the Gulf War and the Russian coup (and their failure to collect the Skeptics' money prize).

"If astrology really worked, everyone would win the Lotto... Trains and planes destined to crash would be devoid of passengers."

Lastly, I quoted a couple of the more arcane passages from the article (the first and third quotes above).

"If astrology really made sense, it could be

explained in simple English. It sounds like crap, because it is crap.”

The editors had to fill in a bit of space at the bottom of the column, so they asked,

“‘If astrology really made sense it could be explained in simple english [sic].’ Oh really? Must something make sense in order to exist? Can everything that exists be explained in “simple english” [still sic]?”

This tells you more about Uni newspapers than it does about astrology. The reply is simple – go to the Popular Science section of any bookshop, and you will see that the most esoteric concepts can be explained in simple language.

It was not until the October *Arena* that Mr. Robson-Scott wrote in to defend his article. Or rather, wrote in to attack me.

“There’s a dangerous fanaticism at work here... Anybody who categorically asserts there is no connectedness [sic] between ‘a bunch of stars and planets millions of miles apart, [sic – I said away] not only hasn’t looked for evidence, they probably haven’t even discovered a link between the right and left hemispheres of their brain.”

“The accompanying or corresponding realities are so obvious, so blunt, and so unmistakable that even a moron like Kate would be able to see it.”

If you can’t attack your opponent’s argument, attack your opponent... But Mr. Robson-Scott did throw in a few “facts” amongst the unpleasanties. Here they are:

“Astrology is used extensively and effectively in a vast array of fields and professions for prediction, analysis, clarification and orientation. In the financial markets for example there is widespread use. One only has to look what happens to the Gold market on the Pluto/sun oppositions; to the US Treasury Bond market on the Venus/Uranus conjunctions, squares and opposition, to the stockmarkets at the midpoint of the Jupiter retrograde cycle... The 1987 peak in the

stockmarket, just prior to the crash, occurred on the tightest 5 body conjunction this century.”

And finally, the coup de gras:

“There’s greater things in Heaven and Earth than you ever dreamt of Horatio’ goes the slightly bastardised quote from Hamlet. Don’t go to sea in a boat Kate you might sail off the edge of the earth.”

Right. No more Mr. Nice Guy. *Arena*, November 1991:

“I am indebted to star-gazer Geoff Robson-Scott for providing yet more evidence that astrology is bunk. After all, if astrology really worked, Geoff would have been able to skewer my original letter with sharp facts and pointed arguments. Alas, there are no facts, and *Arena*’s readers were treated to a rather pitiful column-and-a-half of personal abuse.

Geoff tells us that ‘Astrology is used extensively and effectively in a vast array of fields.’ Merely wanting to confirm this statement, I did a little research in Macquarie Uni’s library. Out of half a million books, there are 29 on astrology (at least 18 of which are historical studies of the Middle Ages). There are thousands of books on economics. There are no books on astrology and economics. Yet Geoff tells us that various planetary events can predict changes in the stock market. Where are the millions of dollars you have made using this knowledge, Geoff?

... In the last three years, out of thousands of scientific journals and millions of articles, there have been a mere two articles published about astrology.”

Here I inserted a quote from “Hooked on Horoscopes” in *New Scientist* (26 January, 1991):

“[astrological] predictions are not only irreconcilable with scientific rationalism... they have a highly dubious record when it comes to validity and reliably describing personality accurately, predicting behaviour or foretelling the future... impartial research has failed to find any replicable, significant evidence.”

This lead into: "...the 1987 *Yearbook of Astronomy* makes no mention of a 'tight five-body conjunction' (sounds like fun!). But even if such a thing did happen around the time of the stock market boom/bust, did it cause the boom, or the bust? Could it be a (shudder) meaningless coincidence? Why did the spectacular three-body conjunction earlier this year have no effect on the market? And why does Geoff make no mention of the spectacular stellar phenomena that obviously must have accompanied the crash of '29?... As Shakespeare put it: 'The fault lies not in our stars, but in ourselves.' P.S. I'd like to ask why Geoff didn't predict my letter's appearance and have his reply ready in advance. But I won't."

Astonishingly, a reply from Mr Robson-Scott appeared alongside my letter! Shocked gasp! Had he consulted his star charts and done what I'd joked about – predicted my letter in advance???

Or was it just that the astrologer is a friend of one of the editors, and they leaked my epistle to him so he could get a reply into the last issue of *Arena* for the year?

"Alas Kate, you're a bit of a lost cause, and straying increasingly further from the truth. You're in no position at all to comment on astrology, being without experience, having never read any of the literature, and being intractably locked into a lot of preconceived ideas. Your credibility is zero, and for someone with pretensions to a scientific approach your attitude is shameful."

Thus follows some examples from "an abundance of simple statistical studies" in the field of economic astrology, including Raymond Merriman's *Geocosmic Correlations and Gold Price Cycles*, and Brady's 50 years of Venus/Uranus aspects in stockmarkets... W.D. Gann, an enormously successful and legendary trader from the 1930s, was a prolific writer and dealt extensively with astrology." Here Mr. Robson-Scott has exceeded my knowledge of and/or interest in astrological publications; perhaps some other Skeptic could fill us in on the details?

"The \$10,000 from the Australian Skeptics? It's chicken shit, Kate; like you they'd probably just turn a blind eye to the real evidence."

