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**Creationists  
on the run?**

# *the Skeptic*

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## Editorial

# What a year

This has been an interesting and exciting year for Australian Skeptics. We have achieved by far the largest increase in subscriptions ever, with well over 500 new subscribers joining us. The reasons for this are many, but the fact that we have been advertising in a variety of appropriate journals, and that we have had a permanently staffed office, are prominent among them.

Our public profile has never been at a higher level and it is a rare week that does not see some member of the Skeptics appearing in the media. It cannot have escaped anyone's notice that the Plimer/Roberts court case in mid-year brought us a great deal of favourable publicity in the general media, as we were widely identified as Ian Plimer's main supporters. What can we say to satisfactorily express our admiration for Ian, a man who is prepared to stand up for science and education, and against the deliberate promulgation of blind ignorance, regardless of the personal cost? And the cost to his health and pocket have been more than considerable. Would that there were more like him.

I believe we can justifiably claim some of the credit for the decision of the fundamentalist fringe to cease its pretence that what it does has anything to do with science. By maintaining the constant glare of hard reality focused on their fatuous claims, we have forced them to remain defensive, to the extent that they have now publicly retreated into the fortress of their simple-minded faith. We will keep up the pressure every time they try to pretend that they have scientific justification for their dogma, and we will be watching out to see that they do not try to

continue to infiltrate our education systems, but now they will have to fight their corner against people far more skilled in theology.

But our trials are far from over, as the insidious infection of irrationality continue to make inroads into our society. Not the least of these concerns the increasing public acceptance of untested health practices. It has been said that, creation 'science' can make you dumb, but quack medicine can make you dead.

In many ways, this one will be a far more difficult battle for us, as the "something for nothing" promises of the "alternative" health industry is a far more seductive message than the "hellfire and brimstone" fulminations of the fundamentalists. We should not be too discouraged that some of our hospitals are incorporating alternative modalities in their treatment programmes, but we should always be alert to keep them to their stated aims of testing these for efficacy.

Even the calendar may be working against us as we are receiving an increasing number of calls from otherwise sane sounding people who are worried about what "the new millennium" will bring. It doesn't seem to help to say that there is no reason to suppose that 2000 is any more fraught as a date than, say, 1987.

There is plenty for us to do and we need the support of all our readers to keep up the good work.

On a personal note, I have thoroughly enjoyed my first year as a full-time Skeptic, and your many supportive and friendly messages have helped me to maintain my enthusiasm and sense of humour. Please accept my thanks and my best wishes for the coming year.

**BW**

# Around the traps

## Bunyip

Is there some conspiracy afoot to misidentify well-known Skeptics? Hot on the heels of our editor's image being splashed across the tabloids as an "Ark discoverer" (17/2), we find the NSW president, Richard Gordon, being quoted in a lifestyle piece in the *SMH* that gave otherwise uncritical approval to various "alternative" therapies.

The piece was accompanied with a large colour photograph labelled Richard Gordon. As a patient of the good Dr Gordon, our editor can attest that the photo was a very poor likeness indeed, resembling him only in having a similar number of facial features.

The following week the *SMH* published a very small correction, noting the the "photograph labelled Richard Gordon in last week's edition was actually Richard Green". There was no indication of what Mr Green may have done to deserve a picture in the *Herald's* archives, but the background to the photo showed many more books on art than would be normal in a general practitioner's surgery.

\* \* \*

Confirmation (if such be needed) that the world is going mad, comes from the latest fad among the UFOnuts in the USA and concerns large corporations making profits out of technology removed from crashed alien vessels.

Seems that the transistor is one such device that homo sapiens is just too damned stupid to have invented, and companies such as Intel and Texas Instruments have achieved their success only after being handed Pleiadean electronic components by the US Government. A computer company in

New Jersey has petitioned the Congress to release all information on this nefarious breach of intragalactic trade agreements.

\* \* \*

The editorial staff was delighted and surprised recently to receive a post card from the Republic of Ireland. It was from a certain **Professor Plimer** and contained the intelligence that the Peripatetic Prof was about to give a series of lectures at Trinity College, Dublin. The irony, which was lost on neither the Ed nor the Prof, was that the venue for the lectures was the James Ussher Theatre.

For those on whom the irony *might* be lost, James Ussher was the 17th century Archbishop of Armagh, whose biblical calculations led to the creation date of 4004BCE, so beloved of modern creationists. Ussher, of course, cannot be faulted for this; he was using the best evidence available at the time. Modern creationists have no such excuse.

\* \* \*

Speaking of **Ian Plimer**, we have heard that the result of his appeal against the verdict in his court case may not be handed down until March/April 1998.

\* \* \*

Thanks to **David Roche**, from the Photovoltaics Lab at UNSW for sending us this story from the net, which we rather hope isn't an Urban Legend:

A student at Eagle Rock Junior High won first prize at the Greater Idaho Falls Science Fair, April 26. He was attempting to show how conditioned we have become to alarmists practicing junk science and spreading fear of everything in our environment. In his project

he urged people to sign a petition demanding strict control or total elimination of the chemical "dihydrogen monoxide." And for plenty of good reasons, since:

1. it can cause excessive sweating and vomiting;
2. it is a major component in acid rain;
3. it can cause severe burns in its gaseous state;
4. accidental inhalation can kill you;
5. it contributes to erosion;
6. it decreases effectiveness of automobile brakes;
7. it has been found in tumors of terminal cancer patients.

He asked 50 people if they supported a ban of the chemical. Forty-three said yes, six were undecided, and only one knew that the chemical was water.

The title of his prize winning project was, "How Gullible Are We?" He feels the conclusion is obvious.

\* \* \*

Thanks also to **Michael Vnuk**, of Annerley, Qld, who reminded us (as though we wanted to know) that next year (1998) is 3 x 666, so watch out!

\* \* \*

The Editor had the pleasure recently of addressing the annual dinner of the Aust & NZ Forensic Science Society.

After a pleasant buffet meal, things were going well, until a thought occurred to him that he just had to share with the audience.

"Supposing one of you had an enemy" he asked, "who decided to murder you by poisoning the dinner. How would anyone ever find out?"



# Eureka winners announced

Barry Williams

On Wednesday, November 26, Skeptics from around Australia were among the audience at the Australian Museum for the presentation of the Eureka Prizes for 1997. The Eureka (with the addition this year of four Michael Daley Eureka Prizes) now total ten separate prizes, and are Australia's preeminent science and science communication awards. The ceremony was opened by Senator Robert Hill, federal Minister for the Environment, and hosted by actor, writer and impersonator, Max Gillies.

Among the prizes awarded was the Australian Skeptics Eureka Prize for Critical Thinking, designed to encourage young scientists to investigate the acceptance of popular beliefs that owe little or nothing to the rigours of scientific method. It is awarded to postgraduate students or post-doctoral researchers under 35 years of age in the physical or life sciences, and related humanities areas, for a completed or planned body of work in these topics. Our aim is to encourage an interest in critically examining the claims involved in the issues with which we, as Skeptics, are concerned and to provide support for younger researchers in doing this work.

This year's awards were not without some dramatic moments. When nominations for the Skeptics prize closed on July 15, there were no nominations. Not surprisingly, this caused consternation among those involved and many ideas were canvassed as to how to rectify what could have proven to be an embarrassing problem. One solution considered was to distribute press releases, suggesting that young researchers in Australia were so well rewarded for their work that a \$10,000 prize was not worth the trouble of nominating. Ultimately, it was decided that this measure might be a trifle extreme, so the closing date was extended to August 15.

The Museum carried out one more mass mailing to relevant organisations, which finally saw the nominations swell to 18, much to the relief of all concerned, although there was some consideration given to renaming the prize the Australian Skeptics Prize for Procrastination.

The judges, despite the shortened time available in which to adjudicate, reduced the number to five finalists, any one of whom would have been a worthy recipient. On the night, the winner was announced, and the trophy and cheque for \$10,000 was presented by Skeptics patron, Phillip Adams.

The winner is Dr Amanda Barnier, from the School of Psychology, University of NSW, for research involving a systematic and critical analysis of posthyp-

notic suggestion. Her research examines the empirical foundation for the popular belief that posthypnotic suggestion can be used to control behaviour, or that individuals cannot resist a posthypnotic suggestion. It was described by one of the assessors as "the single most extensive and most important study of posthypnotic suggestion in the 100 year history of modern hypnosis research."

We are delighted that our winner is working in a field about which there are many myths, and one which is often misused by proponents of paranormal claims to give verisimilitude to otherwise implausible claims. Dr Barnier will shortly be going to the USA to continue her research, in Knoxville, Tennessee, which state is also the home of 1997 Australian Skeptic of the Year, Prof Peter Doherty. No doubt they will both advise us of any Elvis sightings they make there.

Dr Barnier describes the nature of her research in more detail in the following story.

Other Eureka prize winners were:

**The Allen Strom Eureka Prize for Environmental Education;** Assoc Prof Noel Gough, Deakin University.

**The Australian Museum Prize for Industry;** Sustainable Technologies Australia Ltd.

**The Environment Australia Peter Hunt prize for Environmental Journalism;** Liz Jackson and Mark Maley, *Four Corners*, ABC TV.

**The Michael Daley Prizes**

**Promotion of Science:** Assoc Prof Michael Tyler, Adelaide University.

**Science Technology and Engineering, Print Journalism:** James Woodford, *Sydney Morning Herald*


**Science Technology and Engineering, Radio Journalism:** Tom Morton ABC RN.

**Science Technology and Engineering, Television Journalism:** Justin Murphy, *7.30 Report*, ABCTV.

**The New Scientist/Reed Books Science Book Prize:** Penny van Oosterzee for *When Worlds Collide: the Wallace Line*.

**The Pol Prize for Environmental Research:** Prof Jamie Kirkpatrick, University of Tasmania.

We would like to congratulate all the winners and thank the judges for their contributions to the success of the largest ever Eureka Prize.

We would like to pay a particular tribute to Roger Muller and his colleagues in the Deputy Director's Office at the Australian Museum whose often unnoticed, but greatly appreciated, efforts made this year's Eureka Prize awards an outstanding success. 

# Hypnosis and posthypnotic suggestion: exploding myths and maximising effects

Amanda J. Barnier

For the past eight years I have been involved in research investigating the nature of hypnosis. Hypnosis is a procedure during which one person ("the hypnotist") suggests that another ("the subject") experience changes in sensations, perceptions, thoughts, or behaviour. People respond to hypnosis in different ways and some people are more responsive than others. For those who can respond, they typically report compelling and subjectively genuine hypnotic experiences, which are often bizarre, highly personal, and inconsistent with objective reality. Despite the somewhat unusual nature of these experiences, researchers in the field generally agree that hypnosis can be explained in terms of relatively well-understood cognitive and social psychological processes.

Although most people have been exposed to a great deal of 'popular' information about hypnosis from television shows, movies, books, and stage performances, they are rarely exposed to the large body of experimental research on the nature and parameters of hypnotic suggestion and experience. It is not surprising then that most peoples' ideas about hypnosis are based on popular myths and misconceptions. For instance, many people believe that hypnosis can be used to control their behaviour, that hypnotic experiences are mysterious and bizarre, and that the ability to experience hypnosis depends on the expertise of the hypnotist rather than their own ability.

Together with colleagues in the School of Psychology at the University of New South Wales, my research aims to examine the empirical foundation for some of these beliefs and to generate data that allows conclusions to be drawn about the mechanisms underlying hypnotic behaviour and experience. That research has focused on a range of issues, including, for instance, the impact of hypnosis on memory and the construction of false memories, the hypnotised individual's experience of hypnotic phenomena, and the use of hypnosis to understand clinical phenomena such as delusions. However, the area in which I have been most interested in recent years is posthypnotic suggestion.

A posthypnotic suggestion is a suggestion given during hypnosis that asks the hypnotised person to have a particular experience or show a particular behaviour after hypnosis, and usually in response to a specific cue. For example, the hypnotist might suggest to the hypnotised subject that they will rub their right ear lobe when the hypnotist says "Well, what did you think of that?" after hypnosis. Typically, if the person is highly hypnotisable they will rub their ear lobe when they hear those words. Although this is a somewhat trivial example, posthypnotic suggestions can range from the very sim-

ple to the very complex. For instance, in 1889, Liégeois reported a successful posthypnotic suggestion that involved a visual hallucination of a dog with a monkey on its back coming into the room, followed by a gypsy and a large, tame, dancing, American bear.

Posthypnotic suggestion was first identified by Mouilleseaux in 1787 as one of the essential "magnetic" phenomena (ie, in the context of animal magnetism and Mesmerism). It has continued to be a source of fascination across the history of investigation into hypnosis, because of both its theoretical importance and its utility in the clinical setting. Posthypnotic suggestion has been used very successfully to treat a range of psychological and medical problems, including insomnia, hypertension, anxiety, phobias, chronic pain, and obesity. In fact, a recent metaanalysis indicated that the addition of hypnotic or posthypnotic techniques to cognitive-behavioural therapy substantially enhances treatment outcomes; in particular, the average client receiving hypnotic treatment showed greater improvement than at least 70% of clients receiving nonhypnotic treatment.

Posthypnotic suggestion contains the two elements central to traditional notions of the impact of a hypnotic suggestion: first, the individual appears to experience an overwhelming compulsion to perform the behaviour; and second, they show a relative lack of awareness of the source of motivation for their behaviour. Based on these characteristics, posthypnotic responding has generally been explained in both the professional and popular literature in terms of an unconscious, irresistible urge or impulse to carry out the suggested response. In particular, it has been assumed that posthypnotic suggestions can be used to control behaviour, that individuals cannot resist responding to them, and that their effects will last indefinitely unless the hypnotist cancels them. Despite the widespread acceptance of these views, surprisingly little empirical research has focused on posthypnotic suggestion in recent years and the last major theoretical review of posthypnotic suggestion was published in the late 1960s.

Accordingly, for my doctoral research I conducted a series of nine experiments that investigated the nature of posthypnotic suggestion and responding. The aims of my research were:

- (1) to develop a model of posthypnotic suggestion and responding that would integrate the findings of present and past research;
- (2) to provide a framework for future research and clinical applications of posthypnotic suggestion; and
- (3) to provide empirical evidence relevant to popular beliefs about posthypnotic suggestion.

The first five experiments in my research programme

explored the factors that influence posthypnotic suggestion and responding, including the focus of the suggestion, the way in which the response is tested, the role of amnesia in responding, and the cancellation of the suggestion. For instance, in one experiment, participants were given a posthypnotic suggestion that either did or did not specify how long responding should continue, and their response was tested four times. Those who were given a suggestion that included information about how long they should respond were more likely to continue responding across the tests than those who were given a suggestion that did not include this information. In other words, when people perceived that they were not expected to continue responding, they stopped, whereas when they perceived that they were meant to continue responding, they did so. This finding contradicts the popular myth that if a posthypnotic suggestion is not cancelled by the hypnotist, then it will endure beyond the time and setting in which it was administered. Rather, hypnotised people only respond for as long as they think is required or is appropriate.


Experiments 6 and 7 investigated the individual's experience of posthypnotic responding. For instance, in one experiment, people were told prior to hypnosis that posthypnotic suggestions are always carried out with their dominant hand, but then during hypnosis they were given a posthypnotic suggestion to carry out a particular behaviour with their nondominant hand; in other words, the posthypnotic suggestion conflicted with the information given prior to hypnosis. Despite reporting the need to decide which response was appropriate, all of the participants responded on the basis of the second, hypnotic message and used their nondominant hand. This indicated that they held particular expectations about the conduct of an hypnosis session and the way in which they should respond, and that they worked actively to interpret the conflicting messages given by the hypnotist. This finding contradicts the popular myth that individuals cannot resist a posthypnotic suggestion and will respond automatically and without awareness to whatever the hypnotist says. Rather, my work shows clearly that hypnotised individuals engage in active decision-making in order to interpret the messages they receive during hypnosis and then respond in an appropriate way.

The final two experiments investigated posthypnotic responding away from the experimental setting. For instance, in one experiment, high and low hypnotisable people (note that the lows were asked to fake hypnosis) were given a posthypnotic suggestion to send one postcard every day to the hypnotist until she contacted them again. In addition, a group of nonhypnotic, 'control' participants were given a simple request to carry out the same task. The hypnotist contacted participants approximately eight weeks later. Some people continued to respond, away from the influence of the laboratory and the hypnotist for up to eight weeks. Also, whereas low hypnotisable, faking, people sent far fewer postcards than high hypnotisable people, the control participants who were simply asked to carry out the task sent as many postcards as high hypnotisable participants. This finding contradicts popular myth that posthypnotic suggestion is a particularly effective means of control-

ling an individual's behaviour. Rather, a posthypnotic suggestion is no more effective in eliciting a behaviour than a simple, nonhypnotic request to carry out the task.

The findings from my research indicate that hypnotised individuals place meaning on the communications of the hypnotist, and look to the specific features of the posthypnotic suggestion and test to guide their responding. Contrary to popular belief, they do not respond to a posthypnotic suggestion automatically or in a 'robotic' fashion, nor are they totally unaware of the reasons for their behaviour. Rather, high hypnotisable individuals put considerable thought and effort into interpreting the 'meaning' of a posthypnotic suggestion, and attempt to respond in a way that is appropriate to the situation in which they find themselves. The fact that they are able to do this, while maintaining a compelling and compulsive personal experience highlights their special individual abilities, rather than the power of the suggestion or the hypnotist.

Although my research, in some sense, 'exploded' myths about hypnosis and posthypnotic suggestion, it also offered ways for maximising the effectiveness of these techniques when used by health care professionals to treat psychological or medical problems. In particular, my research suggests ways to make a posthypnotic suggestion more powerful and last longer. For instance, in a number of experiments both inside and outside the laboratory, I found that people who were given a suggestion that included information about how long they should respond were more likely to continue responding over time than those who were given a suggestion that did not include this information. One possibility is that clients who are given, in the context of a clinical treatment program, a posthypnotic suggestion that includes very specific information about how long it will last, may continue to experience positive effects far longer than clients who are given a suggestion that does not include such information. In my research, I also found that individuals who were most successful in responding to the posthypnotic suggestion to send postcards were more likely to have integrated the task into their daily lives; in particular, they described receiving a great deal of support and encouragement from their families. Those who were less successful in this task were more likely to have kept the task secret from their friends and families or to have experienced negative responses to their participation. One implication of this finding is that clinical posthypnotic suggestions (eg, to stop smoking or to control poor dietary habits) may be more successful if the client is encouraged to integrate the suggested behaviour into their daily lives and if family and friends encourage and reinforce the desired response. These are issues for future research.

I am continuing to investigate aspects of hypnosis. Currently, I am in the initial stages of a project focusing on autobiographical memory and amnesia as it relates to recovered/repressed memory, and I am using hypnosis to assist me in that investigation. Like posthypnotic suggestion, this topic is both conceptually and empirically difficult to investigate and is widely misunderstood and misrepresented. However, I am confident that a scientific and critical approach to such phenomena can generate novel and important findings. 

# Skeptics on the box

Barry Williams

Skeptics have featured prominently recently in various TV programmes, some of which have been shown and some of which are still in production. Although the old PR maxim states that "there is no such thing as bad publicity, so long as they spell your name right", some of us may be questioning whether the time involved in some of them was well spent.

In mid-September, this writer spent three pleasant Sunday afternoon hours, on camera, at Sydney's Gazebo Hotel, answering questions from an independent TV producer about prophecies and predictions. These fascinating topics, especially as they apply to the approaching new millennium, are the subject of a programme, due to air on Ch 9 in 1998.

All the usual suspects were trotted out; the Book of Revelations, Nostradamus, the Mayan calendar, Edgar Cayce, the Great Pyramid *et* (interminably) *al*. All crank theories were given equal prominence, as though they were not mutually incompatible, and despite the fact that most of them have been shown (frequently) to be inconsistent with well established facts of nature and history.

During a break, a comment from the camera operator put the project into some sort of perspective. "Gee, mate", he said "I'm glad to meet you. We've been all around the world interviewing people for this show, and you are the first one to make any sense". So don't expect this to be a balanced and dispassionate iteration of facts; it is likely that his will be the only Skeptical voice heard. It did, however, confirm an observation we have made in many TV interviews. All TV cameramen (and they have all been men to date) are very, very sceptical.

The following Wednesday evening several NSW committee members contributed to the taping of a programme about "celebrities and their psychic experiences", which was later shown on the Foxtel cable network.

The show was hosted by Jeannie Little (who is famous, though for what is not entirely clear) and commercial radio presenter Ian Parry-Oakden, whose weekend programme features wall-to-wall psychics. It left no stone unturned in showing how mundane events could be converted to mysteries, by the application of organ music and a smoke machine.

Harry Edwards opened the bating for the Skeptics team with a statement of our purpose in questioning paranormal claims, but he was outnumbered by believers in every crank hypothesis ever conceived.

We would not like to embarrass the "celebrities" who participated by naming them here (added to the fact that the majority of them must be celebrated in fields that have completely escaped the notice of this writer), but we cannot allow two to pass unremarked. Barry Humphries, interviewed before the event from his dressing room in London, and who appeared courtesy the miracles of video tape, told an interesting and fairly irrelevant story, before stating his belief in "powers none of us understand". It seemed to have entirely escaped the notice of the producers of the programme that Mr Humphries makes a very comfortable living out of satirising the pretensions of modern life, and the twinkle in his eye as he spoke, betrayed an internal battle royal between his personae Dame Edna and Sir Les as he solemnly made his contribution.

The other celebrity who made a valuable contribution was author Colleen McCulloch, who laughingly denied ever having had any psychic experiences and who seemed to regard the whole enterprise as a huge joke.

"Psychics" of various shades strove to outdo each other in their references to the late Princess of Wales, though none could point to any premonition of her demise. Indeed, some of them, especially her "personal numerologist" didn't even seem to acknowledge that she was dead. An astrologer claimed a hit because, in a broadcast on the night before her death, he had predicted a difficult year ahead for her son, Prince William.

Ghosts, premonitions, dreams, numbers, stars, NDEs, etc were all trotted out, to be greeted by high-pitched shrieks of surprise from Ms Little (who, no doubt, would greet a statement that a guest had had cornflakes for breakfast with "Isn't that amaaaaazing?") and portentous pronouncements about "not everything is explainable by science", from Mr Parry-Oakden. With the latter comment we could not disagree. No scientist, not even an expert in abnormal psychology, could satisfactorily explain to this writer why anyone would want to watch drivel like this.

In an amusing item, one "psychic" thought she was doing well as she advised a "young boy" in the audience about his domestic circumstances, and warning him against "closed-minded Skeptics" (like the venerable editor of this publication, who had had a few harsh words to say to a number of the guests) until he disabused her at the end by telling her that her "wisdom" was nothing but vague generalisa-



tions. Her psychic antenna must have been suffering from a short circuit at the time, and UNSW philosopher, and NSW committee member, Scott Campbell (who is not as young as he looks), will forevermore be known in Sceptical circles by the sobriquet "Young Boy".

The media onslaught continued as Barry Williams flew to Melbourne in early October (at the expense of British taxpayers) to participate in the taping of a segment for BBCTV programme, *Mysteries*, on the topic of the Frederick Valentich disappearance. Valentich, a young and inexperienced pilot, disappeared without trace while flying, at dusk, over Bass Strait in 1978. Because of conversations he had had with ATC, in which he mentioned strange lights, this case has become a staple of the UFO abduction industry. (See James Gerrand's report in *In the Beginning: the first five years of the Skeptic*.)

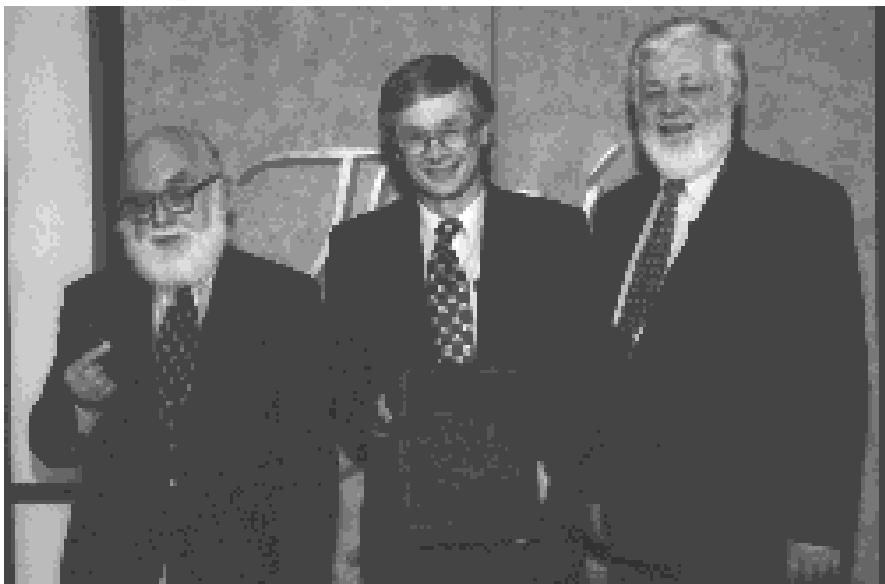
This media event was not without its interesting features, as the (always fashion conscious) Ed wore a blue denim shirt, which would have interfered with the background used in the taping and which would have left him appearing on screen as a disembodied head. A frantic

search among the BBC crew found a green shirt that would allow the taping to proceed, but as this crew member was not quite the man our Ed is (in fact she wasn't any sort of a man at all), the shirt was somewhat smaller than was comfortable. However, fate (as fate tends to) stepped in to prevent Barry appearing on British television resembling a man undergoing slow strangulation. A week after the taping, he received a frantic call from London, with the intelligence that, while the pictures were fine, the sound was not of broadcast quality, and would he mind if a local crew called to Skeptics Central for a re-shoot. This was agreed to and the Ed sat in his lounge room answering questions from a BBC producer over a very long telephone connection.

Another facet of this programme that tickled the fancy, occurred while Barry was sitting in the foyer of a Melbourne hotel, waiting to be interviewed. One of the BBC people approached and asked if he was a certain prominent UFO believer. Naturally, he replied that he wasn't, and that he was Barry Williams from Australian Skeptics. Her relief was palpable, as it seems they were interviewing two prominent UFO

believers that day and they had to separate them, as neither would appear if they knew that the other was. Steve Roberts' thesis that Ufology is a religious belief gained a great deal of credit in Barry's mind after that. This programme aired in the UK in mid-November and reports from British friends indicate that our Ed's comments went to air without the need for subtitles.

Barely had Barry's nerves recovered from that adventure, than he was called by Channel 9's *This is Your Life* programme. Would he agree to participate in an episode which celebrated the achievements of Skeptics' patron, Dick Smith? Barry, who by this time had started wearing sun glasses at all hours and referring to his friends as "darling" and "my public", agreed with alacrity. He was even more delighted when he learned that the "surprise" guest, one who



Dick Smith, with J Randi and B Williams, proving that not all Skeptics have beards.

Dick would not be expecting to see, was none other than the amazing James Randi, who had been flown in from his home in Florida.

After rehearsal and a very pleasant dinner in the Channel 9 board room (thanks Mr Packer) the assembled guests associated with all of Dick's family, adventuring, business, philanthropic, aviation and Skeptics inter-

ests took turns in surprising him. Randi bent spoons, to the amazement of everyone, and the Skeptic's connection was probably the most featured of all Dick's activities. This programme aired on October 31.

As Randi was contracted to Channel 9 during his stay in Australia, and as the programme was not to be shown until the following week, we could not take advantage of his presence to hold a public meeting. However a number of committee members had the pleasure of James' company at dinner in a restaurant, where James and local magicians, Peter Rodgers and Kent Blackmore, entertained diners with feats of prestidigitation. They were not billed for the distorted cutlery.

Shortly afterwards, Harry Edwards was approached by a TV production company to take part in a programme about psychics, in which he was to give readings and then explain how he did them by mundane means. (See following story.)

Finally, we would like to scotch the rumour that Harry and Barry will soon be appearing in a punk musical version of *Waiting for Godot* on a small screen near you.



# James - gifted clairvoyant

Harry Edwards

At the beginning of October, I was contacted by a freelance producer about to film a television special *Secrets Revealed*. One of the segments was to be on an ex-psychic who, after doing a clairvoyant reading, would then reveal the professional secrets behind such a reading. Did I know of any ex-psychics who would be interested in cooperating? I didn't, but as I believed that I couldn't do any worse than most clairvoyants, offered to act the part myself. This was agreed upon, and a brilliant career as a fake psychic (is there any other kind?) opened up before me.

Three readings were decided on, to take place on October 20. My lounge-room was set up as a consulting room and studio. Subsequently, I was to view the video tape of the three readings, and draw attention to the methods used to create the impression that, although the clients were unknown to me, I knew all about them.

The next step was to find the clients. This was achieved by running an advertisement in the *Psychic Notices* column of the local newspaper.

The ad read:

JAMES,  
the gifted clairvoyant,  
will give YOU  
an insight to your true self.  
Call 9437 2103  
to book your  
FREE  
introductory psychic reading.

Enquirers were informed that the psychic consultation would be taped for inclusion in a TV special.

Pondering on who the likely respondents would be, I decided that they would probably fall into one of the following categories.

1. Those seeking advice on a genuine problem;
2. Those curious about what goes on at a psychic consultation;
3. Troublemakers, sceptics and smart alics;
4. Other clairvoyants checking out the opposition;
5. Those who would do just about anything to see their face on the idiot box.

I decided on a strategy which, I hoped, would help me sort the wheat from the chaff.

First I would ascertain from the client whether or not they had had a previous reading, and whether the reader used any adjuncts such as tarot cards,

astrology charts, numerology, palmistry, crystal ball, or other 'magic' accoutrements. This ploy was to find out whether the client knew anything about these methods, whether they had any faith in them, and, more importantly, whether they knew more about the subject than me.

Depending on the answer, I would then decide which of them it would be prudent to use. In addition, I would make use of the client's 'aura and vibrations'. With such a variety of aids at my disposal, the client should be impressed and I hope, perceive me as a 'superior' clairvoyant. If, on the other hand, the answer was "no", then no matter what I said or did, as long as it was convincing, the client would have had no previous experience with which to make a comparison. The object of this exercise would be to build up the client's confidence in my ability.

The next step would be to determine to which category the client belonged. This could be achieved by suggesting that time was of the essence, and that we should focus on a particular area of concern. Reading the client's palm to ascertain this would be as good as any other method.

Those in the first category would probably respond with a query about a relationship, finance or health, the subjects about which most people seek 'psychic' advice. From then on, the client would be doing most of the talking, and the clairvoyant providing an attentive and sympathetic ear. If no particular area of concern was indicated, then the client was probably in the second, third and fourth categories. In that case, the best course would be to utilise the stock cold reading spiel.

Troublemakers and smart alics would probably respond with smug grins when the clairvoyant didn't hit the mark, or show a reticence to open up or initiate conversation. The same cold reading would be employed in these cases.

Other clairvoyants would probably give themselves away by trying to air their own knowledge during the reading, and the star struck would be more interested in striking the right pose for the cameras than to heed what was being said anyway.

Well, that's the theory, so how did it work out in practise?

It seems that high-priced nonsense is more likely to attract interest than something for free. In ten days, the advertisement enticed only three callers interested in a free psychic consultation, of whom only two turned up for their reading. I also put it to the producer that there was a risk involved advertising

in the local paper, as my face and name were too well known. Also mentioned was the fact that my surname is engraved on the front door knocker of my unit, and the door bell was labelled Australian Skeptics Inc! I suggested therefore, that I vet the names and phone numbers of prospective clients and that any from other districts be given priority. A new name tag advertising "James, psychic consultant" solved the door bell problem.

The film producer wanted to reveal the "secrets" behind psychic readings. He proposed to film three, one hour consultations, then interview the clients and the psychic - a total of at least four hours filming. Apart from the time involved in the readings, I would also be expected to view and analyse the tapes, and select snippets of conversation to illustrate the point being made. The finished product was to be condensed into six minutes.

As the major part of any psychic consultation consists of idle chitchat, I decided it would be better to shorten the readings to about twenty minutes, and concentrate on highlighting a few major points. As it happened, only two clients turned up, and the whole episode took about half the original estimated time. Even then, it still had to be condensed into six minutes. This way I felt that the film producer would get exactly what he wanted and Australian Skeptics would get the credit for exposing psychic consultations for what they really are.

Both readings commenced as planned, by me asking whether the clients had had a previous psychic reading. This was followed by giving them a brief overview of clairvoyance. In this explanation, I made the point that clairvoyant visions came in flashes, and that it was up to the client to try and make them fit. I then went on to 'read' their auras. In both cases I drew attention to a slight 'defect or blemish' that may have indicated an illness, accident or a scar. The first client opened up with a list of illnesses she had suffered from childhood and told me how it had affected the use of one hand. This information was fed back later in the reading, along with a few flattering remarks on how she had overcome any adversity caused by those illnesses.

In response to my question about her occupation and ambitions, again there was a flood of information. She was undertaking a course in counselling, and this enabled me to correctly assess that she was interested in people, and liked to travel and communicate. When asked if there was something in particular on which she would like me to focus, she indicated there was. She had sent a questionnaire to an actor in America, and wanted to know whether there would be any communication. A perusal of my tarot cards informed me that the person to whom she had written was a male under 40 years of age, who lived in New York. Furthermore, communication would be established, and that she would eventually go to the US, possibly in the winter season, to meet this person. I don't know who was the more astounded when she confirmed as correct everything

I had said. Perhaps I should take up tarot reading as a profession.

In the interview after the reading, the client was effusive about my accuracy and particularly happy about all the good news I had given her.


