

the skeptic

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THE MIND OLYMPICS



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**EUREKA
PRIZE WINNER
Mr Richard Kocsis**



**story
inside**

the Skeptic

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News Flash

Premier to open Convention

We are delighted to announce that the Premier of NSW, the Hon Bob Carr MP, has consented to open the World Skeptics Convention at Sydney University on Friday, November 10 at 9.30am.

Added to the list of distinguished speakers who will be taking part in the three-day Convention (see 20:1 p37) are Mr Alan Cameron AM, Chairman of the Australian Securities and Investment Commission, who will address the first day session on scams and a number of prominent medical researchers and academics, including Professors John Dwyer, Stewart Dunn, Les Irwig, Gillian Shenfield and Barry Wren and Dr Joe Proietto, who will address alternative health issues on Sunday, Nov 12. Also included will be Drs Robert Imrie and Dave Ramey from the American Veterinary Assn and Dr Roger Clarke from the Australian Veterinary Assn who will speak on how alternative practices have infiltrated the veterinary profession.

The World Convention is shaping up to be an event of major significance in the history of Australian Skeptics and we urge all readers to take note of the details on the inside front cover and to keep up-to-date by reference to our web site.

Skeptics World Convention III



University of Sydney
November 10-12, 2000

Visit the World Convention web site:
www.geocities.com/skeptics2000

Around the traps

Bunyip

If you are reading this, the world did not end on May 5. That was the theme of a book, *5-5-2000 Ice: The Ultimate Disaster*, written in the 1980s by one Richard Noone, and expanded on ever since by such luminaries of the prognosticator's art (perhaps I mean obfuscators?) as Graham Hancock and others.

The idea was that on that date all the naked-eye planets and the Moon were all lined up (actually within an arc of around 25°) on the far side of the Sun and that this would trigger massive changes in the Earth, including, but not confined to, a flip in the axis of rotation of the planet, causing continents to change positions and polar ice and tidal waves to devastate everything. This is being written on 4-5-2000, but we are not planning any exodus to the high ground.

* * *

Have we discovered a genuinely paranormal effect? Over many years we have studied the effect on the weather of removing the summer doona from the bed and replacing it with the winter version [or vice versa]. Without fail, within 24 hours of this taking place, the weather, which hitherto had seemed to settle down into a steady cool [or warm] phase, suffered a reversal towards the previous ambient. Evidence from other observers suggests that this effect is also triggered by removing oil column heaters from attics and garages, and the storage of the previous season's apparel in naphthalene flakes.

If more concentrated research supports these observations an answer may be to hand to counter any global warming. Sufficient people using a winter doona throughout the year would solve the problem for all time. Of course it would need to be rigorously monitored to avoid plunging the planet into a new ice-age.

It might not be much of a theory, but it's a lot more realistic than the planetary alignment model in the previous item.

* * *

Interesting news from Britain that the new ten pound note will feature Charles Darwin on its reverse side, re-

placing Charles Dickens who has hitherto been featured on the note. Bank of England currency printing rules require that (the monarch apart) the person featured must be both distinguished and dead, categories that fit both CDs.

However another, more pragmatic, reason lies behind the selection of the great naturalist: although both he and Dickens were bearded, Darwin's far more luxuriant facial adornment makes it more difficult for a counterfeiter to copy his image.

It certainly induces a warm feeling of self-justification among those of us Skeptics who eschew the temptations of the razor.

* * *

As a follow-up to John Patterson's article in the last issue ("Clairvoyant revisited") in which he checked into the claims of clairvoyant "Maria Duval" and previous excursions into very similar territory ("The French connection", by Harry Edwards, 19:2 p37) in which the clairvoyants were "Nathalie Bardot" and "Madeleine Bochet", we were beginning to think that there must be something in being a French woman that caused them to be clairvoyant. Our theory was reinforced when we received a similar offer from a reader, originating with "Marie-Rose Valmont", whose return address was in Staines, Middlx, England.

However the theory received something of a blow, when a number of readers sent us offers, very similar to those made by the French ladies, from yet another philanthropic woman, but this time named as "Paula Zikorski", which is not what one would think of as a stereotypical French name (as all the others are). Then we decided that perhaps she was a Polish expatriate who chose France as a home just as her distinguished compatriots, Frederic Chopin and Marie Curie, had done before her.

But Paula shares something else, besides her extreme generosity, with most of the m'lles mentioned above, and that is an address at Suite 406, 15 Albert Ave, Broadbeach, Qld, 4218.

It seems to us that there are two possible answers to this mystery:

1. Large numbers of women are having prophetic dreams about total strangers, leading them to write very long letters offering them assorted talismans and nostrums for a heavily discounted fee; or

2. Someone (probably neither French nor a woman) is running a scam and maybe the Qld Dept of Fair Trading should look into it.

* * *

Andre Phillips and Claire Milton, whose nuptials (and the role of the Skeptics in them) was mentioned in 19:4., have sent us the following:

A few days ago Claire spotted an interesting piece of absurdity in the *Medical Observer* (31 Mar 2000, p15) describing concern the return and advocacy of trepanning, as a cure-all (or at least cure-many) solution to various medical problems. The thrust of the *Medical Observer* article is concern about do-it-yourself [at home with the Black & Decker] trepanning, taking the concept of 'self help' to new levels of danger and silliness. Anyway, you can read all about it, including how to do it, at:

<http://www.trepan.com>.

* * *

Our thanks also to Steven D'Aprano from Reservoir for this item.

Australian basketballer Annie La Fleur was recently caught importing the steroid DHEA into Australia. She claimed she was not aware they were a controlled substances, as they are available over-the-counter in the USA.

Of interest to Skeptics is the news report on SBS regarding these tablets. It showed a sample of (presumably) the tablets in question: Pretorius brand. And the jar was clearly marked "Homeopathic".

Sadly, La Fleur is not able to defend herself by arguing that, being homeopathic, the tablets don't contain a single molecule of DHEA. The jar also states that the tablets contain 3mg of DHEA each. Which speaks volumes for the effectiveness of homeopathic remedies, since they actually need to contain measurable amounts of drugs in order to work.



Eureka Prize winners

The 10th annual Australian Museum Eureka Prize

The winners of the 2000 Australian Museum Eureka Prizes were announced on May 2 at a function hosted by media personalities Amanda Keller and Adam Spencer. Ten Prizes, worth over \$90,000, were awarded to individuals and organisations Australia-wide for outstanding achievements in Australian scientific and environmental research, engineering innovation, science communication and journalism.

Australian Museum Director, and Australian Skeptic of the Year for 1998, Professor Mike Archer commented, "The Australian Museum is extremely proud to be the administrator of these prestigious national science and environment awards. The growing reputation and success of the Australian Museum Eureka Prizes was clearly demonstrated by the overall level of excellence in the entries. The Eureka Awards would not be possible without the ongoing support provided by sponsoring companies, organisations and institutions. By rewarding excellence in Australian science, these sponsors encourage the further popularisation of science." The year 2000 marks the tenth anniversary of the Australian Museum Eureka Prizes. On hand to present the Prizes were the Hon Bob Debus MP, NSW Minister for the Environment, Ms Catherine Livingstone, Managing Director of Cochlear Limited, one of Australia's outstanding R&D success stories, and adventurer as well as highly successful businessman Dick Smith.

The Australian Museum Eureka Prizes were launched in 1990 to reward outstanding achievements in Australian science and environment, and are administered by the Australian Museum. Since their inception, the Australian Museum Eureka Prizes have been highly successful in raising public awareness of the vitality, originality and high international standard of Australian science and environmental research.

During the ceremony, Mike Archer presented the first ever Honorary Australian Museum Eureka Prize to ABC science guru, Robyn Williams. The award was in honour of Robyn's role in establishing the Eureka Prizes during his tenure as President of the Australian Museum Trust.



Richard Lead (NSW), Dick Smith, Richard Cadena (Vic) at the Eureka. Have the Skeptics had the Richard?

The Prize Winners

The \$10,000 Australian Skeptics Eureka Prize for Critical Thinking

Encourages investigation into beliefs that owe little or nothing to the rigours of scientific method. Awarded to a student or post-doctoral researcher in the physical or life sciences and related humanities area for a completed or planned body of work.