Oops, my mistake this time – I should have said \$20,000, the correct amount of the Skeptic's offer at the time. But strangely, Mr. R-S doesn't take the opportunity to tell us he doesn't need the money, because of the immense wealth he has garnered from predicting the stock market...

"... in 1950 a French statistician and psychologist, Michael Guaquelin [sic], set about to test some traditional astrological precepts... Sixteen volumes and many years later he produced incontrovertible evidence to support a variety of common astrological notions... His is the greatest single contribution to the modern re-examination of astrology."

Presumably Mr. R-S is referring to Michel Gauquelin, who also said:

"... since the most painstaking studies have shown the inanity of horoscopes, there should be a strong rising up against this exploitation of public credulity. Unfaithful even to the cosmic dreams of antiquity and dangerous to the honest researcher, this exploitation dishonors those who practice it. This is why commercial astrology and its charlatanism must be struggled against." (*Dreams and Illusions of Astrology*, 1979)

University students are constantly exposed to a barrage of ideas - from feminism and conservationism to Fundamentalist Christianity and the New Age. Happily, Uni papers provide not only a forum for charlatans, but also for their opponents – a chance for everyone to have their say.

What a shame that any further mud-slinging will have to wait until next year. I would have loved to have used that Gauquelin quote. In the meantime, I'd appreciate any comments from fellow Skeptics. Let me close with Mr R-S's parting shot:

"Kate Orman gets my nomination for arch-patron of the Flat Earth society."

That's arch-matron, dear. Sigh... ■

INVESTIGATION

Heigh Ho, Come to the Fair

Harry Edwards

The Inner Peace Movement (IPM), founded in the USA in 1964, by Francisco Coll, is a world wide organization with branches in 64 countries, which professes to teach psychic awareness – clairvoyance, clairaudience, prescience and psychic healing. Reincarnation, guardian angels and astral travel are all accepted as fact by its proponents.

Its claimed philosophy is to strengthen personal, family and community relations and to realise where we fit with ourselves and others. To this end, lectures and workshops are conducted by a ‘referee’ who has one of four ‘gifts’ or means of communication – clairvoyance, clairaudience, prescience or healing.

That IPM is a business is made clear by its listing in the telephone directory as a Limited company. This is reinforced by reading the pamphlet advertising their “1001 Orientation Profile”. “A comprehensive profile of your spiritual energy and the personal communication system of your (psychic) spiritual gifts”; cost \$47; 1001 being a prerequisite for 768, “The Mystical World of Healing”, cost \$96, then there is course 726, also to do with healing and also \$96 and so on.

In 1989 I attended an IPM introductory lecture, which ran the gamut of New Age piffle, from guardian angels to the nightly traversal of the cosmos by human souls to converse with the denizens of invisible (sic) planets. The only evidence offered for this latter remarkable claim was a quote from Shirley Maclaine’s TV series, “Out on a Limb”, in which her soul (movie animation) appeared to float skyward, tethered by a slender silver cord. The lecturer explained that the cord was attached to the pineal gland and, after its midnight perigrinations around the galaxy, it retracted like the cord of a vacuum cleaner. I was so incensed by the affront offered to my intelligence by this tripe that I was moved to write a letter to the local paper in an effort to warn people against wasting money on such patent nonsense. The letter was not published and I wondered if it would have discouraged anyone. I doubt it, and that’s a great pity in view of my second encounter with the IPM in November, 1991.

Promoting a “Psychic Fair”, the IPM sponsors were

given generous and uncritical publicity in the local press. In an interview, Tom Shantz, formerly of Chicago and now resident in Manly NSW, the organizer of the event, had this to say “... most people are not aware of much of the teaching of the IPM, but it will be invaluable for men and women of all ages who are seeking a new direction in their lives....the average person does not know how to use the spiritual gifts of intuition, vision, prophecy and healing...”. Mr Shantz also spoke about chakra healing taught by the IPM where members tune in to thoughts, to promote physical and emotional healing. If there was a vestige of evidence to be seen in respect of any of these remarkable claims, then I judged that the \$5.00 entry fee to the Psychic Fair would be money well spent.

As I walked into the hall I overheard a couple on the way out remark, “you could actually feel the vibrations” although whether this referred to a jet passing overhead or emanations from the bevy of ‘psychics’ seated around the hall I couldn’t tell.

Mingling with the croud of some 120 men, women and children, I noticed three crystal gazers peering respectively into a bowl of water, a wine glass and (wait for it..) an ashtray. Their clients, who had paid \$5.00 for five minutes, or \$10.00 for ten, listening intently as the scryers related their fantasies.

Hearing a voice bellowing “Gather around ladies and gentlemen I have something interesting to show you”, I perceived a young man, dressed like a character from the Arabian Nights, who strode into the centre of the hall, announcing that he would demonstrate the power of positive thinking, adding that that this is what one would learn if one signed up for an IPM course. Revelling in the name Lord Zolta, this gent then proceeded to demonstrate the old magicians’ trick of four people lifting another person, using only one finger each.

Not wishing to be a party pooper, I next gravitated towards the aura readers, those who can discern the ‘invisible but coloured’ (sic) hues emanating from the body, which can only be seen by the ‘gifted’. IPM claim that they can teach one how to see these auras, and to interpret their meanings. Pinned to a wall was a sheet of

white paper on which was drawn a crude outline of a human head and shoulders. Standing in front of it was a girl of 10 or 11 with a reader telling her that she had a birthday party coming up soon and that she would do well at school. My eavesdropping was interrupted by the second aura reader soliciting my patronage. Declining, I sought to engage him in conversation regarding any specific claims, without success.