The second client was a veritable Christmas tree of clues. She wore a Capricorn pendant around her neck, and a diver's wristwatch on her right arm. When I "read" her aura, she recalled a scar over her left eye, the result of an accident during a Judo grading. This and the previous hit, were simply the result of using the laws of probability. It would be a rare person indeed who, during their lifetime, did not suffer an accident or an illness. In the second instance, the client also revealed how the scar was obtained which provided me with a clue to the client's state of health and other possible activities - she was active and sports minded. I suggested that she was interested in another sport, possibly connected with water. Bang on; she was a diver! "How on earth did he know that?" she asked the producer in a later interview.

During the palm reading I drew attention to the client's long line of life. This elicited some useful information. Her grandmother had just died aged 92. I assumed from this that the grandchildren may have been remembered in her will. Later in the tarot reading I mentioned an inheritance for the children. Spot on again.

Being new to the psychic business I was bound to slip up somewhere along the line. The client wanted me to focus on her children. She had already told me that there were two boys and one girl, but I got them around the wrong way-two boys and one girl. When corrected, I looked hard at the tarot cards and taking a long shot, observed that one of the boys had curly hair and looked a bit like a girl! Heavens-to-Betsy - I was dead right! The client was amazed, and drew attention to this remarkable observation in the post reading interview with the producer.

By now I was already contemplating resigning from Australian Skeptics and hanging up my clairvoyant's shingle. I concluded the readings with some good news and both clients were happy with their future outlook.

In the interview that followed (from which I was excluded), both clients were singularly impressed with the readings they had received. Both said that I had told them things that they wouldn't have expected a stranger to know about them. And praise indeed from the first client who had had previous readings from three other clairvoyants and who rated me on a par with the best of the three.

The producer was delighted with the results, and the special is expected to go to air as *Secrets Revealed* on Channel 7 some time in February. 

# Dropping the pretence: the Creation Science Foundation changes its name

Alex Ritchie

I recently had a friendly, very enjoyable, discussion with a member of the Creation Science Foundation (it can happen) during which he asked me if there was anything they could do which would lessen my public opposition to their organisation. "Simple," I said, "drop 'Science' from the title of the Creation Science Foundation."

In my view, and that of most scientists, the CSF neither respects nor obeys the methods and principles of science. In its publications, both popular and pseudo-technical, the CSF consistently misrepresents science and scientific discoveries in a futile attempt to prop-up a young-earth Noah's Flood version of Earth history, a world-picture which was outmoded by the 1830's.

I suggested that, if CSF were renamed the 'Creation Foundation', that would not only be more accurate but also more honest. His answer took me by surprise. He informed me that CSF had already decided to change its name and would shortly announce this publicly. The latest issue of CSF's *Prayer Newsl* (Nov 1997) confirms this.

Under a banner headline "We're changing our Name!", CSF announced that "As from Monday, November 10, the official name under which Creation Science Foundation will operate will be *Answers in Genesis*." In this they are apparently following a lead given by their US offshoot in Kentucky, headed by Ken Ham (a co-founder of CSF), which recently changed its name from Creation Science Ministries to Answers in Genesis.

CSF claims that its own name change to Answers in Genesis "will more clearly reflect the strong biblical foundation to our thrust in an open, up-front manner". They noted that, as Answers in Genesis, they will remain "a conservative, evangelical, Christian ministry, dedicated to defending the Bible from the very first verse". They also commented that "the new name will be less easily confused, even unconsciously, with cultic groups like 'Christian Science' and 'Scientology'."

Strangely, I've never experienced any such confusion, consciously or unconsciously.

However, while welcoming this name change as long overdue, one needn't be a Skeptic (although it undoubtedly helps) to wonder what other factors may have been influential in taking the 'Science' out of 'Creation Science'. It is about as major an image change as taking the 'Mickey' out of 'Mickey Mouse'.

One thought comes to mind, and it relates to the recent Plimer/Roberts court case.

In delivering his judgement on the case (which is currently under appeal) Judge Sackville may well have created a legal precedent for tackling the educational threat to the education system in Australia, posed by other young-earth, Noah's Flood creationists. His Honour found that, had the Fair Trading Act applied to this case, Allen Roberts' behaviour "would have constituted misleading and deceptive conduct on his part". Despite this Judge Sackville found in Roberts' favour because, in his opinion, technically, he was not 'in trade and commerce'.

Judge Sackville took into account that Roberts did not receive a salary from his Noah's Ark lecture tour, that his organisation was not incorporated at the time of the public lectures, and was supported by unpaid volunteers, not by paid staff. Roberts' lecture tour was a one-off event and was not "a business carried on for profit". Roberts also operated from his own home, not from special premises.

It should be noted, however, that the main drive to infiltrate creationism into science classes in Australian schools is spearheaded, not by Allen Roberts, but by the organisation formerly known as Creation Science Foundation

CSF has established headquarters in Brisbane and Sydney, and its mobile arm, the Creation Bus, regularly tours throughout Australia. It is an incorporated organisation and much of its income comes from the sale of its own long-established publications (magazines, journals, books), audio and video tapes and those of related overseas creationist organisations etc. Although CSF uses volunteers for many of its activities it also employs many permanent staff on salary. I suggest that, in every respect, it is legally 'in trade and commerce' and is 'a business carried on for profit'.

It occurred to me, as it probably did also to the CSF, that Judge Sackville's decision provides legal grounds for a class action on behalf of the scientific and educational communities in Australia against any organisation falsely claiming to be doing science.

Using this precedent, the Creation Science Foundation could have been requested and required to remove the word 'Science' from the name of its organisation, on the grounds that such usage constitutes 'misleading and deceptive conduct'. This would

**continued p 15...**

# Gullible's travels

Sir Jim R Wallaby

The very issue of *Prayer News* which brought such joy to the heart of Dr Alex Ritchie (see preceding story) contained another story, one which told a tale of such heart-wrenching poignancy, that only the flintiest-hearted Skeptic could fail to be touched by it.

This yarn concerned a visit to Australia by one Bryce Gaudian, who revels in the title, "director of the Southern Minnesota Association for Creation". Lest the unwary reader imagine that this body represents some worthy group of inventors or manufacturers, I can only caution them to remember the source of the story. We're talking creationism here, and the only things that creationists invent or manufacture are "facts".

Now I fear I must digress here, if only to forestall the literate reader who will be saying to herself, "The silly old bugger has finally lost his remaining marble. You can discover facts, you can establish facts, you can even fly in the face of them, but you can't invent or manufacture them". But the literate reader will have misunderstood me. Facts are as she describes them, but "facts" are altogether a different cauldron of barramundi.

While facts may be seen as "events or things known to have happened or existed", or "a truth verifiable from experience or observation" (*Collins English Dictionary*), "facts" are things invented or manufactured by creationists to account for the things that God unaccountably left out (or didn't know) when he sat down at the keyboard of the celestial Olivetti portable to write *Genesis*. (Now I think of it, this may well be the real definition of the term "creationist"; one who creates "facts".) I hope this has clarified matters to the satisfaction of the literate reader.

Fascinating as these excursions into the byways of philology and lexicography may be, we must return to our theme. Mr Gaudian, whom we left dangling a few paragraphs back, was about to embark on a journey of discovery, to experience "first-hand the level of evolutionary indoctrination" that has infested our fair land. And what a tale of heroism above and beyond, what a narrative of incredible resolve in the face of unmentionable horror, what a load of old cobblers, this epic journey turned out to be.

He did not have to wait long before his worst fears were realised. Barely had the wheels of the Jumbo cleared the Los Angeles runway than he chanced upon the Qantas in-flight magazine, which, to his horror, contained an article on Charles Darwin. Not a critical article, mind you, but one that was full of

praise for that evil man, and which described him as "the most influential scientist of the 19th century". We can only imagine, gentle reader, what terrors must have clutched at the heart of our traveller as he realised that he had committed himself to a crossing of the most vast of the creator's watery bits, in the care of an organisation that can only fairly be seen as a tool of Satan.

However, he seems to have survived, and when next we meet him, he is plunging headlong into the depravity of that Babylon of the South Pacific, Sydney. There he is horrified to discover a sink of iniquity (the likes of which are never to be found in Southern Minnesota) going under the name of the Sydney Opera House. On a tour of this evil spot, his senses are assaulted by "references to evolution and the evolutionary timescale". (That must have been in an opera with which your correspondent, no slouch in the opera buff stakes, is unfamiliar.) But things go from bad to worse for our intrepid voyager, who finds that the Sydney Aquarium is "evolutionary in its displays on fish" and even a boat ride on the Harbour brings him no surcease, when a guide "brings up evolution" (which is probably far better than bringing up his lunch).

The final evidence that Sydney is a hotbed of Satanism comes when "Rock/fossil shops in Sydney talked about evolution"! (Talking shops! What is the next perversion the Prince of Darkness will foist upon the unhappy tourist?) Despondent, he heads for the hills, but even in the clean, cool, air of Katoomba there is no respite from Satanic assault. The Imax theatre there is showing *The Edge - the ultimate Blue Mountains wilderness experience*, "an unbelievable hour of evolutionary indoctrination".

Unable to face any more, he flees the evolutionary cess-pit of NSW and heads for the more congenial (or so he thinks) climate of Queensland. Alas, it is not to be. One detects a note of despair creeping into the narrative as he catalogues: a library in Brisbane that has "evolution signs outside the entrance next to dinosaurs"; a *Courier Mail* (a newspaper renowned for its raciness) story that "laid out evolutionary timescales for dinosaurs and even koalas"; a Cairns opal mine (opal mines in Cairns?) "had displays on evolution"; a book, *Australian Tropical Reef Life*, that claims "the Great Barrier Reef has taken literally millions of years to reach its present state"; another book, *Wildlife Australia*, that says "Today's crocodiles are very similar in appearance (and probably behaviour) to fossil crocodilians which existed millions of

years ago"; and not to overlook stories about youth suicide, drug abuse, crime, unemployment, etc that he attributes to the "fact" that "the pervasive teaching of evolution ... and the tragic ("fact") that less than 2% of the population of 17 million Australians attend church regularly (and many of those churches are liberal and embrace theistic evolution.)"

One can only feel sympathy for him that he could not steel even his heroic resolve to visit such unbelievably vile hotbeds of evolutionary vice as the Queensland or Australian Museums. There is just so much outrage that even the most doughty seeker after "Truth" can bear. (Note: "Truth" is to truth, what "facts" are to facts.)


But the final straw in this unhappy journey must surely have occurred while he was in Cairns, where "the TV aired an anti-creation program which blasted creation as 'bad science, bad religion, and bad business'". Did he but realise it, he was extremely fortunate to have survived that encounter with his faith intact, for the man who uttered *those* immortal words, on *that* TV programme, was none other than Beelzebub himself, the Evil One, Prince of Darkness and Satan Incarnate, the one and only Professor Ian Plimer!

One can but admire the pluck of someone who would so selflessly put himself in harm's way so he could report that "the promulgation of evolution in Australia, compared with the US, is incredible. I can say, without exaggeration that evolution was blatantly pushed everywhere we stopped".

And so, sadder, but unfortunately no wiser, our traveller wended his weary way back to the iron-clad, Bible-prescribed, certainties of Southern Minnesota.

However, we should not be harsh in our judgement of that delightful, and generally well-educated part of the United States, for blind ignorance can flourish in any climate. Read further in this issue ("The true history of 'Hell House'", p54) and you will find that not every citizen of Minnesota is prone to spouting such vacuous garbage.

But what can we, the benighted denizens of this evolutionarily indoctrinated, Southern Pacific, back-water learn from this epic journey?

We can be grateful that whatever the biological and cultural influences that caused it, we Australians still have the capacity to treat ratbagery with all the respect it deserves. We can thank whoever is responsible for our education systems that such anti-intellectual bilge is officially kept away from the minds of our young, impressionable, children. Most of all, as Skeptics, we can strengthen our resolve to keep it that way. 

### ... Dropping the pretense, from p 13


not be an infringement of their basic rights, especially since CSF's Statement of Faith already makes it abundantly clear that, in **all** matters, science is subordinate to religion.

Such a legal test case would inevitably have involved some of CSF's qualified scientists (and there are a few) appearing in court as witnesses to explain, under oath and under cross-examination, why CSF's activities should be classed as 'scientific' rather than 'religious'. This would not infringe CSF's right to free speech, or to publish or promote its creationist wares and views, but would only legally test its claims to be using scientific methods and scientific evidence to support such claims. Many scientists, myself included, well aware of the gross misrepresentation of science inherent in fundamentalist creationism, would welcome an opportunity to question, in open court, leading members of the CSF on the 'science' behind 'scientific creationism'.

For example, Dr Andrew Snelling BSc(Hons), PhD Geology, could be asked to explain how he justifies writing more than 50 articles in the CSF popular journal *Creation Ex Nihilo* on Australian geological features (none of which, according to him, are more than 10,000 years old), while at the same time contributing articles to mainstream refereed scientific publications in which he describes geological formations and events hundreds or thousands of millions of years old. (cf. "Will the Real Dr Snelling Please Stand Up?" *the Skeptic*, 11 (4) p.12, [and which also appears on our web site.])

If this thought occurred to me (as a non-lawyer) I suspect it may well also have crossed the minds of CSF members and their legal advisors. I suggest that the name change from Creation Science Foundation to Answers in Genesis is a shrewd and timely precaution to safeguard this religious organisation from the possibility of legal action, following the precedent created by the Plimer/Roberts case.

If I am correct (and only CSF/AIG can confirm this) then the obvious conclusion is that Professor Ian Plimer, at considerable personal cost, has scored a major victory in forcing the creationist movement in this country to admit that it has nothing to do with science and is, as it now admits, "a conservative, evangelical, Christian ministry, 'dedicated to defending the Bible from the first verse'."

However, on the principle that a leopard does not usually change its spots, we should not relax our guard too soon. We will be keeping an eye on the activities of Answers in Genesis, its publications and any attempts to infiltrate Australian schools. Certainly, with the removal of any pretence that they are doing 'science', there can be no longer be any justification for AIG missionaries having access to any science class in Australia. 

# Flood geology: a house built on sand

Alex Ritchie

A recent issue of *Creation Ex Nihilo* features an article entitled "Rock-solid for Creation - an interview with geologist Dr Andrew Snelling" (*CEN*, Jun-Aug 1996, 18-22). As might be expected by any reader familiar with *CEN*, the questions posed were classic Dorothy Dixers and less than intellectually taxing, for example: "What are some of the important contributions to geology that creationists are making?" and "Evolutionists and other 'long agers' generally regard the account of Noah's Flood as being true. What evidence are they ignoring?"

The article doesn't say who conducted the 'interview', leaving open the possibility that Andrew Snelling interviewed himself, posing the questions as well as providing the answers. The interview might have been more informative if another geologist had set the questions but, as we all know, Dr Snelling is extremely reluctant to expose himself to public questioning by his scientific peers.

Who is Dr Andrew Snelling BSc(Hons) (Geology), PhD and why should we concern ourselves about his beliefs and activities? For many years Snelling has been geological spokesman for an organisation formerly known as the Creation Science Foundation (CSF) in Queensland, which has recently (Nov. 1997) been renamed Answers in Genesis. Snelling is the most prominent young-earth creationist in Australia with genuine geological qualifications and a published research record in this field.

Snelling writes extensively on geological subjects in the creationist literature and travels widely in Australia and overseas lecturing on related topics. Although his geological qualifications are always emphasised in creationist publications, it would be more accurate to describe him as a fundamentalist Protestant missionary rather than a working geologist; in creationist literature Snelling is referred to openly as a 'missionary'. Since the 1980's he has been geological adviser on the editorial board of *Creation Ex Nihilo* and he is currently Editor of the CSF's *Technical Journal*, a glossy publication carefully tricked out to resemble a mainstream scientific journal.

Snelling's academic qualifications are not in question, only the uses to which he has applied them since he acquired them, as I explained and illustrated in my article "Will the Real Dr Snelling Please Stand Up?" (*the Skeptic*, 11 (4), pp 12-15). Strangely, Dr Snelling has never attempted to answer, or refute my allegations. Had I been the subject of such accusations, and if I believed the accusations to be untrue, I

would either have answered them publicly, or I would have taken legal action for defamation. The reasons why Dr Snelling chose to do neither I leave readers to judge for themselves.

Why is it important that individuals such as Dr Andrew Snelling, who publicly misrepresent science, be asked to account for their actions? Lay audiences and even many science teachers lack the geological expertise to analyse skilful and deliberate misrepresentations of earth history perpetrated by someone familiar with geological literature and technical terminology. To appreciate why Snelling's activities should concern both the geological community and educational authorities one needs to analyse his creationist writings. I suspect that most geologists never see or read these remarkable efforts and are thus unaware of the anti-scientific deception involved in them.

If we were both professional magicians it would be ethically wrong for me to reveal how such deception was perpetrated. However, because we both claim to be professional scientists, I have no hesitation in exposing Snelling's methods. Science depends on intellectual honesty, both in one's own research and in accurately reporting and using the findings of other scientists, living and dead. To be wrong in science is no dishonour; but to deliberately misrepresent one's own or other scientist's findings is the worst crime in the book!

If Snelling was a professional astronomer and used such dubious and unethical methods to 'prove' that Ptolemy's crystal spheres were still a valid explanation for the cosmos, does anyone seriously believe we would consider rewriting astronomy textbooks to accommodate his views? Or, if he was a medical practitioner and maintained that Harvey was wrong about the circulation of the blood, would our anatomy books have to be revised?

If these examples sound ludicrous they are no more ludicrous than a professional geologist, at the end of the 20th century, proposing that geologists world-wide have got it all wrong for the past 160 years and insisting that we must throw out our geological column and rewrite our geology textbooks to accommodate a 6 day creation 6000 years ago followed, 4300 years ago, by a one-off, year long Noah's Flood

Every field of scientific investigation has professional bodies which are supposed to maintain standards and ethical behaviour in their discipline. In geology there are strict rules governing the qualifica-

tions of consultant geologists. It is all the more remarkable therefore that, for at least 17 years, Dr Andrew Snelling Bsc, PhD (Geology) has been able to operate as a geological consultant while at the same time, in the creationist literature, deliberately white-anting the scientific discipline to which he belongs.

Most of Snelling's articles in *Creation Ex Nihilo* (CEN) refer to Australian geological features or formations, many of them internationally famous. I have chosen three examples from more than 50 articles by Dr Andrew Snelling in *Creation Ex Nihilo*, to illustrate how he skilfully selects, edits and doctors his source materials to deceive his creationist readers, most of whom probably have little or no geological knowledge.

The three examples are:

- a) Ayers Rock (aka Uluru), one of Australia's most important tourist attractions
- b) Mount Isa orebodies, one of Australia's richest mineral deposits
- c) Lake Acraman Crater, a huge impact structure in South Australia

### The origin of Ayers Rock

Ayers Rock is a major Australian geological feature and tourist attraction with a simple but fascinating history. Its origins are not difficult to understand nor to explain to a lay audience, unless, like Dr Snelling, you are constrained by a young-earth creationist mindset in which nothing can possibly be older than 10,000 years!

Snelling's article in CEN (1984 a), under a heading "Science for the Layman", describes Ayers Rock as:

a single bed or rock layer tilted so that it now stands almost up on its end. When measured, this single bed is at least two and a half kilometres (1.6 miles) thick...

but this is only the visible part and:

.. the entire bed is in the order of some six kilometres (3.75 miles) thick.

Snelling describes the predominant rock-type forming Ayers Rock, correctly, as an arkose. This is a coarse grit-type sedimentary rock in which the component particles, many of which are unweathered feldspars, are ragged, not smooth and rounded. But,

says Snelling confidently (and incorrectly), you would not expect to find such fresh feldspars:

if Ayers Rock had been formed slowly over millions of years and had then endured further long periods of exposure to weathering at the earth's surface. Feldspar minerals break down relatively rapidly when exposed to the sun's heat, water and air (for example in a hot humid tropical climate) and very quickly form clays.

This ignores the well-established fact that, during rapid accumulation of sediments, earlier deposits may be quickly covered, sealed off and protected from any further weathering during the processes of deep burial and consolidation to form rock. Undaunted, Snelling develops his scenario in which the feldspars turn to clay, the sandstone is weakened and then collapses as the clay is washed away. The whole explanation is a fantasy and bears no resemblance to the real world. Snelling illustrates his explanation for the origin of Ayers Rock with a sequence of four sketches.

**Figure 1** shows water currents bringing in sand, supposedly from the Musgrave Ranges to the south. The sand pours into a very deep water-filled basin whose floor consists of heavily folded and eroded older rocks (age of deposition and erosion unspecified).

**Figure 2** shows how a "catastrophic flood" filled in this basin by dumping:

some 6000 metres (approx. 20,000 feet) of sand, probably in only a matter of hours,

after having carried this sand some 100 kilometres (63 miles).

The clear implication here is that the basin seen in Fig 2 was at least 6000 metres deep! But this leaves Snelling with a little problem.

Since the beds are now standing vertically, it is also obvious that the sand, after being washed into the depression, and while still being compressed and hardened, was pushed up and tilted by earth movements.

**Figure 3** thus depicts the "sand layers tilted late in Noah's Flood" with the waters draining off and



eroding and sculpting the massive structure as they went.

Following the retreat of these flood waters, and as the landscape dried, the material in Ayers Rocks finally hardened.

Snelling thus keeps us (and Ayers Rock) in suspense with a dramatic image of a six kilometre thick deposit of poorly consolidated, gravelly sludge, tilted on its side and yet somehow miraculously standing up through all of the catastrophic, destructive events of the Flood.

According to Snelling it was not until after the Flood waters finally subsided that:

the chemicals in the water between the sand grains formed a cementing material to bind the mineral grains together, drying in much the same way as cement in concrete dries and binds together the stones and sand mixed with it. With the final retreat of the waters from off the land, and the continued drying out of the continent, present day desert wind erosion has merely pock-marked the surface of the rock.

It would appear from this incredible chain of events that Dr Snelling has uncovered a revolutionary new technique of concrete manufacture which would revolutionise the building and construction industry, solve our balance of payments problems and, in the process, make his fortune!

**Figure 4** shows a cross-section of Ayers Rock today, with its relationships to the present land surface and desert sands; the underlying folded and eroded bedrock conveniently disappears from the scene.

If a first year geology student proposed such an scenario to explain the origins of Ayers Rock, he/ he would probably be failed. That such a puerile explanation could seriously be published by someone with a Bsc (Hons) and PhD in Geology beggars belief!

Of course Snelling's explanation of the origin of Ayers Rock turns out to be that last resort of a fundamentalist creationist - Noah's Flood - which means it is no answer at all. Despite this Snelling concludes:

It is hardly surprising then that most geologists are puzzled by Ayers Rock, because the evidence there does not fit into their evolutionary story with its vast eons of slow erosion and deposition, then slow erosion again. Instead the evidence at Ayers Rock is much more consistent with the scientific model based on a recent and rapid, massive catastrophic flood, such as that of Noah's day.

I challenge Dr Snelling to name *one* mainstream geologist who is so puzzled by the origin of Ayers Rock that he or she has to resort to Flood geology to explain it. Snelling conveniently avoids any mention of the nearby, equally spectacular Olgas (or Katajute) composed of enormously thick, and only slightly inclined, boulder beds, or conglomerates.

For anyone interested in the *real* story of how Ayers Rock and the Olgas formed, I recommend a beautifully illustrated little booklet produced by the Australian Geological Survey Organisation in Canberra.

### **The recent, rapid formation of the Mount Isa orebodies during Noah's Flood Snelling (1984 b)**

Many rocks of Precambrian age (>550 million years) contain fossils of primitive life forms (*algae, cyanobacteria*) with no trace of higher organisms. Creationists claim that *all* rocks containing fossils are the products of one universal Flood. In his explanation of the origin of the Mt Isa orebodies Snelling (1984 b) carries this argument to absurd lengths.

Some of the richest ore-bodies in Australia, at Mt Isa in north-west Queensland, occur in a great mass of severely deformed and altered (metamorphosed) rocks. One rock unit, originally shale deposits, contains abundant fossil micro-organisms, interpreted as blue-green algae. If, as maintained by Snelling and other creationists, these very ancient rocks are Flood deposits, all of them formed in less than one year, ca 2350 BC!

According to the conventional geological time-scale (rejected by creationists) the Mt Isa Group, source of the rich silver-lead-zinc and copper orebodies, is Middle Proterozoic in age, deposited around 1,650 million years ago. The silver-lead-zinc and copper orebodies are distinct and separate; each is enclosed in a different kind of originally sedimentary, but now metamorphic, rock.

As in the case of Ayers Rock, to explain the Mt Isa orebodies in terms of Flood geology, Snelling must first build a case for :-

- a) *recent* formation and
- b) *rapid* formation.

a) Snelling notes the presence of microfossils (blue-green algae) in the shales around the Mt Isa orebodies, but remarks that:

Wherever fossils or organic matter are found in the geological column the rocks containing the fossils were deposited either by or after Noah's Flood regardless of their assumed geological age. (1984, 42).

Snelling's initial postulate, that the Mt Isa rocks are of *recent* origin, is thus based, not on scientific data, but solely on a belief in the literal interpretation and inerrancy of the *Genesis* account in the Bible, ie. on religious dogma.

b) To support *rapid* formation of the Mt Isa ore-bodies Snelling employs a different tactic, first exposed by Strahler (1987, p242). He cites genuine research work on mineral deposits forming today near a sea-floor rift in the Red Sea (Finlow-Bates 1979) which indicated that a 1 cm thick layer of lead sulphide (*galena*) could be deposited in under 5 weeks by a 1 metre thick sluggish bottom layer (with 50 ppm of lead) moving at 1 metre/minute.

However, the Mt Isa ore bodies are more than 100 metres thick and consist of thousands of 1 centimetre thick layers of rich ore interbedded in shale deposits over 1000 metres thick. Snelling's problem is to explain how these ore-bodies were all deposited during the year of Noah's flood. How he achieves this is a classic example of deliberate deception and lack of scientific integrity in creationist writings.

Snelling (1984,43-44) writes:

It is not difficult to see the implications of these calculations. If we make some appropriate and reasonable changes to Finlow-Bates' parameters and then recalculate the deposition rate the result is even more startling. Consider, then, a layer of dense ore solution, 15 metres deep flowing on the sea floor at the rate of 500 metres/minute (30 km/hr, still relatively slow) carrying 1000 pp lead all of which is to be deposited within a distance of 1000 m. (It should be noted that these figures are reasonable even in present day terms; the Red Sea brine pools are up to 250 metres deep [32]: dense turbidity currents are known to have travelled thousands of kilometres down the continental slope and across the ocean floor at speeds up to between 65 and 80 km/hr [33] and concentrations of metals such as lead carried by ore-forming solutions are by consensus stated to be in the range  $X0 -X,000$  ppm, where  $X = 1,2,\dots$  [34], and by analysis of residual fluid inclusions in ore and ore-related minerals have been measured as up to 10,000 ppm [35]. A galena bed carrying 25% lead with an average thickness of 1 cm would form in only about 20 seconds, a rate of about 1 metre/30 minutes.

The bracketed numbers [32] - [35] refer to mainstream geologists cited by Snelling.

To see how the trick is done compare Finlow-Bates' version (1979) with Snelling's (1984).

The total increase is therefore  $15 \times 500 \times 20 = x$  150,000; in fact a 1 metre/30 min flow rate represents an increase of  $x$  175,000!

Snelling's reference to a 250 m deep brine pool in the Red Sea is irrelevant. Brine pools are stagnant, stratified concentrations of hot brine in closed depressions on the sea floor, far removed from any continental slope down which they are presumed to have slid.

An ore-bearing sequence 1000 metres *thick* is thus miraculously explained away by lateral transport of ore for "a distance of 1000 metres".

Every step in Snelling's recalculations is deliberately contrived and concocted from unrelated observations, combined to achieve astounding, and completely unwarranted, results. The futility of the exercise is that 'recent' and 'rapid' are not synonymous. Even if such fanciful ore-depositing conditions *had* ever occurred at such speeds it could equally well have happened 1.65 billion years ago instead of just over 4000 years ago.

Snelling even has the gall to cite, as further proof of rapid ore formation, the fact that lead-isotope ratios are remarkably constant within Mt Isa orebodies. This from a man who consistently and publicly labels universally accepted radiometric methods of dating ancient rocks using radioactive isotopes as *fallacious*. However, even deposition of the ore over a period of 1 million years (a reasonable rate in geological terms) some 1.65 billion years ago would barely show up today within the range of standard error in radiometric dating methods applied to such rocks.

Snelling concludes with a 'creationist interpretation' that all the silver-lead-zinc ore bodies of Mt Isa could have been deposited in less than 20 days (1984,45-6). He states flatly that because:

Noah's Flood occurred approximately 4,300 years ago according to Biblical chronology, evolutionary ages for

the rocks and ores at Mt Isa have to be discarded.

To support this remarkable statement Dr Andrew Snelling BSc, PhD (Geology), expert in uranium mineralisation, cites the writings of other creation 'scientists' such as Slusher, Setterfield, Mathews and others "who have shown that radioactivity is unreliable as a means of dating rocks." None of the individuals cited are experts in radiometric dating.

### Postscript

Within a few kilometres of Mt Isa anyone can readily collect beautifully preserved, complete Cambrian trilobites (*Xystridura*, *Lyriaspis* and others) in well-bedded, unmetamorphosed and almost horizontal white shales. Trilobite fossils are so abundant that the locality, Beetle Creek, is known to most Australian geology students and amateur fossil collectors. It is unlikely that Dr Andrew Snelling is unaware of its existence.

These trilobite beds date from the Middle Cambrian, around 520 million years ago, and they rest directly, and unconformably, on older metamorphic rocks such as those containing the Mt Isa orebodies. Clearly a long time gap separated the deposition of the ore-bodies and their later deep burial and subsequent metamorphism, followed by major uplift and erosion. Then, and only then, could the burial of myriads of trilobites in shallow Cambrian seas have taken place.

If Dr Snelling is correct then these Middle Cambrian trilobites lived, died and were buried post-Noah's Flood. Would Dr Snelling like to hazard a guess at their date in Biblical terms (ie. post-2350 BC) and tell us what it is?

### Impact craters and Flood Geology

The recent recognition of a 600 million year old giant impact structure, the Lake Acraman crater, in the Gawler Ranges, South Australia and its probable association with a sheet of shattered debris in the Flinders Ranges, represents one of the most exciting Australian geological discoveries of the last 10 years.

In an article entitled "Found - More Giant Meteorite Impact Structures" Dr Andrew Snelling (1990) came up with an unusual new twist on the timing and possible results of such impacts. He noted that one of the trends in modern geology is the "increasing re-recognition of evidence for catastrophism in the rock record."

Snelling related how, while studying satellite images of Australia, George Williams, an exploration geologist, noted an unusual, circular, large-scale structure around Lake Acraman, a salt lake in the Gawler Ranges of South Australia. Williams later visited the area and found shattered and deformed volcanic rock typical of high velocity meteorite impact sites.

At about the same time Vic Gostin and other geologists from University of Adelaide were mapping in the Flinders Range, 300 km east of Lake Acraman. They found a thin, distinctive layer, up to 40 cm thick

in places, of volcanic rock fragments embedded in mudstone. The debris layer occurred in Late Proterozoic (or Precambrian) rocks, around 600 million years old.

When Williams and Gostin compared notes they realised they were dealing with different aspects of one dramatic event, the impact of an enormous meteorite and the ejecta sheet of debris thrown clear by it. Later, a similar debris layer was discovered 450 km northwest of the Acraman crater, considerably extending the known range of the ejecta sheet which has now been traced for over 250 km, north to south, in surface exposures and in boreholes.

The Lake Acraman crater is now recognised as one of the largest in the world, at least 35 km wide and several km deep at the time of impact, but the final collapse structure may have reached 90 km in diameter. It is estimated that a crater of this size and depth could be caused by the impact of a meteorite 4 km in diameter. The energy released would have been the equivalent of between 50-100,000 hydrogen bombs! This information, and much more, is reported quite accurately by Snelling in the early part of his article (1990, 34-36).

However, an alert reader, especially one with some geological knowledge might well be puzzled by Snelling's phraseology every time a geological age is mentioned. In the extracts below *all the emphases are mine*, not Andrew Snelling's.

Before discussing Williams' Acraman crater, Snelling refers to the evidence for a meteorite impact which coincided with the extinction of the dinosaurs:

at the end of the *so-called Cretaceous period* (p.34).

The Acraman crater was:

presumably caused by an asteroid or comet that hit the earth during *the so-called Late Proterozoic*.

It landed in the Gawler Ranges which:

consist mainly of volcanic rocks *dated conventionally at about 1600 million years*.

The evidence for the impact ejecta comes from Gostin and colleagues who:

were carrying out research on *so-called Late Proterozoic sedimentary rocks in the Flinders Ranges* where they found a debris layer of "volcanic rock fragments embedded in mudstones (*conventionally regarded as 600 million years old*).

Snelling cited the discovery of an equally large impact crater on the ocean floor off Canada, in the continental shelf 200 km SE of Nova Scotia. This underwater crater, 45 km wide and 2.7 km deep, is: well-preserved and buried by 510 metres (1673 feet) of *so-called Tertiary and Quaternary (geologically quite young) marine sediments*, beneath 113 metres (370 feet) of ocean water.

After further discussion Snelling concluded that: *conventional dating suggests that this occurred only 51 million years ago*.

He then noted that:

The recent discovery of these two extra-terrestrial (meteorite/comet) impact structures from such widely separated locations geographically ... *and conventionally timewise (600 million and 51 million years ago respectively)* dramatically portrays a more violent history for the earth than evolutionary theories have until

recently been promoting.

Having set the scene, and sown seeds of doubt in the minds of his readers about the age of the Acraman and other major impact craters, Snelling plays his trump card, quoting from a man who:

has already caused 'waves' with his theories about terrestrial impacts, because *he believes they are responsible for every geological feature on earth*.