Sponsored by the Australian Skeptics.

The winner, announced by Dick Smith, Patron of Australian Skeptics, was **Mr Richard Kocsis** Lecturer School of Police Studies, NSW

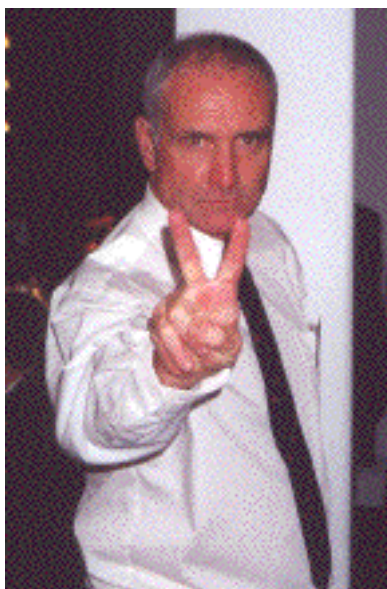
Police Academy For "Criminal Psychological Profilers, Police Officers and Psychics: who are the best detectives?", a study which seeks to identify the abilities that contribute to proficient performance in criminal psychological profiling, by comparing the accuracy of psychological profiles for a closed murder case generated by groups differing primarily in characteristics posited to underlie the profiling process.

Mr Kocsis' study compared the accuracy of a number of professional profilers from a range of backgrounds including police detectives, psychologists, university students and self-declared professional psychics. Results have indicated that psychologists, with their education in human behaviour, outperform those police detectives with only a background in police investigation. "It was always clear to me that there was indeed method to the madness of sexual murderers," commented Mr Kocsis. "I therefore saw it as my civic duty to develop scientific profiling techniques that would allow detectives to also decipher these behaviours and thereby help solve these crimes."

In other findings from the study, psychics appeared to rely on nothing more than the social stereotype of a murderer

in their production of an offender's profile.

Mr Kocsis' work has a number of significant implications, including debunking the previous belief that experience as a police officer is the most important attribute to successful profiling. Improving the deductive



Robyn Williams. Well-deserved recognition for his role in the Eureka.

skills of police profilers would involve training in criminal psychology - a topic not currently featured in the curricula of police detectives anywhere in Australia.

evolution as proposed by the 'out of Africa' theorists. The series broke new ground in both style and content, mixing re-creation, filming at original sites and computer graphics to take the audience on an incredible journey into their past. Broadcast on 4, 11 and 18 January 2000 on ABC TV.

The scientific consultant for the programme was ANU anthropologist and prominent Australian Skeptic, Dr Colin Groves.

The \$10,000 Industry, Science and Resources Eureka Prize for the Promotion of Science

Sponsored by the Department of Industry, Science and Resources.

The joint winners were:

Ian Anderson Chair, ScienceNow! Organising Committee, for using his experience as Australian editor of *New Scientist* to lead the development of 'ScienceNOW!' the National Science Forum, which brings leading edge science directly to the media, students and the general public.

Sadly, Ian Anderson died between the time when he was adjudged the winner of this prize and the announcement, and the prize was accepted by his widow. Ian had been a great friend of Australian science, and he will be greatly missed by all who have an interest in science in this country.

Science in the Pub, Australian Science Communicators (NSW) (Ms Robyn Stutchbury, Project Manager) For development and expansion of 'Science in the Pub', an innovative and entertaining program which takes science, scientists and scientific issues to members of the wider community in a manner and informal setting which demystifies science and humanises scientists.

The \$10,000 Institution of Engineers Australia Eureka Prize for Engineering Innovation

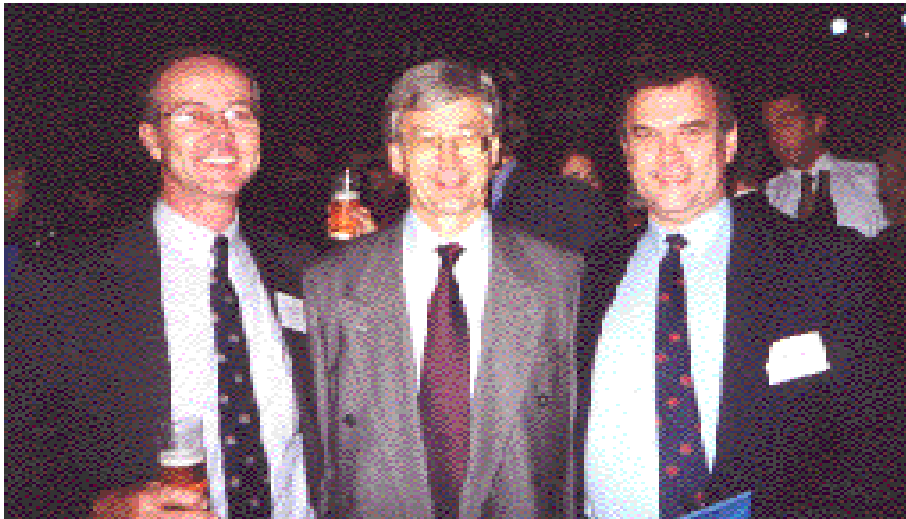
Sponsored by the Institution of Engineers, Australia.

The winner was **Mr Yuri Obst**, for determination and ingenuity in R&D, particularly in relation to environmental matters, and for development of the Continuous Self-Cleaning Filter, a new dimension in continuous filtration technology which represents a major scientific and engineering discovery. Development of this technology into a new self-cleaning industrial water filter launched for the marketplace under the 'Baleen' trademark offers the potential to revolutionise Australian food manufacture.

The \$10,000 POL Eureka Prize for Environmental Research

Sponsored by POL Publications.

The winner was **Dr Brian Cooke** CSIRO Wildlife and Ecology, for research over 30 years which has combined an unsurpassed knowledge of rabbit biology and ecology with diligent, dedicated and innovative research and effective advocacy with the singular aim of reducing the devastating environmental impact of the



Skeptics' Prize judges, Richard Gordon (NSW President) and Steve Roberts (Vic) , with Skeptics patron, Dick Smith

The \$10,000 Allen Strom Eureka Prize for Environmental Education Program

Sponsored by the New South Wales Environment Protection Authority.

The winner was **Australian Master TreeGrower**, Department of Forestry, Institute of Land and Food, University of Melbourne A participatory program for farmers active in revegetation, farm forestry and remnant forest management.

The Australian Museum Eureka Prize for Industry

Sponsored by the Australian Museum.

The winner was **Vermitech Pty Ltd** for 'Worm Power', the industrialisation of vermiculture which melds the sciences of agronomy, microbiology, entomology and zoology with the applied fields of chemical, mechanical, structural and civil engineering to develop an industrial scale vermiculture system for the total beneficiation of biosolids and sewage.

The \$10,000 Environment Australia Peter Hunt Eureka Prize for Environmental Journalism

Sponsored by Environment Australia.

The winner was **Mr David White** 2DAY FM For *The Pulse of the Planet*, a comprehensive environment campaign designed to empower listeners to enact change by demonstrating the key roles individuals can play.

The \$10,000 Industry, Science and Resources Michael Daley Eureka Prize for Science Journalism

Sponsored by the Department of Industry, Science and Resources.

The winner was **Mr Andrew Waterworth** , Beyond Productions For *The Human Journey*, a three-part television series which 'brings to life' the story of human



Mike Archer.
Thumbs up for the thylacine?

European wild rabbit in semi-arid regions of Australia. The culmination of this research - the success of Rabbit Calciavirus Disease in the near complete control of rabbit populations throughout vast regions of central Australia - is arguably the single most important contribution to the pastoral industry and sustainable development of Australia's heartland in five decades.

The \$10,000 University of New South Wales Eureka Prize for Scientific Research

Sponsored by the University of New South Wales.

The winner was **Dr Richard Bryant**, School of Psychology, University of New South Wales, for research aimed to bring scientific direction, rather than assumptions, to understanding and managing people who have experienced a traumatic event. The findings have opened the door for early treatment programs.