Next I came across a lady beneath a large physiographic chart, advertising, I suspected, her ability to determine character by facial features. I commented that this idea had long been discredited, referring to a test carried out by a British newspaper, in which readers were asked to pair twelve photographs of faces with twelve professions. Unanimously chosen as a brutal mass murderer was a well known and respected Bishop. To my amazement, she agreed that her claimed skill was not possible, but nevertheless she continued to charge \$10 for her services.

Then I came to three 'psychometrists', who were fondling wristwatches and photographs. It was difficult to take careful note of three conversations at once and the tidbits I overheard seemed to be concerned with the weather. After soaking up the vibrations, one of these practitioners told his client that she had had a few problems lately. The lady agreed and the conversation turned into a lament on the one hand and a sympathetic ear on the other.

A voice from the PA, announcing a free lecture, caused an exodus of about 30 enlightenment seekers (including me) to one end of the hall. The lecturer, who I had observed earlier reading Tarot cards, generally followed the pattern of the lecture I had attended in 1989 which was designed to promote interest in the IPM. For \$47 you could learn how to contact your spirit guide and some of the more interesting 'scientific facts' to emerge were, "before we are born we choose our parents" and "when one's hair stands on end or when one experiences goosebumps, this indicates that the soul is leaving one's body". After the lecture, I approached the lecturer, expressing my curiosity regarding the invisible cord which, she averred, attached the soul to the pineal gland, reeling out like a fishing line as astral travelling occurred. After my raising all the obvious objections, such as "How do you know it's there if it's invisible?", "How can you tell it's silver if it's invisible?", "Why doesn't it create a substantial ball when you retract several hundreds of millions of kilometres of thread?" and "Don't all these silver cords get tangled when lots of people are astral travelling at once and don't they cause an air traffic hazard?"...etc

etc, she confessed to not knowing the answers. She did however say, "It's mentioned in the Bible you know, but I can't remember where". Completely floored by this *coup de grace*, I repaired to where the auras were being cleansed.

The patients, who had paid \$10 for the privilege of a cycle in the spiritual washing machine, lay on a cloth covered table, down each side of which stood three serious faced 'healers' (or possibly agitators). As no examination was conducted nor diagnosis carried out by the healers, nor by Mr Shantz who stood at the head of the table, presumably anyone who lay on the table was judged to be *ipso facto* in need of aura cleaning and chakra realignment.

The healers carried out the cleansing, which consisted of running their hands in a stroking motion parallel to and about 50 cm above the prone body, ending each run with a vigorous flick, presumably disposing of the aural pollutants. As the patients were fully clothed during this performance, it is clear that cloth is no barrier to auras, and from the distance away from the body that operations took place, it is equally obvious that our auras fill a substantial volume of space around us. The effects on our auras of being crowded together in a lift is enough to boggle the most expertly realigned chakra and the shorting of aural circuitry would surely be enough to blind a sensitive 'reader'.

But the real issue here is one of environmental vandalism. As mentioned above, spiritual pollutants were removed from patients and, without any discernable attempt at hygienic disposal, were cast onto the floor. In a blatant display of negligence, no protective clothing was worn by the healers, nor offered to innocent bystanders. Nor were bystanders warned as to the possible harmful effects emanating from the discarded vibrations. No attempt was made to store this spiritual waste in a suitable container. I stood at the end of the table for a full fifteen minutes and was undoubtedly drenched in the noxious emanations. I have not been feeling too well lately and may be forced to seek redress at law. At the very least, the State Pollution Control Commission should be informed about this gross desecration of our environment.

Saddened by the massed display of human gullibility I had encountered at the Psychic Fair, I sought daylight. Breathing fresh air and seeing ordinary citizens going about their affairs brought me back from the view that the world was losing its collective marbles, though I regret to say that this Fair has now become a weekly occurrence in Manly, seemingly with no lack of custom for those who seek to peddle their inane nostrums. ■

FORUM

Humanist's Response

Tom Goodwin

The Forum (Vol 11, No 3) contribution titled "Christianity and Humanism" is a very curious article indeed. One has to wonder whether the quartet of authors is being serious, deliberately polemical, or just dismally ignorant about modern day Humanism.

Are the authors telling us they are Christians who do without symbols and rituals; no altars, candlesticks and cassocks? Are they "good" harmless, easy-going Anglicans like the Bishop of Durham? No need to believe in virgin births, miracles, raising of the dead etc. Some Christians, in their rush to be populist, have become so wishy-washy as to suggest that as long as we can believe that Jesus was an early humanistic reformer walking in the desert, we can call ourselves Christians. What a lot of nonsense. The whole basis of Christianity, whether going-to-church-twice-a-year Anglicans or Deep Southern Fundamentalist Baptists, is the promise of Heaven and eternal life. It is implicit throughout the New Testament and quite unacceptable to secular Humanists.

If they want us to believe in a prophet spreading the golden rule, common to most religions, that's OK, but it's not how Christianity comes across, even in 1992. The secular Humanist does not have a god, to accept the reincarnation of one.

It is interesting that we are told that we would, in effect, be poorer without such people as Francis of Assisi, Vincent de Paul, Thomas Moore, Newman, Mother Theresa, and do doubt one could scrape up a few more. One does not need a lot of space to be iconoclastic about all of them; but one would need an army of "good" Christians to make up for all the Torquemadas, the Borgias and the cruelty and corruption of over a thousand years. We should not forget all the clergy who approved, by doing nothing, of slavery, witch burning, western colonialism, the Nazi Holocaust and even now the many oppressive right wing regimes.