This remarkable individual is an American, Mark D. Butler, "*a geophysicist with more than 50 years of experience in the oil industry*." I have to admit, to my everlasting shame, that I had never heard of this revolutionary thinker in Earth Sciences!

Snelling (strangely) does not cite an original source for Butler, only a secondary source, Shirley (1989b). According to Snelling (1990, 37) Butler believes that:

there is no subsurface energy source capable of sustaining for 4.5 billion years enough power to create new landforms and mountains, cause earthquakes and volcanoes, or renew the continental uplifts." Butler "doesn't argue about the existence of 'plates', faults and other geological features, *he just reinterprets the energy source that causes them*.

Butler maintains that all geological phenomena are '*created immediately*' when an extraterrestrial body slams into the earth. A basin is created with its centre at the point of impact, and the impact's force '*instantly builds mountains and uplifts continents*'. 'Excluding the erosional and depositional effects energised by sunlight,' he says, '*no time in a geological sense is involved in the creation of any of the Earth's geomorphs. The sum total of all the combined meteor impacts since the beginning of the earth 4.5 billion years ago may add up to only a few days.*'

Snelling noted (p.37) that :

Naturally, large impacts are needed to elevate continents and that Butler had pinpointed some of these. For example he (Butler) says that the "Hawaiian Islands' meteorite impact which occurred in the mid-Miocene (about 15 million years ago according to conventional geological dating, and had a radius of about 64 km (40 miles), created the East Pacific Basin, made the Rocky Mountains in the USA and elevated the African continent when a portion of the crater shock front penetrated through the earth's core. The mid-Atlantic Ridge he (Butler) believes was created simultaneously with the uplifting of Africa.

One doesn't know whether to laugh or cry to find this sort of cretinous nonsense proposed by someone with a BSc (Hons) and PhD in Geology, as a serious explanation for some of the Earth's major geological structures or 'geomorphs'.

Having established, at least to his own satisfaction, that all giant impact craters on Earth are not only rapid but recent, Snelling introduces Noah's Flood into the equation.

The information generated by investigations of, for example, extraterrestrial impact craters does show that the catastrophic geology of the biblical Flood model is a feasible alternative - both in the time-frame involved, and in the geological work achieved within that time-frame.

Snelling's dilemma is that many large impact cra-

ters have now been identified on earth and must be explained away by creationists.

Indeed, investigations in the past two decades have seen the number of impact structures identified on earth increase to more than 120 - divided about equally between those with surface expression and those that are buried - and new structures are being discovered at a rate of about five per year.

Snellings's problem is that:

According to the biblical description of the early earth, there is no hint of any devastation/catastrophe that would suggest any impact cratering of the earth's surface in those early days. Although the events of the Creation week were geologically 'catastrophic' in that the earth was formed, a landmass developed and was uplifted from under the initial globe-encircling waters, and varied landforms were generated, *the Flood and its aftermath are the logical biblical candidates for the time-period upheavals when the earth was impact cratered.* Indeed, as Butler has suggested, such impact cratering could account for sedimentary basin formation, mountain building continental uplift, volcanism, and more, even in only a matter of a few days, while the Flood waters would do their erosion and depositional work to fill basins, making rock layers which would then be uplifted/folded into mountains etc."

Snelling concludes:

So, not all trends in modern geology should be viewed negatively by Bible-believing Christians. The discovery and investigations of extraterrestrial impact craters on the earth is potentially opening up a whole new panorama of feasible mechanisms and processes that would satisfactorily explain how the catastrophic geological developments and the time-scale portrayed by the biblical account of Noah's Flood could have given us the geological features that we see on earth today. *Yet again it's a matter of stripping the data of their evolutionary implication and seeing them fit neatly into the Biblical framework for earth history.*

When Andrew Snelling talks of "stripping the data of their evolutionary history" he presumably means editing out anything suggesting a great age for the earth. The two articles by Shirley (1989a, 1989b) quoted by Snelling as his source of information on impact craters, provide a good example of Snelling's 'data stripping' technique.

Shirley's articles appeared in the *Explorer*, published by the American Association of Petroleum Geologists. The AAPG *Explorer* is a newspaper-style newsletter, not a refereed scientific journal. It is not widely available in Australia and I encountered some difficulty in locating a copy. I doubt whether many readers of *Creation Ex Nihilo* would even bother to try, probably trusting in the integrity of the author not to mislead them. Being of a more sceptical turn of mind I decided to check out Dr Andrew Snelling's original sources.

Shirley (1989a) is a straightforward review of known terrestrial impact craters and recent developments leading to the recognition of such craters. Snelling's account is basically accurate.

Shirley (1989b), on the other hand, is a one-page report on an idiosyncratic theory proposed by Mark D. Butler that "all geologic phenomena are created immediately when an extraterrestrial body slams into the

earth." Butler's theory thus challenges virtually every commonly held belief about the way that the earth formed and the processes that continue to change our planet.

However, far from creating 'waves' with his theory Butler has, to date, been spectacularly unsuccessful in persuading anyone to publish his paper. The outline of his hypothesis, as related by Shirley, indicates why no self-respecting geological publication would accept it. While this may be difficult for Mr Butler to accept, it is nevertheless a fact of life that the history of scientific progress is littered with ingenious, but incredible, theories which failed to gain general acceptance.

Whatever our views on the merits of Butler's hypothesis he does not deserve the calculated misrepresentation employed by Snelling. Unsuspecting readers of Snelling's account might be excused for thinking that Butler accepts and supports the suggestion that the earth's surface was completely recreated during the year-long Noah's Flood - with a few giant extraterrestrial impacts thrown in for good measure. We must assume that Snelling relied solely on Shirley (1989b) as a source, since Butler complains that he could not "get anyone to consider publication of my paper."

A careful reading of Shirley's account of Butler's views reveals no mention of Noah's Flood or anything comparable. Butler's theory of the 'life-cycle' of a crater basin clearly requires enormous periods of geological time. Butler refers to "the birth of the earth 4.5 billion years ago" and noted that, while it only takes about 60 million years for erosion to reduce the continents to sea level, "there must be a continual renewal of energy, which in large part must be drawn from the meteor impact process, to sustain the existence of the continents."

Snelling's juxtaposition of Butler's views (on possible formation of sedimentary basins) with his own creationist views on Flood Geology is thus blatantly dishonest. Although the formation of major impact structures is unquestionably rapid, it does not necessarily follow that they have to be recent, as required by Snelling's Flood Geology.

Once again Dr Andrew Snelling demonstrates a remarkable ability for "stripping the data of their evolutionary interpretation" in order to make them 'fit neatly into the biblical framework for earth history.' Others, less charitably, have described such methods as "lying for God."

Nearly 10 years ago, in the *Sydney Morning Herald*, I publicly challenged Dr Andrew Snelling, geological spokesman for the creationist movement in Australia to a public debate on a subject close to his heart - *Noah's Flood - the Geological Case For and Against*. Although I have repeated my challenge several times since then, Dr Snelling has declined to defend the creationist cause in front of his scientific

continued p 25...

# Getting the drift

Michael Creech

This paper is based on the talk I gave at the recent National Convention at Newcastle. It uses the theory of continental drift (CD) as a vehicle to delve into the geology of a 6000 year old planet and will use some of the overheads I used there to illustrate just how ludicrous the creationist world view really is. They make the point - if dinosaurs and man were created during Week 1 of this planet's history then our co-existence with dinosaurs should surely warrant extensive recognition. Yet there are *no* extant art-works from *any* ancient cultures that give *any* indication that *any* of our ancestors had the faintest notion of dinosaurs, many of which were animals of such magnitude that it is inconceivable that they could have overlooked them. It is also worth noting that *Genesis* utterly fails to mention the co-existence of man and dinosaurs.

I also present an image of a coal miner looking up at a fossil boat anchor in the roof of a mine (something I am always looking out for as I know I will be rich and famous after such a discovery!). The point - if all the sedimentary rocks including coal were laid down during Noah's Flood, surely in the 2000 years that mankind has been mining coal we would have found numerous examples of fossilised boat anchors, fence post, pieces of pottery, not to mention people, by now.

My talk was inspired, in part, by a lady and a young boy who tried to sell me their beliefs one Sunday morning. All was cordial until she stated that the shells found on top of the Himalayas are proof of

Noah's Flood, for which, "scientists have no explanation!" It was such a nice morning that I assumed ignorance on her part (rather than a more sinister option) and tried to educate her, and the boy, about

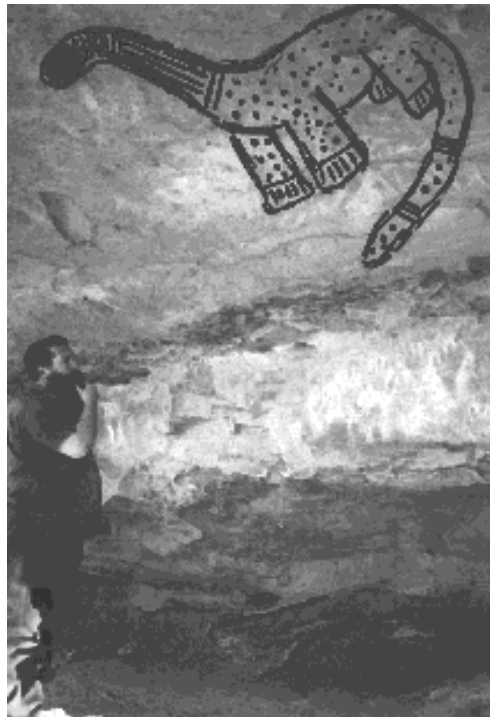
a well respected theory, which not only explained the shells, but also the reef limestones atop the Himalayas, which obviously had the difficult job of accumulating in 40 days in rather turbid waters. I still wonder whether she went on to the next household and used the same line again, which would then be "telling lies for her God".

Her ignorance of CD was understandable, as it fits very uncomfortably with a 6000-year-young planet. The scales of plate motion across the globe (1000's of km) and the very slow rates (cm/year - about as fast as your fingernails grow) imply a much older planet. Creationist literature will argue either; that it never happened; that it started during Noah's Flood or after the destruction of the Tower of

Babel, and has slowed down since; and anyway the Bible does not speak for or against CD (so there!). All these arguments can be found in the one article, making for a rather convoluted approach, to the say the least, but a damned fine read!

## An explanation of the theory of Continental Drift.

CD is to Geology what evolution is to Biology. It provides the broad canvas onto which all other observations are placed into context. Like evolution, CD is a fact, though details of the mechanisms are still the subject of scientific papers.



CD involves the creation of new oceanic crust at the mid-ocean ridges, which bisect the world's oceans. At these localities, basalts rise and cool, and submarine vents spew out cocktails of chemicals. Such vents, in the geological past, have been the sites of extensive mineral deposits such as those found at Broken Hill and Mt Isa. The new crust is forced, like two conveyor belts, away from the submarine ridges. The crustal plates, along with their continental passengers, ride over the mantle. But, no, the Earth is not growing! Crustal material is also being consumed at the other end at deep ocean trenches where one plate rides over another and the lower one is consumed by the mantle. At these 'subduction zones' there is considerable volcanic activity and earthquakes, one manifestation of which is the Pacific "ring of fire".

Other plate boundaries involve collisions where mountains are formed. The example of the Himalayas is apt, as they are still rising, as India continues to collide with China. Since the world is round and far from perfect, transform faults, perpendicular to the mid ocean ridges, occur, which contain these irregularities, creating large scars on the earth where one part of the crust moves laterally in relation to the other side. A well known transform fault is the San Andreas Fault in California, which is a rare land based example.

The mechanisms which drive these plate motions are considered to be large scale convection cells in the upper mantle, rising at mid ocean ridges. But as already stated, this premise is still the subject of scientific inquiry.

So the answer to the first creationist response that "it never happened" is seen in the direct evidence for CD, which includes:

The jigsaw fit of many continents at their continental margins;  
 the ability to correlate the geology of widely separated continents across the vast expanses of younger, basaltic oceanic crust;  
 the distribution of fossils. One of the most striking being the tree *Glossopteris* (see Fig 1 ), once restricted to Gondwana continent now spread

across the globe, and associated with extensive coal seams in these countries;  
 a bathometric map of the ocean floor, resplendent with mid ocean ridges, subduction trenches, and transform faults. Yes the world isn't flat!;

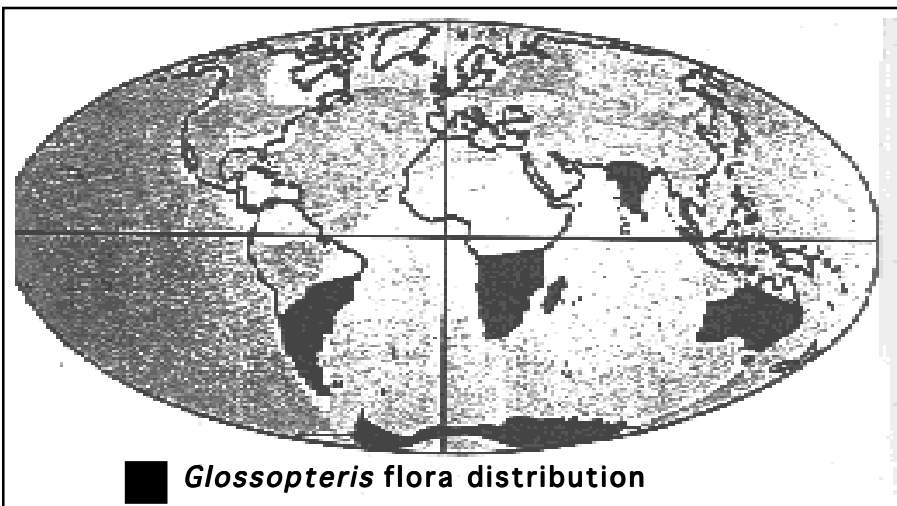


volcanic island chains forming, as the plate rides over a stationary hot spot in the mantle;  
 earthquake foci at subduction zones, tracing the subducting plate to depths of 4-500 kilometres;  
 a new mid ocean ridge system that is currently forming in the Red Sea and along the African Rift Valley - the process is still happening;  
 the concentration of volcanic and earthquake activity at plate margins - the process is obviously ongoing;  
 gravity lows existing over subduction zones, where lighter crustal material is being consumed in the more dense mantle;

radiometric dating of ocean floor basalts, clearly show the spreading away from mid ocean ridges. The oldest ocean floor is less than 200myrs, the oldest sedimentary rocks are almost 4000myrs;  
 records of reversals of the earth's magnetic field in the ocean basalts also testify to this spreading phenomenon, as ancient magnetic fields are preserved by the inherent magnetic minerals;  
 polar wander paths for continents are calculated using magnetic minerals which, when cooled, have recorded the inclination and direction of the earth's magnetic field. For instance at the equator

the field is flat, at the poles it is vertical. So a global position can be determined from rocks of various ages and a continental wander path calculated.

It is worth noting that all these various diverse forms of evidence reinforce each other, creating a powerful, inter-connecting, set of



■ *Glossopteris* flora distribution

Fig 1

evidence to support the theory of CD. For example: where radiometric dating and magnetism show spreading, a mid-ocean ridge exists, which bisects an ocean basin between two continents, which contain fossils and rocks, which can be correlated, indicating they were once one landmass.

The other creationist argument that must be ad-

dressed is that CD started only 3500 - 4000 years ago and then slowed down to present rates. The supporting nature of the diverse evidence listed previously, also provides proof of relatively constant slow rates of drift. However, all this evidence is ultimately based on radiometric dating, which creationists argue is unreliable. Except for one fresh piece of evidence. Recent attempts at using satellite assisted surveying, to measure plate motions, have shown remarkably good agreement between these measurements, and the predicted rates estimated, using evidence based on radiometric dating. This agreement also gives strong support that radiometric dating actually does work.

Now for the third argument, that the Bible speaks neither for nor against CD anyway. Well this is a

### Variable speed CD

First some theory on theories. A theory must::  
fit the facts;

be able to make predictions;

some of these predictions must be able to prove the theory false (a theory must be falsifiable);

should be based on more than one source of evidence (not just from one old book for instance).

So, to squeeze CD into a young Earth it must have started at much faster rates and have slowed down to present day rates.

Now, if all sedimentary rocks were laid down during Noah's Flood, and we have found these rocks can be correlated across vast basaltic oceanic crust, then we can conclude these oceanic basalts were formed after the Flood, or they, too, would be cov-

clanger. What does this admission suggest, if the creationists' main source of evidence fails to mention CD at all. What can we make of a "scientifically accurate" document which fails to mention the main process driving so many aspects of our planet's surface?

But let's humour these confused souls. Assume CD has occurred, but pretend to agree that radiometric dating is unreliable, and explore their "theory" of a 6000-year-young planet.

ered by thick sediments. Therefore CD was initiated some time after the Flood, possibly at the time of the Tower of Babel (see *Genesis* 10:25 "the world was divided" - their reference not mine!). We can now build a time chart (see Chart) and identify some predictions and implications of such a proposition.

Let's assume that CD was initiated around 2000BCE, 350 years after the flood, and at rates of many km/yr. There would have been considerable volcanic activity and mountain building, along with folding and faulting of the sediments previously laid down during the Flood. Maybe all this upheaval

brought the demise of the dinosaurs (pure speculation on my part, that source of scientific information, *Genesis*, fails entirely to mention these animals).

Implications of CD, at such fast rates, only 4000 years ago, raises some interesting points. The Chinese have written records going back beyond 4000 years, and surely they would have noticed the bump as India hit? Yet they don't mention it. And from a geological perspective some other factual problems:

We would *not* expect to find a relatively flat sedimentary pile, kilometres thick (laid down during Noah's Flood), overlying folded strata deformed some 350 years later. (Oops! Try the Sydney Basin.) And this sedimentary pile includes dinosaur footprints, from an animal that was already extinct?

The Tigris and Euphrates are recorded as having their headwaters in the Garden of Eden. To have survived intact, the land through which these rivers flowed must be basement, having not had any thick sediments deposited over them, or had their riverbeds folded and faulted. (Oops again! They flow over a thick sedimentary pile which has been severely folded and faulted.)

I'm sure there are many more, but these 'facts which don't fit' are a good start. Along with no boat anchors in coal, a lack of dinosaur hieroglyphics or cave paintings, the proposition is failing the first requirement of a theory, and yet they want this taught in schools! Their proposition also fails to make any predictions which are testable or falsifiable, resulting in it being entirely useless in regards to science and mankind in general.

Expanding on this point, in the final analysis, money talks. Multinational energy companies spend billions of exploration dollars on the basis of an ancient Earth, with slowly drifting plates and an evolving fauna and flora. I am unaware of any such company using 'flood geology' as an exploration model. Since everyone has so far been looking in the wrong places, a unique business opportunity exists for the CSF and its followers to put their savings where their ideologies are. Float their company on the stock exchange, aboard the decks of their Ark (and all tax free no doubt).

A final point though. The little boy who accompanied this lady to my doorstep stood silently as she stated that the end of the world was nigh, and as she asked if I was ready. So what thoughts has this young boy for his future? Should he worry about education, or thoughts of being a grandfather one day? How does this nonsense affect the children? And on the monetary angle again, do the fundamentalist churches insure themselves beyond the end of the world, and have they lobbied Canberra about the pointless policy of compulsory superannuation? Have they calculated an age cutoff, so that their younger members don't lose out by being unable to recoup their super entitlements, because the world has ended. Or is this end of world stuff just a ploy? I hope that little boy, for his sake, knows that it is just that and nothing more.

## ... Flood geology, from p 21

peers, although he is more than ready to do so in front of lay audiences.

I throw out another challenge, this time to the geological community and to the national organisations governing professional qualifications. If any geologist were to be caught salting a deposit, falsifying results or engaging in other forms of behaviour likely to bring his/her discipline into disrepute, they would be promptly dealt with by their peers.

In my opinion it is equally abhorrent for anyone claiming to be a professional geoscientist to indulge in deliberately misleading and deceptive conduct aimed directly at lay audiences and especially at young people. Dr Snelling's main aim in life, presumably for deeply held religious reasons, is to show that **no** scientific evidence (from physics, chemistry, biology, palaeontology, geology, astronomy etc.) etc that implies a great age for the Earth can be accepted. His only alternative is a 6 day Creation event and Noah's Flood - take it or leave it.

To 'prove' this, Snelling is apparently prepared to misquote, misrepresent and falsify genuine scientific data. How long will it take before he is required to justify his behaviour before his professional and scientific peers? How many young Australians will he turn off science before he is called to account for his actions?

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## Conning the con-men (Pt I)

Harry Edwards

The safeguards offered to those of a sceptical bent are not confined to paranormal and pseudoscientific claims. Sometime during the past ten years, many readers, both individuals and those in business, may have received an offer from a resident of Nigeria that seemed too good to refuse.

Take, for instance, the case of a group of African "philanthropists" who, with the aid of a telephone directory and a pin, picked me from millions to make me mega-rich. In addition to two previous letters received, another was passed on to me by a friend for attention. Printed in upper case letters and couched in readable English, albeit not very professionally composed, it is reproduced below. (My comments in italics.)

*Request for urgent business relationship.* I am making this contact with you on behalf of my colleagues after satisfactory information we gathered from an international business directory. (*This "international business directory" I assume to be a telephone directory as the name and address format on the envelopes is identical to those appearing in a telephone directory. That is, the surname followed by the initials, then the address but no postcode. Confirmation of this likely source came when my friend's mother also received the same offer two days later. Neither have a business.*) My colleagues and I are members of the Contract Review Committee (CRC) of the Nigerian National Petroleum Corporation (NNPC). I have been mandated by my colleagues to look for a trustworthy company/individual (*Boy oh boy, that's me. Are they in luck! They don't call me 'onest 'arry for nothing*) into whose account some funds is to be transferred. The funds in question is \$25.5M (Twenty Five Million Five Hundred Thousand US Dollars) now in a dedicated account with the Central Bank of Nigeria (CBN).

The above funds arose from the over-invoicing of some supplies and oil drilling works contracts which have been executed and concluded. The fund is therefore free to be transferred overseas. (*Now I've heard over overcharging, but \$25.5 million?! Someone must have had a sizable kickback to get away with that. And why is it necessary to transfer this surplus overseas?*) As a result of the accrual of this fund, a foreign contractor/company/individual has to apply for payment. Payment can only be made into a foreign account hence this contact is necessary to execute this deal. You (or your company) shall be compensated with 35% of the amount as the account owner, 5% shall be used for reimbursement of all expenses that will be incurred by both parties during the course of the financial transaction, while the remaining 60% for my colleagues and I. (*Twelve million bucks less a few to cover the expenses of a little bit of paper work? The hair stood up on the back of my sceptical neck!*)

The underlisted shall be required from you immediately by fax:-

The beneficiary's name and confidential telephone and fax numbers. The full name and address of company/

beneficiary. All necessary particulars of the bank account where you wish the contract sum to be transferred (account number, bank address, the telephone, Fax and Telex numbers of the bank). Immediately we receive the requested information from you, we shall put up an application for funds & transfer to the appropriate ministries and departments in favour of the beneficiary (you or your company). Thereafter the beneficiary would officially be regarded as having executed the contract for the Nigerian National Petroleum Corporation (NNPC) for which payment is being made.

The proposal concluded with the following entreaty.

Please, we implore you to treat this deal with utmost confidentiality. As civil servants we would not want any exposure. Do not go through the international telephone operator (or AT&T) when lines are busy. Always dial direct.

Now, apart from the incredible magnanimity of this proposal, my trusting Nigerian colleagues appear to have overlooked a couple of minor points. Having transferred the whole \$25.5M to me, what guarantee do they have that I'll send them their 60% and not do a moonlight flit? Why is there no mention of how this part of the transaction is to be accomplished? Neither their address nor banking details were included in the proposal. Furthermore, wouldn't it be much simpler and safer to send one of their own colleagues overseas and let him become the beneficiary? That way they would be 35% better off, and save a heck of a lot of time going through the telephone directory in the hope that eventually they'll find a sucker who will fall for the scam. So what's the angle?

First I note the "utmost confidentiality" required in the final paragraph. Is this really to protect the integrity of the civil servants or is it to ensure that there is no recorded evidence to link them with a questionable transaction? Then again, if I tell others, they may be wiser than me and talk me out of it.

The address on the first form letter was "Lagos, Nigeria" and included only the Tel/Fax Number - 234-90-406958 The second communication gave the address as "Ibadan, Nigeria" with the same Tel/Fax number. The area code for Lagos is "1" and Abadan is "22". The area code on both communications was "90". No such area code is listed under Nigeria in the telephone directory. I note too, that the SID on these and the subsequent faxes was a series of zeros making the origin impossible to verify. The banking details asked for appeared legitimate—they would obviously be required to enable a person to remit

money. However, that in itself does not guarantee that said money will be remitted.

It appeared to me that the sting probably lies in the 5% allocation for joint expenses. "5% shall be used for reimbursement of all expenses that will be incurred by both parties during the course of the financial transaction."

These expenses I am told are to "... put up an application for funds transfer to the appropriate ministries and departments ... " As the 5% is part of the whole and our colleagues do not yet appear to have access to it, I assume the prospective beneficiary will be asked for the money to pay those expenses. The transaction was expected to take 14 working days.

### Taking the bait

Intrigued to know whether it was Mr Yerimah's intention to try to obtain money from another individual's account without their permission or knowledge, or to rely on the 5% angle, I decided to play along and responded with a fax under the banner of a fictitious company.

On August 4, I received a long typewritten fax from

### Family Investments Co. Pty. Ltd.

(Incorporating Bond, Skase & Marcos. Family Finance Brokers)

**PO Box 331, Newport Beach, New South Wales  
Australia 2106**

Tel: (61) (02) 9979 4127. Fax: (61) (02) 9997 1327

Directors.

N. Kelly.

S.M. Artass

August 3, 1997.

Mr Abubakar Yerimah

234-90-406958

Lagos

A business acquaintance was kind enough to pass on your proposal

for the transfer of funds to an overseas beneficiary. Our company would be interested in such a magnanimous offer. Please proceed with the necessary application for the transfer of

the funds and advise progress accordingly.

As we also require strict confidentiality at this stage of the transaction, we will notify you of the banking arrangements immediately prior to the transfer.

Ned Kelly,

Managing Director.

Mr Yerimah in the same upper case type-face. His suspicions it appears, were not aroused by the names of the principals associated with Family Investments Co., nor the fact that the SID on the fax was Harry Edwards and not that of Ned Kelly.

The writer went on at some length about the previous Nigerian regime and a *coup d'etat*-reiterating how the funds became available-how they could now

be accessed, and the urgency of the situation. Included were these gems: "Transfer of funds like this is a tradition in Nigeria which is a real Capitalist State. A rare opportunity of this nature is well utilized." And, "From past experience our government has no reward or respect for patriotic deeds, the rythm (sic) is grab what you can take when you are there ..." The fax concluded with another request for my banking details. I complied with this request and, in cohorts with a friend, established a fictitious bank, and sent Mr Yerimah details of a nonexistent account.

### Strictly confidential. For your eyes only.

Thank you for your fax dated August 4. Herewith banking details as requested.

Bank: Peninsula Traders' Bank.

Branch: McMahan's Point, NSW 2060. Account No. 135-791-357

Address: PO Box xxxx, McMahan's Point NSW 2060

Manager: Graham Morris Esq.

Telephone: (02) 9954 xxxx Fax: (02) 9954 xxxx

To ensure strict confidentiality, should it be necessary to telephone the bank, would you please speak *only* to Mr Morris. Any correspondence should be addressed to him personally and marked "private and confidential." I do not wish other bank employees to have any knowledge of our transaction.

Ned Kelly

Managing Director.

PS Telephone communication between you and Mr Morris may be more secure if you do not use your real name. Just say "this is Simple Simon the pie man." He will know who you are.

Nine hours later I received a further fax from Mr Yerimah who I assume, in the absence of any communication with my "bank" during that time, had accepted its existence at face value. Once again, no significance was attached to the names of my associates nor the discrepancy between my SID name and the signature on the fax. (Mr Yerimah obviously doesn't belong to the Lagos Skeptics!)

Briefly the fax advised that:

Through the Contract Award Committee's influence, the NNPC had approved the payment of US\$25.5 Million. (Coincidentally, one of the CAC's members was on the Board of Directors, or so I was advised!)

That my file has been moved to the Federal Ministry of Finance at Abuja, and referred to the Central Bank of Nigeria for necessary action.

That the CBC will invite me to sign the Beneficiary's Foreign Release Order or nominate an attorney to sign on my behalf. (Mr Yerimah will kindly [conveniently?] attend to the latter option for me, while I will be required to be physically present in Germany to sign the final release document! Bastards! Not only do they intend taking me down but are going to give me the runaround as well!)

That arrangements have been made to intercept

all correspondences to be made by the paying authorities to me, in order not to jeopardise the project. (Tampering with the mail doesn't exactly give this project an aura of legitimacy does it?!)

That as soon as the payment is approved by the various Ministries/Departments, the funds will be transferred to my account and *every expense incurred by either party, if properly documented shall be reimbursed before the actual sharing of the funds* in the ratio spelt out in Mr Yerimah's letter to me. (Again this reference to the expenses, and still no indication of how their 60% is to be paid over.)

That I should notify Mr Yerimah when contacted by the Central Bank of Nigeria.

**More rope**

Two weeks having passed and no further word, I decided to give Mr Yerimah a nudge with another fax. My greed was making me a bit apprehensive! I also thought it might be a good idea to provide a reason for the non-matching SID on my faxes just in case his suspicions had been aroused.

I am writing on behalf of Mr Kelly to inform you that he is currently overseas until September 1st. Mr Kelly has asked me to advise that to date no communication has been received from the Central Bank of Nigeria, and that in his absence I am authorised to act on his behalf in the matter. Would you also advise where we should send your 60% share of the monies.

H.Edwards,  
Personal private secretary,  
Family Investments Co. Pty. Ltd.

The reply was prompt. At 2am on August 23, I received a phone call asking me to accept a fax. The fax was followed by three more calls which I did not answer as I mistakenly assumed that further documents were following. I did however record a background conversation between two or three male persons and sent the tape to Colin Groves of the Canberra Skeptics to see if he could get it translated. At the Nigerian High Commission in Canberra, the man who listened to the tape (believed to be the Cultural Attache), said It's not a Nigerian language known to him. "It's pidgin English" - then he corrected



himself, "It's our Nigerian creole" very hard to understand, and he could pick out very few words. The man on the tape sounded very tired and gruff, snapping at someone about a bank account of someone called Brown. That's all he could make out. If they were speaking the creole, he pointed out, they obviously don't have a native language in common.

The attache also added that those who get caught in the scam are not just greedy, they're criminal: "It takes two to tango". Although that may be fair comment when applied to this particular method of fraud, it certainly doesn't apply to those scams promoted as genuine commercial trading opportunities.

The fax was ambiguous and confusing reading:

Sequel to your fax of today, my colleagues and I are already contemplating and confused on how to go about this project because we have the belief that you have disappointed us after using your name and particulars to incorporate and process all documents and files in the various ministries concerned. You have refuse to contact us so far but it should be well understood that nobody but you can make this claim at this point in time.

Kelly, I will be glad if you follow this project up with commitments and your entire time to see to it that the money hits your account by next weekend.

Immediately we received your fax, we quickly put up an application to the ministry that they should withdraw the letter withholding the contract payment so that I presume that you may be contacted by the ministry today.

Make sure follow it up urgently so that we can become millionaires in dollars by next week Friday because it will only take five working days for the money to hit your account.

Whatever correspondence you receive from the ministry should be faxed to me immediately for proper documentation and don't answer any question or give any reply before consulting me so I can rehearse you on what to say or do in a circumstance. I await immediate response within the next 24 hours. Best regards. (As always the communication was unsigned.)

Para one makes no sense as I have conformed to Mr Yerimah's instructions by waiting to hear from the Central Bank of Nigeria-there has been no such communication. The fax did however indicate that the banking details sent him were received. Again

my request for details of where Mr Yerimah's 60% is to be paid has also remained unanswered.

For a con-man Mr Yerimah doesn't appear to be very observant, and needs to pay more attention to detail. I responded simply saying, "We have not received any correspondence from the ministry or the bank."

A week later I received by fax copies of two official looking documents. One purporting to come from the Federal Ministry of Finance, the other from the Central Bank of Nigeria.

The F M of F letter to the bank was an approval for the payment of the amount of US\$25.5 million, and a reading of the ultimate and penultimate paragraphs of the bank's letter indicates how the sting works.

In accordance with the Central Bank of Nigeria payment regulations as contained in the Federal Government of Nigeria gazette No. 11 of 12991 as amended in 1993, you are to present to this office, the payment receipt for STAMP DUTY and FORM 'M' fees from the Federal Inland Revenue Department, to enable the completion of remittance procedure. You are hereby requested to visit the Central Bank of Nigeria to sign the documents. Alternatively, you can contact Dr O. Ufot Telefax: 234 90 40 0684, to sign on your behalf. Dr O. Ufot is one of the Government Approved Attorneys such purposes and you shall bear the cost of Legal Representation." (In the previous fax I was told that the documents were to be signed in Germany. I subsequently found out that the scam is operating world-wide. They appear to have used the wrong form letter.)

Therein lies the sting - the beneficiary is required to pay the stamp duty, legal and other fees before the millions are to be transferred, and then hears no more.

### Overwhelmed with joy

Having been instructed by Mr Yerimah not to respond without first consulting him, I advised him of the receipt of the two faxes on the morning of September 1. Late that same evening I received a reply headed "memo" advising as follows:

I am in receipt of your fax of today in which you stated you have received notification from the Central Bank of Nigeria. Thank you for getting me informed at once. All partners over here are overwhelmed with joy at this recent development. This signifies the finalisation stage of this project. You should fax down the copy of the Central Bank of Nigeria notification to me as soon as possible so as to know the content of the notification to enable me to advise on how best the situation can be handled. I await your immediate response to this fax. My profound gratitude to your commitment and cooperation. Best regards.