The \$11,000 University of Sydney Eureka Schools Prize for Biological Sciences

Sponsored by the School of Biological Sciences of the University of Sydney.

The winning entry, by a team of year 10 and 11 students from **Albany Creek High School** in Queensland, for their study of intertidal fauna in mudflats in Moreton Bay. This demonstrated that pollutants were causing a decline in macrobenthic organisms at Nudgee Beach and Dynah Island Beach, resulting in a decline in water bird populations.

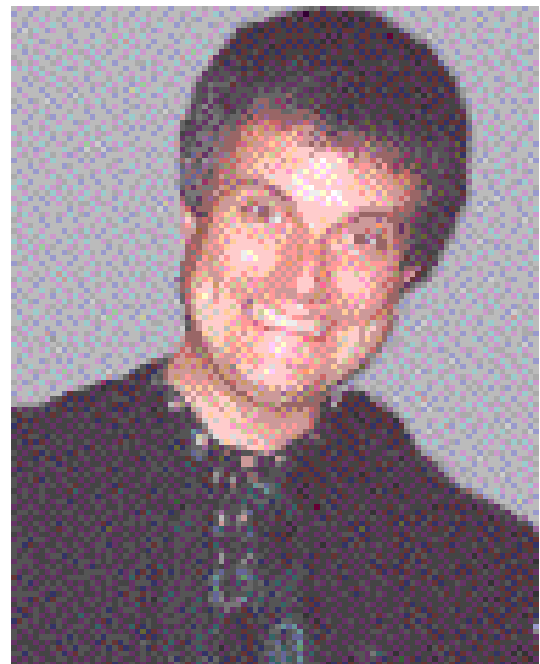
For further details of all the winners, see the Australian Museum web site at:

www.austmus.gov.au/eureka/2000/



The well-organised Roger Muller

Once again we wish to pay tribute to the sterling work done by Mike Archer and the staff at the Australian Museum in managing all facets of the Eureka Prizes. In particular we would like to pay a special tribute to Roger Muller, the officer in charge of the event and we could hardly put it better than was done by Jennifer Byrne at the lunch at which the media Eureka's were launched some weeks prior to the event. "Roger", she said "is such a brilliant organiser, I wish he'd run my life for me". We would heartily endorse that sentiment.



ABC science journalist, Paul Willis shows off the Eureka won by the Science in the Pub team



Psychic v psychological skills for effective criminal profiling

Richard N. Kocsis

Richard Kocsis is the winner of the Australian Skeptics Eureka Prize for Critical thinking, presented at the Australian Museum on May 2. This article represents a basic summary of a much larger study. Readers who wish to read further on this topic should consult the full academic manuscript by Kocsis, Irwin, Hayes & Nunn (2000), entitled 'Expertise in Psychological Profiling: A Comparative Assessment' appearing in the *Journal of Interpersonal Violence*. This document is also available from the NSW Police Academy library.

Introduction

Offender profiling is the technique of interpreting behavioural patterns from a crime so as to construct a list of 'characteristics' or 'profile' of the probable offender (Kocsis & Irwin, 1998). Unfortunately, due to numerous popular culture portrayals of profiling a gross disparity exists between the reputation of profiling and its measurable capabilities. Indeed, it is surprising to note that the acceptance of offender profiling in police investigations has expanded with a conspicuous lack of scientific examination into the accuracy of the technique (Kocsis, Irwin, Hayes & Nunn, 2000). Often, the literature that seeks to justify the validity of profiling does little more than cite case examples by way of justification (Kocsis & Irwin, 1997; Kocsis, Irwin & Hayes, 1998). In recognition of this lack of critical assessment it was determined to embark upon a study to empirically examine whether the predictions of offender profilers are more accurate than other individuals.

Constituent knowledge in offender profiling and the test groups

To best examine the capabilities of offender profilers it was determined that this study would need to analyse the constituent skills and knowledge that allegedly contribute to a profiler's expertise. On this point it is worth noting that the literature appears reticent to describe the skills upon which profilers rely. Indeed, one of the better attempts at describing the expertise of a profiler

is contained in a chapter by Hazelwood, Ressler, Depue and Douglas (1995) where four main skills are proposed as being essential to an expert profiler. These elements are described below in light of the methodology of the present study.

1) Appreciation of the criminal mind (psychologists)

An understanding of the type of person who committed the crime requires an appreciation of how the criminal mind might function. Although Hazelwood *et al* (1995) believe this skill is not learned in the classroom, they fully acknowledge that a background in behavioural sciences and especially psychology, is highly useful in offender profiling. Consequently, the significance of psychological knowledge was catered for the present study by obtaining the participation of a group of qualified psychologists.

2) Investigative experience (detectives)

In the opinion of Hazelwood *et al* (1995)

No amount of education can replace the experience of having investigated crimes. (p.119)

Consequently, investigative experience is cited as being the key skill needed for offender profiling. To gauge the relative importance of investigative experience police detectives were accordingly used in the present study. This is not to claim that police have no relevant skills other than experience, but in comparison to the other groups in this study, investigative experience would be a distinguishing characteristic.

3) Objective and logical analysis (science students)

Hazelwood *et al* (1995) also describe an effective profiler as one who can think 'logically' without being diverted by personal feelings about the crime. Consequently, the capacity for objective and logical analysis was tapped by obtaining the participation of univer-



Richard Kocsis

sity science students who had no training in behavioural sciences, but had been trained in the rational analysis of factual information.

4) Intuition (psychics)

Surprisingly, Hazelwood *et al* (1995) also nominate the 'psychic-like' faculty of intuition as an important facet of offender profiling, as do Holmes and Holmes (1996) who also refer to the intuitive element of profiling by describing it as

the art dimension of profiling (pg.7)

The value of intuition to profiling remains an open question. Consequently, to take account of this possible skill the present study included the participation of a group of self-described psychics.

The 'IRIS' Questionnaire

The most direct approach to test the accuracy and therefore validity of profiling would obviously be in the examination of a crime where the answers were already known. Consequently, a resolved murder case brief was obtained from the archives of the NSW Police Service. All materials produced by the investigation prior to the identification of the guilty offender were assembled in the form of a case summary booklet and included such items as crime scene photos, forensic reports, site of crime officer's reports and more.

Next, a 33 item multiple-choice questionnaire was developed which asked for predictions of basic information typically contained in an offender profile. For example, question one requested a prediction of the probable gender of the offender. Consequently, this questionnaire was objective in so far as participants were required to articulate their responses in precise terms in order to discount the possibility of 'vaguely' correct answers. This is a significant factor as offender profiles have been traditionally accused of being ambiguous to the point where just about any interpretation could be viewed as correct or partially correct.

Finally, the questionnaire was then given to the po-

lice officers who originally investigated the murder and in conjunction with the full case brief they completed the questionnaire and provided all the correct or 'model' answers. Both the case information summary and the questionnaire were packaged together into a single booklet code-named 'IRIS'.

Better than bartenders?

Another criticism which commonly surfaces about offender profiling is that its predictions are perceived to be nothing more than common knowledge. Indeed, it is often argued that profiler's are 'no better than a bartender' in that they articulate the obvious. Consequently, it is clearly worth determining whether offender profiling does yield information that is better than common knowledge. In this context 'common knowledge' represents the social stereotypes harboured by individuals. In order to test the accuracy of the stereotype prediction, a further group of participants who did not possess specialist knowledge in line with the previous categories were required. Accordingly, individuals who were not profilers, psychologists, police, scientists or psychics were given the IRIS questionnaire without information specific to the case. The questionnaire was designed to yield information concerning the stereotypes harboured by individual participants and evolved from common knowledge.

Experiment procedure and results

The following study involved administering the IRIS questionnaire to the various groups of participants previously described and then measuring how accurately they scored in comparison to the model answers. The study involved five different groups reading and answering the full IRIS questionnaire. The first group represented five professional profilers who came from as far a field as the USA and the UK. The other groups were 30 psychologists, 35 detectives, 31 scientists and finally 20 psychics respectively. Finally, a separate group of 23 randomly sampled civilians who did not have skills or knowledge in any of the previously mentioned groups did not answer the full IRIS questionnaire as they were not provided with the case information.