Is there such a Society in the UK as "Atheists for Christ"? It is more than a little difficult to believe. Perhaps in Mecca there is a Society called "Hindus for Mohammed", but I doubt it. Both cases would represent contradictions in terms.

I know of no Humanist who would advocate the eradication of Christians. We would just like them to lose their government and media support, and hope that media commentators would refrain from such idiotic platitudes as "God Bless".

As a Skeptic, as well as a Humanist, I believe we have enough to occupy ourselves with, combating the claims of faith healers, clairvoyants, soothsayers etc. Humanists will always welcome those Christians with a social conscience who wish to join us on such issues as abortion, prostitution, voluntary euthanasia and drugs.

To the secular Humanist, one Marxist statement will always be true, "Religion is the opium of the people".

New Book from Australian Skeptics

Creationism: Scientists Respond

The Victorian Branch of Australian Skeptics has produced a book in which ten pamphlets, produced by the Creation Science Foundation for distribution to the public, are subjected to scrutiny and criticism by scientists who are well qualified in the fields covered. This factual information contained in the book will be of particular value to teachers and parents confronted by the simplistic and anti-intellectual world views promulgated by Creationists.

The book will be available by the end of March 1992 and can be obtained from:

GPO Box 1555P, Melbourne 3001.

Cost, including handling and postage is **\$6.00**. Bulk discounts available on application.

Copies of the book will also be on sale at the National Convention to be held in Newcastle on the weekend of June 20-21.

Chaos

As one who has done and published some work on chaotic dynamics I am utterly baffled by Keith Rex's letter on randomness (Vol 11, No 4, p. 47). He tells us that "the beautiful patterns which flow from fractals... are a true example of the image of random". The patterns, and I think he is writing of Julia sets, are anything but random. They are generated by an explicitly deterministic process, in which if I give you exactly where the process is now, and its generating function, then you can say exactly what it will do next. Your confidence about what it will do thereafter diminishes the further ahead you try to predict. But, in making pictures, if you start with the same equation in the same programme, you will get the same picture with repeated reduplication of pattern elements.

The point about random processes is that you can predict the average value of the next trial, and the variability associated with that average, but not say exactly what will come up next. Your imprecision of prediction is the same no matter how far ahead you go. Tossing an unbiased die is a case in point. You can go further in that example and say how many 1s, 2s, and so on you expect in the long run to get. That doesn't either stop people playing two-up, or sometimes winning and sometimes losing.

The example he gives about computer programmes used in laboratories (and why psychology comes into it is not clear) is misleading, as the software used in pseudorandom number generators is often chaotic but of very high dimensionality, so it looks locally random because it does not repeat

LETTERS

Letters to the editor on any topic of interest to other Skeptics are welcomed. Letters should generally be restricted to no more than

itself for a prodigiously long time. But I know of no decent software that would give a whole page of 7s. You will get runs of 7s, and the length of a run is distributed exponentially, so that very long runs are virtually impossible.

Incidentally, I don't see what the chaos/ randomness distinction has to do with the surprise we feel about coincidences. If we don't know what the statisticians call the 'sample space', which is all the things that could happen, we can't know the odds against an apparent coincidence, and we know from experiments that humans are very bad at calculating probabilities on an intuitive or subjective basis.

**(Prof) Robert A M Gregson
Hackett ACT**

Language

I cannot let the occasion of paying my sub go by without a word to the editor about double negatives. The editor should not have overlooked the fact that the piece was not funny, uninformed and unobjectionable.

In Shakespeare, and frequently in ordinary spoken English, a negative verb is associated with a negative object or other phrase, sometimes for emphasis, and clearly intended to preserve a negative meaning. In some languages such a usage is

required I understand. In more careful English these days this is avoided because it may lead to ambiguity or at least a hesitation in the listener or reader.

Just today I heard on the ABC, "There are no major hurdles to stop the establishment of ...". Did the speaker mean what he said?

This is something quite different from an intended double negative, which is grammatically acceptable, but may be stylishly weak. In racing, 'no chance, no way' is considered, if not ungrammatical at least uncouth, whereas 'unlikely not to get at least a place' is merely seen as wishy-washy. Sometimes, but less often than people think, there is a significant difference in meaning, with, in this case, 'likely to get at least a place'.

But you know all that.

**Paul Kaufmann
Campbell ACT**

Music

Not being one to place a burden on anyone, let alone poor, hard working editors like yourselves, I thought you might be interested in my sharing a coincidence that I experienced a few weeks ago.

I was lying in bed, listening to the radio while religiously waiting for Philip Adams' *Late Night Live* programme to come on. At the start of his segment a quite distinctive musical theme is played. Now, as this theme was playing, I thought to myself how aggressive it sounded. When it concluded, to my amazement, Phillip muttered, "My God ... that's an awfully aggressive theme."

Now why did he say that on exactly the same night that I thought it? Strange but true, dear Editor.