Overwhelmed with joy? I'll bet they were. It may have been a while since they had hooked an eager beaver like me and were looking forward to good times ahead. They'll be surprised however when they finally reel in the line and find out what's on the hook.

I complied with the partners' request by faxing them a copy of the notification next morning, and at

11 pm on the same day received the following-reproduced *verbatim*.

I am in receipt of your fax of today. Congratulations! I am happy we are progressing.

The ball is now in your court. As a matter of fact you are the caption (sic) of the ship right now. At this stage you have the knife and the hoe. Either you cut or you dig.

Since the CBN has introduced an attorney to you, my advise is that we should not jeopardise this transaction at this stage.

It is urgent and important that you contact the approved attorney since he will be in better position to explain this stamp duty and form M fees.

Please let this not be a hindrance to us now that fortune is knocking at our door.

N/B: Find along this fax specimen of what you will fax to the attorney.

Attn: Dorothy, Ufot & Co. Nigeria. From: N. Kelly.  
Date: 3rd September, 1997.

### **Re: LEGAL REPRESENTATION IN CONTRACT NO: NNPC/1188/PED/93.**

I have been informed by the Central Bank of Nigeria (CBN) via (Quote the document sent to you and the date.) That you have been appointed to conclude or complete remittance of my contract payment to my account. Please let me know how soon you can have this done and your legal cost of representation.

### **The sting.**

The sting was now very apparent-after paying the stamp duty, legal and other costs up front I would then hear no more. However, I wasn't quite finished with our scam artists yet. I complied with the instructions and speculated on how much I would be expected to pay.

Almost by return, I received a fax from Dorothy, Ufot & Co Attorney & Councillors at Law, informing me that they had verified my claim with the CBN and that they would act on my behalf. The fax was accompanied with a Bill of Costs-stamp duty, Form "M" fees, Banking fee, Professional fees etc: totalling US\$8,950, to be paid to "Mr" Oni Ufot in two instalments -\$4,000 and \$4,950 respectively, at 3 Orafemi Awolowo Way, Ikeja, Lagos. While the office address and the address for the remittance were the same, the title "Dr" had been dropped. The \$25.5 million was to be credited to me within 72 hours of "Dr/Mr" Ufot receiving the first payment.

### **The switch**

I replied under the Family Investments Co.'s letterhead as follows:

I am receipt of your fax and bill of costs which, in view of the large amount of money involved, I consider to be very reasonable.

I have authorised payment of the first instalment of US\$4,000, a photocopy of the Certified Bank Cheque is attached.

Unfortunately I am unable to transmit this immediately, as I am informed by my bank that a new regulation regarding the importation of currency from overseas has been introduced by the

Department of Finance, requiring a small fee to be paid by the person making a remittance from overseas. In this instance, Mr Abubakar Yerimah.

I understand this is little more than a formality and my bank will be contacting you forthwith with the details. As soon as this requirement is attended to, I will make the payment via Western Union Money Transfer as requested.

On the bottom of the letter I included a photocopy of a fake cheque in the amount of US\$4,000, and then concocted the following explanatory letter to be sent to attorney Ufot a day later from my "bank."

Re: Transfer of US\$25.5 (twenty-five million five hundred thousand dollars) to Mr N. Kelly.

Mr Kelly has authorised and a cheque issued being the payment to you of US\$4,000.00 being an amount required to cover the expenses in connection with the above transaction.

I advise that before the above funds can be imported into Australia it will be necessary for the transaction to be approved by the Australian Department of Finance. New regulations governing the importation of assets/currency came into force on July 1st 1997, and it is now required that such imports be registered with the Department of Finance. A minimal pro rata fee is also payable by the person(s) remitting the funds before such transaction is authorised.

Would you be kind enough to complete the attached application form and return by registered post to the bank with the fee of \$150.00. The fee made payable to "The Manager". Alternatively the form can be faxed and the fee remitted by telegraphic transfer.

Following receipt of the application form and fee, processing will take less than 24 hours.

Mr Kelly's payment of US\$4,000.00 for the expenses will be telegraphed to you immediately we are advised by the Department of Finance that the application has been approved. In reality this is simply a formality, the Department welcomes overseas investments of this magnitude.

Would you please advise Mr Yerimah accordingly.

Yours faithfully. Graham Morris (Manager).

With the letter, was enclosed a fake application form headed "Australian Foreign Funds Import Act (1997)", which was to be signed by Mr Yerimah, and returned with the required processing fee of \$150.

At 11.06 pm that same evening I received a fax addressed to "Dear Partner" from a worried Mr Yerimah who was evidently not yet aware that I had written to Mr Ufot the attorney. He begged me, in the name of God, to "hurry up the attorney to complete the endorsement exercise by tomorrow, so that by Thursday the money would be in my account." He also advised that "I and a colleague would come to Australia for their share of the money" and asked me to "do some feasibility study of the business environment" so that he and I could become business partners. My Yerimah added that he "will personally invest in Australia." I doubt that Mr Costello would get too excited about that!

At eighteen minutes past the witching hour that same evening, a "classified" fax arrived purportedly from the Central Bank of Nigeria signed by Alhajim Rasheed, Director of the International Remittance Office. It was couched in rather undiplomatic terms

directing me to "promptly inform this office why you are unable to meet up with the endorsement requirement of your contract." It was obvious by this that there was a breakdown in communication between those involved in the scam, and I decided to mark-time until I heard from them again.

I did not have to wait long. The response from Dorothy, Ufot & Co. was interesting. First they said that they had no idea who Abubaka Yerimah was. Second, the money for fees and services was now requested in two separate instalments to be paid on the same day. (This raises the question why? Was it one instalment for the attorney and the other for Mr Yerimah who was not known to him?!) Finally, the fee required to be paid to the Australian Government was to be paid by *my* bank manager.

Either I had not made myself plain, or Mr Ufot didn't understand, so I spelt it out again as simply as I could.

Re: Endorsement on Contract No. NNPC/1188/PED/93  
I acknowledge receipt of your fax dated September 8, 1997.

Answering your questions.

Abubakar Yerimah (Tel/Fax: 234-90-406958) is the person who advised that the contract money is available for transfer.

The Central Bank of Nigeria is the authority releasing the money, not the NNPC.

You are the attorney acting on my behalf.

Before the matter can proceed further, the facts are:

1. The Australian Government requires that persons remitting currency from overseas (in this case the US\$25.5 million from Nigeria) must obtain the permission of the Australian Department of Finance by completing the form sent to you.

2. A fee of \$150 is required to be paid by the person making the remittance.

It would appear in this case, that the Central Bank of Nigeria is the remitter, although there is no reason why you or Mr Yerimah could not make the payment on their behalf as long as it can be shown that the remittance was made from Nigeria. A photocopy of the payment slip with the application form and fee will suffice.

Trusting that the above clarifies the matter, I am yours faithfully,

### **Anxiety psychosis.**

The next communication came from a slightly paranoid Mr Yerimah. "Why on earth did I disclose his identity and telephone number to the attorney, are you trying to get us into trouble?" "All our life savings and properties has been used to finance this project, and now we are left with nothing." "Look my friend, if this money is not cleared our lives are ruined." "Kindly address the attorney, telling him that it was a typographical error by your secretary."

My heart bled as I visualised Mr Yerimah and confreres squatting around a campfire in the jungle, sweating tears of blood while plotting their next move.

Mr Yerimah's concern at my disclosing his name to the attorney is difficult to understand, and I'm sure

any attorney worth his salt, wouldn't be fooled with an excuse such as "typographical error". Besides, in his fax dated August 7, Mr Yerimah said, "... our resolve is to employ the services of an attorney to sign on your behalf." I assumed therefore, that through the freely admitted wheeling and dealing, Mr Ufot's services had been co-opted by Mr Yerimah and, although I'm not supposed to be aware of the fact, he is part of the scam.

I decided to let them sweat it out for a while, hoping that by encouraging their anxiety and greed, I could inveigle them in to paying the "Foreign Transaction" fee I had invented.

Over the next few days I received a couple of phone calls indicating that a fax was to follow, but none arrived. Anxious to keep stirring the pot, on September 16 I wrote to Mr Yerimah urging some action.

I have received telephone calls from you indicating that a fax was being transmitted but none have arrived. What is going on?

I've heard nothing from the attorney, the money to pay his fees and expenses has been authorised, but I can do no more until he, or you, pay the small fee of \$150 required by the Australian Finance Department. It would appear that the delay your end could jeopardise us all becoming millionaires.

Would you please attend urgently.

PS My Tel/Fax machine is automatic. There is no need to telephone first, just send the fax.

Four days later, a fax arrived, evidently composed to panic me into action. My repeated request that a fee was required to be paid to the Department of Finance before any further transaction ensued was ignored. They believe I no longer have faith in the transaction, (dead right I haven't!) and as they had a Lebanese interested in taking over, they require me to advise the Central Bank of Nigeria to change the name of the beneficiary's bank and account details. This to be on my letterhead, and in favour of account number 00246112, at the Zenith International Bank, Lebanon. No branch, town or suburb was indicated.

I decided on one last try, and replied with a reiteration that the ball was in their court and that the \$150 fee must be paid before any further progress can be made. To expedite matters, I suggested that an International Money Order should be sent to my secretary, who will personally take it to the D of F, and see to it that there is no delay in paying the instalments previously requested by attorney Ufot. I also offered to reimburse Mr Yerimah for paying the fee.

### Change of tack

A few days went by while Mr Yerimah and his colleagues evidently got together with Attorney Ufot to try another tack. In the early hours of September 25, the result of their deliberations arrived.

Mr Yerimah and his colleagues did not wish to continue with the transaction, and reiterated their request that I confirm under my letterhead, the trans-

fer of beneficiary to a Mr F. B. Fizal of Lebanon. Mr Y also sent his warm regards to me and my family, ending with "God Bless."

(A contract signed over by the payee metamorphoses itself into a "Legitimate Contract" available for reassignment to a new beneficiary. It is then presented to a new mark [called in Nigeria, a new "mogu"] as a valid contract being "reassigned".) Dr Ufot however, in legal mode, was not prepared to let the fish slip through his fingers quite so easily. He offered to defer payment of his legal fees and costs until after the transfer of funds provided that:

1. I agree to pay as my legal fees 1% of the contract sum (US\$25,500).
2. Give power of attorney to Dr Ufot to act as my lawful attorney and
3. Sign a promissory note of the cash equivalent of 1% of the contract sum to be sent by my company to Dorothy, Ufot & Co.

Now one doesn't have to be too far removed from being a congenital idiot, to realise that a cash promissory note in the amount of US\$25,500 in the hands of someone bearing your power of attorney, may (in these circumstances) be vulnerable to temptation. That anyone could be so blatantly obvious took my breath away, and I marvelled that so many people had been sucked in to parting with US\$5 billion over the years. Rather than meekly comply, I again drew Dr Ufot's attention to the requirement of the Australian Department of Finance (that is to say, my version of their requirement).

I also sent a copy of the letter to Mr Y, suggesting that he pass the hat around among his colleagues to pay the D of F fee, and then we'd all be rich in a matter of days. In response to the almighty's blessing he bestowed upon me, I concluded with, "May Allah smile on you and your colleagues."

Having failed to reel in the fish, the scammers probably tumbled to the fact that I was using their own modus operandi against them and communication ceased.

### Summary

Mr Yerimah's scam leaves much to be desired. It's full of inconsistencies and contradictions, and demonstrates a deplorable lack of attention to detail.

First and foremost, the mark is told that their name was obtained from an "International Business Directory". If, as in the case of the majority, you are a salaried worker with no business connections, this alone should arouse suspicions. Why, out of all the millions, pick me?

Second, the mix-up with the documents to be signed first in Germany and then in Nigeria.

Third, the deliberate omission of an SID on the Nigerian faxes to obscure the senders identity.

Fourth, the fact that my own SID did not correspond with the name of the sender was not queried

Fifth, no attempt was made to authenticate the existence of my "bank."

Sixth, the use of certain well known names (one of which was that of a deceased dictator) in my letterhead, should have warned off anyone familiar with the world of finance.

Seventh, since when has Australia been "The Commonwealth Republic of Australia" as designated on my "Foreign Transaction" form?

Eighth, two of the communications from the Central Bank of Nigeria had two different addresses.

Ninth, although Mr Yerimah refers several times to "the expenses of both parties to be reimbursed", there is no mention of what his expenses have been nor are they mentioned in Mr Ufot's rendered bill of costs.

Tenth, the advance payment was first required in two instalments over 72 hours, then required concurrently-why two separate amounts? (Fairly obvious?)

Finally, having failed with their first ruse to obtain money under false pretences, the scammers then attempt a different approach.

I'd offer my services as a consultant, but since Mr Yerimah and his mates have "spent all their money and properties" and are now destitute, I doubt they could afford my fee!

In between times I went surfing on the web and came across <http://www.mbendi.co.za/cyngoi.htm> (the Nigerian National Petroleum Corporation's web-site). An overview gave details of Nigerian scams operating world-wide and the extent of the fraud-estimated at US\$5 billion.

Elsewhere I found <http://www.superhighway.is/its> and <http://home.rica.net/alphae/419> Coal, the web-site of the 419 Coalition who investigate Nigerian scams and frauds, and the International Investigation Services, who even publish a list of known Nigerian crooks, including their addresses, phone and fax numbers!


The 419 Coalition takes its name from the Nigerian legislation covering fraud and scams.

Also alerting the public on September 7, 1997, the *Sun-Herald* carried a full page advertisement by the Central Bank of Nigeria, warning the public against the Advance Fee Fraud Scam. It said in part, that to date, the CBN has placed advisory advertisements in over 80 newspapers and magazines in 12 languages and in 36 countries, in an effort to forewarn all corporations and individuals who are likely to fall prey to the scam.

A copy of my file has been forwarded to the 419 Coalition, the American Secret Service, and to the local International Police Organisation (Interpol) in Australia to add to their data bases.

### Update

I wrote to 60 *Minutes* to see if they were interested in the story but there was no response. Coincidentally however, on October 12, the programme included a segment on Nigerian corruption, part of which briefly featured the Advance Fee Fraud, and an Australian victim \$150,000 worse off for his experience. The Sunday newspapers evinced no interest either, so perhaps in future I should concentrate on something more newsworthy such as Elle MacPherson's expanding waistline or the latest Elvis sighting.

Part 2 of this article to appear in the next issue of *the Skeptic*, will include extracts from my correspondence with the 419 Coalition revealing the extent of the scam, the involvement of the Nigerian Government, variations of the scam and other frauds perpetrated by the scammers, how victims are lured with what appear to be genuine business opportunities, the US\$78 million Ghana rip-off, laundered money and the magic dye remover [pseudoscience], scepticism [exhausting every angle of inquiry], the true believers [you can't convince them], and what happens if a victim goes to Nigeria. 

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# Reminder

Many subscriptions will fall due with this issue. In a perfect world, all those subscribers whose numbers are up, should find a loose-leaf Renewal Notice insert announcing that fact. In this, somewhat imperfect, world the occasional unforeseen error will occur, and we invite you to contact us if you are worried about not receiving a Renewal Notice, or indeed, if you find a notice and don't believe you should have one.

We beg those who did receive a Renewal Notice to return the notice, with a suitable monetary consideration enclosed, as soon as is humanly possible.

Things get pretty hectic around here by the end of January, what with Vol 18, No 1 coming up to deadline and all.

Apropos of which, if you have an item for the next issue, we would really appreciate it if you could get it to us by mid-January at the latest. We would also be interested in receiving more pictorial items (eg, UFOs landing in your back yard, someone levitating, etc)

We thank you for subscribing, and hope that you will continue to support our efforts. 

# How can you tell from make believe?

Roland Seidel

*"We dance around in a ring and suppose, And the secret sits in the middle and knows."* (Robert Frost)

Humans have been dancing around this secret for millennia and speculating on what it might be, or how it works, or what it might know. Lots of us have really got into the dance and enjoy it so much that we couldn't care less whether we're getting the secret right or not, as long as it scans well and fits the rhythm.

I think, in the last couple of centuries we have developed a system that does get at the secret in a very profound way. But the brain we have been left with by evolution, while it is amazingly miraculous, is still pretty keen on just dancing around.

There is a simple answer to the title question but before I address the How, I'd better make clear the What and the Why. What is it, that I am suggesting you should take some effort to distinguish from make believe, and why should you bother? What?

Obviously, I recommend the paranormal, mystical and general new age stuff for scrutiny, but I also include religious matters, economic pronouncements, political analysis, medical diagnosis, psychological opinion, the opinions of mechanics, engineers, architects, art and theatre critics, lawyers, electrical repairers, people involved in divorce, teachers, loggers, environmentalists, fundamentalists, Skeptics, atheists, marketing consultants, advertisers, salespeople, the buying public, my close friends and close relatives and, most importantly, my own brain. Clarity begins at home. The very first thing you should be sceptical of is your own brain. Why? Why bother? Because humans are very easy to fool, that includes me and it includes you. It is the view of people like Susan Blackmore, Daniel Dennett and Francis Crick that 90% of what we know about the brain has been learnt in the last ten years and most of it is pretty humiliating:

I am human,  
I have a brain,  
It tells me things,  
I believe it.

I am putting the proposition that we are mugs and fools for believing the things our brains tells us. The more we find out about brains, the worse it gets. Further, our common language in this area is impoverished making it very difficult for us ordinary folk to even think clearly about brains. Freud's *Id*, *Ego* and *Superego* ceased being useful ages ago and Jung's *Conscious* and *Unconscious* is failing to serve - what words should we now use?

I will begin in Lessons From the Laboratory with

my 'armchair scientist's' summary of some of what has been said by the brain research people. Then in Language For the Labyrinth I will collect some of the neologisms I find helpful. Finally I will give a plug for the only system of knowing that has any chance at all of reliably distinguishing Fact from Make Believe.

## Lessons from the Laboratory

### Perception

The experts suggest that perception is a constructive process, where sensory information is savagely filtered and mixed, in about equal measure, with memory and imagination, and then presented to the self as reality. The filtering is necessary to avoid the sensory overload such as is experienced by a class of schizophrenics, in revelatory and profound experiences and under drugs like LSD. When you are asleep there is no sensory information; memory and imagination provides the lot and we call it dreaming. Waking is just dreaming with a bit of external input (about 50/50 apparently).

Perception is the process of constructing a model of reality. The Buddhists say, "with our thoughts we create the world", and they're about half right.

### Memory

They suggest that memory is not at all like playing a video. Memories are stored where they are experienced, the sensory bits, the emotional bits, the aural and visual bits in their respective parts of the brain. Recalling a memory is actually a matter of re-experiencing the event, which explains why sad memories make us cry. The dramatic implication, though, is that memories will always be modified by subsequent experience and must always be regarded as distorted. Indeed, we have seen in the False Memory Syndrome how easy it is to construct very real memories of very unreal events. Elizabeth Loftus has even shown that plain old visualising (imagining yourself in some circumstance) can produce 'real' memories. (*New Scientist* 22 Feb 97 p12)

### Evolution of the nervous system

A primitive central nervous system would just be a set of single responses to stimuli. A better one would have a number of possible responses and some mechanism for changing the likelihood of responses in the light of experience - it can adapt as the result of trial and error. A further sophistication is the capacity to construct mental models of things and run imaginary scenarios, rather than risk trial and error (we let our hypotheses die in our stead). Blackmore



suggests that neural nets give an indication of how these models are 'stored' in the brains, not as entries in a vast list but as the states of networks. We have models of how things function that comprise our representation of the world.

When a baby is flapping around randomly, something happens in its brain when it succeeds in grasping something. This is a success and the pyramidal 'value' cells in the brain stem signal the fact by sending a neurotransmitter throughout the brain, it may be nitrous oxide, which has the effect of strengthening synapse connections currently active, thereby making the behaviour they elicited more likely. It's Darwinian natural selection operating on behaviour patterns.

Now the brain eventually recognises that there are a class of things out there that give a double signal. When the baby grabs a bottle it only get sensory signals from its hand, but when it grabs its own foot it gets a second signal from the foot as well. At some point it merges all those bits out there that give the double signal into one model - a model of its self. This is when 'I' comes into existence, and it happens at about 18 months of age. (This is pretty shocking. I didn't exist until my body and brain had been out of the womb for 18 months.)

### **Self**

They speak of the self, that conscious bit referred to with the perpendicular pronoun, as a construction of the brain, informed on a need to know basis only. It is told, not the truth, but what will make it feel most secure. I see this as another step in that long progression that has taken us away from the centre of things. The Earth used to be the centre of the universe, then our sun, then our galaxy, now we are nowhere special at all, and lately we are finding out that we are not even the master in our own brains.

### **Reality**

Reality is a construction in your head that makes it possible to predict the result of your actions and anticipate the behaviour of the rest of the world. Your model of reality only needs to be changed when it conflicts with the evidence of your senses; that is, when your brain (which has been censoring your sensing) accepts that it can no longer sustain whatever illusion it has been presenting to you.

Part of the pain of grief after the death of a loved one is the dissonance between your model of reality that still contains the person and the evidence of your senses that denies his or her existence. To avoid madness you have to remove the person from your inside world and this is almost like having to kill her or him again.

### **Time**

People often experience time speeded up, slowed down or simply not there at all. The limbic system and temporal lobe construct your sense of self in time and in place and the subjective passage of time is clearly affected by activity, interest and state of mind.

Blackmore argues that the sense of time is closely associated with the sense of self. The self gets a very limited subset of the things that happen (the details of most things happen without conscious awareness) from which it assembles a skein of narrative, the sequence of which is the impression of time.

### **Volition**

Who is in charge? It is suggested that the brain backdates different experiences to make one coherent experience of the parts. Signals from your hands take about a third of a second but visual signals are almost immediate, yet the two coincide when you touch something. Benjamin Libet (*Behaviour and Brain Sciences*, 8 529-66) performed an experiment where he established the timing of simple movements (flexing your wrist), the 'readiness potential' in the brain that sets the movement in train, and the decision to make the movement. He found that the decision is made about 400 milliseconds *after* the readiness potential. This suggests that the self is less an initiator of decisions, and more a reporter. The decisions are formed as the result of network action and the self then takes responsibility for them.

### **Five-year-old thoughts**

Howard Gardiner suggests that by age five we have a complete set of beliefs comprising a viable world view. Most of these ideas won't change throughout our lives, only in those areas where we engage in serious study is any maturing of ideas possible. Most people, when asked to draw a house, still draw a box with two windows and a door. Once set in, ideas are hard to shift. So: - we think with a five-year-old brain and it comes as no surprise that superstitions abound. - the five-year-old has a world view as sophisticated as that of an adult.

Some ideas I had at age five that I have changed: - every year we do exactly the same things - crocodiles under the bed wake up when the light goes off if there are feet on the floor - memory is a theatre where a man pins notes to the seats - the man on the gate (glottis) keeps food out of your lungs

### **Belief**

There are plenty of commentators on belief. James Alcock ("The Belief Engine", *Sceptical Inquirer* Vol 19 No. 3) puts it fairly well. Our capacity and disposition to believe is something that natural selection has left us with. It has served our survival in the past. With the development of language we eventually came to question this and rationalism can be seen as just one more step in shaking off the shackles of our heritage. Most opinions and research suggest security is a big part of belief. It is perhaps the principal currency in the brain: do whatever maximises security.

Why are fictional beliefs so serviceable? The vast majority of people are staggeringly ignorant of the vagueness of their perceptions and the indiscriminating way in which they form beliefs. Human beliefs are not encapsulations of the truth, they are constructions of the mind which serve its

principal agenda of maximising the security of the self: despots think power will bring security; religionists think god will bring security; paranormalists think magic will bring security; rationalists think science will bring security.

**Superstition**

Trevor Case, the 1996 winner of our Eureka Prize for the work he is doing on the nature of belief, observes that superstition is commonly driven by uncertainty. He tells of a Polynesian society where they can fish in the lagoon or the open sea. In the lagoon the catch is fairly certain and they simply go out and fish. In the open sea, where the catch is much less certain, the trip is always accompanied by superstitious rituals. You can see the same thing in the development of agriculture where inquiries about the weather and sowing times have shifted from soothsayers to meteorologists as knowledge of the real mechanisms, and hence confidence in the pronouncements, has increased.

**The Grand Illusionist model of the brain**

From all of this I derive a model of brain function which sees the self as a construction of the brain informed on a need to know basis only, but given the illusion that it is in charge.

Picture the brain. Up in the frontal lobes is the self, sitting in what looks like a control room with a steering wheel and pedals, lots of dials and buttons and a big display which reads "All OK". Back in the rest of the brain is the grand illusionist in his magician suit, a pigeon on his shoulder, top hat with rabbit on the table, picture of DNA on the wall labelled Prime Directive, telephones, business, inputs from eyes ears and all over, shouting, pandemonium, minions running every which way. The only active connection to the self's control room is the big display reporting "All OK" and perhaps a microphone so the musings of the self can be listened to. The steering wheel and all the controls go nowhere. Outside the control room is one gauge labelled Security, reading 99%.

**Language for the labyrinth**

Conjugations of the verb 'to be human'.

- I am human, I have a brain, it tells me things, I believe it.
- You are human, you have a brain, it tells you things, you believe it.
- He is human, he has a brain, it tells him things, he believes it.
- She is human, she has a brain, it tells her things, she believes it. We are humans, we have brains, it tells us things, we believe it.

They are humans, they have brains, it tells them things, they believe it.

I think we need more language to help us get a grip on the consequences of being human and here are a few suggestions.

**Constructed belief**

You think that wearing magnets affects your blood flow? I think that's a constructed belief. You think that the Ganges will remain pure even when you throw dead bodies in it? I think that's a constructed belief. You think it was the Virgin Mary you saw in the gloom? I think that's a constructed belief.

When things get vague you get constructed belief. All the UFO photos are fuzzy. All the miracle cures apply to chronic illness. All the religious visions are in the gloom or the blurry bits. At the limit of definition your brain fills in the details.



**Brain Swindles**

Constructed belief sounds as if it's my fault. Brain Swindle suggests that I have merely been insufficiently vigilant against the master illusionist that is my brain; it's not really my fault.

I think we are being constantly swindled by our brains into believing stuff. I believe I'm safe, but an asteroid could hit any time or I could have a heart attack. I believe I can trust

my investment advisor. I believe that Westminster Democracy will protect me from my government. I believe I can survive a bush fire now that I have installed sprinklers on my house. I believe that fundamentalists of any persuasion are bad. I believe that new age thinking, belief in the paranormal and mystical, is a dumb thing, a bad thing and dangerous. They make me so mad with their dumb thick-headed. Ignorant, pious, holier-than-thou, secret, sacred, stupid, ludicrous, nonsense.

Notice how I started getting cross there? How do you test for Brain Swindles?

**Clues**

Anger. If you find yourself getting angry there's a fair chance that you are protecting a constructed belief. Anyone who has been in a divorce can confirm this. Conviction. If you find yourself saying 'I KNOW I'm right, I just know.' If you find yourself using these sorts of words:

- Tradition (often another word for dogma) (honest replacement - habit);
- Sacred (to whom?, why?) (honest replacement - cherished);
- Secret (secrecy is power) (honest replacement - not

accountable). (Note that 'secret, sacred tradition' becomes a cherished habit that is not subject to accountability.)

#### Question 1: **What's in it for me?**

Usually, beliefs are there because they make you feel more secure; secure against poor crops, poor hunt, misfortune, loss, loneliness, ostracism, powerlessness, assault, death.

#### Question 2: **What would I lose if it weren't true?**

This is a real killer. You only have to ask a fundamentalist this question about god and watch the sparks fly. Ask it of astrologers, channellers, psychics, religious people but also ask it of yourself. I suggest the simple answer will always be 'security'.

#### Question 3: **How would the world be different if it weren't true?**

I've found this can actually get people thinking properly about their beliefs. So you think there is some organising force directing the development of things? How would the world be different if it weren't true? So you think there is a life force that animates all living things? How would the world be different if it weren't true? So you think there's a god?

#### **AutoSkepsis**

Clarity begins at home. The first thing you should be sceptical of is your own brain.

#### **The "Friend Effect"**

Any medical system that relies on patient reporting can suffer from the Friend Effect. You don't want to give your friend bad news, you want to express appreciation of effort, you don't want to suggest that your friend's caring has been wasted.

If in your therapy you spend time chatting with and befriending your patient, the patient may feel better simply because of the attention. If the condition is a vague one the patient may report an improvement in the condition, when it may only be an improvement in mood. The more confidence and authority attached to the treatment, the more likely is this effect.

As the patient, your brain doesn't want to give your friend bad news so it convinces you that there is good news. As the therapist, your brain doesn't want to hear bad news - that would mean your position as healer is less secure - so it selects and reinterprets so it can report to you that it is good news.

#### **Sleight of Healing**

The immune system does a remarkable job of balancing health. We add extra treatments that may help, but with a vague, chronic and long term illness it is very easy for a neutral treatment to coincide with improvement and get undeserved credit.

#### **Taking responsibility for natural events**

Uri Geller is a champion at this. He takes responsibility for watches working, for Big Ben chiming thirteen gongs, for freeing jammed satellites. Transcendental Meditation takes responsibility for reduced crime rates. The bulk of alternative medicines take responsibility for your normal recovery.

#### **The "Tattsлото Effect"**

All casinos and lottery advertising depends on this. You take notice of the few winners and ignore the millions of losers. You never hear about the failures. It feeds the belief in luck and is very seductive.

My sister-in-law lived in England during the war. They received a missing-in-action notice about her uncle. She had a dream that he was all right and was found. He was all right and he was found. The experience was a profound one for her and remains with her today. In fact there were bound to be millions of people in the war dreaming about their loved ones missing in action. The dreams that matched reality remain as a strong memory, those that didn't were simply forgotten. It feels so much different when it happens to you. You never hear the failures.

#### **The "Cloud Effect"**

- or paraeidolia (para = beside, eidolon = phantom). You see pictures in clouds, Rorschach blots, backward masking, tea leaves, coffee cups, steam, swirling fluids, dark corners, samurai crabs, face on Mars, plaster work ... anywhere. It is a trick of perception where your brain is hungry for recognition and, if it doesn't get enough information, it will fill in the gaps with whatever comes to mind.

#### **"Foggyspeak"**

This is the Cloud Effect in language. Speak in vague generalisations and your audience is left to fill in the gaps with what they think you mean. Invariably they end up with a strong impression of meaning, which will be appealing or not, depending on their perception of you. Much political speech is Foggyspeak. All fortune telling is Foggyspeak. Some varieties of foggyspeak are Spiritbabble, where you use words like ancient, secret, sacred; and Technobabble, where you use words like energy, power, vibrations, force.

#### **The "Gypsy Effect"**

All forms of divination depend on this. A divinatory reading is actually a writing done by the subject's brain.

Reading suggests that meaning and information are inherently contained in the object (cards, stars, lines), with the corollary that some omniscient agent is responsible for that information and meaning. It suggests that the reader is an intermediary between the omniscient and the pedestrian, with a closer contact with and greater understanding of the omniscient and consequently of higher standing than the pedestrian. I suggest that the object (cards, stars, lines) is inspirational in the same way that an artist's subject, or any other arbitrary device used in artistic creation, is. In fact the reader can be seen in this light. An arbitrary story is presented to the subject who constructs meaning from it. The reader deserves credit for storytelling skills, but to claim status on the basis of connection with a putative omniscience is a confidence trick.

The vagueness of the 'reading' gives the brain ample room to richly fill the expectation of meaning from its storehouse of memory and imagination, and hence

feel satisfied that meaning has been found. The Gypsy Effect is when your brain does all the work but gives credit to the gypsy.

**Skimmers**

People who skim the top of a subject, know little bits, a few of the key words, but have no substantial understanding. The crackpot theories of everything that totally redefine physics are written by skimmers. Skimmers think ideas are like milk and they're getting the cream. I think ideas are like gifts and they're only getting the wrapping paper.

**The Joke**

Why do people take astrology seriously? Because they haven't got the joke yet. A lot of these things are just jokes, but people take them too seriously. Channelling is a joke, homeopathy is a joke. Some people sell it genuinely because they haven't got the joke yet, others sell it insincerely as a con.

**The paranormal is the sanctuary of the disenfranchised.**

The early agriculturalists were very superstitious, blaming the stars, bad thoughts, bad winds, evil omens for the failure of crops or loss of animals. As they developed a more rational understanding of how things work, they became less and less superstitious; real control will always displace pretend control.

Why is the New Age consumed more by women, even intellectual women, than men? Some groups in feminism argue that science, reason and logic is masculinist and must be rejected. They search for a feminist concept of time and reality and often end up in various pockets of paranormalism. Now the practice of science is just as masculinist as every other modern enterprise in which there is any power: business, government, law, medicine, religion. While some argue that reason and logic is inherently masculinist, it is not an argument that can be supported, and it is much more likely that women tend more to embrace the paranormal as a way of feeling in control because normal power is less available to them, and less considerate of them. If you can't have real power you will have to be content with pretend power.

**"That's an interesting claim"**

This is a great way of responding to any assertion that anyone makes without being put on the back foot and without having to allow the assertion just because you can't immediately present a coherent refutation of it. It also begs the question for evidence. "Shark cartilage cures cancer." "That's an interesting claim." "I can tell the future." "That's an interesting claim." How can you tell when it's not working?

Evolution would be disproved by finding fossil rabbits in the Precambrian. You know your TV isn't

working when you don't see a picture. People use *post hoc* confirmation to show that astrology works, but how can you tell when astrology is not working? If there is no way to tell when it is not working, how can you be sure that it is? How can you tell ancient wisdom from ancient stupidity? 'Chew chincona bark when you have malaria' is ancient wisdom. 'Put tiger bones in your roof to ward off colds' is ancient stupidity.