Subject Groups						
	Profilers	Detectives	Psychologists	Scientists	Psychics	
(A) Group Measures:	13.80	11.60	12.57	12.03	11.30 [No significant differences]*	
(B) Collapsed Measure (Profilers Vs. Non-profilers)	<u>13.80</u>	v	11.92		[Statistically significant difference]*	
(C) Social Stereotype	Score : 9.78	Better	Better	Better	Better	Same*
(All groups demonstrate better accuracy score than social stereotype <i>except</i> Psychics)						
* Significance being determined at 0.05 alpha						

Table 1
Profile Accuracy (Mean number of questions correct).

All questionnaires were then marked and coded in accordance with their respective group. From these tallies average scores were determined for each group and appear in table (1) row (A). Inferential statistical analysis of these average scores shows that they are not significantly different from each other and at best indicate a *trend* that profilers were the most accurate, followed by psychologists, science students, detectives and then psychics. To test these scores a further analysis was undertaken to compare those of the profilers, with those of all other groups collapsed into one general category called non-profilers (table (1), row (B)). In this examination the statistical analysis indicated that profilers were significantly better than non-profilers. Finally, an examination of all groups was conducted to compare these scores to the social stereotype score (table (1), row (C)). This result shows that all groups, with the exception of psychics, were more accurate in their profile predictions. This indicates that the predictions of psychics appear equivalent to information derived from common knowledge or the social stereotype.

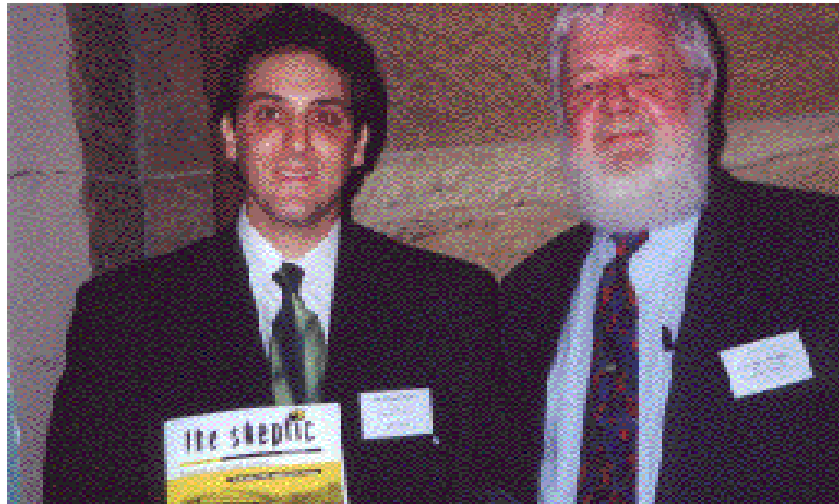
Conclusions

The results of this study suggest that the collective skills of profilers are superior to all other groups tested. Unfortunately however, the results could not statistically determine which specific attributes directly contribute to a profiler's expertise. The results do however, indicate a trend that psychological knowledge does seem to be more important to successful profiling than investigative experience or intuition. However, this conclusion must be treated with caution as psychologists did not statistically differ from science students. Therefore, it is unclear whether the increased aptitude of the surveyed psychologist's was predominantly due to their specific knowledge of behavioural science or to a broader capacity for objective and logical deduction.

The results also suggest that profilers are more accurate than any prediction based upon the social stereotype score. This trend shows that the predictions of offender profilers appear more accurate than information gleaned from common knowledge. On this point it is interesting to note that in comparison to the social stereotype all groups were more accurate in their profiling predictions except for the psychics. This serves to indicate that psychics show no greater insight into describing a probable offender beyond what could be gathered from the common stereotype of a murderer.

Another notable observation arising from this research was the demonstrated reluctance of professional profilers to participate in this study. Indeed, despite all

assurances of complete confidentiality and agreements to pay any required consultation fee, internationally only five profilers could be convinced to participate in this study. Sadly, this phenomenon may be indicative of the level of confidence that some profilers have in their own ability to accurately predict probable offenders.



Skeptics prize winner, Richard Kocsis with *Skeptic* editor Barry Williams

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Message from TAMS

This year The Australian Museum Society (TAMS) is organising two inaugural Eureka Lectures - the first one will be by Richard Kocsis, the winner of the Australian Skeptics Prize for Critical Thinking.

Time: 7pm
Date: Thurs, 22 June.
Tickets are \$15 each.

Overdue action on pseudo-medical gadgets

In the news item about our Skeptic of the Year for 1999 (19:4) we mentioned the difficulty our winner, "Nurse Cheryl", had experienced in getting the general news media and government regulatory authorities to take any notice of complaints about the proliferation of "cure-all" gadgetry. In that item we were remiss in not mentioning the great support that Cheryl (and Australian Skeptics) had been receiving from the journal *Electronics Australia* (recently renamed as *EARNER*). The then Editor, Jim Rowe, who is now in semi-retirement but continues as a contributing editor, ran a number of articles in 1998, questioning the claims made for various devices, described, *inter alia*, as "zappers", "colloidal silver generators", or "Rife", "Hulda Clark" and "LisTen" machines. For his trouble, he was assaulted by many letters from readers chastising him for doubting the ability of electronics to solve every problem. Unchastened, Jim persevered and in the April 2000 issue of *EA* he ran a four page article bringing the issue up to date, and praising the work Cheryl had done to bring these claims to official attention. We extend our congratulations to Jim Rowe and *EA* for their commitment to the concept of evidence and rational inquiry. Readers are advised to get a copy of the journal and read the article.

Extraordinary claims have been made, not only for the ability of these gadgets to diagnose almost every known illness, but also to affect cures for them. In one version, this is largely based on the notion that every ailment, be it the result of bacteria, virus' or chemical toxins, has a controlling frequency in the electromagnetic spectrum. Not only did some of these gadgets claim to be able to detect the specific frequency, thus determining the pathogen involved, giving a diagnosis of what was wrong, but also to apply the same frequency and cure the illness concerned. This remarkable claim is allegedly based on research conducted by a Dr Royal Rife (hence the name of one class of the machines), in 1930 and which has recently been revived by a number of claimants. These machines are largely manufac-

tured by small firms from plans purchased from their originators, and are widely advertised in various "alternative health" and conspiracy magazines. Costs range from around \$100 for single frequency devices, up to thousands of dollars for multi-frequency units. Tests carried out in physics laboratories show that the lower cost ones use a simple oscillator circuit, plus wiring and switches, to a total component value of less than \$10. It is perhaps of historical interest to note that Dr Rife came to these extraordinary conclusions about the



Late 20th Century electro-gadget.
Of dubious value.

electronic nature of disease, three years before physicists had managed to discover the neutron.

Recent news from the US is that Dr Hulda Clark, for whom another class of gadgets is named, has been charged with practising medicine without a licence. Dr Clark, a physiologist, propounds the notion that most illnesses are caused by liver flukes. She has published books that claim she can cure all cancers.

As far as we can ascertain, no tests have ever shown that any of these devices actually do anything commensurate with the extraordinary claims made for them. Nor, as far as we can ascertain, is there any evidence to support the notions that pathogens can be destroyed *in situ* by the application of specific frequencies, nor of the ubiquity of liver flukes in causing

all known cancers. (A selection of these devices will be on display at the World Convention in November.)

Despite this, and despite the number of regulatory agencies at both state and federal level whose remit is to regulate the health industry and to protect consumers against unsupported claims, neither Cheryl nor Australian Skeptics have had much success in having official notice taken of these extraordinary claims. Recently, however, things appear to have taken a turn for the better.

Two years ago, legislation removed the responsibility of regulating such devices from the Therapeutic Goods Administration (TGA) and gave it to the Australian Competition and Consumer Commission (ACCC). This recognised the fact that these machines had no place in therapy, but were in fact better covered by a consumer protection body.

Recently, the ACCC has prosecuted a number of organisations and individuals selling these devices, with some success.