Rick Lovel

de Bono

I am sure that, like John Snowden (Vol 11, No 3) and Alan Towsey (Vol 11, No 4), many Skeptics would have looked at Dr Edward de Bono's books and wondered what it was all about. As Paul Jewell (Vol 11, No 4) pointed out, inventing the term "lateral thinking" does not constitute a new way of thinking. Objectively what coining the term has done is to provide Dr de Bono with a sort of personal brand-name which distinguishes his product from that of other teachers of creativity. In this, Dr de Bono has been very successful, for on radio and in the popular press, one seldom hears or sees a good idea being called "creative" or "imaginative"; it is always "a bit of lateral thinking".

Of course Dr de Bono is only one of many who offer to improve creativity. Indeed, the creativity and mind improvement business has, at times, been both big and hectic. A cover story in the US journal *Business Week* (September 30, 1985) tells of more than 80 consultants who taught creative thinking methods "roaming the corporate landscape" at that time, with the best known commanding as much as \$10,000 a day for their services, as well as their books, tapes and computer software making the best-seller lists. Among those 80, Dr de Bono was nominated as one of the *Three Gurus Who Preach the Creativity Gospel* who were most successful. The frontispiece of de Bono's "The Mechanism of Mind" (1990 Penguin edition) is a catalogue of his achievements: founder of the Cognitive Research Trust in 1969; founder of the Centre for the Study of Thinking and the Supranatural Independent Thinking

Organisation; consultant to many of the largest multinational corporations; addresses to many prestigious organisations; faculty appointments at Oxford, London, Cambridge and Harvard Universities; has set up a Task Force on Thinking in Washington and has written over thirty books (I think nearly 20 of those are still on the Penguin in-print list). In addition, Venezuela has made de Bono's method compulsory in all schools.

With all that past activity by Dr de Bono and the other teachers, one would expect that the proof-of-the-pudding-is-in-the-eating test could now be applied. Certainly the blurb on one of de Bono's latest books, *Six Action Shoes* (Harper/ Collins, 1991), has no doubt that his success can easily be demonstrated, claiming that de Bono's "Six Thinking Hats" method "has transformed the way we think". It also claims, somewhat ambiguously, that "The impact on corporations all over the world of creativity expert Edward de Bono's ideas is impossible to measure". As far back as 1976 *Vogue Living* (June 15 - August 14 issue), in an article titled "The mind-blowing concepts of Dr Edward de Bono" noted "In the sphere of big business Dr de Bono's prescription for liberal applications of lateral thinking works wonders".

But, despite decades of activity and all the hype, there really seems to be precious little in the pudding. A recent discussion of creativity (The Keys of Creativity, Evans and Deehan, Grafton Books, 1988) points out that "There is little evidence to show that lateral thinking is particularly effective...". Those authors also point out that one test of lateral thinking will be if we see an explosion of creative Venezuelans in twenty years time. As one popular song has it: Is that all there is?

I, and I am sure other Skeptics, would like to see a world in which clear, analytical, critical, creative thinking prevailed over obscurantism and belief in crystal power, astrology, tarot cards and all the rest. If Dr de Bono's Six Thinking Hats, Six Action Shoes, OPV (Other Person's Viewpoint), PMI (Plus, Minus, Interesting), Think-Link or PO (Between Yes and No) can lead us to that world then we should gladly follow but, until there are clearly documented results to convince me I will look at his books in the library and keep my money in my pocket.

John Warren

Mangrove Mountain NSW

Snelling

I read with interest Alex Ritchie's article about the two Snellings in the Summer 1991 issue (Vol 11 No 4) of *the Skeptic*. I have been at religious meetings where Snelling 1 spoke, but I have never been at scientific meetings where Snelling 2 spoke.

Looking at some of the issues of *Ex Nihilo* which contain work by Snelling 1 there appear to be even more coincidences than Alex Ritchie pointed out. On page 3 of Vol 5 No 2, Snelling is described as "a leading geologist on the Koongarra Uranium field. His practical field experience makes a solid basis for his research into the age of Australian Uranium." On page 3 of Vol 6, No 1, he is described as "Project Geologist at Koongarra with Dennison Australia Pty Ltd." The paper by Snelling 2, which Alex Ritchie referred to, is entitled "Koongarra Uranium Deposits", and deals with their age. In the "Acknowledgements" at the end of the paper it is stated that it is published with the permission of Dennison Australia Pty Ltd. So both

Snelling 1 and Snelling 2 appear to have worked for the same company, and both have investigated the age of the same deposit of uranium ore.

Now there have been some discussion in the pages of *the Skeptic* about coincidences, but the number of resemblances between Snelling 1 and Snelling 2 strains credulity to the limit. One possible explanation is that we have here a good example of a paranormal phenomenon, the *doppelganger*. There are many legends about an honest and upright person being pursued by a malevolent double, whose attitude and characteristics are just the opposite. One argument in favour of this hypothesis is that the *doppelganger* is never seen together with the original person. As far as I know, nobody has ever seen Snelling 1 and Snelling 2 together.

Here is a possible area for investigation by the Skeptics. Does the honest creationist, Snelling 1, have a malevolent scientific *doppelganger*, intent on destroying his reputation? Or is the honest scientist, Snelling 2, being hounded by his creationist *doppelganger*? Since Snelling 1 has been engaged in research into the age of Australian uranium, is he now going to use the work of Snelling 2, and publish this in our local creationist journal? Or is he going to attack his *doppelganger* and accuse him of misrepresenting the true facts about the age of uranium ores?

Does any reader have first-hand experience in dealing with *doppelgangers*, ghosts and other paranormal phenomena? Since we have criticised Snelling 1 for his misuse of science, have we really been attacking a paranormal entity? The whole matter raises many interesting questions.