**"That's one out of one"**

My uncle took herbal teas and he no longer gets sore joints. One of our politicians is wont to offer as a source of information 'a gentleman told me'. The best response to such non-supportive non-data is, 'that's one out of one so far', suggesting that you need a lot more data before basing decisions on it.

**Miscellaneous**

The only way to be No 1 is to follow nothing. Clarity begins at home. (Be sceptical of your own brain). Thinkchronicity: that's what synchronicity really is. To believe without evidence is imagination; to believe in spite of evidence is delusion. (Culver & Ianna. *Astrology: True or False* p 37) Smart people know when they are right. Wise people are aware they may be wrong. Gravity has no place in spirituality (don't take it seriously)

The stars incline, they do not compel (this is typical of a make believe force - every prediction is guaranteed except the ones that don't work.) In contrast to a real force: gravity does not incline, it compels.

**Science**

There's a lot of nonsense written about Science. They say it's limited, and not all things can be scientifically understood, and there are other equally good ways of knowing, and it's too impersonal. These ideas become nonsense when they suggest there is some competition between science and some other way of knowing in some area.

I propose that the 'grey area' where science and other things overlap is an illusion. Things are either

describable by science (and nothing else is any good) or not describable by science (and anything else will serve). Further, it is quite easy to separate things.

Science tells us about the natural world; everything else tells us about what it feels like to be human.

Science determines what is true and false; everything else determines what is right and wrong.

**The Unscientific Method**

**Observe** - look for patterns, gather anecdotes

**Conclude** - describe cause/effect

	Haven't got the joke	Have got the joke
<b>Selling it</b>	Genuine evangelists/ new agers (take themselves too seriously)	Con artists, revival evangelists (they seriously take everyone else)
<b>Not selling it</b>	Suckers	Skeptics

## The Scientific Method

**Observe** - look for patterns, anecdote is not evidence.

**Conclude** - describe cause/effect

**Test** - confirm/reject conclusions - reduce as much as you can the chance that you are kidding yourself - double blind trials - get others to do the tests.

**Publish** - in peer review journals and invite everyone else to kick the crap out of it.

## Three Facts

1. **Universal Facts:** The hard sciences like physics, chemistry and mathematics contain facts that would be adduced by any intelligent life anywhere in the universe. The list of elements and sub atomic particles, their properties and rules of interaction, the laws of arithmetic and probability, these things are the same everywhere in the universe. The informative plaque that went with Voyager II out into the cosmos contained a drawing of what humans look like and a map of where we are with distances measured in the gap between two hydrogen atoms in a molecule. This distance would be known to any intelligent life that had made it to studying the fundamental building blocks of matter because every hydrogen molecule is identical. We understand that these facts have been true forever.

2. **Global Facts:** The Earth sciences like biology, geology, geography, meteorology, zoology contain facts that would be adduced by any intelligent life anywhere in this world. The structure and function of cells, DNA and its role in natural selection, the types of rocks and their formation and interaction, the evolution of landforms and rivers, the broad types of life forms and their interactions, these things are the same everywhere on the planet. On other planets things may evolve differently, life may even be possible in conditions other than on a planet. But what is known about biology anywhere on Earth generally applies everywhere else. We understand these facts to have been true for about four and a half billion years.

3. **Cultural Facts:** This is a broad collection of things like art, music, mythology, literature, religion, spirituality, experiential psychology, philosophy, story telling, personal growth workshops, divination. Anything to do with human creativity. These things can be radically different in different cultures and are subject to fashion. What one generation holds to be self evident another may hold to be dead wrong. These things describe what it feels like to be human. There can be seen common themes, and this is probably what Jung was getting at with his archetypes, but as facts they have a fairly short life and none of them have been true for more than a few thousand years.

The scientific method applies to the first two classes of fact, but is useless in the third because of the subjectivity there.

## Science v Faith

There is much about science that is poorly understood. If it were better understood, it would be obvious that there is no conflict with faith because they don't overlap.

1. **Science is not a faith.** Faiths are content based systems of understanding - myths, legends, anecdote, belief, oracle, ancient wisdom - that are inherently dogmatic. They are very resistant to change and unwelcoming of challenge.

Science is a process based system of understanding - hypothesis, test, peer review, repeatability, predictive - that is inherently non-dogmatic. It is the only system that has peer review, where you publish and invite everyone to kick the crap out of your ideas. It is the only system that honestly says, "I might be wrong" and accepts that its conclusions may be overturned by later evidence. It can look dogmatic because of the normal human tendency to protect your investment and position but this is the weakness of human practitioners of science.

2. **Science is special.** The claim that "science is just another way of knowing, equivalent to faith" cannot be supported. Every culture has its own faith and they vary enormously. But, every culture agrees on exactly the same science. Science is the only universal way of knowing because it strives to eliminate the possibility that observations are being contaminated by tricks of the mind.

3. **Science is not inconsistent with faith.** Lots and lots of scientists (and Skeptics for that matter) have a faith. Science tells us about the natural world and everything else tells us about what it's like to be human. The only time conflict arises is when one system tries to make pronouncements outside its sphere of expertise: science has no business talking about god; faith has no business talking about the physics of fire-walking.

The Australian public is being supplied with arguments that claim to be scientific but are not at all. Anti-Immunisation and Creationism are two that come immediately to mind. The former bears some of the responsibility for recent outbreaks of measles and whooping cough, the latter for really silly damage to education systems. In any collection of humans you will always find exponents of the great confidence trick; cults, gurus, faith healers, televangelists; who harvest the gullible.

It is the failure of the general public properly to distinguish between science (describes the natural world) and faith (describes what it feels like to be human) that allows these sorts of disasters to happen. We have only had the scientific method really for 150 years, since the establishment of peer review. In a thousand years it will probably be more generally understood, and they can look back on the twentieth century as that period when we took the first tentative steps out of the bleakness of superstition.

So, How can you tell from make believe? Science!

Science tells us about the natural world; everything else tells us about what it feels like to be human.

continued p 44 ...

# Economics defended (Pt II)

Padraic Pearse McGuinness

**This is the second part of PP McGuinness's talk at the national Convention. The first part was published in Vol 17, No 3.**

Many non-economists have difficulty in understanding even the concept of economic growth, feeling that somehow growth is a "something for nothing" phenomenon unless it involves the permanent destruction of some material inputs. Except in the most banal entropic sense this is not so. It is clear enough that the natural increase of a herd involves the creation of wealth, and, provided care is taken with soil and pollution, this is sustainable growth. Only in the sense that such growth precludes the natural increase of alternative users of the land, like kangaroos, is there any loss involved.

Sustainability is a pretty vague concept. But it is clear that even natural resource-using growth is sustainable when the resources are replaced by human-created resources, as in the example of replacement of exhausted coal by nuclear energy (and especially so, of course, when the problems of fusion are solved). Moreover, it is necessary to get away from crude material concepts of economic growth. While we are still in the stage of considering agricultural and manufacturing production to be an important element in the human standard of living, they play a rapidly declining role. Much of modern consumption is of services - that is the work of other humans. A society of thinkers, writers, artists and cooks could, given a sufficiently high technological base, have a very high living standard, with relatively low material inputs.

Of course, rising population is a problem if it is to go hand in hand with rising per capita consumption in the material sense. But the only communities which have successfully brought population increase under control are those which already enjoy high living standards. In a sense, economic growth is the key to population control. In a sense it is also the solution to unemployment, since the only sure cure of unemployment in modern economies is economic growth, which ensures that the workforce can be expanded without penalising vested interests. When population stabilises, the problem of reconciling full employment will be more difficult; growth of per capita output with a stable population will require much greater flexibility than at present, when overall growth irons out conflicts.

But in any case, what are the causes of economic growth? Understanding this is a prerequisite to attaining either sustainable growth or a steady-state

population compatible with economic and political liberty. This would seem one of the most basic issues for economics, and indeed there is any amount of literature on growth theory. Much of it is arid speculation and theoretical modelling. Indeed, it is only in recent times that there has been a reasonably elaborate investigation into the causes of economic growth. Again, a lot of the problem has been the absence of a suitable data base to make possible detailed comparisons of countries over time.

Moreover, it is obvious even to the narrowest economist that there are non-economic factors contributing to rates of growth. The great socialist historian R H Tawney followed up the work of the father of modern sociology, Max Weber, in analysing the relationship between the spread of Protestantism and the rise of capitalism - the "protestant ethic" being, according to Weber, conducive to hard work and saving, hence capital accumulation.

There is a huge literature of historical or sociological waffle and speculation about the reasons for economic growth (a popular recent example being Francis Fukuyama's *Trust*), but only recently has a really large-scale research project, based on an adequate data base, been mounted. Thus we need to be able to give reasonably precise answers to questions like, why is country A so poor, and country B so rich? Or, is a high degree of inequality of wealth and income good or bad for economic growth? Is it better from the growth point of view to have a dictatorship, or is it better to have democracy? Is foreign investment conducive to both growth and national independence - that is, does a high rate of foreign investment produce a growth rate such that the proportion of foreign ownership of a national economy declines? Does autarky or an open, free trade, system produce a higher rate of economic growth? Is the Confucian ethic conducive to growth? Is there something about the peoples of hot countries which lowers economic growth rates?

Some of these things can be quantified; even for those which cannot be in any conventional sense it is possible to construct indices. On the crudest level, on a scale of 1 to 10 measuring political liberty, we know that Australia is near the top and North Korea near the bottom. Then you can construct regression equations to try to measure the relative importance of various factors, like savings or a high degree of freedom in determining rates of growth. A recent exercise along these lines is reported in the May 1997 issue of the *American Economic Review* by Xavier Sala-i-Martin, under the title, "I just ran 2 million regressions".

Interestingly, preliminary results suggest that there are clear candidates for both economic and non-economic variables contributing to economic growth. Equipment investment is obvious enough, and a major factor. Openness of the economy is good for growth. Non-economic variables can be positively or negatively correlated with economic growth rates. It is clearly better to be further away from the Equator. The rule of law, political rights, and civil liberties are good for growth. Revolutions, military coups and wars are bad. Confucian, Buddhist and Muslim religious values are good for growth; Protestantism and Catholicism are not.

Now there is plenty wrong with all of this, and there are many possible factors and indices to be taken into account. But it is much to be preferred to adopt an empirical approach to evaluating the importance of economic and non-economic factors contributing to growth, including those which may be purely historical (like distance from the Equator) and try to estimate their relative importance rather than to peddle your ideology and political preferences. When you know what actually causes or impedes growth, you can both promote it and promote sustainability with some hope of getting where you want to go.

A great deal of economics is really, by contrast, about fairly meticulous analysis of particular problems. There have been quite a few interesting contributions to the economics of crime which begin by considering the behaviour of criminals as not totally irrational, and therefore subject to economic incentives and disincentives. This is an area in which it is even possible to experiment - a recent case is described in a recent issue of *Slate*, the Microsoft online weekly (August 2) in Steven Landsburg's "Armchair Economist" column. (Incidentally Landsburg and another regular contributor, one of the most eminent of modern international trade analysts, Paul Krugman, are amongst the best of regular explicators of economic issues.) Obscurantists often like to ridicule careful analysis of this kind - for them only the unexamined life is worth living. And uncomfortable conclusions are simply rejected.

Thus it is clear that in purely financial terms the community benefits from smoking, in that the total of expenditure on treating the ills of smokers is limited by their shorter average lives, and the revenue from taxes on smoking is considerably in excess of spending on their health. Of course shorter life-span is not a good thing in itself, but neither can its economic significance be ignored.

The application of economic concepts and methods has spilled over into many areas not strictly thought of as economic. Not surprisingly there are often furious demarcation disputes involved, and the economic approaches are derided as crude utilitarianism and worse. Thus there have been serious analyses of the economics of marriage and the family, not in terms of their welfare or income but in terms of explaining the rate of divorce or the determination of family size. So long as these analyses are taken with a grain of salt, and it is never forgotten that they are

abstracting from the main issues, they can be very useful. There is also a field of growing importance, the economics of law. This has a lot to say about the institutional determinants of the functioning of economic players, and illuminates as well as helping predict the impact of parliamentary and judicial lawmaking.

It is often argued that economists are dealing with the wrong things, or that the quantitative variables they use do not include relevant and important elements. The concept of National Income, Gross National Product or Gross Domestic Product, and GDP as measured by value of production at market prices, by factor costs (ie, incomes of all participants), or by total of individual, corporate and government expenditures (different ways of referring to much the same thing) is attacked by both feminists and environmentalists. They claim that it measures the wrong thing, or ignores essential elements, or produces misleading indices of both income and welfare. In general they are all right - in that, as it evolved, the concept of GDP refers only to the market sector of the economy, systematically underestimates the role of government by valuing what government produces at cost, and rarely takes account of the depreciation and degradation of natural assets as distinct from man-made assets.

But the question is not whether we could, or should, measure any different concept, but how well we could do it, and what its implications are; we may know that spiritual exercises and virtue can pile up treasure in heaven, but unhappily God is not an accountant, still less a producer of annual reports and rates of capital appreciation.

The feminists are fond of pointing out at great length how GDP estimates ignore or undervalue the work of women in the home, and the Bureau of Statistics has begun to publish estimates of the value of women's unpaid work. But these suffer from a number of basic defects. The first of them is the determination of the value of housework. You can say that if a woman spends, say, 10 hours a week preparing and serving food to the family this can be valued at the going rate for restaurant cooks, scullery hands, waiters, etc. But then we have to assume that the quality of the work is of the same value - sometimes it is, sometimes not. Then is the hourly wage the appropriate one? If all the women involved were commercially involved in cooking, etc, competition would reduce the rate of pay - and minimum award rates would ensure that many of the would-be cooks would be unemployed. Moreover, the feminists in this also fall into the market economics fallacy. There is a qualitative difference between work done for love and work done for economic reward, even though in traditional societies this is often blurred and women are oppressed. When is ironing a shirt an act of love, and when a contribution to the GDP?

The real stumbling block for the feminist statisticians comes with the criterion of valuing domestic work at a price equivalent to market rates. That might seem fine for cooking and cleaning, but what about

sex? Either they have to define all women in a sexual relationship as prostitutes, full or part-time, working on the lifetime or long-term contract or working on weekly or casual rates, or they have to accept that sex with love, or sex with a co-parent, are simply not commensurable with sex in the market. Once that concession is made, the whole basis of valuing domestic work breaks down. What women do, and have traditionally done, in the home is of enormous material and moral value, but that does not mean that it makes sense to treat it as an economic variable. Nevertheless, it is true that on the margin between family and market there is a connection. For example, full tax deductibility of child care and domestic help for professional women would certainly increase the market supply of highly skilled labour.

The problem for the environmentalists is how to stop repeating empty mantras. Of course depletion of natural resources, pollution and degradation of the soil have real costs. The proper questions revolve around the importance and cost, and the appropriate remedial measures, for these. Thus it is a pretty safe bet that if we exhausted all the world's stocks of presently easily available coal over the next two hundred years it would not matter, since the progress of scientific knowledge would ensure that alternative cheap energy sources would be available long before the point of exhaustion. It is then a sensible strategy to use the coal to increase our GDP in order to be able to spend more on science and technology. If the problem is that coal is too dirty, we could spend like sums on using our uranium safely and with adequate disposal of wastes. The point is, the fact that fossil fuel resources are exhaustible does not matter, if we do not expect to use them long enough to exhaust them.

Where environmentalists do have a good point is in emphasising that the time perspectives of economics are often not appropriate to the time horizons of the globe and of humanity. If you have a rate of interest (discount on the future) of a few percentage points it means that income flows (and the assets from which they derive) a hundred years from now are of virtually zero present value in monetary terms. Thus it is obviously sensible to take a different approach to discounted present values when dealing with the natural environment. However, it is not necessarily unwise to allow pollution to grow over a period so generating wealth which will make possible restoration of the environment as well as higher permanent levels of real income.

There is an increasing body of good analytical work on environmental economics. There is a good recent text on this in the Australian context just published by Associate Professor Ian Wills of Monash University, *Economics and the Environment* (Allen & Unwin). But when man seemed small and impotent to change the physical world except by superficial structures it was not irrational, even if in the event unwise, to assume that using the environment had no costs.

The essential point is that most of the critiques of the measurements and data included in the concept of GDP involve arguing about alternative measures,

which may or may not be practical. Take the example of the inclusion of the work of panel beating in the national income. It is of course true that car crashes reduce the value of the stock of cars, and that making good the damage is not really new production. The practical question is how to take account of this without double counting. Thus you could estimate the value of the damage done in car crashes in a year (forget for the moment about the human damage - that is another problem) and offset it against the value of the output of the panel beating industry, so as to argue that the latter added nothing to GDP in net terms. But the market is already taking into account the net depreciation in the value of the stock of cars, as a result of car crashes, in the process of setting the market value of second-hand and repaired cars. This depreciation would be greater if panel beating did not exist, so in effect we already have netted out the non-productive output of the panel beating industry when we come to the aggregate national output at market prices.

### **The nature of markets.**

There is so much talk about ideas like "market failure", or the invisible hand, or the virtues and evils of markets that too often people do not stop to understand what it, and they, are. The very distinction between the market as some kind of abstract entity and real, specific markets is confusing. There are markets in the concrete sense, like the Sydney fish markets, and markets in a much more general sense, like the market for fish, or the market for bluefin tuna, or the global market for fish, the daily market for fish and the longer term market for fish, which involves the markets for fishing vessels, equipment, and the labour market for fishermen. Financial markets, like the stock exchange, started off looking a bit like fish markets, having a specific location, but increasingly really exist only in an electronic form.

What is the market? In other than the narrowest, local sense, it is a social institution of great antiquity, but one which has arisen, and arises all the time, spontaneously. Whenever people get together, directly or indirectly, to exchange anything there is a kind of market. When it is an exchange of things for tokens or symbols, that is when money is involved, there is a market in the economists' sense. Adam Smith is the acknowledged author of the main modern conception of the market. He coined the phrase, "the invisible hand" of the market, the resultant of a number of uncoordinated and mutually unknown decisions of individuals who engage in the exchange of goods and services for a price.

The market can also be seen as a kind of self-organising system. A large number of individual consumers, producers and traders interact in a way which settles down into what, for much of the time, is a reasonably stable arrangement, in which there is no central authority or coordinating mechanism, and often enough not even an explicitly formulated framework of law or regulation. In principle, it needs a basic societal framework, in that markets, of any but the most primitive kind, need some kind of property law,



law of contract, system of arbitration or judicial decision making, and so on. The degree to which these are really essential has been contested by, amongst others, David Friedman (Milton Friedman's boy), who has elaborated a kind of anarcho-capitalism in which even basic services like law and police could be privatised. But the conventional framework for the market assumes a government of some kind providing law and judiciary, along with enforcement, and civil society consisting of voluntary associations, not necessarily or even mainly economic.

Economists tend to think of the market as being stable, and tending towards an equilibrium. But it is clear when one thinks of the market as a self-organising system that there is no reason why it should not occasionally fluctuate chaotically, even apart from psychological factors. There is a lot of research going on in the US as to the identification of the underlying regularities underlying apparently chaotic fluctuations in stock market prices. Obviously, economists feel the sting of the jibe "If you're so smart, why ain't you rich?" Moreover, since market outcomes are the resultant of the actions of many individual traders, it is important to take account of the fact that they are all people constantly assessing, predicting, and guessing how the market is likely to move - they are in effect continually making and revising mental models of how the market works. The Santa Fe Institute in particular has been doing some interesting work on artificial intelligence in markets, in effect endowing computer "traders" with a bundle of not necessarily consistent behavioural rules about markets and prices, and allowing them to "evolve" successful strategies (or go under); much of the real world behaviour of active and volatile markets is reflected in the artificial market.

Adam Smith's invisible hand, supplemented by Thomas Malthus' *Essay on Population*, provided some of the essential ideas which led to Darwin's theory of evolution. Darwinian evolution does not (as Stephen Jay Gould, amongst others, has pointed out in great detail) produce anything which is "better" or "superior" to what was there before. It just promotes differences which are incidental to the struggle for survival. Objectively, the market in the pure economic sense is similar. It is not immoral, just irrelevant to morality. In the late Professor Joan Robinson's memorable phrase, "the invisible hand always works, but sometimes it works by strangulation". In human terms we might not want to accept the outcomes of a market any more than we want to see unmodified Nature, red in tooth and claw, determining the life expectancy of our children.

What is called market failure is often quite the contrary, it is the operation of a market in real life (not following an ideal type of atomistic unregulated competition with perfect knowledge - even though that assumption is itself a matter of market determination) to produce results which we do not like. If there is a large number of people in our society whose work is not of great value in the market, unskilled with the ability to produce for their employers an addition to

the value of his output, less the cost of their employment, then we are likely to see competition between them for jobs, which will cause wages to fall below anything which we could accept as sufficient for any acceptable level of "frugal comfort". No one would find acceptable a society which from time to time regulated the size of its population, as well as that of its workforce, by starvation or any of the Malthusian regulators of war, famine, or disease.

But just because we do not like the potential outcomes of markets is not a good enough reason to suggest that they do not exist or do not work, any more than it is sensible to suggest when dealing with, say, malaria, that evolution is not a relevant consideration.

Nor is "market failure", and any measures which might be taken to ameliorate or defeat the outcomes of market processes, a sufficient reason to try to abolish markets, even if that were possible. In fact so basic to human society is the market that even if you were to abolish money, and to shoot anyone who indulges in non-permitted market transactions, you would merely produce distorted market outcomes - as we saw in the history of the USSR. There is a counterpart to market failure, governmental failure, which can produce worse results.

#### **To conclude.**

The pejorative use of the term "economic rationalism", which is even more devoid of content than that other mantra, "political correctness", occasionally has some validity on the grounds that moral considerations are ultimately more important than economic considerations. But too often it masks, often deliberately, the fact that the moral judgement is being made about the distribution of economic benefits.

*Cui bono?* - Who's getting the dosh? - is the basic question which should be asked about any payment, subsidy, tariff, tax, concession, regulation, or public project. This has to be balanced against the corresponding question of who is paying, directly or indirectly, for the supposed benefit. There must be some analysis of the incidence of taxation, how the benefits and costs of any measure are distributed, and whether there might be more equitable means of attaining the same end. This is so obvious to properly trained economists, who have all cut their teeth on the idea that they are more humble practitioners, than those who define values and social objectives, that it goes largely without debate.

Take the example of timed local telephone calls, which are always on the political agenda. There is a lot of opposition from consumers to the idea that we should pay for local calls by the minute, as we do for long distance and overseas calls. Some of this is based on genuine concern for low income groups, but there is clearly a good deal of self-interest involved. Parents of teenage children are notoriously interested in untimed calls - everyone knows how long a conversation can last. But not all parents are low income. Everyone who is a frequent user of the Internet from a home number has a strong interest in untimed calls

- even if the uses of the Internet are closely related to income-earning activity (lawyers, journalists, academics, etc). So it is not simply a matter of pensioners and the unemployed. What is the balance of cost and benefit? Say we limit untimed calls to those on social security. It is not even clear that that is equitable - why should a pensioner who enjoys surfing the net be subsidised relative to one who prefers to listen to the radio or read books? Both these are already subsidised, through the ABC and advertising on the one hand, and public libraries on the other. Who is getting the bigger subsidy?

The Australian population has always been very mobile between places, and a high proportion comes from abroad. If local calls are untimed, but overseas calls have to pay by the minute, surely this is discriminatory against ethnic communities and those whose relatives are in other states? It is virtually impossible to sort out such issues in detail, which is why the ecorats argue that it is better to pay people a standard cash welfare benefit and let them decide how they want to spend it. Then the argument becomes a simpler one, about whether the pension is enough to pay for a decent life.

However, there will always be those who insist that benefits must be in kind. They need to be treated with a good deal of suspicion. Thus the argument about "community service obligations" on the part of telecommunications suppliers always hides a very substantial amount of special pleading on behalf of interests who are not in any sense deserving welfare recipients - whether it be by way of feather-bedding of trade union members, or subsidy to farmers who build subsidised telephone services into the capital value of their properties.

There are clearly many beneficiaries of untimed local calls. Businesses use lines for long periods for data transmission and similar purposes - they can keep such lines open for a whole day for the cost of a local call. There is a large capital cost in such usage. The same is true of the net-surfers - it is easy to find oneself using a line for two or three hours at a time. This might be a matter of serious searching and downloading of information, or it might simply be the downloading of dirty pictures. The use of the net, which for all but the remote dwellers costs 25 cents for a local call of any length, is thus imposing huge costs on the suppliers of telecommunications lines, and hence on the other users.

Again, the ecorats have the unfortunate habit of pointing out that this is hardly equitable. We already know that low income people are not yet great users of the net (except students who can gain virtually free access through their institutions). This is because few can afford even the basic computer involved, let alone the provider charges - the telephone charges are only an element of the whole. If we want to give poor people access to the net, and indeed to the telephone itself, which these days is tantamount to a necessity, there have to be better solutions than to subsidise the high income earners and hobbyists.

Maybe it would be better to make all "essentials"

free, and to make them available according to need. The Russians tried that in the early days of the Revolution, giving out bread at nominal prices. Of course they found that while a person's appetite for bread is limited, it makes great pig food. All they were doing was subsidising private pork production.

So, it is clear enough that one reason why the advocates of untimed local calls, tariffs, community service obligations, more spending on the arts, the ABC and the universities, no university fees or charges, and so on, all hate the ecorats is that they do not want anyone to know just whose snout is in the trough.

The common sneering at what they think of as "economic rationalism" by those in the "hard" sciences displays both the arrogance and intolerance which seem to come all too naturally to many scientists; they forget that when they leave their own special areas of expertise, no matter how high their general intelligence, they are just as prone to credulousness, error, and the spouting of nonsense as any cleric. No matter how valuable their work in their own fields, they do not have the right to control the limits of public discourse and debate. When they attempt to suppress the expression of pseudoscientific religious beliefs, no matter how pernicious and ill-founded they think them to be, scientists infringe the right of free speech just as much as do and did the religious who try to suppress disagreement with their views.

Nor are the scientists likely to be right in areas where they have no specialist expertise. Nowhere is this more evident than in the now ritual denunciations of "economic rationalism" one hears so often from scientists, especially in places like the ABC's *Science Show*. They do not know what they are talking about, they have devoted no serious study to either economic theory or economic statistics, they do not understand the financial and political constraints of budget making, they are willing to swallow the most nonsensical kinds of economic quackery coming from the kind of people whom they would ridicule if speaking on matters about which they do know, and yet they still claim special authority as scientists.

These days when you hear a scientist use the term "economic rationalism" you know he is about to abandon all of the scientific canons of evidence, any awareness of complexity, and to claim more money for himself, for his subject, for his peers, and for "pure" research, to be handed over by the rest of the community, rich or poor, without question and without analysis.

In other words, the scientists, however well qualified they might be in their own areas, are all too prone to act just like the worst ranters of creation science, and they deserve to be treated with equal disrespect. Just as they would dismiss anyone who on the basis of having read a few popular texts about cosmology or particle physics claimed to be able to criticise the theoretical and practical work of the physicist, they themselves act in just this way when they prattle about "economic rationalists" on the basis of having read a few popular books and added their own prejudices to them.



# The definitive Skeptic's library

Allan Lang

Well the Skeptical Booklist project is going along nicely. The list has topped three hundred, and most of the provisional first hundred look quite interesting and useful. I am almost tempted to print out the first hundred as the final list, but there are a lot of books that are just out the hundred that look just as interesting.

It does appear that two of the difficulties I was worried about are not going to be a problem. One was that there weren't 100 good Skeptical books in the world. That's not going to be a problem. In fact it is possible to get 100 books from the writings of a handful of authors (Azimov, Gardner, Gould, Randi, and some chap over there in Sydney). In the interest of diversity these chaps are probably going to be represented by a one or two of their most significant and typical works. (Although for polymaths like Asimov and Randi selecting a "typical and representative work" is nearly impossible.

But the listing still lacks sufficient breadth. The recommendations so far are concentrated on only a few topics. Skeptics do appear to be justifiably concerned with Creationism (the leading topic so far (16 in the top 100) and UFOs. Important as these are, there is a whole universe of weirdness out there.

"The universe is not only stranger than we imagine, it is stranger than we *can* imagine", JBS Haldane. (Come to think of it, why no recommendations of Haldane, Peter Medawar - am I the only person to have read them?)

So I want recommendations on a wide variety of subjects not yet represented. And, no, I can't tell you what subjects are missing because I won't know they are missing until someone recommends them. I have become quite used to receiving a nomination, and thinking, "How extraordinarily stupid of me not to have thought of that."

Please think broadly, all suggestions will be seriously considered, even something like Brian Appleyard's *Understanding the Present*. Well, perhaps not Appleyard, unless you can really convince me that it has merits I have totally overlooked.

That said, I do need recommendation of a few horrible examples. I have already pretty well decided that von Daniken really should be there for his *Chariots of the Gods* Volumes I to whatever.

So keep those faxes, letters, e-mails rolling in. I feel confident that the final listing can be a fair representation of the best of Skeptical resources, but the more nominations, the better the final listing will be.

Try to give me as enough information for an adequately described entry.

Title, Author, publication details, what it's about, and a word of three why you think it should be on the list.

Could you send your listings to me:

**by fax to: (08) 8277 6427**

**by e-mail to: lakes@senet.com.au**

**by literal mail to:**

**PO Box 377**

**Rundle Mall PO SA 5000**

Finally I would like to thank the many people who have already contributed to the nominations. I have been interested in your comments, and am coming to realise that while Skeptical books may not achieve best-seller sales, Skeptics are stubborn enough to keep writing them, and we should be aware of the rich variety out there.

As a postscript, the contributor who nominated Charles MacKay's *Extraordinary Popular Delusions and the Madness of Crowds* (and lost his copy in the Tasmanian bushfires), may be interested in knowing that it has been reprinted in the Wordsworth Reference paperback series (for c.\$9.90) and was available up until at least last year.



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## ... Make believe, from p 38

### Reading List:

- Blackmore, Susan J., 1986. *The Adventures of a Parapsychologist*. Prometheus Books.
- Blackmore, Susan J., 1992. *Beyond the Body: an investigation of the Out of Body Experience*. Academy Chicago Publishers.
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- Crick, Francis, 1994. *The Astonishing Hypothesis*. Simon & Shuster.
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# Getting the energy

Barry Williams

With the topic of greenhouse gas emissions very much in the air (no pun intended) these days, we have all become accustomed to the stock TV image of the noxious effects on our environment of electrical power generation. The word "greenhouse" is spoken and there on the screen appears a picture of a large truncated cone with voluminous clouds billowing from its apex. A powerful image, and one guaranteed to prick the conscience of even the least "green" among us, but this image is entirely spurious.

The large truncated cones associated with many modern power stations are not pushing tonnes of CO<sub>2</sub> into the atmosphere, they are wet cooling towers and the billowing white clouds are water vapour. The CO<sub>2</sub> goes up the far less striking cylindrical stacks in the background of the shot, and it is invisible. There will be more on this later.

Now there is a curious and ironic factor at play here. Without the greenhouse effect, our planet would be frozen and uninhabitable, and it is very largely the result of water vapour in the atmosphere. CO<sub>2</sub> and methane are the most prevalent of the other responsible gases, and, in Australia, power generation is responsible for more than 25% of the emissions of these gases, so it is worth knowing something about the topic. However, the effect of power generation on the level of water vapour, even though it makes for dramatic TV images, is negligible when compared with the natural production through evaporation, caused by the action of the Sun on the 70% of the planet covered by water. What the current arguments are about is not the "greenhouse effect", but a "runaway" (or "enhanced") greenhouse effect and there is a vast difference, but that is *not* the subject of this article.

The fact that our perceptions of this serious issue are coloured by spurious images raises other questions. How aware are people of how electricity is generated? When the experts talk about "alternative" or "renewable" energy, what do they mean? These, and other, questions *are* the subject of this article.

## A little history

Reticulated electric current is so all-pervasive in, and so important to, modern societies that it is difficult for us to imagine what life would be like without it. Yet it has been a fact of life for only a little over a century, and commonplace outside major cities for a much shorter time. Indeed, until the early part of the 19th Century, electricity itself was recognised as little more than a naturally occurring (and sometimes

dangerous) phenomenon. Then its nature began to be investigated and explained by scientific investigators, many of whose names are celebrated today in the SI units for electrical and other energy measurements (Joule, Faraday, Volta, Ampere, Maxwell, etc).

It remained a scientifically interesting study, of limited practical use, until the 1880s, when companies associated with George Westinghouse and Thomas Edison in the USA, and the Siemens brothers in Europe and the UK, began the commercial production and distribution of electric current, which led to the ubiquity of this form of energy in our modern industrial, commercial and domestic life. If the 19th Century was the Age of Steam, then the 20th Century could accurately be described as the Age of Electricity. This is not intended, however, to be a history of the use of electricity, rather an explanation of what actually produces the energy that causes the effect when we turn on a switch.

## Power for the people

There are a number of processes for producing electricity, but, for the purpose of this article, the most important is the physical fact that a conductor moving in relation to a magnetic field has an electric current induced into it. It sounds easy (and it is) and this simple physical reality forms the basis of almost all the commercial quantities of electricity produced in the world. But getting from the simplicity of the theory to the practicality of production requires a great deal of engineering, as readers who try to read this article by the light of a lamp powered by the result of waving a piece of wire over a fridge magnet will soon discover.