We have taken these two news releases from the ACCC web site <http://www.accc.gov.au/media/mr>

Refunds for buyers of alternative health therapy devices

Consumers misled by claims about alternative health therapy devices marketed as the 'Vital Silver 3000 Zapper', the 'Vital Silver 2000 Automatic' and the 'Vital Silver 2000' will receive refunds after ACCC action. The Federal Court of Australia has made declarations that Vital Earth Company Pty Limited and its director Mr Darryl John Jones breached the misleading and deceptive conduct provisions of the Trade Practices Act 1974. The Federal Court has granted injunctions against Vital Earth Company Pty Limited:

* restraining it from making representations including those set out below;

* requiring it to provide refunds until 17 July 2000 to persons who may have been misled into purchasing [the devices referred to above];

* requiring it to forward a letter to each person who has purchased or agreed to

purchase the [said devices] * correcting the false or misleading or deceptive representations made by Vital Earth Company Pty Limited; and

* ordering it to pay a \$9000 contribution towards the ACCC's legal costs.

The Federal Court also enjoined Mr Jones from engaging in advertising or publishing materials concerning the 'Vital Silver 3000 Zapper', the 'Vital Silver 2000 Automatic' or the 'Vital Silver 2000'. Mr Jones has also been ordered to attend a trade practices seminar to ensure future compliance with Part V of the Trade Practices Act 1974. Representations made by Vital Earth Company Pty Limited included:

* that the colloidal silver produced by the Vital Silver 2000 and/or the Vital Silver 3000 - Zapper kills all disease causing bacteria, fungi and virus within six minutes of contact;

* that colloidal silver has no harmful side effects;

* that colloidal silver could be used as an antibiotic for all the acquired diseases of active AIDS;

* that colloidal silver is effective with more than 650 different pathogenic bacteria and virus types; and

* that colloidal silver has been used successfully against diseases including AIDS, cholera, diabetes, leprosy, leukaemia, lupus, skin cancer, syphilis and whooping cough.

Following these findings, ACCC Chairman, Professor Allan Fels, said:

The ACCC regards misleading or deceptive claims about therapeutic devices seriously. Consumers are vulnerable when buying alternative health products because they usually do not have the specialist knowledge needed to determine whether claims about the products are true. Those unfortunate enough to have life-threatening diseases may be particularly vulnerable to claims that devices can alleviate or cure their particular conditions. It is therefore imperative that consumers are properly informed by advertising of therapeutic goods that is honest, accurate and complete".

All Court orders were made by consent of the company and Mr Jones.

Promoter of alternative therapy devices gives undertakings

Consumers misled by claims about alternative health therapy devices will receive refunds after ACCC action.

Listen Systems Pty Ltd and its director Mr Stephen John Alexander have

given undertakings to the Federal Court of Australia. Listen Systems Pty Ltd markets alternative therapy systems known as the 'EQ4 Quick Check' and the 'EQ4 Computerised Electrodermal Screening'.

Representations published on the Internet at <http://www.listsystem.com.au> included:

* that these systems test a particular energy point and find an appropriate remedial strategy by scanning over 40,000 items stored in their 'virtual inventory';

* that Computerised Electrodermal Screening can measure allergic reactions to samples of specific food, pollens and other substances; and

* that these systems can imprint appropriate frequencies to create individually designed isopathic remedies.



Early 20th Century electrogadget. Nothing much changes.

Photo courtesy Marvin Tanner [see Letters]

Listen Systems Pty Ltd has given undertakings to the Federal Court that it:

* will not make representations including those set out above;

* will provide refunds until 30 June 2000 to persons who may have been misled into purchasing the 'EQ4 Quick Check' and the 'EQ4 Computerised Electrodermal Screening' system; and

* will display a corrective advertisement at the Internet site which had contained the representations.

Listen System Pty Ltd's director Mr Alexander also gave an undertaking not to aid or abet or be directly or indirectly knowingly concerned in the publication of advertisements or promotional material containing representations concerning the EQ4 Quick Check and the EQ4 Computer-

ised Electrodermal Screening systems, as set out above. Mr Alexander also gave an undertaking to attend a trade practices seminar to ensure future compliance with Part V of the Trade Practices Act 1974.

Professor Allan Fels, said.

The ACCC is concerned about the significant number of misleading or deceptive claims made being made about miracle, 'quick fix' products and so on in the health area",

However, this does raise the question of why the mainstream popular media do not seem to be at all interested in what appears to be a major scandal in the field of health care (or alleged health care). We have seen little or no mention of these prosecutions in any media outlets, yet there must be thousands of people who have paid considerable sums of money for devices such as those mentioned (and there are many more of them, under a wide variety of names, that have not been prosecuted) and who are in line for refunds. It is inconceivable that, had the prosecutions been about shonky burglar alarms or dangerous toys, there would not have been a rash of stories, but this field seems not to have aroused any concern among journalists. We have to wonder why? These are not rare cases of harmless devices with limited markets. In most suburbs of Sydney (and presumably elsewhere) you can find "clinics" which offer diagnostic services and treatment from one or other of these devices, and many people are spending a lot of money on them. Of particular concern is the way in which these gadgets are targeted at children, and others in vulnerable situations. The ACCC has prosecuted a couple of suppliers, but one only needs to pick up any "alternative" health magazine to find advertisements for many, many more.

This is a welcome start in the campaign to require those who seek to sell unproven "therapeutic" gadgets to provide some evidence that they actually do something.

We were heartened to read an advertisement inserted in newspapers by the NSW Department of Fair Trading, outlining new penalties for people or organisations making unsubstantiated claims for goods and services offered for sale and who refuse to substantiate these claims. We can only hope that the NSW Department and its fellow agencies in other states will apply the new laws to this industry with all the rigour it deserves.

An open letter to Prince Charles

Richard Dawkins

Earlier this year the Prince of Wales delivered the Reith Lecture on the BBC. In it he called for people to take a more spiritual, intuitive and natural approach to life and to question scientific claims. This prompted Professor Richard Dawkins, the Charles Simonyi Professor of the Public Understanding of Science at Oxford University, to respond with an "Open Letter", which was published in Britain in *The Observer* on Sunday, May 21, 2000. We republish his letter with kind permission of Prof Dawkins and *The Observer*.

Your Royal Highness,

Your Reith lecture saddened me. I have deep sympathy for your aims, and admiration for your sincerity. But your hostility to science will not serve those aims; and your embracing of an ill-assorted jumble of mutually contradictory alternatives will lose you the respect that I think you deserve. I forget who it was who remarked: 'Of course we must be open-minded, but not so open-minded that our brains drop out.'

Let's look at some of the alternative philosophies which you seem to prefer over scientific reason. First, intuition, the heart's wisdom 'rustling like a breeze through the leaves'. Unfortunately, it depends whose intuition you choose. Where aims (if not methods) are concerned, your own intuitions coincide with mine. I wholeheartedly share your aim of long-term stewardship of our planet, with its diverse and complex biosphere.

But what about the instinctive wisdom in Saddam Hussein's black heart? What price the Wagnerian wind that rustled Hitler's twisted leaves? The Yorkshire Ripper heard religious voices in his head urging him to kill. How do we decide which intuitive inner voices to heed?

This, it is important to say, is not a dilemma that science can solve. My own passionate concern for world stewardship is as emotional as yours. But where I allow feelings to influence my aims, when it comes to deciding the best method of achieving them I'd rather think than feel. And thinking, here, means scientific thinking. No more effective method exists. If it did, science would incorporate it.

Next, Sir, I think you may have an exaggerated idea of the naturalness of 'traditional' or 'organic' agriculture. Agriculture has always been unnatural. Our species began to depart from our natural hunter-gatherer lifestyle as recently as 10,000 years ago - too short to measure on the evolutionary timescale.

Wheat, be it ever so wholemeal and stoneground, is not a natural food for *Homo sapiens*. Nor is milk, except for children. Almost every morsel of our food is genetically modified - admittedly by artificial selection not artificial mutation, but the end result is the same. A wheat grain is a genetically modified grass seed, just as

a pekinese is a genetically modified wolf. Playing God? We've been playing God for centuries!