(Dr) Ken Smith
University of Queensland

When world views collide

What should Skeptics do when pathological world-views collide? This problem was raised in the report of the Bangalow festival (*the Skeptic* Vol 11, No 4, p.11). In the Bangalow case, the collision was between New Agers and fundamentalist Christians. The report raises several points of strategy which Skeptics should keep in mind.

First it isn't always wise or prudent for Skeptics to directly confront the counterculture at all. Benign neglect may be in order. For example, a few years ago Canberra Skeptics picketed an Festival of Alternative Medicine and ESP. We scored a few points, and gained some publicity for Skeptics. But we also got the festival on to the front page of *The Canberra Times*, and people poured out to the festival in their thousands. The following year, overcome perhaps more by inertia than careful strategic planning, we ignored the festival and it was a comparative flop. Skeptics certainly need to be prepared to apply the blowtorch, but keep in mind the possible consequences of doing so. If it just amounts to giving the New Age the oxygen of free publicity, temptation should be resisted. No free rides.

Bear in mind, in particular, the media craving to respect the commendable liberal principles of tolerance and balance, which means that they will want to present the issues as ones where (maybe) the Skeptics have some important points to defend, but so of course on the other hand do the New Agers. What the press regards as a "balanced" report can be extremely satisfactory to the fruitcakes.

Secondly, there is an important principle which Skeptics can exploit.

It's the cognitive equivalent of the principle in the martial arts of using the force of your opponents to your advantage. The principle is: For every fruitcake there is an equal and opposite anti-fruitcake. We should see if we can harness the energies of the counter-culture to our advantage—and thereby, in some cases at least, see them harmlessly dissipated. The anti-fruitcake principle can (if my memory serves me) be attributed to Patrick Moore. Moore suggested it some years ago, though not under that name (as I recall) in the *New Scientist*.

As a high profile scientific journalist, Moore gets a lot of letters, which he divides into three categories: "For reply soon", "For reply when time permits", and "Oh dear!". The latter however serves a useful function.

Suppose he receives a letter from a flat earther in Yorkshire. He knows from experience that if he replies, patiently addressing the points raised, then a time-consuming and unprofitable correspondence will at once be initiated. So he riffles through the "Oh dear!" pile until he finds (say) a letter from a group in Germany who maintain that actually we live on the inside of a sphere. He then writes back to the flat earther and says "your letter raises some very important issues; I have taken the liberty of forwarding it to Herr Schmidt's group in Stuttgart, who I know will be very interested in the points which you raise." Any exchange which then ensues at least does not involve him.

The answer to the Sceptics' dilemma is straightforward. Which side should we cheer for when pathological world-views collide? Neither. But we can still cheer nonetheless. And enjoy!

(Dr) William Grey
University of New England

Responsible?

Could a thoughtful reader answer the following question for me please: do sceptics believe that people should be held responsible for their actions? It would appear that most people do believe we should be held accountable for what we do – few seem to argue against having a police force and some sort of prison system. But does it really make sense to regard people as being held responsible for how they act? For a start, we certainly don't make the same demands of any other animal species. Admittedly, if a mouse or even a fox eats our food, we have little hesitation in destroying these creatures. But in doing so we are not holding them responsible for their actions in the same way we would if it were a human being stealing our food. The action of the mouse or fox may annoy us but we don't regard them as acting irresponsibly. Their behaviour is seen as the natural instinct of "wild" animals.

It would also be true to say that we don't hold computers responsible for what they do. When a computer system goes haywire we may feel like shooting it but we recognise that to do so would be irrational and pointless. What then is it about human beings that makes us regard them as being accountable for their actions?

The raw material that makes up humans and other animals is essentially the same and the human brain is often identified as being simply an incredibly complex computer – so where does the responsibility factor come in and what is it? Surely if we can't identify it, we should be sceptical of its existence. So maybe we are completely wrong in holding people

accountable for what they do. Maybe we can't help ourselves because our actions and thoughts are simply the product of chemical reactions occurring in our brain. The feelings of control and choice which we have may all be illusions.

Of course if no one is genuinely capable of controlling their actions then this has massive implications. At the very least, wouldn't sceptics want to be at the forefront of knocking down the jail walls so that all the innocents could escape?

But I suppose that would depend on the particular chemical reactions that happened to occur in their brains. Which "leads" me to think, I hope that no one will get annoyed with me for writing this letter because maybe I can't stop myself anyway! But then again maybe they can't help themselves getting mad!

Any suggestions?

**Graham Preston
Annerley QLD**

Mull it over

I am surprised that you would have to ask what a Mull sounds like: only understandable, perhaps, because you were writing in the Summer edition.

It is, I believe, the sound caused by the process of cavitation which occurs around the stem of a hot poker when plunged into spiced red wine. Onomatopoeically rendered as "sizzle", I think, and most often heard in winter.

John Warren

Mangrove Mountain NSW

No John, that is what a **mull** sounds like. What I wanted to know was what a **Mull** sounds like. The difference is subtle, but very real.

Ed.

Resonance?

Fellow sceptics who are regular listeners to the *Science Show* on ABC Radio National will no doubt have heard of the theories of one Dr Rupert Sheldrake. Dr Sheldrake has given us the concept of "morphic resonance". This theory states, as I understand it, that the more often a particular task is performed then the easier it is for people elsewhere in the world to learn that task. There have, I believe, been a number of experiments that have purported to show evidence of this phenomenon. New Agers argue that this provides conclusive evidence that there exists a "collective consciousness", whereby people can "tap into" the thought processes of others from different lands or even different times.