In simplified terms, the modern power generator consists of very large coils of a conductor, built into a cylindrical framework, at the centre of which is a large rotating magnet. The resulting electricity is transformed to a very high voltage, then transmitted via cables to distribution centres, whence it is transformed down to a usable voltage and reticulated to all consumers, resulting in a fridge to keep one's beer cold (among other, less useful, things). That side of the equation is also pretty simple and, apart from the aesthetic fact that transmission towers and street poles are the sort of things that only engineers could regard as beautiful, electricity distribution doesn't pose much of a threat to the environment. This notwithstanding emotive claims being bandied around the community of dire effects

from low frequency radiation, for which there is little or no substantiated evidence, and which was addressed recently by James Gerrand ("Radiation and health", *the Skeptic* 17 (3). pp14-15,19).

So we must look at the other side of the equation, back before that earlier throwaway line about a "large rotating magnet". In physics, even more so than in economics, there is no such thing as a free lunch. For a magnet and conductor to produce an output as a usable form of energy, it must also receive an input of energy (more energy than it puts out in fact, because there isn't even an "at cost" lunch in physics). So, what causes the magnet to rotate?

As is so often the case, there are many possible answers to this question also, but in commercial power production, the answer is most commonly "steam". Most power generators are driven by turbines and most generator turbines are driven by steam (so the Age of Steam did not end with the 19th Century after all). Of course, we all know how to make steam, whether we are using it to generate thousands of megawatts of electricity, or to

make a cup of tea; you heat water until it boils, where it undergoes a phase change, and steam is the result. And to heat the water we must put in energy. In the power generation industry that input of energy (and many of the arguments) depends on the fuel that provides it.

However, before we get to that, it is time to scotch that mistaken image referred to at the beginning of this article. Because power station steam turbines run at high speed and very high temperatures (typically 500°+) it is essential that the steam used is as clean as possible. Any impurities in the steam will erode the turbine blades very quickly, leading to breakdowns, blackouts and questions being asked in the parliament. Thus the water used in the steam cycle must be maintained at a high level of purity in a closed system, not just piped in from the domestic supply. This water is heated to steam by the boiler (under pressure, it attains far higher temperatures than the 100° steam coming from the spout of our kettle) and is fed through the turbine, where a good proportion of the heat energy of the steam is converted into kinetic energy, turning the turbine, which is mechanically coupled to the shaft of the rotating part of the generator. The exhaust steam, which is

still very hot, is then fed through the pipes of a condenser and cooled back to its liquid state. There are many different types of condensers, but the ones that use external water sprayed over the cooling pipes, are known as "wet cooling towers", and these are the fuming truncated cones that feature in so many TV stories (see picture this page).

### No fuel like an old fuel

In Australia, the energy for the vast majority of power generation comes from burning hydrocarbons in the shape of "fossil" fuels, such as coal, lignite (brown coal) and natural gas. The reason for this has been simply an economic one; we have plenty of these fuels (an estimated 50 billion tonnes of readily

recoverable black coal, for instance); they are relatively easy to acquire; and the deposits are close to the main population (and consumption) centres. If it wasn't for the potential threat of "greenhouse warming" we would be in clover.

Earlier in this century the power stations that supplied our major cities were built



Bayswater Power Station (NSW), showing cooling towers in foreground

within those cities, and the fuel was railed into them from the coalfields. By the middle of the century it became apparent that it was more efficient (and more environmentally acceptable) to transport the end product than the fuel, and so major new power stations were built near the fuel supply, in the Hunter and Latrobe Valleys, for Sydney and Melbourne and around the Ipswich coalfields for Brisbane. These stations produce what is called the "base load", which is the amount of electricity our industrialised society requires at all time to keep going. The extra loads that apply in winter, or at certain hours of the day, are called "peak loads". Things were looking pretty rosy, but then people began to become more concerned about their environment and what was going up the stack of the power station.

You cannot burn a hydrocarbon fuel without having by-products, some of which are quite nasty. Power utilities turned to technology to remove the most noxious of these, and no modern power station could operate without methods of removing the gaseous and particulate waste products from the burning of coal.

By far the largest by-product (by mass) of coal burning is in the form of ash (averaging around 30%

by weight of the coal), which makes up the largely non-combustible (often metallic) components of the coal. Curiously, this component is known as ash even before it is burnt, for such are the ways of electrical engineers. Ash must be disposed of and that presents another environmental problem. One form, known as "fly ash" is used in the manufacture of cement, but not all of it is so used, and it remains a disposal problem.

The more noxious gaseous by-products of coal combustion, sulphur and nitrogen oxides (*sox* and *nox* in the lexicon of the generation industry), can be removed from the power station effluent by a variety of technical means. In older power stations they are removed by scrubbers and precipitators through which the flue gases pass on their way to the atmosphere, but a more modern and more efficient technology, known as fluidised bed combustion, traps the pollutants in the actual burning process. These gaseous pollutants are not greenhouse gases, but they do contribute to "acid rain", and other environmental problems.

Readers who have visions of brawny, stripped to the waist, stokers, shovelling coal into a boiler in dark cellars, lit only by the flames from the fire-box, should stop reading works of 19th century fiction. In a modern power station, the coal is pulverised to a very fine consistency and is pumped into a huge, water-pipe lined, chamber, where it is ignited and controlled by some very sophisticated electronic technology indeed. Nowhere near as romantic, perhaps, but a lot more efficient.

One inevitable by-product of coal burning, and one that is very difficult to dispose of, is carbon dioxide - the dreaded CO<sub>2</sub>, a greenhouse gas. The only way to reduce CO<sub>2</sub>, while burning fossil fuel and maintaining electricity output, is to make the burning more efficient (ie getting more kilowatts per kilogramme of fuel). Many research dollars are being spent around the world to discover more efficient (and cleaner) ways of burning coal, and coal fired power generation has become considerably more efficient in recent decades as a result. Concepts such as fluidised bed combustion, ultra clean coal and others are among the newer technological fixes that have been applied to these problems. But it appears that the limits of efficiency of coal burning are being approached.

### It's a gas, man

The other main hydrocarbon fuel used to produce electricity is natural gas. It is cleaner and has fewer waste products, but tends to be located further from the consumer market. A further advantage of gas is that it can be used to turn turbines directly, without first heating water to make steam. Gas turbine engines are essentially the same, in their principle of operation, as aircraft jet engines, and, at present, are used mainly for producing peak load electricity and for larger remote localities, off the grid. A development of the gas turbine engine sees the waste

heat in the gas exhaust being used to produce steam, which is, in turn, fed through a steam turbine, generating further electricity. This method is known as a combined cycle system and it seeks to maximise the energy potential of the fuel.

It is also possible to combine the advantages of coal and natural gas fuels. Coal, if it can be converted to gas prior to burning, is a much cleaner fuel than raw coal, and research into an economical way of doing this is under way. One method is to tap off the methane that always accompanies coal deposits as a pollutant (and a dangerous one, as the many fatal explosions in Australian coal mines will attest). This methane can be piped to the surface and used as fuel for power generators. Another possibility comprises burning the coal *in situ*, in its underground seams, particularly low quality or difficult to access seams, and using the gas produced as fuel. These options are technically feasible, but may not be economical at present and they are the subject of further research in Australia and overseas.

One new technology that held early promise, and one which may yet prove viable, is magnetohydrodynamics (mhd), which dispenses with moving parts entirely. When coal is burnt at very high temperatures, the combustion products are in the form of plasma, which is an electrical conductor. This plasma is passed at very high velocity through intense magnetic fields, generating electricity in the process. There are technical problems with mhd, however it may prove viable in the future.

Of course, liquid hydrocarbons (such as petroleum or distillate) are also possible fuel sources, but they are not an economical option in Australia, and they tend only to be used in small and remote power stations, and usually per medium of internal combustion, reciprocating (diesel) engines, which are not very environmentally friendly.

### Gone fission

One other method of producing heat to boil water, in widespread use around the world, though not in Australia, is one that takes advantage of the physical fact that the fission of radioactive elements produces heat as a by-product. This is generally referred to as nuclear power generation, but although the principle involved in producing the heat and thus steam is very different from the fossil fuel cycle, the process from then on is identical.

Readers will not need to be reminded of the problems associated with nuclear fuels, some real and some, as Dr Colin Keay has asserted ("Nuclear fears questioned", *the Skeptic* 17 (3). pp16-18), more emotional than actual. However, it must be remembered that there is **no** method of producing electricity that does not have **some** effect on the natural environment, and one thing to bear in mind when considering nuclear fuel is that 1 kilogramme of nuclear fuel produces the same amount of electricity as 3,000 tonnes of coal.

While extant nuclear power generation relies on

the fission of radioactive elements, many of the waste problems associated with nuclear fuels could be overcome if we could harness the energy of a fusion reaction, in which the fuels used are isotopes of hydrogen (and are virtually unlimited). While a great deal of research is being conducted into this problem, there is no sign at present of commercial applications in the near future.

### **What is renewable?**

All of the above methods use "finite" fuel sources, in that new hydrocarbon and nuclear fuels are no longer being made. There are also "renewable" fuels that can produce steam for power generation and they, too, have advantages and disadvantages.

Biomass (as plant matter tends to be called in these circles) can be used as a fuel, either by the burning of waste products from an industrial process (eg sugar mill or saw mill wastes), incineration of municipal waste, or waste gases from decomposing organic matter in municipal tips, or by distillation of purpose grown crops to provide alcohol.

A former NSW Minister for Energy caused a great deal of amusement in the industry some years ago, when, having heard that *cannabis sativa* burns with a great deal of heat, suggested that confiscated crops of this plant should be burnt in the boilers of a Hunter Valley power station. Sanity returned when one of his engineers pointed out that the entire known crop would keep one boiler running for around 3.5 minutes. If this idea had been followed up it would probably have greatly reduced the number of complaints from consumers living downstream of the effluent plume.

However, like fossil fuels, all of these fuels are organic (carbon based) in nature and they, too, all produce varying amounts of CO<sub>2</sub> as a by-product.

One useful waste product, and one that is in plentiful supply in many industrial processes, is heat. Mineral processing, petroleum refining, food processing, among other industrial activities, all rely to some extent on heat, and after the heat energy is used for its primary function, the residue can be used to generate steam and thus electricity. This process, known as co-generation, is becoming more widespread as industries recognise the environmental and economic benefits it provides. The by-product of the process is no longer waste heat, but electricity, and that is a valuable product.

Other natural, renewable, energy sources include geothermal; using the heat generated by volcanic processes, which is fine if you happen to live somewhere like New Zealand, where that sort of thing goes on all the time. But even in geologically stable old Australia, deeply buried rocks contain vast amounts of heat, and all that is required is to drill deep holes and pour water down, which is converted to steam and then piped back to the surface, thence through a turbine. This is one to watch and it sounds easy, but there is a good deal of science, engineering and technology entailed in bringing it to fruition, and

not all subterranean rocks are suitable for this process.

Then, of course, there is the largest producer of energy in our neighbourhood, the Sun, which will produce steam if a container of water is maintained in the focus of a parabolic mirror. This system works, and a pilot plant has been run successfully at White Cliffs in Western NSW. But set-up costs are very high for large base load solar thermal stations and they only work while the sun is shining. These problems are not insoluble, but again, the research must be done if the answers are to be found.

### **Between wind and water**

So far we have been looking at methods of heating water, to produce steam, to turn turbines, to turn generators, to produce lots of watts. But there are other power sources that will provide the energy that causes the generator to go round.

The most obvious and most commonplace of these is to harness the kinetic energy of water obeying the laws of gravity. While, to a Tasmanian, the mere mention of the word "hydro" causes an almost religious impulse to fling one's self prostrate and beat one's head on the floor, to less impressionable folk it should be apparent that water in its liquid state will turn a turbine just as well as it will in its gaseous state. Of course, in the former state the turbines themselves have to be larger, because the energy is in less concentrated form. But to provide water in sufficient quantities to produce sufficient electrical energy to run a modern society, we must dam rivers, and that, too, presents an environmental problem. Because of the dearth of swiftly flowing rivers in Australia (not enough water, not enough high mountains), hydroelectricity is unlikely to be able to provide the bulk of our energy requirements, except in localised areas (such as Tasmania).

Wind can also be used to turn a turbine, and this up-market version of the old farm windmill is becoming more common as a source of electricity. But the wind does not blow continuously in most parts of Australia, and, to provide a base load, an enormous number of wind turbines need to be built. They are large, rather unsightly and noisy, posing a different sort of environmental problem. At present they are at their best in a local context.

Harnessing the waves and tides are also being investigated as sources of energy, but they are not yet, in an Australian context, useful sources for major power production, and may never offer anything more than local generators for remote coastal communities.

### **It's all in the chemistry**

I mentioned earlier in the article that the most common method used to generate electricity relies on the physical effect on a conductor of moving through a magnetic field. But there are other methods of providing electrical energy which do not rely on moving conductors and magnetic fields. This is most

obvious, and most commonplace, in the form of batteries. If you hold a battery from your transistor radio up to your ear, you will not hear the whine of a spinning turbine and generator (or, if you do, you should have your ears tested for tinnitus). Batteries, and a number of other methods, rely on chemical reactions for their effect and they are not, at present, serious contenders for producing commercial quantities of electric current. There are, of course, other areas in which new Australian battery research will make a big impact. The other major difference with electricity produced by chemical reaction is that it is direct current (DC) which must be converted to alternating current (AC), to be useful in many applications. Of course, AC needs to be rectified to DC for other applications, but it is easier to convert AC to DC than to do the reverse.

One interesting application of the chemical process is the highly efficient fuel cell, which relies on an electrochemical reaction between a fuel and oxygen. This technology may figure highly in future power production, but it is not yet viable as a bulk supply.

This brings us to a final method of production, one which holds great potential for the future. Solar photovoltaic cells use the ability of certain semiconductor materials to directly convert sunlight to electricity. It is a static system, with no moving parts and is thus essentially maintenance free. However (and there is always a however) there is a limit to how much electricity can be harvested from each square metre of the Earth's surface, and huge areas of land would be required to provide base loads.

The best potential use for pv electricity would appear to be local, such as remote area power supplies, or being incorporated into new building design in urban and suburban localities, and this is where it may come into its own. But, as with many other renewable (inexhaustible) energies, there is a problem in that the Sun does not shine at all times. Short of halting the Earth's rotation, with Australia facing the sun (a bit beyond our present technological capabilities), this problem would seem to be insoluble for a stand-alone system. The solution may well lie in methods of storage of energy, which is another subject that needs to be considered, but it is beyond the scope of this article. Photovoltaics is a technology in which Australian research leads the world, both into the efficiency of the process and the economics of production, and, if it is maintained, the economic benefits are potentially very large.

## Conclusion

The intention of this dissertation is to enlighten some readers about the methods of producing the electricity that is such a vital component of our lives and wellbeing. It has, necessarily, only skimmed the surface of a vast, technically and economically complex topic, and is by no means comprehensive in its coverage.

If the Earth is in danger of undergoing increased greenhouse warming from human activities, and a

scientific consensus seems to be developing that it is (though what this means in specific climatic terms is much less certain), then we owe it to ourselves to be better informed about the impact made on the problem by electricity generation.

We should never forget that *every* method of producing bulk electricity has an impact on our environment, some global and some local, and every form of electricity production has an economic impact, some good, some bad. The trick is to find a balance.

We have been improving our methods for years, with the result is that our present generators are far more efficient and cleaner than they would have been without it. This will continue, because it not only makes environmental sense, it also makes economic sense. But is it enough? And if not, what more can we do?

The answers lie with research in a great many fields (with more than a dash of economics and politics thrown in). Some very interesting technologies and techniques are being used to improve the generation of the electric power we need and must have, and the newer ones are being improved. More efficient usage of the energy we already have is an area in which substantial research has been, and is being done, and the results are now being used in industrial and domestic applications. More will be done in this area too, as the economic benefits of the changes become more apparent.

The decisions we take in relation to energy and the environment need to be informed ones; ones which take into account *all* the facts. Unfortunately, where matters of this nature are discussed, all too often the issues become blurred, as all sides become entrenched in political positions, and the technical and other serious contributions become subservient to these. It could even be argued that if all the hot air being expended on *uninformed* comments about energy and the environment could be harnessed to produce electricity, then many of the problems we face would cease.

It is no answer at all to suggest that we should stop generating electricity altogether. That is as fatuous as suggesting we all "tap into our internal energy fields", or rely on space aliens, or all knowing deities, to solve our problems. We can use energy more efficiently and produce it more cleanly, but we cannot go back to some sort of agrarian "golden age", because there never was any such age. As with so many other technical and environmental questions, if science and technology cannot provide the answers, then there probably are no answers. Which is a sobering thought.

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New and Alternative Technologies for Electricity Generation, Electricity Commission of NSW, 1991.

If this handbook is still available from Pacific Power Corp (*nee* ECNSW) it is a very useful layman's guide and gives much more detail of the various technologies covered in this article. It is highly recommended.





# An oasis of privilege

Richard Lead

Who is Australia's largest single private sector employer? All will be revealed, but it is not BHP.

Should the Australian Skeptics be concerned with religion? Our esteemed and most revered editor (who writes "about our authors" in the back of the journal) has consistently steered *the Skeptic* away from religion. Religious claims can be neither verified nor falsified, and therefore cannot be subject to scientific testing. Some of the claims made by religions - faith healing, appearances of the BVM in church plaster, and so forth - most certainly fall within the bailiwick of the Australian Skeptics. But religious beliefs themselves are outside our purview of the scientific investigation of the paranormal and pseudoscientific claims.

And yet ... and yet.

Do you agree with the following two sentences?

If a few followers of astrology were to found an institution based on the belief that their destinies were influenced or controlled by the stars, and that astrologers can, by reading the stars, divine these destinies, *and if it claimed to be religious*, it would be a religious institution. Any body which claims to be religious, and offers a way to find meaning and purpose in life, is religious.

These are the words of a former Attorney General of Australia and High Court judge, Mr Lionel Murphy.

The purpose of this paper is to alert readers to the privileged taxation position enjoyed by religious institutions in Australia. A taxation exemption is algebraically identical to a cash grant from the taxpayer. We taxpayers are subsidising religion.

What does this matter - isn't everyone religious? In the 1996 census 2.9 million Australians answered "no religion" whilst 70% nominated a Christian denomination (down from 96% in 1900). But this census arguably inflates the real measures of religious affiliation.

A recent National Church Life survey revealed some worrying statistics for the churches. Who attends church regularly (defined as attending at least once per month)?

- only 18% of all Australians
- only 9% of people aged 20 to 29
- only 6% of teenagers aged 15 to 19

The survey revealed only 37% of church parish-

ioners are aged between 15 and 40, and two-thirds of parishioners are women. (This last statistic was presented by the churches as important, not by this writer. But he considers it significant as well.)

These figures indicate the religious few are receiving massive taxation subsidies from the indifferent majority. Is this hyperbole? Let's see. What are the justifications offered by the churches for their privileged taxation status? Without wishing to set up straw men, the following are the two most common responses when I pose this question to faith's victims:



Religious beliefs are good for society. Our parliament must believe this as section 78 of the *Income Tax Assessment Act (1936)* allows a tax deduction for donations to a public fund established to provide *religious* instruction in government schools. Not critical thinking skills, keyboard skills, or even (heaven forbid) sporting skills - religious instruction! The churches perform "good works." We will come back to this.

What is a religion? According to Mr Justice Murphy, our old sparing partners the astrologers can call themselves a religion and unilaterally drop out of the taxation system. The meaning of religion was tested in 1983 by the High Court of Australia in the seminal "Scientology" case (*Church of the New Faith v. Commissioner of Payroll Tax (Vic)*, 83 ATC 4652).

But before we see why the High Court unanimously declared Scientology to be a religion it is useful to see what Scientology teaches.

From the *Skeptical Inquirer*, Sept/Oct 1995:

According to the copyrighted scriptures of the Church of Scientology, 75 million years ago a tremendous struggle took place among the 26 stars making up our local Galactic Federation. Faced with enormous overpopulation averaging 178 billion people per planet, federation leader Xenu had members of his Galactic Patrol (who dressed in white uniforms with silver boots) round up the surplus population. The surplus people were killed by an injection of glycol into the spinal cord; their bodies were frozen and loaded onto huge spaceships that look exactly like earthly DC-8s; and they were transported to Teegeeack - now known as planet Earth. The bodies were piled on terrestrial mountain tops. Inside the mountains were 17 strategically placed hydrogen bombs of enormous power. After the blast, the "souls" of the dead - in Scientology parlance, the "thetans" -

were electronically entrapped, gathered into clusters, and laboriously implanted with misguided ideas, morals, and feelings. Transported across the Earth's surface by glaciers, these clusters of disembodied galactic thetans are anxiously striving to get back into human bodies. These "body thetans," whose millions-of-years-old thoughts and feelings impinge on our bodies, are responsible for most of the misery afflicting human life today. There is but one way to get rid of thetans: The "clearing" process of Scientology, in which one clutches the celebrated "E-meter," while paying staggering sums of money in order to be asked dozens of questions about personal experiences going all the way back to childhood, and tens of millions of years before that.

It is worth reading the Scientology case. The following are quotes from Mr Justice Murphy. They are not sequential but as I have not become a born-again creationist I have not quoted His Honour out of context:

Because religious status confers such financial and other advantages, the emergence of new religions is bound to be regarded with scepticism.

The Commissioner (of Payroll Tax) should not be criticised for attempting to minimise the number of tax exempt bodies. The crushing burden of taxation is heavier because of exemptions in favour of religious institutions, many of which have enormous and increasing wealth.

The great organised religions are big businesses. They engage in large scale real estate investment, money-dealing and other commercial ventures. In country after country, religious tax exemption has led to enormous wealth for religious bodies, presenting severe social problems.

Quoting from *Christianity Today* Vo 3, No22 (1959):

In the United States of America, where tax exemptions are available, Dr Blake, former president of the National Council of Churches, stated that in view of their favoured tax position America's Churches "with reasonably prudent management, ought to be able to control the whole economy of the nation within the predictable future.

Why did His Honour find in favour of the Scientologists?

Commercialism is so characteristic of organised religion that it is absurd to regard it as disqualifying.

Indoctrination or "brainwashing" is typical of many religions.

The claim to be the one true faith has resulted in great intolerance and persecutions. Because of this, the history of many religions includes a ghastly record of persecutions and torture of non-believers. Hundreds of millions of people have been slaughtered in the name of God, love and peace. In the effort to uphold "the one true faith" Courts have often been instruments for the repression of blasphemers, heretics and witches.

In other words - Scientology is no different from the rest of them, so give it the same privileges. When

the Hale-Boppers return from their spaceship, will their Heaven's Gate cult also qualify for religious exemption in Australia? Only if they request it.

We can occasionally uncover some arcane facts by perusing the income tax decisions of the Courts. In the 1989 Case W35 the Administrative Appeals Tribunal had to decide whether a Scientologist could claim a tax deduction for his Scientology course fees. Readers may not realise that Scientology operates on the multi-level marketing principle. When you are approached in the street by a Scientologist - ostensibly to answer a survey or complete a free personality test - the Scientologist will earn a 15% commission on every dollar you pay to the Church for the rest of your life. In Case W35 the Scientologist had paid some \$20,000 on "courses" and had already received some \$10,000 in commissions from his recruiting activities. The Tribunal apportioned his course fees (on the basis that some were of a private nature) and allowed an income tax deduction for the remainder, on the grounds that he was in the business of recruiting people into Scientology.

Remember, Scientology is fully tax exempt as a religious institution.

A reasonable question for a dissenting reader to ask is - why single out the churches when there are others groups who are also exempt from taxation? And my simple answer is - wealth. Compare trade unions and churches - both are exempt from income tax. Irrespective of readers' personal opinions of trade unions, any criticism that they are wealthy institutions is insupportable. But the churches are wealthy. Just how wealthy I cannot say. They are not accountable to anyone, they do not present audited accounts to any public body, and their wealth is not held directly but via numerous trusts with neutral names such as Burnside (Uniting Church), Glebe Administration Board (Anglicans), making data collection laborious.

But media reports frequently give clues to their wealth. Some examples:

August 1997 - *Time*. The Mormon Church holds assets worth US\$30 billion.

23 December 1993 - *The Australian*. The Church of Scientology owns assets worth A\$600 million, including a 300 passenger cruise ship. The 129 crew must pledge to remain Scientologists for the next billion years of their existence. (No I am *not* making this up!)

Articles from the *Australian Financial Review*:  
21 May 1997 Catholic Church owns \$100 million in Perth CBD commercial real estate and is buying more.

3 April 1996 Sydney Diocese of the Anglican Church buys a 50% interest in an equity fund management business. They have \$260 million in equities. We are assured all profits will be "ploughed back into ministry funding for the diocese". They only hold ethical shares - no gambling or alcohol shares.

3 Dec 1996 In 1994 the Russian Orthodox Church imported into the former USSR 10,000 tons of cigarettes duty free, calling them "humanitarian aid". The Church owns 40% of a US\$2 billion per year oil trading company.

16 April 1996 The Uniting Church will retain its \$4.3 million BHP shareholding despite its concern over BHP's Ok Tedi mine in PNG.

27 June 1996 The Church of England sells the Adelaide Tax Office building for \$44.9 million.

4 July 1996 Scots Church Property Trust has applied to develop a \$150 million hotel and retail complex in the Melbourne CBD.

17 July 1996 The Uniting Church buys a Melbourne warehouse for \$3.8 million.

24 Dec 1996 The Catholic Church sells St Patrick's Church site in The Rocks, Sydney for more than \$17 million.

3 Dec 1996 The Uniting Church sells an investment office building in Pitt St Sydney for \$4.5 million. It was purchased "as an investment" in 1992 for \$3 million.

13 Mar 1996 The Uniting Church buys a high-tech industrial office and warehouse in Melbourne for \$4.15 million.

15 July 1997 The Presbyterian Church is demolishing a three storey office building in Surry Hills and building a \$12 million block of 44 apartments. The Church is also developing its Scots Church site and building a \$100 million office building.

I fail to see how the Anglican Church's ownership of the Adelaide Tax Office building either advances the gospel of Christ or helps the needy.

Readers wishing to pursue the wealth of the churches may care to access the *Australian Financial Review* on CD-ROM and use "church and million" as the search criteria. The screen lights up! The above is a representative sample of such articles.

Let's briefly summarise the taxation exemptions claimed by religious institutions.

## Federal

### Income tax

There are a number of institutions which are exempt from Federal income tax. These include:

- non-profit hospitals
- non-profit cultural societies etc
- non-profit tourist associations etc
- religious institutions (note the absence of "non-profit")

Section 23(e) of the *Income Tax Assessment Act 1936* exempts religious institutions from tax on every type of income, not just donations from their parishioners. Property rents, bank interest, dividends, capital gains, trading profits - you name the income, and section 23(e) renders it free from income tax. There is no upper monetary limit to this exemption. Nor is there any requirement for the religious institutions to spend a minimum percentage of their income on benevolent works.

### Fringe Benefits Tax

In my view, the most disgraceful tax exemption ever passed by an Australian parliament is section 57 of the *Fringe Benefits Tax Assessment Act*. This section exempts all fringe benefits - all of them - provided to ministers of religion. Without boring the reader with the mathematics behind this exemption, it means that a minister of religion can draw an annual salary of \$6,150 (the tax free threshold) and take the remainder of his remuneration package in the form

of fringe benefits. There is no restriction on the type of fringe benefits he can take or any upper limit. It is child's play to convert a cash salary to a cash fringe benefit subject to fringe benefits tax - subject to FBT that is, for occupations other than that of minister of religion.

I do not feel like pulling any punches here. Let me phrase it unambiguously. There is a salaried occupation which can, by effortless salary packaging and with the imprimatur of our Federal Parliament, enjoy a total tax wipeout. This situation has occurred either:

because our parliamentarians are pathologically stupid; or

because the churches used their enormous lobbying powers to ensure their preachers can legally pay no tax.

I am deeply ashamed of my parliament for passing this law. If it were put to a referendum and Australian voters were asked the question - "If there is to be an occupation which may self-elect to be exempt from tax, what should that occupation be?" - does any reader doubt the vote would rank preachers behind parking inspectors and only slightly ahead of the esteemed editor of *the Skeptic*?

Let us submit to the reader a totally hypothetical situation. Assume you are self employed or derive your income from investments, and you decide you no longer wish to pay income tax (hhhhmm - not so hypothetical after all). How can a belief in God help you?

Establish a discretionary trust and derive all income through this trust.

Establish your own religious institution and nominate it as a beneficiary of the trust. Distribute all trust net income to the religious institution each year. Your trust has distributed all of its income so is not taxed. The religious institution is tax exempt, thanks to section 23(e) as enacted by the Australian Parliament.

The religious institution (now pregnant with tax exempt income) pays you - the pastor - a salary of \$6,150 per year. As you have no other income (because of step 1 above) you will pay no personal income tax, and quite possibly qualify for various social welfare benefits.

The religious institution distributes the remainder of its income to you in the form of fringe benefits, all exempt from FBT thanks to the disgraceful section 57. There are numerous ways these fringe benefits can be taken monetarily and are tax exempt in your hands.

Is it difficult to establish your own church? Not for tax purposes. You don't even need to rent a church building or meeting room. No need for funny hats, dietary restrictions, temperance, or celibacy. Any bizarre doctrines will do, just as long as you remember to call them religious.

If readers claim this is a fantasy I invite them to

revisit the Scientology case outlined above. I could establish such a structure for readers in a matter of hours. But I won't, so please don't ask.

As a religious institution you will also be exempt from various anti-discrimination laws and consumer protection laws, but that is a topic for another time.

### **Sales Tax**

All is not lost! Churches have only a limited exemption from sales tax. The exemption is for items used in religious services - bibles, collection envelopes, video tapes, wine. Did you know you pay 41% sales tax on your wine? But if consumed in a church service, it is tax free. I have no argument with this exemption if they can scientifically prove wine turns to blood when consumed as is claimed by the largest Christian denomination in Australia.

Churches pay normal sales tax on their motor vehicles. Remind them of this when they whine (sorry!) that removing their taxation exemptions will cripple their ability to do good deeds in the community.

### **State:**

#### **Land tax**

State governments exempt from land tax land used as churches, church schools, housing for church employees and church school employees.

#### **Payroll Tax**

In a country with persistent high unemployment a payroll tax is indefensible. But this tax is the lifeblood of our States, comprising more than half of State tax revenue.

Earlier in this paper I asked the identity Australia's largest single private sector employer. According to the Australian Financial Review of 1 November 1996, this honour belongs to the Catholic Church.

Guess which institutions are exempt from payroll tax. The largest employer is exempt from the most important State tax.

#### **Stamp Duty**

Religious institutions are exempt from Financial Institutions Duty, Bank Accounts Debits Tax, stamp duty on motor vehicle purchases and all insurances.

### **Local Government:**

As for land tax, religious institutions are exempt from council rates and water rates on land used as churches, church schools, housing for church employees and church school employees.

So religious institutions are granted taxation privileges by all three levels of government in Australia. Let's think the unthinkable for the moment and assume as part of the much publicised tax reform process our governments repeal these exemptions.

Will the loss of income tax exemption harm the churches?

### **Income Tax**

Yes, but only if they do not spend all their income. Income tax is on the "bottom line" and churches would be taxed in the same manner as any other business. Assessable income minus allowable deductions equals taxable income. Expenditure performing good deeds will of course be allowable as deductions in exactly the same way they are deductible to all other taxpayers.

But we intuitively know the churches do not spend all of their income. The avaricious wealth held by religious institutions in Australia publicly mocks claims that they do. So yes, an income tax on accumulating funds will indeed slow down church wealth accretion

### **Fringe Benefits Tax**

The repeal of the ignoble section 57 will reduce the scope of ministers of religion to salary package to the same level as other employees. It will not affect their church employers. But no more legislative tax-free cornucopia.

### **Other Taxes**

Yes indeed. When churches start paying land tax, council rates, and sales tax on the small envelopes used to collect money from the faithful they will have less money in the kitty. This will mean:

Church wealth accumulation slows, or


The 18% of Australians who attend church regularly will need to contribute more because of the loss of their taxpayer subsidy, or  
Society as we know it will collapse.

### **Submission**

Our forefathers granted privileges to religious institutions because they considered the benefits to society outweighed the costs to society.

It is our duty to periodically review these privileges to see if the cost/benefit equation still holds.

I submit that it does not. These exemptions should be repealed as part of the tax reform process. No equitable taxation system can exist when a large and wealthy sector remains detached.

The publication of this paper is proof that the Australian Skeptics believes the tastiest hamburgers come from well-fed sacred cows. I am proud to be associated with such a group. 

**Moving?**

**Don't forget to let us know  
your new address.**

## The true history of 'Hell House'

Beth Wolszon

**Some months ago, an Internet list to which we subscribe ran an item from a self-styled psychic about his investigation of a "haunted" house in Minnesota, USA. Shortly afterwards there was a response from a list subscriber living in the neighbourhood, who had taken the trouble to do her own research. Her approach so appealed to us as a fine example of how to investigate psychic claims, that we asked her to write it as an article for *the Skeptic*. The following instructive article is the result.**

In September 1997 a report of an investigation into an allegedly haunted building located in the Chanhassen, Minnesota area was posted to several Usenet newsgroups. The author of the report, Mr Del Mulroy, is a self-proclaimed psychic investigator and president of a company he calls 'Psi-Walker, Inc.'

Mulroy's account described a dilapidated old building with distinctive architecture and a tragic past, the history of which he apparently learned from local teenagers. According to this account, the building was 'Meadow Brooks' a state-run institution for the mentally ill. In 1979 a fire swept through the structure, trapping eleven or twelve people inside who died in the fire. Mulroy reported receiving psychic impressions while exploring the property which seemingly confirmed these details.

To quote briefly from Mulroy's report, "It is obvious that this was what the State of Minnesota used the building for, and that was housing mentally unstable, and psychological patients of the State in a secured building." (Exact quote.) He reports that a 1979 fire inside the building killed 11-12 people trapped inside. Quoting more from his account, he says "I felt most of the people died in this part of the basement. The people tried to get out, but the stairway ... was fully blocked in thick smoke. These people were trapped, and died of smoke inhalation."