The large, anonymous crowds in which we now teem began with the agricultural revolution, and without agriculture we could survive in only a tiny fraction of our current numbers. Our high population is an agricultural (and technological and medical) artifact. It is far more unnatural than the population-limiting methods condemned as unnatural by the Pope. Like it or not, we are stuck with agriculture, and agriculture - all agriculture - is unnatural. We sold that pass 10,000 years ago.

Does that mean there's nothing to choose between different kinds of agriculture when it comes to sustainable planetary welfare? Certainly not. Some are much more damaging than others, but it's no use appealing to 'nature', or to 'instinct' in order to decide which ones. You have to study the evidence, soberly and reasonably - scientifically. Slashing and burning (incidentally, no agricultural system is closer to being 'traditional') destroys our ancient forests. Overgrazing (again, widely practised by 'traditional' cultures) causes soil erosion and turns fertile pasture into desert.

Moving to our own modern tribe, monoculture, fed by powdered fertilisers and poisons, is bad for the future; indiscriminate use of antibiotics to promote livestock growth is worse.

Incidentally, one worrying aspect of the hysterical opposition to the possible risks from GM crops is that it diverts attention from definite dangers which are already well understood but largely ignored. The evolution of antibiotic-resistant strains of bacteria is something that a Darwinian might have foreseen from the day antibiotics were discovered. Unfortunately the warning voices have been rather quiet, and now they are drowned by the baying cacophony: 'GM GM GM GM GM GM!'

Moreover if, as I expect, the dire prophecies of GM doom fail to materialise, the feeling of letdown may spill over into complacency about real risks. Has it occurred to you that our present GM brouhaha may be a terrible case of crying wolf?

Even if agriculture could be natural, and even if we could develop some sort of instinctive rapport with the ways of nature, would nature be a good role model? Here, we must think carefully. There really is a sense in which ecosystems are balanced and harmonious, with some of their constituent species becoming mutually dependent. This is one reason the corporate thuggery that is destroying the rainforests is so criminal. On the other hand, we must beware of a very common misunderstanding of Darwinism. Tennyson was writing before Darwin but he got it right. Nature really is red in tooth and claw.

Much as we might like to believe otherwise, natural selection, working within each species, does not favour

On a personal note

Barry Williams

long-term stewardship. It favours short-term gain. Loggers, whalers, and other profiteers who squander the future for present greed, are only doing what all wild creatures have done for three billion years.

No wonder T.H. Huxley, Darwin's bulldog, founded his ethics on a repudiation of Darwinism. Not a repudiation of Darwinism as science, of course, for you cannot repudiate truth. But the very fact that Darwinism is true makes it even more important for us to fight against the naturally selfish and exploitative tendencies of nature.

We can do it. Probably no other species of animal or plant can. We can do it because our brains (admittedly given to us by natural selection for reasons of short-term Darwinian gain) are big enough to see into the future and plot long-term consequences.

Natural selection is like a robot that can only climb uphill, even if this leaves it stuck on top of a measly hillock. There is no mechanism for going downhill, for crossing the valley to the lower slopes of the high mountain on the other side. There is no natural foresight, no mechanism for warning that present selfish gains are leading to species extinction - and indeed, 99 per cent of all species that have ever lived are extinct. The human brain, probably uniquely in the whole of evolutionary history, can see across the valley and can plot a course away from extinction and towards distant uplands.

Long-term planning - and hence the very possibility of stewardship - is something utterly new on the planet, even alien. It exists only in human brains. The future is a new invention in evolution. It is precious. And fragile. We must use all our scientific artifice to protect it. It may sound paradoxical, but if we want to sustain the planet into the future, the first thing we must do is stop taking advice from nature. Nature is a short-term Darwinian profiteer. Darwin himself said it: 'What a book a devil's chaplain might write on the clumsy, wasteful, blundering, low, and horridly cruel works of nature.' Of course that's bleak, but there's no law saying the truth has to be cheerful; no point shooting the messenger - science - and no sense in preferring an alternative world view just because it feels more comfortable.

In any case, science isn't all bleak. Nor, by the way, is science an arrogant know-all. Any scientist worthy of the name will warm to your quotation from Socrates: 'Wisdom is knowing that you don't know.' What else drives us to find out?

What saddens me most, Sir, is how much you will be missing if you turn your back on science. I have tried to write about the poetic wonder of science myself, but may I take the liberty of presenting you with a book by another author? It is *The Demon-Haunted World* by the lamented Carl Sagan. I'd call your attention especially to the subtitle: *Science as a Candle in the Dark*.

Richard Dawkins uses his unique literary talents, to communicate the awe inspiring beauty of nature which comes with understanding. His latest book, *Unweaving the Rainbow*, explores this theme and is essential reading for anyone who is interested in science or enjoys fine writing.

Ten years ago, just after Vol 10, No 1 went to press, the Skeptics suffered a crisis when Tim Mendham, the editor of *the Skeptic*, informed us that for pressing personal reasons he could no longer carry on in that role. This was a serious blow, as Tim, a professional journalist, had succeeded in greatly improving both the appearance and the content of the magazine in the four years he had been at the helm, and he was going to be very difficult to replace. Moreover, there were no other experienced editors in our ranks to take over, and we had another deadline approaching.

I knew nothing about editing and very little more about the Mac Plus computer on which we then did the job, and wasn't all that keen to learn. However, we had a responsibility to our subscribers, and after discussion with my fellow committee members, and ignoring my long held principle, nurtured by 15 years in the RAAF, of never volunteering for anything, I reluctantly agreed to produce the next issue. It was definitely for one issue only and I did it on the strict understanding that we would find a new editor before the following issue was due.

The rest, as the cliché has it, is history. This issue represents the beginning of my second decade of editing *the Skeptic* and I must admit that I have never had any other job that afforded me quite so much satisfaction.

This year also marks the beginning of the third decade of the existence of Australian Skeptics. Much has happened in the twenty years since we started out as a very small group of people who reacted to the claims made by those selling intellectual snake oil. That we have had an effect is testified by the fact that many such claims are now couched in far more ambiguous terms and by the way in which so many of our opponents seek to misrepresent our aims.

In 1990 we had just under 800 subscribers, a number that has now increased more than threefold. The magazine then consisted of 32 pages of quite large print, while today's contains 72 pages of smaller type, with more than three times the information content, and with a far wider and better selection of articles and items. We now have a Skeptical magazine that stands up well by comparison with the best in the world, and we intend to keep it that way.

Many people have been involved in the continuing success of Australian Skeptics as an organisation and *the Skeptic* as a journal, far too many for me to mention them individually, however I would like to pay a tribute to all who have been involved. Thank you all for your efforts and please keep them going. We have had some success, but we haven't won yet. Snake oil, in all its manifestations, is still very much with us and, as Thomas Jefferson might have said, the price of reason is eternal vigilance.

The Great Artesian Basin (GAB)

Dr Walker attempts to show that his model works for the Great Artesian Basin, however, in an attempt to make it fit his model he only presented some very simple evidence and ignored all the evidence that contradicted his interpretation.

Problem 1 - Environment of deposition

Dr Walker wants all rocks to be deposited in a single event (Noah's Flood). However, studying rocks in detail shows that they are deposited in a variety of environments and the geology of the GAB⁶ shows that it was deposited in this way. It starts as terrestrial deposition at the base, changes to marine in the middle, and finishes as terrestrial deposition. The basin is not one simple event as Dr Walker would like to portray.

Also, in this example Walker fails to mention that the GAB is only a thin layer of sedimentary rock overlying other basins that would also have been deposited during Noah's Flood according to his model. He simply refers to them as "Basement Rock" and does not try to explain them. Even though the GAB is several kilometres thick in places, it is a relatively minor feature compared to some of the basins that were deposited before it. For example, in the central Queensland area the GAB overlies the Drummond Basin, which is over 12 km thick⁷ and which was dominated by terrestrial deposition but had several marine incursions. The geology of Queensland reveals that there have been many changes of depositional environment, and that the rocks were not deposited in one single event.