Well, how about it – can the crack team from the Skeptic give us the real story on morphic resonance? Is it science or crackery? Sound empirically verifiable fact or more New Age clap-trap?

**Derek Sicklen
Grosvenor Place NSW**

I think the jury is still out on this one and it is certainly too far removed from my fields of knowledge for anything I say to matter. No doubt, among our far-flung network of readers there must be someone who can shed some light on the question and I certainly hope they will let us know.

From my lay perspective, I am rather attracted to a comment which originated (I think) with our patron Phillip Adams. "If it were true", Phillip asked, "then wouldn't it be logical to suppose that Chinese would be the easiest language for a foreigner to learn?"

Ed.

Rignac

The Skeptic (Vol 11, No 4) pointed out that one Jean Rignac, in advertising his prediction of the “stockmarket crash of ‘88”, shows some inaccuracy after the event, unlike common psychics who are inaccurate before the event.

Much as I dislike casting aspersions on the observational skills of *the Skeptic*, my copy of the Rignac advertisement also notes that Jean predicted “Jackie Kennedy’s divorce from Aristotle Onassis in 1972”.

I think (and as he placed it first, Jean agrees) that this is a far more significant prediction. After all, everyone knows about the ‘87 stockmarket crash, but it takes a true psychic to postdict an event no-one knows about. (At least it escaped the notice of the two Jackie biographers in my local library.)

Allan Lang
Colonel Light Gardens SA

Editorial cock-up

As a linguist, I was delighted to read Tony Wallace’s sound and timely article on “Pseudoscience in Language” in *the Skeptic* (Vol 11, No 4), especially as our learned if somewhat whimsical editor seems himself to be affected by confused grammatical thinking – and in the process threatening to wreck my hard-earned linguistic reputation!

In my review of “The Discovery of Noah’s Ark” in the same issue, at the beginning of the last paragraph I wrote (deliberately): “Unfortunately for us Skeptics,...”. This the editor “corrected” to “... for we Skeptics”.

Come, now, Barry, you wouldn’t say: “The taxi will call for we in half an hour”, now, would you? No? Well, then, how do you justify “Unfortunately for we)Skeptics)”?

Of course, if you spell it “wee”...
Alan Towsey
Tahmoor NSW

PS Or was Harry to blame?

Actually, I put it down to synchronicity.

PS Or perhaps society is to blame.

PPS Then again, maybe Graham Preston is right. **Ed**

Forum

This new feature *Forum* seems to be devoted to philosophical rhetoric. While this may have been hot stuff in the middle ages, it is a non-starter these days. I know a lot of failed small Societies who thought they might attract more support by diversification – offering a sort of Sunday Supplement – something for everyone. But aside from a choice of dud subjects, the diluting out of their traditional aims lost them not only most of their original supporters, but general public respect. The cobbler sticks to his last. The little boutique prospers if it specialises.

Traditionally *the Skeptic* offered “the impartial” investigation of paranormal and questionable pseudo-scientific claims, with a platform for debunking frauds which badly needed it. Hardly something to set the world afire, but it attracted a proven steady clientele. I suggest that if we concentrate on doing this well, give the tired old UFOs a rest and keep up with the latest wierds, we will survive.

Also I think it is time we curbed all these extraneous intrusions like

politics, economics, theology, metaphysics, “humour” and if we concentrated more on the impartial and less on the scoff we might even increase the number of subscribers.

Keith Rex
Paddington NSW

You, along with assorted psychics, have been predicting our demise for some time Keith. Unfortunately for you and the other Cassandras we are now entering our twelfth year and the number of subscribers has increased each year. Someone must like what we do.

I suppose we could institute some sort of “ideological purity” test for the letters and articles we receive, but I suspect that that would be more likely to bring about a diminution in our numbers than the reverse. We could even have the test incorporated in our constitution and then, like the Anglican Church, settle our disputes in the Supreme Court.

A boutique is more likely to prosper if it gives the customers what they want and, as our readers appear to be a pretty eclectic lot, we will stick with our present policy of publishing letters and forum pieces as long as (a) they are of interest to other Skeptics; (b) they are not too long; and (c) the editor can read the handwriting. **Ed**

Crystals

I am constantly being offered various crystals, which are guaranteed to cleanse my auras. As my office has recently been modernised, can any Skeptic advise me if these crystals are IBM compatible?

Peter Schmidt
North Fitzroy VIC

PHENOMENA

Near Death Experiences

Harry Edwards

Having read Susan Blackmore's article "Near Death Experiences: In or Out of Body" (*Skeptical Inquirer*, Vol 16 No 1) and many more on the same subject, I wonder if there has been a tendency by some to ignore the injunction of Occam's Razor and to read too much into the "phenomenon" of life after death experiences. I use quotation marks because, if my experience has any relevance, then what we are looking at is no more than the physiological effects of oxygen deprivation, similar to that experienced during a faint.

Consider the following.

Since my early teens, and over the past fifty years, I have been subject to inexplicable blackouts, twenty five to be exact, a bi-yearly average varying in frequency from several in twelve months to a gap of five years. Physically and mentally, I have always been A1 and, despite comprehensive medical examinations, no satisfactory explanation has been forthcoming. There appears to be no correlation between the circumstances prevailing at the time of the occurrence and a cause.