When he walked through the building on August 30, 1997, he reported hearing "... faint pounding on the door on several occasions ... and I could also hear people screaming for help, and choking. Although this was very faint audibly, I was not able to hear this on the recorder I had with me ..." He further states "Also felt was that this building suffered a catastrophic fire that killed as many as 12 people, and those people died a very horrible death trapped by the heat, and locked doors, and the smoke choked the life from them." He reports the building was closed in 1979 after the fire and hasn't been touched since.

This "Psi-Walker Haunting Division" report was re-posted to a sceptically-oriented email list, where it caught my attention. Being a life-long resident of the Twin Cities area of Minnesota, where Chanhassen is located in the southwestern outskirts, I impulsively decided to research this story and the history of this property. My motivations were two: first, I have no recollection of such an incident occurring in 1979, and am confident the local media would have extensively covered such a tragedy. It would have been hard for me to not become aware of this event, had it ever happened. Second, as a folklore enthusiast, I recognized in Mulroy's account several details and themes commonly found in teenage legends, which naturally increased my scepticism about the likelihood of this tale being true.

I had never before investigated a paranormal claim, nor had I ever researched the history of a building. What follows is therefore a layperson's account of a wild weekend spent searching out a structure's history and learning how to do it as I went along.

The first step in my investigation was to search the University of Minnesota's libraries to determine if, as Mulroy claimed, the site had been a former state-run institution for the mentally ill. I found documents identifying current and former state institutions, none of which were located in Carver County, the site of 'Hell House', and none of which were named 'Meadow Brooks', which Mulroy claimed was the original name of the building.

I checked next with the University Library's Northwest Architectural Archives, which confirmed that there was never a state institution for the mentally ill in that area. This detail was checked and confirmed for the third time by a reference librarian at the Minnesota History Center, when I visited to research the State Historical Society's archives. Additional sources I consulted in the course of my research include: the city of Chanhassen, the State Historic Preservation Office, and a person whose grandmother formerly lived a few miles down the road from this particular property. (I also visited the Carver County Historical Society in Waconia, Minnesota, only to discover they were temporarily closed for remodelling. Lesson learned: before embarking on a long trip, telephone first.)

Mulroy commented in his report that he'd noticed "... soupy mud that was white in color. I have never seen white mud, but it was of little value in the investigation." Contrary to his belief, that mud turned out to be a major clue.

The general area in which the property is located features sulphur springs producing an unusual type of mud, which at one time was held to have curative powers. Health spas featuring mud baths were established in the area around the turn of the century. Therefore, this site could have been a spa featuring mud baths, or perhaps, considering the description of it as situated on the river bluffs, it may have been a tuberculosis sanatorium, from the days when TB patients would travel to the frontier in the belief that quantities of fresh, cold air would promote a cure.

I decided to view the building myself to try to find any details which might help me learn its history. After some difficulty I finally located the site. Contrary to what Mulroy stated in his report, 'Hell House' is not found on Highway 169, but is actually on Highway 212. It is approximately one-half mile west of the intersection of Bluff Creek Drive and 212, and one quarter mile east of the intersection of Stoughton Avenue and 212.<sup>3</sup> The words 'Hell House' have been spray-painted across the top of the building's facade. Two radio transmission towers are across the road from the site; and the property is posted No Trespassing.

I had hoped to find a sign, a cornerstone, or a name engraved into the building itself which would help identify it, but found nothing of the sort during both my initial and follow-up visits to the property. However, the fine architectural details and the grounds themselves lent credence to the theory that it had been built as a private spa or resort, rather than a state mental institution. There is a horseshoe-shaped drive leading up to the building, with the remains of brick gates at each end of the drive. Details of fine landscaping can still be made out, and there are numbers of wide walking paths on the grounds. The building has two large enclosed verandas on either side of the front entrance. There are many large (unbarred) windows on all stories, including the ground floor - windows large enough for an adult to easily step through. I thought it highly unlikely that a state institution would have been built with such details, particularly that an institution for the mentally ill would feature so many large windows through which patients could easily fling themselves. I also questioned whether such an institution would be built in such close proximity to the edge of bluffs, where an unbalanced or disoriented patient could easily run across the road, and fall to his or her death.

Accompanied by my sister and mother, I returned to the 'Hell House' property to conduct a more detailed inspection of the building and the grounds. Viewing the building from the rear, I found Mulroy's statement "The only two points at which this building is connected, is... underground ..., and a steel grated walkway that is some 45 feet above the ground with no railings" to be rather misleading. First, the two wings of the building stand side by side approximately eight feet apart, and there are short walkways connecting the wings on each of the upper floors. Second, although none of these walkways

currently has railings, the walkways clearly show signs where the supports for the railings had previously been bolted on. Third, looking at the uppermost walkway, it does not appear to me to be anywhere near 45 feet off the ground; rather, I'd estimate it to be 25-30 feet.

Further interesting features of the site which Mulroy neglected to mention include a stone dam/waterfall built in the stream, with a wooden footbridge crossing the waterfall. There is also a gazebo-like structure just across the footbridge. The structure has a below-ground cement foundation which tapers slightly inward. A pool of water filled the structure's foundation. I thought it might have been an old ice house, where ice may have been cut from the creek and stored underground with this shelter overhead to protect it. My sister disagreed, and suggested it was an enclosed soaking pool, with the structure built over a spring. At any rate, I again doubted that the state would have built these kinds of amenities for a public institution.

As we walked back to the front of the building we were confronted by a man who identified himself as the caretaker of the property, who ordered us off the grounds. After explaining that I was simply researching the property (having our mother present did help show we weren't vandals!), he readily told us what he knew of its history.

#### **Here follows the history of this structure:**

Called the 'Mud Cura Sanitarium', and owned by Dr Henry Fischer, it opened July 26, 1909. Dr Fischer was president of the Shakopee Mineral Springs Company, and promoted the sulphur springs and mud baths as healing treatments for many ailments. The spa drew well-to-do clients from around the world; local legend has it that even Al Capone visited the spa in an attempt to cure his venereal disease.<sup>4</sup>

The existing building actually consists of three structures. The original building faced the street and, as business increased, two wings were added to the rear of the original building. In the past the property had additional buildings which no longer exist. The still extant gazebo-like structure on the other side of the creek covers a sulphur spring, where visitors could bathe. The dam and waterfall were also built during the spa's tenure; the stream is officially known as Assumption Creek and is one of a few native trout streams in this state. It is home to several native trout species, and as such must have been an added attraction for the spa's visitors. It is currently on the state's protected trout stream list.

Dr Fischer died in 1941. Following his death, his family continued to run the spa until 1951, when it was sold to the Roman Catholic Franciscan order, and became Assumption Seminary. The seminary was sold in 1970 to the Marian Council Home Association, a Roman Catholic group which planned to operate it as a Knights of Columbus retirement home. However, that never came to pass. In 1976 the property was sold again, to the Chanhassen Springs Com-

pany, a group of lawyers who planned to re-open the spa. A number of difficulties and delays caused their plans, too, to fall through. As a result, the site has stood vacant since the seminary closed in 1970.<sup>5</sup>

Contrary to Mulroy's report, it never was an institution for the mentally ill. There was never a fire which claimed any lives while it was occupied. There was never any tragic incident in which lives were lost. Only after the building had been standing empty for many years did a fire, started by vandals, occur inside. Quoting the caretaker: "You know what the fire was from? Those damn teenagers. They'd broken in there one night and were having a drinking party and decided to build a fire. They almost burned the place down."

From the above information, I would suggest that the sounds of screaming, choking, and pounding Mulroy claims to have heard while inside the building were the result of his imagination; in other words, wishful thinking. In his account of his investigation, he had also reported feeling "... the energy of two beings fly right past me ..." and that the pictures he took of these beings showed orbs of light. I find it infinitely more plausible that the correct explanation for this is again imagination plus flawed film.

There are a couple of spooky details which Mulroy missed. First are the three headstones visible behind the shed/garage on the side of the property. Local legend has it that these headstones are the graves of two babies (or young children), and one young woman, who died and were buried on the premises. In actuality, some digging around the grounds will turn up hundreds of headstones; yet there is no record of any burials on the property. It turns out an monument maker sold a large number of spoiled headstones to the spa which used them to edge the gardens on the grounds. The three headstones visible behind the shed are exposed due to erosion, and only indicate the site of one of the past gardens.

The second eerie detail, in view of the fact that the building was once a seminary, is that at times religious music can actually be faintly heard inside the building. But there's a mundane explanation for this, too. Across the street are two transmission towers for a Christian radio station, and sometimes when conditions are right, the water pipes in the building pick up the radio signal and transmit it audibly - though at a low level - within the building. (Many people who've lived close by AM radio transmission towers can attest that this can indeed occur.)

The moral to this tale of two investigations: anyone who wishes to collect accurate information is far better off using resources such as libraries, public records, and archives, rather than relying solely on garbled local legends and 'psychic impressions'.

Additionally, check with your local historical society to see if it offers classes on how to research a building's history; taking such a class can be very useful.

#### Acknowledgements

For valuable leads and assistance, the author particularly

thanks to Barbara Bezat, University of Minnesota, Sharmin Al-Jaff, City of Chanhassen, and Susan Roth, Minnesota State Historic Preservation Office. Thanks also to the Boemer family for their invaluable assistance in determining the exact location of 'Hell House'.

#### Notes

1 'Meadowbrook' happens to be a name used by several medical offices in the southern Twin Cities metro area, which might possibly explain where this idea came from. But 'Meadow Brooks', as I later discovered, is not and never was the name of this particular building.

2 Not mountains, as Mulroy reported - there are no mountains in Minnesota.

3 Those interested in viewing the site can take the West 212 exit from Interstate 494 just west of Bloomington, and turn south onto 212 (also called Flying Cloud Drive). When the road splits into 169 and 212, take the right-hand fork (212); the site is about one mile past the 169/212 split, on the right-hand side of the road.

4 The Capone story is possible but there's no evidence for it. The city of St Paul has a rich history with regard to gangsters, because its police cut a deal making that city neutral territory for all gangsters: they didn't bother each other and the police left them all alone. This made St Paul and surrounding areas attractive as an occasional refuge for many mobsters, especially those from the Chicago area. Then again, if Al Capone had really visited every resort he's reputed to have, he'd never have had any time left to be a gangster.

5 Unfortunately, proposals to preserve this historic property have fallen through, due to the high costs involved with installing a modern septic system, renovating the interior and making structural repairs, possible asbestos abatement, and the necessity to reconstruct a significant portion of Highway 212 in order to provide for safer access and egress to the property. It's simply not cost-effective, so the city of Chanhassen is no longer making any attempt to preserve it. There is an interest in salvaging the building materials once the structure is eventually demolished.

The original Psi-Walker report included details which suggest the 'Hell House' property is a popular site for local legend-trip activity. Those interested in learning more about 'legendtripping' - the folklore and activities centred around local structures by area teenagers - may wish to read "Legendtrips and Satanism: Adolescents' Ostensive Traditions as 'Cult' Activity" by Bill Ellis, in "The Satanism Scare", edited by James T. Richardson, Joel Best, and David G. Bromley, Aldine de Gruyter Publishers, 1991.

**This story, written in October 1997, has this ironic footnote:**

**Minneapolis Star Tribune, Nov 9, 1997**

#### **Historic Chanhassen building goes up in flames**

A fire Saturday didn't only destroy a vacant, old building on Chanhassen's south side - it destroyed one of Carver County's historical landmarks.

The building was once a sanitarium for arthritics seeking a cure through bubbling mud baths, then later the Assumption Seminary for aspiring priests.

The building at Hwy. 212, just west of Hwy. 101, has been vacant and without electricity for years. Fire investigators suspect that vandals or trespassers started the blaze, said Mark Littfin, Chanhassen fire marshal.

# HRT and breast cancer

Alastair MacLennan

Panic followed media headlines in October which reported that hormone replacement therapy (HRT) had been proven to cause a large increase in the incidence of breast cancer. Soon after, the Australasian Menopause Society issued the media statement printed below. After the issue of this statement, it became apparent that the scare was based on the report of a journalist who had exaggerated 100 fold, unauthorised data from a scientific paper awaiting publication in *The Lancet*.

The Australasian Menopause Society (AMS) is a scientific society with 800 members from scientific, medical, nursing, pharmaceutical, paramedical and lay backgrounds, interested in menopause education and research. It rigorously assesses the advantages and disadvantages of menopausal therapies and takes seriously any reports of adverse outcomes to any of these therapies.

One potential adverse outcome is the effect of hormone replacement therapy (HRT) on breast cancer rates. The ideal long term trials eliminating bias (double blind, randomised, controlled trials), are under way, but the results will not be known for more than ten years. Until then, many observational trials of lesser quality and with the potential for bias have been, and continue to be, reported.

To date, over 62 such trials have been reported, the great majority showing, when measured, a reduction in deaths from breast cancer (and cardiovascular disease) amongst users of HRT compared with non-users. There are variable results amongst the same trials about whether HRT is associated with an increased incidence in nonlethal breast cancer ie detected breast cancers. Both an increase and a decrease in detected breast cancers (as opposed to deaths from breast cancer) have been variously reported with long term use in some of these trials. Media attention in the past has sometimes selectively focused on reports of an increased detection rate in these observational studies. One study that receives biannual media attention is the two yearly reporting of a cohort of American nurses whose self-selected use or non-use of HRT is being followed long term. This study has persistently shown increased detection rates of breast cancer in the nurses on HRT, but in marked contrast, a 23% decrease in breast cancer deaths amongst those using HRT. A trend in this study towards more breast cancer deaths with long term use was not statistically significant, and has not been seen in a much larger study reported by the American Cancer Society that showed a 16% reduction in breast cancer deaths after 9 years of use compared to non-users of HRT.

The AMS acknowledges that the increased incidence of breast cancer seen in some studies is of concern, accepts it could possibly be real, and underlines the need for randomised controlled trials to resolve the issue. The AMS is also aware of the considerable potential of non-randomised observational studies to be subject to

bias and to other confounding factors that cannot be satisfactorily controlled. Such biases are an observational or detection bias towards the recording of breast cancer in users compared with non-users. Women on HRT have more medical visits, breast examinations and mammograms, thus increasing the chance of detection of tumours with increasing screening tests over time. Confounding factors are that other independent risk factors for breast cancer often occur more frequently in HRT users than non users eg higher social class, western diet, greater alcohol use, fewer children, later age at birth of the first child. All these separate risk factors for breast cancer could account for the increased risk of detected breast cancer seen in this selected population and account for the paradox of fewer breast cancer deaths but greater detection rates in the HRT users in the Nurses Health Study, and a recent meta-analysis of previous studies reported in October in *The Lancet* by Dr Valerie Beral. Although the potential benefits of HRT (reduction in osteoporosis, heart disease, urinary problems, Alzheimer's Disease and menopausal symptoms) also need to be quantified by long term quality trials, the AMS believes that the option of HRT is appropriate for most women, but the unknown issues need to be explained and the management of the menopause individualised, depending on the woman's risk factors and wishes.

This recent press release from the Australasian Menopause Society was in response to one of the greatest, unnecessary medical scares perpetrated in the media in years. Up to two thirds of postmenopausal Australian women use, or have used, HRT. Most women fear breast cancer, as the incidence in Australia is about 1 in 13 women. Any article or book claiming to have news in these areas, or alternative health products claiming to reduce the risk of breast cancer, are commercially big business.

The Editor of *The Lancet*, in his editorial on 18 October 1997, damned the press for the huge exaggeration that HRT had been proven to cause breast cancer. This headline was reprinted around the world when details of an article, to be published in *The Lancet* two weeks later, were prematurely and unethically leaked to a London *Sunday Times* journalist.

This journalist and the same newspaper had previously been castigated by scientific and medical journal editors for exaggerating and misrepresenting oral contraceptive data a few years previously. The unwarranted and badly handled scare at that time led to many unintentional pregnancies in the UK due to cessation of oral contraception.

The normal and ethical code for journalists is to not break the embargo on scientific data to be published in a scientific journal, and to check their facts



with the authors. Lois Rogers of the *Sunday Times*, instead, chose to publish an article under the title "HRT Link to Breast Cancer Proved" and went on to say that women on HRT had a 2.3 fold (230%) increased risk per year of developing breast cancer compared to non-users. In fact, she had misread the relative risk of 1.023 as 230% when it was actually 100 fold less ie 2.3%. This small increase in breast cancers detected in users is the same as previously acknowledged in other reviews. It may not be a real increase in new cancers because of the increased surveillance of women using HRT and other breast cancer risk factors which users often have compared to women not on HRT. Although the *Lancet* article, still to be published at the time, was a review of previous studies and did not contain new data, the journalist tried to claim a scoop of the first proven link between HRT and breast cancer.

A Reuter report of the *Sunday Times* article was carried by the electronic media around the world and, as usual bad news makes news and sells papers. On a quiet holiday Monday in Australia, nearly every media outlet highlighted the story without checking with the authors or the *Lancet* editorial staff. Experts in Australia were hamstrung and confused because they could not confirm or deny the validity of the report, as the scientific data had not yet been published. However, non-experts, and those with a vested interest in undermining HRT, were quick to damn HRT, the medical profession and the pharmaceutical industry.

Menopausal women have been particularly targeted by the \$1 billion-dollar-per-year Australian alternative medicine industry, and HRT has been eating into their profits. Ironically, most of these products are untested for efficacy and safety, particularly with regards to any adverse effect on the breast.

Millions of women around the world heard of the *Sunday Times* report and large numbers panicked and ceased taking their HRT. Doctors' surgeries, menopause clinics and information hot-lines were swamped by anxious women taking HRT. Counsel-

ors could not effectively advise them because they knew nothing of the study nor the validity of the data.

To help stem the chaos the Editor of the *Lancet* published the scientific paper a week early, along with scathing editorials about *The Sunday Times*, the reporter Lois Rogers and the Imperial Cancer Research Fund from where the research, and possibly the leak, came. The *Lancet* Editor pinpointed this institution's combined publicity and fund raising department as having other agendas and for breaching trust. In a remarkable editorial entitled "ICRF From Mayhem to Melt-down" the *Lancet* Editor, Dr Richard Horton, called for a major high level external review of the administration of this charitable institution.

Ironically, experts from 34 centres had just met in Sicily in September 1997, to discuss effective ways of communicating accurately, sensitively and in a balanced manner, any new data on drug safety. The idea was to avoid miscommunication and drug safety scares. Perhaps the Editor of the *Sunday Times* and his or her staff should attend the next meeting.

Myth-information on HRT and breast cancer is likely to live on in the minds of those who only heard the original, incorrect, report. Concern will be fuelled by the misinformation and alternative medicine industries that selectively quote negative data on HRT in articles promoting their own products.

The current observational data on HRT and breast cancer is conflicting and open to bias and confounding. We shall not be able to confirm or rule out any adverse (or beneficial) effect of HRT on breast cancer rates or mortality until the results of two large, long term, randomised, placebo controlled trials are known in 2007 and 2011. On current data, if there is an effect on the breast, it is likely to be small and, for women with an indication for HRT, the advantages are likely to greatly outweigh the disadvantages. Claims of knowledge of any proven connection between HRT and breast cancer from sources other than randomised controlled trials should be examined very sceptically!



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All details inside the back cover.

# A delightful dip for debunkers

Colin Keay

*In Search of Lost Time*, Derek York, Institute of Physics Publishing, Bristol 1997, 141 pp, UK 7.95, ISBN 0-7503-0475-8

Here is a book to bring joy to any dedicated Skeptic, and shake up some loopy beliefs in others not so enlightened. It is a book describing mainly the results of radiometric dating techniques and their collateral consequences. *In Search of Lost Time* is entertainingly written by a practitioner and innovator in the science (or is it art?) of dating materials by means of one or other of the inbuilt radioactive clocks that tick away the centuries in all manner of ancient objects. Every single one of its sixteen chapters carries a message and many of them provide a succinct rebuttal of pseudoscientific claims.

The very first chapter presents a condensed appraisal of the calendric function of the Pyramids and Stonehenge, then moves on to supporting evidence from the other side of the world, namely the ancient Chinese Oracle Bones. The upshot of this time-tour is the neatest, sweetest, simplest and by far and away the most telling rebuttal of Velikovskian nonsense that I have ever seen in print. It is much too good to reveal in this review, but I wish I had known about it decades ago when the cult of Velikovsky was at its height.

After that whammy come three chapters which are guaranteed to render apoplectic the dismal denizens of the Creation Science Foundation. Chapter two is headed "The Age of the Earth: The Genesis Burden" and chapter four asks "How do You Date an Earth?" Taken together they detail the steady improvement in radiometric dating during the present century which has yielded results totally convincing to any sensible person. The next chapter ruthlessly demolishes a sophisticated challenge by young-Earth adherents to the radioactive clocks which pin the age of the Earth down to four and a half billion years, give or take a millennium or two. Creationists, eat your hearts out.

Author Derek York then moves on in the next two chapters to the dating of once living material, with emphasis on our early human ancestry. He is well up to date, bringing in the dating of a four million year old missing link, discovered only a couple of years ago. Another body-blow (if that's the right expression) against creationism.

Following an interesting chapter on meteorite craters and the periodic extinction hypothesis, with a link to the infamous spy, Kim Philby, is a chapter

about the Oklo nuclear reactor in Africa. This fascinating experiment conducted by nature almost two billion years ago proves that high level nuclear wastes can be successfully immobilised for extremely long periods. Then comes another chapter of compulsive reading: "Gulliver's Travels and Martian Moons". It contains the best explanation of Jonathan Swift's amazing prediction that I have seen anywhere.

Next I learned that playwright J B Priestley was one of the discoverers of the modern concept of chaos. And then York moves on to a discussion of time in the quantum world, and finishes off his marvellous series of essays with two chapters expressing his thoughts on the arrow of time. Where he discusses the concept of entropy was the first place in the book where I felt a trifle uncomfortable. He could have explained the non-closed nature of living systems a little more clearly. Mention of the role of the Sun would have been enough.

All told, this is a marvellous little book to read and keep at hand among the essential volumes on a Skeptic's bookshelf. The publisher is not a significant book distributor in this country, so the book may be difficult to obtain. What the heck, it's well worth chasing, so go to your friendly local bookstore, give them its ISBN number and just say "Order it! Get it in! Or you won't see me ever again".



## Vale Ben Bensley

We are very saddened to learn of the death of a staunch and enthusiastic Skeptic, Ben Bensley, who recently died in Sydney after a short illness, at the age of 88. Ben, who spent much of his working life in the printing and advertising industries, had been a subscriber to *the Skeptic* for most of its existence and regularly attended functions organised by the NSW branch.

In his later years, Ben lived in a retirement village and his concern about promotion of new age nostrums to the elderly residents meant that he was in regular correspondence with the committee.

Though he was possibly our oldest subscriber, Ben's enthusiasm for the ideals of the Skeptics movement belied his years. Personally, I will miss his wise counsel and the occasional yarns we had on the phone that ranged over a broad compass of the things that concern Skeptics everywhere. **BW**

# Have you been snatched?

Bob Nixon

Before we begin, a warning. Those of a nervous disposition, or who are easily terrified out of their minds should not read on. What follows is description of the signals that may well (in fact probably do) indicate that you have been the victim of an alien abduction.

Still with me? Well, you've been warned!

That bastion of courageous journalism, the *Weekly World News* offers these hints, courtesy of the Alien Research Institute, of 3997 So. Industrial Rd, Las Vegas NV 89103. I have added, in parenthesis, my own reasons for concern.

- You wake up in the middle of the night feeling that something strange has just happened to you. (Happened to me just the other night, actually. Don't know what it was, and have a strange idea that I don't want to.)
- You feel as though you are constantly being watched. (Well, okay, but you'd be paranoid too, if everyone was against you.)
- You find yourself bruised or cut and have no idea how the injuries occurred. (I'm alright with this one, I know exactly where my cuts and bruises come from.)
- You have acquired a lot of knowledge on a subject you never had much interest in and you can't locate the source of that knowledge. (Astrology, tarot, numerology, and no idea where I read about them)
- Things disappear in your home and reappear days later in places where you know you would have seen them if they'd been there before. (Happens to my car keys and wallet almost every day.)
- You often see someone or some "thing" out of the corner of your eye, then turn to find nothing is there. (What the hell is that?)
- There is a location where you feel uneasy and you don't know why. (Boss's office, heavily laden train carriages, dungeons and public conveniences.)
- You hear a sound like a small fire cracker between lam and 4am - then suddenly realise that daylight has arrived and you can't account for the lost time. (No, but then I'm a very heavy sleeper).
- You meet someone who seems very familiar to you - but you have no idea how or where you met him before. (Yeah, but it's only because there are these people following me.)

Bit of fun, isn't it? Harmless tabloid journalism aimed at the lower end of the market? In the same

edition of the same journal is an advertisement offering a few of these "clues" and advising anyone who has had just one of these experiences that they "may have had contact with extraterrestrials and require immediate assistance and debriefing in dealing with these inter-dimensional beings". And how do you get this help? You call, and at \$3.99 per minute you speak to someone from the Alien Research Institute who will send you your free analysis.

Here are a couple of real clues:

The advertisement indicates that callers must be over 18, perhaps youngsters are not abducted by aliens. The ad is signed by someone identified as a "Technical Assistant" with the Institute. The signature is illegible and the name is not printed. With the offer of a free analysis, the ARI has your address. Now there's a mailing list you want to be on.

Might not be a scam, might be a real effort to help poor Americans. Might be a public service, albeit and expensive one. But if it walks like a duck and quacks like a duck...



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## Article worth noting

*Australian Science*, Summer Issue, (Vol 10, No 4) contains an interesting item about the new scientific field of "geophysical electrophonics", which describes the sounds many people have heard associated with sightings of meteoric fireballs.

It is of particular interest to Skeptics, because the phenomenon was first described in the literature by our own Dr Colin Keay, president of the Hunter Skeptics, who is now recognised as the expert in the field.

Keep an eye out for the magazine in your newsagents, or take a look at Colin's web page <http://www.hunterlink.net.au>

# History of the Bent Spoon

Barry Williams

In 1982, Australian Skeptics decided to institute an award to be presented annually at the National Convention, to individuals or organisations who made the most outrageous claim of a paranormal or pseudoscientific nature in the preceding year. After conferring with leading American Skeptic and illusionist, James Randi, who had earlier instituted a Bent Spoon award, it was decided that our award would also commemorate one of the less useful, though widely acclaimed, alleged paranormal claims; the psychic ability to distort items of cutlery. So was born the Australian Bent Spoon Award. Some years later, in a masterpiece of alliteration, it was decided that the preamble to the award should read "presented to the perpetrator of the most preposterous piece of paranormal or pseudoscientific piffle".

As this award was designed to rival the Nobels, the Miles Franklins, the Oscars, the Ernies in its impact on public awareness, hardly any expense was spared in the construction of the trophy. A piece of timber, which we had no reason to doubt was an off-cut of gopher wood from the Ark construction site, was polished to a high gloss and thereupon was affixed a spoon, which may, rumour suggests, have been used at the Penultimate Supper. The spoon itself, having been tastefully bent into a graceful curve, by energies which, we have reason to suppose, are unknown to science, is plated with gold by means of a deposition process long thought lost with the submergence of Atlantis.

The inaugural 1982 Bent Spoon Award was made, amid considerable public apathy, to self-proclaimed "psychic", Tom Wards. Wards, who was quite prominent at the time in the less reputable journals, was notorious for the inaccuracy of his predictions of world events and the bombast with which he promoted himself. Interestingly, Wards was exposed some years later by a TV current affairs programme for seeking customers in a Victorian rural centre and giving them all the same reading. Not much been heard from him in recent times.

The 1993 award went to another Melbourne mystic, Dennis Hassell, who attracted audiences with his claim to be able to make various parts of his anatomy disappear. What purpose was supposed to be served by this ability, even if genuine, was never explained. The notoriety attached to his award seems to have had the effect of making him disappear *in toto*, and we have heard nothing of him for years.

The 1984 award was attended by a minor public

scandal. The Melbourne Metropolitan Board of Works, a no-longer extant public utility, then responsible for Melbourne's water supply (among other things), was planning some new works on land it owned at Laverton. It showed admirable social responsibility in seeking to find if there was anything of historical significance on the land, but, unfortunately, used inappropriate methods of finding out. A member of the staff had heard of an American "psychic archaeologist" who prospected sites with divining rods. At public expense, this miracle worker, Karen Hunt, was brought to Australia and, not surprisingly, found that a colonial building had been located on the site. The drawings she made were judged, by those who know about such things, to be typical of American colonial architecture, but quite different from Australian architecture of the period. Despite much effort on behalf of Australian Skeptics and our US associates, Ms Hunt's claims were never put to a formal test.

In 1985 we had our first (and, to date, only) run in with a "psychic dentist". Brought to Australia by the Findhorn Foundation (an early New Age body), Brother Willard Fuller drew large crowds to meetings, where, by means of prayer and general ranting, he caused cavities to disappear and amalgam fillings to turn to gold (or so he said). Alerted to these claims, the body responsible for licencing dentists took legal action, resulting in him being fined for practising dentistry without a licence. Bro Fuller left Australia shortly thereafter and the Findhorn Foundation, his sponsors, were awarded the Sceptical accolade.

The next award went to an Australian sporting icon. In 1986, Peter Brock, Australia's premier touring car driver, became involved in promoting an "energy polariser" which, he alleged, when attached to the firewall of a car, improved its performance in all fields. The device was not connected to any of the vehicle systems and supposedly worked by application of mysterious "energies unknown to science". Along with motoring journals, the Skeptics conducted an investigation of the device and found that there was no basis to the claims made. There fallout from this affair saw Brock severing his relationship with General Motors, his long time sponsors, and with a number of his colleagues. The publicity associated with the case saw the device withdrawn from sale.

Adelaide "psychic", Anne Dankbaar was the lucky winner for 1997. In a widely publicised case,

she claimed to have discovered, by psychic means, the remains of the legendary Colossus of Rhodes in the water near that Greek island. The publicity attendant on the claim saw the Greek Minister for Culture sponsoring a recovery mission, but all that was found was some modern builder's rubble. The local media were criticised in our award for giving wide publicity to a claim without doing any checking of facts.

In 1988, we altered the timing in which potential nominees could carry out their activities. Previously it covered the calendar year that preceded the convention, which had hitherto always been held on the Easter weekend. In this year we changed the convention date to later in the year and the committee decided that it made more sense consider events that happened between the conventions.

In a slow year for paranormal events, another Adelaide 'psychic' figured in the 1988 awards. Diane McCann, a prominent new age proponent, decided and loudly proclaimed that the City of Churches was in fact the location of part of the lost civilisation of Atlantis. Her award recognised her unfamiliarity with geography, as much as it did her extraordinary claim.

Channelling was all the rage in 1990, and Australia was treated to a visit from one Mafu, an ancient entity and our winner for that year. Mafu had been through many earthly manifestations and his earthly 'channel', Penny Torres Rubin, drew many Skeptics to her public appearances. They were distinguished by the entity's inability to speak any of his previously acquired tongues, which may have been unfortunate, because the wisdom he dispensed in English was indistinguishable from vacuous drivel.

1991 saw an acceleration in the trend of weekly women's magazines to concentrate on purveying celebrity gossip and spurious New Age nostrums. In a closely fought battle, *Women's Day* was declared the winner over its (largely indistinguishable) rivals, based on its higher circulation figures.

The winner for 1992 was someone whose name would have echoes throughout the 1990s. "Dr" Allen Roberts, a fundamentalist pastor, had made headlines by being kidnapped by Kurdish rebels in Turkey after he had visited the site of what was (he claimed) Noah's Ark. His claims made in public meetings about this extraordinary 'find' were subjected to scrutiny by scientists and Skeptics alike, and revealed the paucity of his knowledge of subjects, such as history and archaeology, in which he claimed some expertise.

1993 was another slow year and the award went to *Tonight Live* on Channel 7 for giving publicity to various paranormal claimants. Some Skeptics were not entirely pleased with this award, as there was evidence that this recipient had gone out of its way to receive it.

Things looked up again in 1994, and in a hard fought contest, the Commonwealth Attorney Gen-

eral's Office was named. This office, the custodian of the laws of the land, showed scant recognition of the laws of nature when it allowed its staff to take sick leave with certificates provided by the practitioners of entirely unsubstantiated "alternative" health modalities.

Tim McCartney-Snape, prominent mountaineer and conqueror of Everest, won the 1995 award for public promotion of the cult of Jeremy Griffiths, the self proclaimed guru of the cult-like Foundation for the Adulthood of Mankind. The committee was divided on whether the mountaineer or the guru should win the award, with a narrow majority deciding that there is a greater responsibility on public figures to act with responsibility.

American author, Marlo Morgan got the judges nod for 1996, following the success of her appalling denigration of Australian Aboriginal culture in her book *Mutant Message Down Under*. A ludicrous mish-mash of American Indian legend and mindless new age dogma, this book achieved best sellerdom in the US and Europe, while causing great pain and expense to Aboriginal groups. Representatives of these groups were forced to travel overseas to publicly expose her cultural inaccuracy.

The health of Australia's children is increasingly under threat from ill-informed critics of immunisation against preventable diseases. The 1997 Bent Spoon was awarded to a leader of this campaign, Dr Viera Scheibner, a micropalaeontologist, whose unsubstantiated attacks on conventional medical practice has left many parents confused and many children unprotected against dangerous diseases.

In this context, in September we offered Dr Scheibner the opportunity she had publicly demanded to refute statements made about her claims in this magazine by Dr Stephen Basser and others. We stipulated only that she restrict herself to those claims, and to recognise that our space was limited. Her response consisted of 17 pages of text, much of which had nothing to do with what had been said here. This was, of course, unacceptable to *the Skeptic* and we wrote to inform her of that fact and to invite her to send a modified response. She has not, to date, replied.