Problem 2 - Dinosaur footprints

Dr Walker in several places describes the first stage of the flood as "intense" and "severe" with regard to geological processes such as erosion and deposition, and life would have been "catastrophically destroyed". The intense geological processes are presumably invoked to explain the deposition of all the geological units, but how does he explain the dinosaur footprints near the top of the sequence of the GAB? Does he think that the dinosaurs swam on the surface in an environment that was catastrophically destroying all life, while below them severe currents were depositing about 15km of sediments? Then towards the end did the dinosaurs swim down to the bottom of this world-wide ocean and have a stampede on the sea floor? It is obvious that footprints towards the top of the Great Artesian Basin totally destroy his model.

Conclusion

Even in a simple area like the Great Artesian Basin, Dr Walker's model does not explain the geology seen. When you examine an area with more complex geology its failure is even worse. Any geologist who has done fieldwork would be able to think of geological examples that could only be explained by "Old Earth" Theories. I will use my latest project in the Yarrol Province of central coastal Queensland to demonstrate how Walker's model fails to explain areas of complex geology.

Dr Walker's model and the Yarrol Province

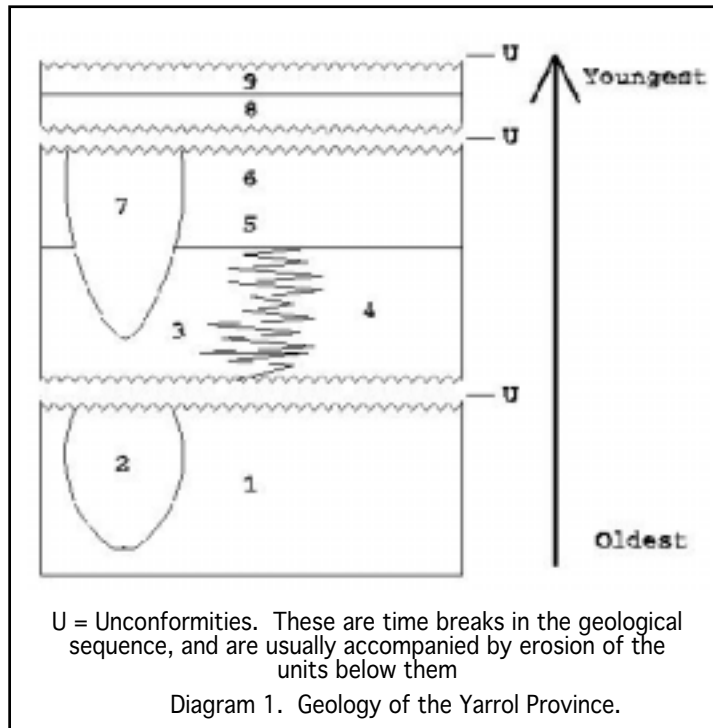
The diagram below and table overleaf give a very simplified version of the geology of the Yarrol Provinces⁸.

To use with Dr Walker's model, there are several things to note about the geology of the Yarrol Province.

1. It is large. The approximate volume is 350,000km³ of rock, easily fitting into Walker's "Continental"-scale of geological features.
2. It contains abundant explosive volcanics ruling out the "Creation" event for its formation.
3. It contains abundant fossils.

Using these three criteria it is obvious from Dr Walker's model that the Yarrol Province was deposited during the flood, and all 10km of sedimentary rock were deposited in the first 60 days of the flood.

However, when you look in detail at the geology of the Yarrol Province you see that it is impossible for it to fit into such a small time frame.



Problem 1 - Granites

As you can see in the diagram above, the sequence of rocks are intruded by two granites, the Mount Morgan Trondhemite (Unit 2) and the Bouldercombe Complex (Unit 7). There are many more, but these are all I need for my demonstration of the failings of Walker's model.

From geological evidence it is obvious that these granites were two separate events. The Mount Morgan Trondhemite intrudes the Capella Creek Group (part of Unit 1), the granite is then cooled and unroofed (exposed to the surface by erosion).

The Mount Morgan Trondhemite and Capella Creek Group are then overlain by the Mount Hoopbound and Balaclava Formations (Unit 3), Mount Alma Formations (Unit 4), Rockhampton Group (Unit 5), and Youlambie Conglom-

GroupNo	Unit Name	Depositional Environment	Thickness
1	Capella Creek Group and Erebus beds	Shallow Marine	~2000m
2	Mount Morgan Trondhemite	Granitic Intrusion	N/A
3	Mount Hoopbound & Balaclava Formations	Dominantly terrestrial with some shallow marine	~2400m
4	Mount Alma Formation	Deep Marine	~4000m
5	Rockhampton Group	Shallow Marine	2000m
6	Youlambie Conglomerate	Terrestrial	~1500m
7	Bouldercombe Complex	Granitic Intrusion	N/A
8	Precipice Sandstone	Terrestrial	~50m
9	Stanwell Coal Measures	Initially marine but becomes terrestrial.	Not known

Table

erate (Unit 6). Clasts of the Mount Morgan Trondhemite are commonly found near the base of the Mount Hoopbound and Balaclava Formation.

After deposition of the Youlambie Conglomerate the Yarrol Province is intruded by the second granite, the Bouldercombe Complex (Unit 7). This granite also intrudes the Capella Creek Group and the Mount Alma Formation, but this would have been too difficult to show on the diagram. Once again the granite is cooled, unroofed and eroded and then overlain by the Precipice Sandstone (Unit 8) and Stanwell Coal Measures (Unit 9).

The important point of this is that there are two entirely separate granitic intrusion events in the Yarrol Province. One granite is intruded, cools, crystallises, and is unroofed. It is then overlain by several kilometres of sedimentary rocks that are then intruded by another granite that also cools, crystallises, and is unroofed. Then this second granite is also covered by sedimentary rocks.

The problem here is that granites take a long time to cool down. Even a recent creationist paper⁹ noted that it would take as long as 3500 years to cool down a granite (though they emphasised how short a period of time that was. If they could have found a quicker time I am sure that they would have used it.) Also, the granites mentioned above are far larger than the example used in the creationist paper, however, I will use 3500 years as the minimum time needed to cool the granites. There are two entirely separate intrusions in the Yarrol Province and both would have required 3500 years to cool, and both intrude into, and are overlain by, rocks that Dr Walker would classify as flood deposits. Therefore, Walker wants to force 7000 years of granite cooling into a period of no more than 60 days. More time would have been needed to deposit the sedimentary rocks, emplace the granites, then unroof them, but clearly, even the time needed to cool the granites greatly exceeds Walker's time frames.

Dr Walker tried to claim that the granites could have been cooled quickly by water¹⁰, but this does not solve the problem. Granites are always coarsely crystalline rocks. If you cool molten rock quickly you get a fine-grained lava-like rock or even a volcanic glass. There is no way to cool molten rock quick enough for Walker's model and still have it produce intrusions with a granitic texture.

Problem 2 - Allochthonous blocks and microfossils
 "Allochthonous" is just a big word for "no longer in place". It is used to describe blocks of rock that have moved from their original location.

The Mount Alma Formation (Unit 4) was deposited in a deep marine environment, in water depths between 750m and 1000m. Fine-grained sandstone, siltstone and mudstone dominate the unit. The siltstones contain microscopic fossils called radiolarians that can only settle out of water in very still conditions. The microscopic fossils are very fragile and some possess very delicate spines that project from the fossil. There are also some coarse-grained units in the formation caused by submarine avalanches (mass flows). Near the base of the Mount Alma Formation are large allochthonous blocks of rock from the underlying Erebus beds (part of Unit 1). It is thought that the geological event that caused the unconformity at the base of the Mount Alma Formation lifted up parts of the Erebus beds and caused large blocks to break off the raised areas and slide into the deep marine environments. Most of the blocks are relatively small, being about 100m long, however, some are over 2km long.

Dr Walker interprets the unconformity that unroofed the Mount Morgan Tonalite as being caused by the very strong water currents of the flood¹⁰ and would therefore probably assume that the large blocks of rock were moved by these currents.