On the one hand I have blacked out while receiving injections, knocks to the limbs, being seated on the toilet and when undergoing emotional stress. On the other hand I have had many injections, knocks, third degree burns to 20% of my body, root canal therapy without anaesthesia and have coped with many a stressful moment, all without losing consciousness. My point is that, when I have one of these blackouts, my experiences are almost identical with those commonly associated with NDEs, with one exception – profuse sweating.

The sequence is as follows:

I start to perspire, there is a faint buzzing or ringing in my ears, then a loss of vision as I become comatose. As I regain consciousness (but before I am aware that I am doing so), the buzzing is much louder and I see a light. The light rapidly increases in size and intensity, accompanied by the sensation of falling, then a mental, rather than physical, thump as though hitting the floor, although I am already there. As the buzzing diminishes, indistinguishable faces are seen and voices heard. My vision clears and the faces and voices become recognisable as those members of my family or friends

who were around when I passed out.

Note the similarity to a typical description of a NDE experience – buzzing in the ears, rapid increase in size of the light (giving the feeling of travelling down a tunnel) the feeling of falling and the recognition of those familiar to you. Most importantly though, and central to my hypothesis, is that my awareness of the situation and my ability to recognise (functions of cognition and consciousness) occur after regaining consciousness. This experience would require very little embellishment by one undergoing resuscitation after the trauma of cardiac arrest (for example), or one with a proclivity to believe in the supernatural, to join the ranks of the NDE raconteurs.

I am suggesting therefore, that my experiences confirm the view held by many scientists, who state that these phenomena are hallucinations produced by the dying brain and that what is generally taken by researchers to be a recollection of a metaphysical experience, and accepted as a NDE, are in fact the mundane hypnagogic manifestations of a semi-conscious mind. ■

Musical Note

The majority of readers who responded to the **Renewal Notice** in the last issue were most informative in the "Optional Information" section which asked, among other things, for "Interests".

One interesting fact that emerged was the number of respondents who included "Music" as one of their interests. We are sure that this is significant (of something) so we ask if anyone has a theory as to why music and scepticism should go hand in hand?

Suggestions, serious or implausible, are solicited for publication in the next issue. ■

Challenge

Supernova 1987A in the Large Magellanic Cloud (one of the nearest galaxies to our own), was the nearest supernova to the Earth since the invention of the telescope.

Research, using data from the International Ultraviolet Explorer satellite, reveals a ring of gas around the star with a radius of 0.68 light years. Data from the Hubble space telescope shows its apparent diameter (from Earth orbit) as 1.66 arc seconds. Using simple trigonometry, the distance to the supernova is shown to be 169,000 light years. This is in very close accord with, and confirmation of, previous theoretical measurements of the distance of the LMC.

We challenge the Creation "Science" Foundation, to explain this fact **scientifically**, in a Universe that is only 6–10,000 years old.

Light being created 'on its way to Earth' is **not** a scientific explanation and any explanation requiring a 'diminishing speed of light' will need far more and better evidence than was presented in the totally discredited Setterfield story.

We stress that the challenge is for a scientific explanation for two reasons: (1) The Creation Science Foundation purports to be a scientific organisation; (2) any claims relying on miracles are, by definition, not scientific, cannot be tested and are indistinguishable from any other claims about miracles that may have been invented on the spur of the moment.

For those interested in the scientific story, we recommend "Happy birthday, Supernova 1987A", Nigel Henbest (*New Scientist*, Feb 22, 1992).

About our Authors

Dr Robert E Bartholomew was a lecturer in the Sociology Department at Flinders University and is now resident in Baltimore, USA.

Harry Edwards, wit, bon vivant, raconteur and litterateur, paid a considerable sum to have this biography included.

Murray Finch is a science student at the University of New South Wales who deludes himself in the bath every Sunday night.

Dr William Grey teaches philosophy at the University of New England in Armidale. Previous incarnations include President of Canberra Skeptics, and Canberra bureaucrat, where he did for public administration what Florence Foster Jenkins once did for the Queen of the Night.

Tom Goodwin is Past President of the Humanist Society of South Australia.

Albert Haig is employed by the Radiophysics Division of CSIRO and is involved in research in the area of cognitive neuroscience.

Peter Johnson, whose cartoon appears on page 7, is a professional cartoonist from Adelaide. This cartoon arrived two months before the Crows' firewalk took place, proving, if proof were needed, that all South Australians are psychic.

Chris Jones is Secretary of the Victorian Skeptics and understands such exotic subjects as foreign exchange rates (whatever they are).

Allan Lang is a member of the South Australian Skeptics committee for whom he edits the *Southern Skeptic* magazine. He is a initiate into the mysteries of Stanism, which unconfirmed reports suggest, he invented.

Dr Peter Morton teaches English at Flinders University. He doesn't think it is pseudoscientific to protest when people confuse the meanings of 'infer' and 'imply'.

Kate Orman studies at Macquarie University where she struggles valiantly to keep the flag of scepticism aloft.

Dr Bob Stevens is a nuclear physicist who works for a bank. Now who was it that said that the Great International Banker's Conspiracy was imaginary?

Alan Towsey is a retired headmaster and linguist who believes in keeping editors honest (no mean task).

Sir Jim R Wallaby is a devoted republican. He owned a pub once and plans to do it again.

Barry Williams, President of Australian Skeptics is an absolute monarchist. He wants to be Emperor of the Universe.