All in all, the Bent Spoon Awards for the past 14 years have honoured an eclectic group of individuals and organisations, whose contributions to the intellectual health of the nation can, at best, be described as decidedly negative. Some have attacked their awards, many have chosen to ignore them and one or two have even sought to claim the distinguished trophy. However, part of the small print of the Award is that anyone wishing to acquire the trophy must remove it from our keeping by paranormal means. This seems to be an insuperable barrier as we still have it.

We invite readers to nominate their candidates for future accolades, bearing in mind that the winner should either be an Australian or have carried out their activities in Australia.



## Victorian attitudes

Roland Seidel

### Poyntonz.

We've been wondering about our public speaker evenings. We don't get the crowds we used to, it's a lot of work, we don't have the radio program for advertising any more... It's always difficult in a volunteer organisation, knowing how best to direct limited resources. Thanks heaps to the locals who responded to our newsletter questions, the advice is greatly appreciated and will help us at our next committee meeting.

### Quizzical times

On December 2, at Poyntonz (Grattan/Cardigan in Carlton) we had a brain busting quiz, with prizes that can only be described as extraordinary, run by the inestimable, indomitable, indefatigable Dr Bob.

Here are some example questions to give you a taste of the evening:

### Art

In Brueghel's painting *Landscape with the Fall of Icarus* - what part(s) of Icarus do you see?

### Literature

What is the last word of the text of James Joyce's *Finnegans Wake*?

### Jurisprudence

What proportion of the crimes in the Noddy books are committed by the Golliwogs?

### Science

What (in science) was discovered on 1 March 1980?

### Languages

What was the Pope referring to when he wrote in an encyclical "*birota ignifero latice incita*"?

What is the derivation of the Japanese word '*intoray*' meaning "scaffolding"? In French '*l'Autriche*' means "Austria". Replacing the i with a u-circumflex, what does '*l'auîtrche*' mean?

If you missed the Poyntonz Quiz Evening, keep it in mind for next year. But you can sample Dr Bob's challenging questions (a new se-

lection every month) on our web site: <http://www.skeptics.com.au>

### TV trivia

We read in the Melbourne *Green Guide* (6 Nov, p6) that "Barry Williams was once Greg Brady, the reliable big brother of the world's favourite blended family. He played the role for five years ...". They would be the "missing years", that Barry always avoids talking about I suppose.

### TV not so trivia

Don't tell anyone but we might be getting our own TV spot soon. Nothing has happened yet, but we have a strategic relationship with a video entrepreneur who could be a storm but never in a teacup, and a channel whose number is the largest binary number you can make with five fingers. We are aiming at a couple of fifteen minute spots a week, taking advantage of all the theatrical talent lying around. If you'd like to help, drop us a line at PO Box 5166AA Melbourne.

### STAV

Science Teachers will be cross if they missed this. The Science Teachers, Association of Victoria has its annual conference at LaTrobe Uni on November 24,25.

Skeptic, Adam Santilli, gave a presentation on "Teaching Critical Thinking in the Science Classroom". It was well received at CONASTA and teachers were keen as mustard for more information.

### Reverse Speech

Mark Newbrook's and Jane Curtain's analysis of David Oates' reverse speech claims is still attracting attention on the web although it doesn't seem to have dampened the consumers' enthusiasm. Word from the US suggests that this curious idea is gaining even more adherents,

## Darwinian selection

Margaret Kittson

In late August we were visited by Harry Edwards and his wife, who were here on holiday.

We used this visit was used to raise the Darwin branch's profile in the local community. Harry was interviewed on local radio and addressed a Skeptics meeting at the Darwin Water Ski Club on the evening of August 25. The attendance was reasonable, given the short time available for pre-publicity.

The show stopper was Harry's demonstration of his psychic powers. He invited members of the audience to write the names of famous persons on pieces of paper, which were placed in an envelope. He then stunned the audience by telling them what was written on the papers before opening the envelopes. Of course there is a trick involved, which Harry explained, but I'm going to be mean and let readers work it out for themselves.

John Foley, from Skeptics SA contacted Darwin Skeptic, Dr Richard Giese, to find out about registration of alternative medicines in the NT.

We have mixed feelings about this practice. On one hand, registration might be seen as giving legitimacy to what may be merely licenced quackery, while the other view is that having a registration procedure, under government control, renders the procedures subject to public scrutiny and accountability.

Check the list of Skeptics groups on page 4 for our new official e-mail address.



despite there being no evidence for its veracity. It's a funny old world.

### Diviners challenge.

Would you believe it, all of a sudden we're inundated with challengers. We have two diviners in Melbourne and one in Queensland plus a worthy telepath, all interested in the Skeptics' challenge. More news real soon.



## Southerly aspect

Allan Lang

James Lakes, on behalf of the Skeptics SA, recently took part in the South Australian Science Teachers Association presentation of the 1997 Oliphant Science Awards to South Australian students.

The special award for examination of pseudoscience sponsored by Skeptics SA was won by Jamie Messner of Prince Alfred College for an examination of Gardening by the Moon.

And, for those of you who follow *Ross Giles's Moon-Guide* on ABC Radio Saturday Morning Gardening Show: It don't work.

\* \* \*

On Wednesday, November 5, the *Eastern Courier Messenger* carried a cover feature entitled "Should astrology be taken Seriously?"

Yes, according to prominent Adelaide astrologer Anne-Elizabeth, astrology was really a very exact science because you could plot the positions of the planets and notice the continuing movement of the planets around the birth chart. However, despite this exact plotting, she conceded that what it actually meant varied according to how the astrologer decided to interpret it.

She also pointed out how difficult astrology was because "the sun is the only planet you can predict that will be in the same place at the same time of the year every year."

Even conceding for a moment the peculiar way astrologers define planets, that's just not true. *What About Precession Of The Bloody Equinoxes?*

Of course it's possible that her opinions were not completely accurately transcribed by the reporter.

There was also a companion article, under the photo of a typically grumpy skeptic, who reckoned that astrologers and their clients were deluding themselves if they thought they were finding out anything important. I spotted at least half a dozen errors in this

article due to the reporter's transcription.

For different reasons I'm sure I never said that astrology was "a load of hogwash", or "ultimately harmless". I think I'll have to fall back on the old stand-by "I was misquoted!"

\* \* \*

There may be a hole in Adelaide's oldest reservoir, the historic Thordon Park Reservoir (no longer part of the municipal water supply system).

Investigation by Mines and Energy SA confirmed that there was a shortfall in the estimated water level.

Some members of Campbelltown Council (which is responsible for keeping the thing full) were not convinced about the loss of water, and requested a second opinion from a water dowser. And apparently he confirmed that there was an "underground water body", or "water course", or something, under the Reservoir. Campbelltown Council has approved spending \$15000 for exploration of the suspected underground water body.

Do I hear the sound of a spoon bending?

\* \* \*

We have been holding a Super Special Skeptical Saracen Soirée at the Saracen's Head Tavern on the first Wednesday of even numbered months. Due to problems with hearing the speakers, we have had to move the location of future events.

By the time you read this, our December 3 meeting will have been held at the Rob Roy Hotel, 106 Halifax St, when we will have examined the issue of Dental Amalgam.

For 1998, our Wednesday, February 4 function will be a presentation on Skepticism in the Media by Mike Robinson, who writes as Aloysius O'Mahoney for the *Messenger* Newspapers.

## Capital capers

Julie McCarron-Benson

Canberra Skeptics held their annual dinner, as usual, on the anniversary of the Earth's creation. This year was very special. As we all know the Earth was 6000 years old. Plans to have a nationally telecast luncheon didn't come off. We still hope to have a Skeptics Gala Event at some stage.

About 35 Canberra Skeptics came to the informal dinner in a Turkish restaurant. Much of the discussion of the evening centred on the real names of the Seven Dwarfs.

A vote of the assemblage rejected most of the alternatives although Sneezy and Scumbag were considered by most to be reasonable inclusions. Later we discovered that these were not serious contenders for the names. Someone had written down one of the guest's allusions regarding her ex-husband.

\* \* \*

Efforts to stage a forum on immunisation keep unravelling. We will keep trying as it is a topic that doesn't seem to settle.

\* \* \*

We have chosen the weekend of Saturday 31 October-Sunday 1 November 1998 for next year's Skeptics Annual Convention. Venue, accommodation choices, theme will be announced as soon as possible. ☞

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The location has not yet been settled, so I suggest you ring me on 8277 6427, sometime in January, by which time they should have told me where it's going to be.

If you haven't been because you think you won't know anyone, don't worry. Neither do the rest of us. We all wear name tags and there is lively conversation and debate on many, many subjects. ☞

## Hunter gatherings

Michael Creech

### At the Convention

Colin Keay reported during his talk that 7000 workers in the US nuclear industry were recently surveyed for the incidence of cancer. They not only had below average rates of cancer but were above average health. Even with regular small doses of plutonium radiation no one in the sample had suffered a brain tumour. One conference delegate immediately responded with "That's proof! Homoeopathy works!!".

Colin also boasted that he had attended a picnic near the Chernobyl reactor in 1991 and with arms outstretched claimed that he had survived. A sharp member of the audience piped up "Yeah but look, you've lost all your hair!".

A couple arrived at morning tea asking if the conference was open to the public. However after perusing the programme they were very disappointed as they then informed me that they thought it was a psychic convention. As they turned to leave I thought that surely they should've already known before arriving!

Not being a physicist, the talks on quantum mechanics I found difficult to understand, but I thought I gleaned one gem (excuse the geological pun) when one speaker told us of a theory which proposed that an electron may move back in time (from our perspective that is) and appear to be in two places at one time during a cycle. Well I thought maybe this resolves the Geologist/creationist dilemma with 6000yr cycles on a planetary scale (once again only from our perspective). If we are indeed nearing the end of a cycle maybe that's why we seem to be going backwards in so many ways lately. Have I got this right then? My brain hurts.

### Be Sure To Wear Your Seatbelts

At the risk of offending some of our members, I read that Diana and Dodie visited their clairvoyant, Rita Roberts not long before their fateful trip to Paris. Surely, if this clairvoyant was worth the expense, some warning like "avoid Paris" or "beware a Mercedes" would have been given. I'm sure we will hear of all the predictions, now, well after the event. What of the other clients of Mrs Roberts? Should they continue to have faith?

### Energetic Colin

Our fearless president Colin Keay recently attended a gathering of fellow astronomers in Kyoto and as is his wont found himself discussing alternative energy sources with a French colleague. Colin was berated for ignoring the principle of alternative energies, which seemed a bit rich coming from a man who would soon return to a country which derives more of its energy from nuclear power than any other country. And on facts rather than principles this may well be the most environmentally clean option.

Colin's hotel in Kyoto had no fourth floor or any rooms with the number four in it. However the Congress was held in a more modern building which included many fours. Colin noticed further evidence of change in the wider public as each number 4 bus was just as crowded as the next!

### Glasshouses

A "letter to the editor" in the *Weekend Australian* (13-14 Sept) from Mr T O'connor of the Aust. Catholic Social Welfare Commission berated wealthy Australians for not paying their fair share of tax. Surely the Catholic church could lead by example here, then the largest private sector employer in Australia could start paying payroll tax for instance!

### Reporting For Those On The Land

A Mr Peter Daley reported for all those avid readers of *The Land* (Aug 28) of a great breakthrough concerning a fertiliser replacement, magnetised water!

A Toowoomba based company Q-Tech Laboratories has developed a water polariser which cleans the "memory of water" allowing it to absorb more trace elements. This is apparently something science has been working on for years (anyone heard of this?).

Also included in the process is a little spinning of the water, based on the fact that water always spins the same way down a plughole (Oh No! Not this one again). We all know that one inch of rainwater is worth 100mm of irrigation water (?) because the drops spin, and their memories are erased, allowing them to absorb more nutrients.

The water processing plant only costs \$100,000, but you won't need to buy any more horrid chemicals.

I contacted the reporter asking if he had done any independent research (like running water down his plughole) or felt he could be misleading his readers. To both, he answered no, but he thought if anyone spent \$100,000 without doing their own research first, that was their problem. He stated that he was merely reporting on a display at a field day. So much for reporting faithfully to your customers.



Is your  
renewal due?



## Greenhouse doubts

Like many other ideas involving a mix of bad science and opportunism that Skeptics find themselves fighting, the alleged global warming is no exception. In fact, many people would be surprised to know that there isn't any scientifically-acceptable evidence for this supposed phenomenon.

What evidence there is, comes from land based thermometry records which do show an increase in average temperatures, but this is due to the so-called "urban heat island" effect, whereby formerly remote weather stations have been encroached upon by expanding cities and these have recorded the heat output from the cities. Independent temperature measurements from balloons and satellites reveal no such warming artefact.

Also, many people may be surprised to learn that Antarctic ice records for the last 160,000 years show that temperature changes always lead changes in the CO<sub>2</sub> concentration, the opposite of what is claimed.

Furthermore, the models used to predict the supposed warmings have very little predictive capabilities, apart from what is given to them by whatever the latest fudge factor incorporated into them is. In addition, they use inaccurate estimates for the growth in the level of CO<sub>2</sub>, eg using a figure of 1.0% instead of 0.7%. In short, they represent bad science.

Also, some of the same people who are predicting global warming now, were also predicting global cooling when that was trendy 20 to 30 years ago. None of this is to say that global warming, or cooling, might not occur.

The environment is in a constant state of change, but the question is whether this will be caused by man-made means or not. This is what requires further research. Unfortunately, an obvious solution to reduce greenhouse emissions would be to replace fossil fuel electricity production with nuclear electricity production, but for some reason de-industrialisation, or at least leading simpler, more "back to basics" lifestyles is seen as the only viable solution.

This says a lot about the political

## Letters

**An opportunity for readers to air their views on issues that have appeared in the magazine, or anything else that takes their Skeptical fancy.**

agenda of the people promoting greenhouse warming. Also, one can't help thinking that with the end of the Cold War and the subsequent drop in scientific research funds, some scientists haven't promoted a bit of a scare story in order to secure more research funding.

For more information I invite people to peruse the following Internet resources:

<http://www.vision.net.au/~daly/>  
[http://www.carnell.com/global\\_warming/index.html](http://www.carnell.com/global_warming/index.html)  
<http://www.nhes.com/home.html>

There is also an introductory article on this issue in *New Scientist* "Greenhouse wars" in the 19 July 1997 issue. Also available on the 'Net at:

<http://www.newscientist.com/ns/970719/features.html>

**(Dr) David Maddison  
Toorak VIC**

## Greenhouse (II)

A recent report in the *Canberra Times* stated that there have been three downgrades in predictions of the Greenhouse effect in the past decade

	Temp rise	Sea level rise(mm)
1988	3	20 - 150
1990	1.2	15 - 40
1995	0.8	5 - 35

As a geologist, I could add the long term perspective. 18,000yrs ago the sea level was 130 metres below its present level. Although it did rise far quicker and has been fairly static recently, that equates to an average of 0.7cm/yr which, if such a rate was repeated from 1995 to 2030, would raise sea levels 24cm!

**Michael Creech  
Rathmines NSW**

## Nuclear questions

Colin Keay's fascinating convention paper on the dangers (so called) of nuclear energy (17 (3)), followed almost immediately by an ABC *Quantum* documentary about the nuclear age, including Chernobyl, prompt an immediate request for some clarification.

Professor Keay made no reference to the radiation cloud that was purported to blanket Eastern Europe and as far away as Sweden, where the Chernobyl disaster was first spotted. Did this pose a major risk or was it no worse than the CO<sub>2</sub> emanations from coal power stations? How long did it last and for how long was it dangerous?

*Quantum* made the point that many cancers did not eventuate for ten to twenty, or more, years after a nuclear incident. How valid is this point and in view of this time lag how easy is it to identify the principal source of the cancer? As Professor Keay writes, many people will develop cancer anyway, in which case how relevant is the time lag "threat"? Obviously people will attribute any cancer deaths to the 1986 disaster rather than to any other cause, but can Professor Keay be certain that deaths which do occur would have happened anyway? Are there any relevant statistics, or even facts?

The *Quantum* documentary, though apparently very sober and balanced, was still full of gloom about the threat hanging over us. Even the tiny risks reported as being acceptable seemed to cause the experts interviewed some concern. What is a safe dose of nuclear radiation? How does this compare to that naturally occurring in the ground? Does it differ in any significant way from that produced by nuclear reaction or are we being confused by errors of omission from the anti-nuclear lobby? Somehow death by nuclear radiation, Chernobyl-style, is worse than death by radiation any other way.

I found the table shown in the Keay paper confusing, principally because there was no reference to events to which I could relate. Am I correct in assuming that the scale on the right-hand side, ie "Equivalent Annual

Doses from Various Exposures" is exactly equivalent to the chart on the left-hand side or, at least, should be read in parallel? What exactly does the Radon 222 Concentration to lung cancer risk signify? Why does the risk appear to drop at higher concentrations, or am I misreading it?

At this stage one has to speculate. Is there an acceptable rate for cancer deaths? New Agers and other assorted loonies would doubtless argue that anything more than zero was totally unacceptable, but in view of other natural radiation some cancer deaths become inevitable. Whilst we are clearly not being informed about the rates of cancer from natural radiation as opposed to "non-natural", or even that there might be a distinction, at what higher level of exposure should we draw our (arbitrary) line? Are uranium miners, for instance, being put at an unacceptable risk, or is the occupational dose limit too high? Incidentally, is it more than coincidence that "Other natural radiation" is rated at 1 MilliSievert? (Who was Millie Sievert?)

How dangerous was the Chernobyl disaster? I presume that 100 mSv does represent a fatal or near fatal dose of radiation? Where is the dividing line between fatal and non-fatal doses, or between the certainty of cancer and the possibility?

How long was it before the radiation around the nuclear reactor or the nearby towns, especially Pripjat, returned to normal or at least to an acceptably low level? What is the qualitative difference between the radiation at Chernobyl and that at Kerala, Madras, Sri Lanka or Brazil? What, in fact, is the radiation at those places and what causes it?

Colin Keay clearly knows his stuff and as a long time but unqualified supporter of nuclear energy I am delighted to read such trenchant and well-argued support. It would be unsceptical of me, however, and would be against my natural caution also not to ask the above questions and I would be grateful were Professor Keay to answer them, through the medium of this magazine, at his leisure.

**Roderick Shire  
Cremorne Point NSW**

## Cosmic Longitudes, Batman

A quick note bringing up a point from Harry Edwards' article in *the Skeptic*, volume 17, number 3. What was printed, Harry apparently quoting from a letter he received from some astrological money-making concern, and inserting his own comments in brackets, was:

...you were born under the influences of three powerful planets Mars, Pluto and Uranus and under a longitude of 210 to 240 degrees. [Actually I was born less than a stones (sic) throw from Greenwich Observatory in London - longitude 0].

Now let's not quibble over little things (if I recall the scenery correctly then Harry must have been born under a tree); my point here is that if one presents ludicrous misinterpretations of what 'the enemy' is talking about, then they will feel quite justified (hell, they *are* justified) in dismissing the attacks as ill-informed persiflage. And that doesn't help the cause (whatever it may be).

There's more than one parameter which gets the label 'longitude.' I don't think that Harry's correspondent was thinking of the geographic longitude of his birth site. More likely the correspondent had in mind the location of the Earth in space at that time: on the ecliptic plane, and in a position described by the solar longitude (or perhaps the terrestrial longitude, which is just 180 degrees different). The ecliptic's sky projection (the zodiac) is sliced by astrologers into twelve segments (ie, the 'star signs'), but the Earth moves through them at different rates during the year, because our orbit is not circular. The Earth moves fastest at perihelion (in early January, currently) and slowest at aphelion (in early July, ditto). That means that the amount of solar longitude covered in a day will vary, being highest in the austral summer. Now, of course I never read the horoscope columns, but I'd bet that if you check you'll find that the signs occurring around the December-February are shorter in terms of the number of days

than those of June-August, because the dates would likely have been chosen to split the zodiac up into equal divisions of solar/terrestrial longitude.

'Nuff said?

**Duncan Steel  
Adelaide, SA**

## Views from space

Phil Matthews (*Letters*, 17 (3)) discusses whether the Great Wall of China can be seen from space. The issue was raised and discussed in *New Scientist* (*Last Word*, 15 July 1995, p65, and also available archived at their Internet site, <http://www.lastword.com>).

According to a contributor, Neil Armstrong (first man on the Moon, in case you can't remember) has stated that the Wall is definitely not visible from the Moon.

The issue of the visibility from space of the Great Wall (and anything else) is plagued with two confusions. The first one relates to a basic confusion between length and width. People have assumed that because the Wall is very long, it must be visible. However, to resolve something, it's the width that matters, not length (although contrast has an effect), as Phil has quite clearly discussed by way of a scale model. The second confusion, in my opinion, relates to the understanding of distances in space. It would be very easy for someone who has little idea of distance, on hearing that something is visible from space (presumably from a low orbit a few hundred kilometres up), to assume that it is visible from the Moon (roughly 400,000km away) or even Mars (roughly 100,000,000km up).

In the *New Scientist* item, a contributor says that photographs from uncrewed probes do sometimes show the *route* of the Wall, where sand is blown onto the windward side, but the Wall itself is not visible. In the same way, I've seen photos from space which show fences or political borders. The fence or border is *not* visible, but what is happening is that vegetation differences (due to crops or grazing pressure) can be seen as a sharply demarcated line.

One version of the statement about the Great Wall says that it is the only non-natural object visible from space. It might depend on what is meant by non-natural object. However, it's long been known that cities are visible at night - wasn't Perth congratulated by early astronauts for turning on all the lights? I also have a small book of some photos taken by Shuttle astronauts in which a variety of tracks and roads are visible, often I imagine due to the contrast with surrounding countryside. I would assume that large areas, such as airports or reclaimed land, or even cities, would be clearly visible by eye from space. They certainly are visible in Landsat images, which are enhanced and magnified.

Michael Vnuk  
Annerley Qld

## Alien communications (I)

After reading the article by Roland Seidel, "Talking with an Alien", (17 (3)), I was surprised to find, in the same issue, a letter from precisely the kind of person Mr Seidel was referring to. I mean of course Mr Norman Pollack, with his contribution captioned "Scientific Belief". I thought it might be instructive to analyse his letter to see just how many of Seidel's criteria he meets.

For example, in the first paragraph, he drops in the standard **Sophist** tool of **Redefinition**, (beloved by New Agers and Creationists alike), and re-defines science as a "belief system". It never ceases to amaze me that people think they can get away with this one! It makes about as much sense as saying that Atheism is a faith system. (a comment I have heard Creationists trying to get away with, on occasion). Science is the very *antithesis* of a belief system in that, (as should be transparently obvious to anyone with a modicum of common sense), you don't have to *believe* in science for it to work. It doesn't matter whether you are an Anthropology Professor or a witchdoctor, a radio will still work for you, no belief or act of faith is required. Try making Christianity work for you if you don't believe in Jesus,

or for that matter, astrology, even if you *do* believe in it!

Next, Mr Pollack indulges in a spot of **Ridicule** and **Irony**, (**obviously** meant to put those arrogant scientists in their place), with the comment that "our tiny brains self perceive". I can only presume that he is referring to his own grey matter here.

He then follows on with another of Seidel's criteria, **Presumption**, by claiming that "the search for extraterrestrial intelligence is a fundamental tenet for those who wish to disprove the traditional homocentric cosmological model". Now, I was under the impression that this had been done a long time ago by messrs Kepler and Galileo, and is hardly a top priority with scientists today. The fact that virtually all of the findings of science confirm that humans do not occupy a privileged position in the universe, is an uncomfortable by-product of scientific enquiry, but not its stated aim.

Moving on a couple of paragraphs, Mr Pollack indulges in **Hubris** by making the statement that "if intelligent beings do exist on planets round the stars they surely are as likely to have visited us as to send us radio messages." This is akin to me saying I am just as likely to visit my father in Hungary as to call him on the phone. There is a huge economic and energy differential between the two modes of communication, and if we are talking about interstellar travel, then we must increase that differential by many orders of magnitude. Even a highly advanced society would surely find interstellar travel expensive, so these two options are nowhere near as likely.

Finally, we come to one of the major criteria Seidel talked about in his article, **Contradiction**. By taking it upon himself to define what scientists do in the pursuit of science, together with some ill advised assumptions of his own, Mr. Pollack is able to manufacture a contradiction where none exists. I realise that this is not exactly what Seidel meant, but it is never the less, a standard characteristic of Alien thought. Using standard Sophist methodology, one twists the opponent's propositions (or perhaps, one manufactures a proposition that your opponent has never voiced) so that a contradiction is ensured, then, sur-

prise, surprise!, triumphantly point it out. I have certainly never seen Mr Pollack's two fundamental propositions of science, in any science textbook, and certainly, no philosopher of science has ever mentioned them.

Surely there is nothing contradictory about saying that it is overwhelmingly probable that intelligent life exists somewhere in the Universe, but that, given it's size and age and the highly specific conditions required, it is extremely unlikely that it exists in our neighbourhood and present timeframe. This is just an exercise in probability, pure and simple and not in the least contradictory.

Given the unlikelihood of the proposition, it would take some highly reliable evidence to the contrary, to prove it. This, needless to say, has not been forthcoming and the evidence that exists, is of very poor quality. However, that is not to say that we have definitely *not* been visited by aliens, but merely that we lack good evidence of it. That is the scientific position, but after reading Mr. Pollack's letter, I am not so sure; the Aliens *do* exist and are among us.

Charles Nagy  
Sth Yarra Vic

## Alien communications (II)

Norman Pollack (17 (3)) claims that it is inconsistent to believe that intelligent beings exist elsewhere in the Universe, that they may be sending us radio messages, but that they have not visited the Earth. It is not inconsistent if you consider that it is far easier to send a radio message than it is to visit. We have had radio now for about a hundred years (and earthly radio transmissions would probably now be detectable several dozen light-years away) but we are nowhere near developing interstellar travel. I expect that other intelligent beings would also develop radio long before interstellar travel. Even on Earth it is easier to send someone a radio message than it is to visit them.

Norman goes on to say that intelligent civilisations would only survive for a short time, and that it is therefore unlikely that two would exist at

the same time. This is in fact a very good point which I think has not received adequate attention. There are numerous ways in which the human race might become extinct, and I don't just mean obvious threats such as nuclear war. For example, over a time scale of millennia, the likelihood of an asteroid striking the Earth becomes significant. Also, we don't appear to be winning the war against infectious diseases, and the advent of international plane travel makes it easier for worldwide epidemics to occur. As technology advances, it is increasingly the case that what affects one part of the Earth, affects the rest of the Earth as well. Other intelligent civilisations would be similarly vulnerable.

I understand that life is thought to have existed on Earth for about a billion years. The evolutionary processes which have led to *homo sapiens* on Earth, might well have proceeded faster (or more slowly) elsewhere. Suppose the difference was only 1 percent. Even that small difference would mean a civilisation at our level of development ten million years ago. And that's assuming that life arose simultaneously on the two planets.

Bearing in mind my earlier comments about vulnerability, I think that when we get to the stage of sending out interstellar probes (late next century, perhaps) we may well find that there are very few worlds with extant civilisations, but a much larger number which lie in ruins or are fossilised. Let us hope that this is not also our own fate.

**Chris Manning  
Darling VIC**

## 2000 bug

In *the Skeptic* (17(3)), there was a *Forum* item on the Year 2000 problem. Today at work (the Department of Defence) the *Year 2000 Project Newsletter* Vol 1 Issue 1 arrived. The opening paragraph (written by Colin Henry, the Project Director) reads:

The coming turn over from the year 1999 to the year 2000 has been heralded in many quarters as the start of good times ahead, a brand new era, a new millennium, the Age of Aquarius (although these really occur from 1st January 2001). In other quarters, the

forthcoming century turn over has been heralded with sights and sounds of gloom and disaster. And that was before the full realisation of what our technological age has quietly slipped into the melting pot; date fields which allow for day month and year, but not century, and which have quietly infiltrated many of our every day activities

The Age of Aquarius begins in 2001? I wonder what the Defence Signals Directorate has been listening in on - Athena Starwoman perhaps.

The newsletter then talks about what the consequences of the Year 2000 Problem, and what Defence is doing. There are a couple of articles from outside the Project reprinted. The final paragraph of the newsletter (courtesy of IDG publications, written by Paul A. Strassman) reads:

In the same way as the fall of the Berlin Wall became the symbolic event marking the downfall of the Soviet Empire, it is likely that the enormous costs, litigation and adverse publicity of the Year 2000 disaster will be seen as the end of trust in computer experts. What will follow are inevitable changes in organization, budgeting and accountability for the management of information technologies.

There is also a article titled "Low-Tech May Rule After Year 2000". In short the newsletter is doom and gloom. It was interesting after reading Brian Robson's *Forum* article. Whilst my thoughts are more in the middle of the two extremes, I was wondering if I could forward a copy of the *Forum* article to the Year 2000 Project, and see if they would print an opposing viewpoint. I'm not sure who's permission would be needed.

**Michael Kean  
Woden ACT**

Be our guest, Michael.

## Relativity or Ritz

Several issues ago, a debate over the truth or otherwise of relativity flourished in this publication. However, in the crossfire, one important alternative to relativity has been overlooked : Ritzian theory.

Ritzian theory is not about an ether - it is about replacing our ideas of fields - no longer are they mysterious phantoms, the effect one thing has on another is a property of a flow of sub-particles through a point in space.

While advocates say that relativity is a known fact, verified by experimental evidence, our interpretations of experimental evidence are based on our assumptions. Our expectations shape our perceptions - this is well known.

Take the idea that nothing can be accelerated to beyond the speed of light. We have evidence for this from electron guns - as we crank up the voltage, we are unable to accelerate the electrons to faster than the speed of light.

While relativity explains this through an increased mass, Ritzian theory explains it through a diminishing force. The two results are equivalent.

The situation is analogous to firing cannonballs from a cannon. There is a limiting speed to how fast we can fire shells from a cannon, because beyond a certain speed, the gas behind the cannonball cannot keep up with it and push it any harder.

If we were to take this fact as evidence that nothing could travel faster than the speed of a cannonball, we would be wrong. And yet this same logic makes us think that nothing can travel faster than the speed of light.

All the other experiments which supposedly provide support for relativity can be reinterpreted through Ritzian theory on a different basis. But it is a consequence of the dominant paradigm that physicists are unable to see this, and continue to embrace relativity.

Ritzian theory provides a quite workable theory of electromagnetism. In Curtin University, Professor Zigmias Budrikis teaches his electromagnetics course from a Ritzian perspective. This is because Ritzian theory provides a much simpler electromagnetism, which is easier for students to grasp than conventional electrodynamics.

But this valid and workable framework has been ignored by mainstream science. It is a sad and unfortunate situation, but one which we should by no means be surprised by.

**John August  
Sydney NSW**

## About our authors

### Would you like to remember the Skeptics in your will?

The Australian Skeptics Science and Education Foundation, a non-profit trust, established by a bequest from the late Stanley Whalley, supports scientific and educational programmes, including the Eureka Prizes, Young Scientists Awards, the Mt Stromlo Exploratory, the operations of the Australian Skeptics branches, and makes grants to worthwhile scientific and educational projects and individuals.

If you would like to help this work continue you may consider naming the Foundation, or any other Skeptics organisation, as a beneficiary in your will.

The address of the Foundation is:

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Newport Beach NSW 2106.

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*The Skeptic  
extends best  
wishes  
to all our  
readers for  
the holiday  
season*

**Dr Amanda Barnier** is a psychologist at UNSW. She is the 1997 winner of the Australian Skeptics Eureka Prize for Critical Thinking.

**Michael Creech** is a geologist who drifts around the Hunter Skeptics in a continental manner.

**Harry Edwards**, amateur psychic, professional investigator and full-time curmudgeon, is the secretary of Australian Skeptics Inc.

**Colin Keay**, astronomer and retired academic, is president of the Hunter Skeptics.

**Margaret Kittson** is a librarian in Darwin and is correspondent for the Darwin Skeptics.

**Allan Lang**, bibliophile of note, has one of those undefined positions favoured by the Skeptics SA committee.

**Richard Lead**, treasurer of Australian Skeptics Inc, asked to be described as a tax consultant, because he believes accountants have an image problem. We don't know how he came to that conclusion.

**Alastair MacLennan** is a Professor of Obstetrics and Gynaecology at the University of Adelaide and spokesman for the Australian Menopause Society.

**Julie McCarron-Benson** is a professional event organiser and leading light of the ACT Skeptics. With Julie organising, it looks good for the National Convention in 1998 in Canberra.

**P P McGuinness**, economist, columnist and sceptical social commentator, is a candidate for the Constitutional Convention, though why anyone would want to spend two weeks in Canberra in summer is one of life's unsolved mysteries

**Bob Nixon** handles challenges for the Victorian Skeptics. His taste in literature, centring on weird magazines, causes his friends some concern.

**Alex Ritchie** is a palaeontologist and research fellow at the Australian Museum. He is a leading critic of creation 'science' which is why he is full of beans at the moment.

**Roland Seidel**, mathematician and semi-retired flower child, presides over the doings of the Victorian Skeptics.

**Sir Jim R Wallaby**, star of stage, screen, TV and *risque* post-cards, loves creation 'scientists' as they provide him with much coarse amusement.

**Barry Williams**, editor and executive officer of Australian Skeptics, would like to wish all our readers the very best for the holiday season, and urge them to re-subscribe with all dispatch.

**Beth Wolszon** is a social worker from Minnesota, USA. With the sort of person who visits foreign countries just to see how evolutionary ideas have infiltrated living in her state, we suspect she has plenty of work on her hands.