It is impossible to have a water current so strong that it can move blocks of rock over 2km long, yet be gentle enough to allow microscopic fossils settle out of water. Also, despite their delicate nature, the microscopic fossils are not broken, indicating that they could not have been deposited by "intense" and "severe" flood conditions.

Problem 3 - Reefs

The Rockhampton Group (Unit 5) was deposited in a shallow, warm, marine environment, and patch reefs have been identified within the unit¹¹. The patch reefs range from small mounds 4-10m in diameter and 1m thick to large complexes more than 50m diameter and 7m thick. It is known that the reefs are preserved in the place that they formed since their bases are gradational with the underlying sedimentary rocks. The reefs contain an abundant and varied fauna and would have had a complex ecosystem broadly similar to modern reefs.

These reefs with their complex ecosystems would

have taken years, or even decades, to form, not the few days that are required by Walker's model.

Problem 4 - Footprints

Dinosaur footprints are relatively common in the Precipice Sandstone (Unit 8). Once again Dr Walker has the problem that dinosaurs would have had to swim in ocean currents strong enough to deposit 10km of sedimentary rock, and move blocks of rock over 2km long, and then, towards the end when deposition is almost over, they would have had to swim down to, and walk around on, the sea floor.

Conclusion

Areas of complex geology such as the Yarrol Province highlight many features that are inexplicable by Dr Walker's model.

Overall Conclusion

If you apply geological knowledge in a superficial or childish way then Dr Walker's model appears to fit the evidence. However, when you look at the geological evidence in a more detailed way, then it is obvious that Walker's model, based on the Flood story of the Bible, fails totally. Since the only real test of a scientific model is how well it can be applied to the real world, it can be conclusively stated that Dr Walker's model has no scientific value whatsoever. Thus the source of information on which Dr Walker based his model (the Bible) is worthless when it comes to understanding the geology of the world.

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- (1) *Telling Lies for God* by Ian Plimer comes instantly to mind. Also check out the No Answers in Genesis website at <http://www.onthenet.com.au/~stear/index.htm>.
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Notices

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James Randi: James Randi Educational Foundation

Richard Cadena

This article is the fourth and final in a series of interviews I conducted early in 1999 while visiting in the US, the first three of which were published in previous issues of *the Skeptic*.

James Randi has an international reputation as a magician and escape artist, but today he is best known as the world's most tireless investigator and of paranormal and pseudoscientific claims. He has become known as one of America's most original and fearless thinkers, winning him the prestigious MacArthur Foundation "Genius" Fellowship. He is the author of numerous books, including *The Truth About Uri Geller*, *The Faith Healers*, *Flim-Flam!*, and *An Encyclopedia of Claims, Frauds, and Hoaxes of the Occult and Supernatural*. His lectures and television appearances have delighted – and vexed – audiences around the world.

James Randi became a founding fellow of CSICOP, the Committee for the Scientific Investigation of Claims of the Paranormal, that included such luminaries as astronomer Carl Sagan, Nobel Laureate physicist Murray Gellman, psychologist B.F. Skinner, and noted science- and science-fiction author Isaac Asimov.

In 1996, the James Randi Education Foundation was established to further Randi's work. Randi's long-standing challenge to psychics now stands as a \$1,000,000 prize administered by the Foundation. It remains unclaimed.

Richard Cadena: I'd like to start with some comments from you about Michael Shermer, who I also interviewed.

James Randi: Michael is a remarkable guy in that he has come from nowhere, essentially starting from nowhere, and made the Skeptics Society into an absolutely startlingly successful organisation. His magazine is very influential, it's slick and glossy and it took off almost from the very beginning. Usually these things take several years to start to pay for themselves, but his magazine is paying for itself right now. We are proud to be associated with him. He is a good friend.

RC: Do you think skepticism is well defined to the outside viewer?

JR: We need to define who we are and what we stand for. I think skeptics have been rather lax about that in recent years. As a matter of fact, I admit to a certain amount of guilt on

that line myself. I've had an attitude, which my sponsor and a few other people have jumped all over me for, or what seems to be my attitude, in many cases it is not really my attitude but it appears that I am very callous about these things. I'm rather dismissive and intolerant. I have to admit to a certain amount of that but that is based upon previous experience. That is why I'd like to see definitions made about what we are all about and what we believe, based on the evidence, and what we don't believe. I think we need more definitions in our whole movement.

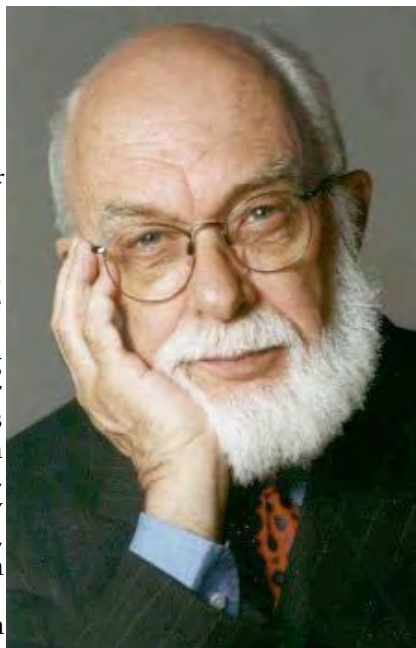
RC: What does the James Randi Educational Foundation believe and what are its values?

JR: We believe that critical thinking is a very important part of education and that is our major emphasis, particularly with young people. I think critical thinking should be introduced at a very early age. When young people first hear the word science in school, they should be given some definitions. They shouldn't come away from that first encounter with science with the idea that it is done by guys in white lab coats, wearing glasses, holding smelly test tubes. Rather science is the search for knowledge of the world around us. It does not have to take place in a laboratory. It is a mode of thinking, it is a way of investigating the world in order to discover as much truth about it as we can. That is a good definition and it has worked for me for many years. We are all for critical thinking about what we are being told and what we are offered in the media, particularly.

Another major purpose of the JREF is to serve as an information source for the media, students and scientists. We have a very large library, which we are seated in [the Isaac Asimov Library], which will be an invaluable source of information. The video library in the other room is going to be digitalised over time. We have performances of so-called psychics from more than 25 years ago. These tapes will be put onto CDs so that a permanent record will be preserved for generations yet to come. I think that is important because these things have a way of developing a mythology. Geller in his own day has developed a mythology about his so-called powers and reconstructs a lot of these things as if they were miracles. Witnesses describe them somewhat differently, so differently that they no longer appear to be very miraculous.

The JREF advocates scientific thinking, demystifying science and providing an educational resource.

RC: Do you think it might be too late to get to some of the older people who have had a lifetime of uncritical thinking?



The amazing James Randi

JR: Yes, absolutely. I regret that but these people have a mindset, which absolutely rejects any bravery in looking at things as they actually are rather than, as we'd ideally like them to be. You are going to die and be dead. You are not going to coming back, you are not going to survive. You are going to be dead dead dead dead. They don't want to hear that. They would rather live a life of fantasy. Sorry friends, it isn't going to be that way and you won't be around to find that out.

RC: How did the JREF get started?

JR: I just walked around the corner and there it was (laughing). It was a strange set of circumstances. A few years back, I had gone onto email at the suggestion of a good friend of mine, Ron Leonard, to promote interest in a challenge prize. My prize up until then was \$10,000. This was in my personal bank account. Ron reminded me that \$10,000 nowadays was not very much money. That offer had started back in 1968 and since then \$10,000 has rather somewhat devalued. That meant the psychics could say "I'm not interested, it isn't enough money". Indeed it wasn't enough money. So he suggested we take pledges via email, in amounts of \$1,000 and multiples thereof, to increase the amount of the prize. I thought I would do it up to \$100,000 and then have a substantial, at least pledged, prize. I didn't want people to actually send me money, and still don't want them to send me money for the Pigasus prize as the challenge is now known. That amount was reached in a matter of few days because my email list was to over 9000 people all over the world. One gentleman contacted me and pledged \$90,000 so that I would be immediately at the \$100,000, at that point it was over \$200,000. Shortly after that he mentioned that he gave away a lot of money every year, maybe he should give some to me to start a 501(c)3 [a not for profit charitable foundation]. And we did start that and the JREF was born.

RC: I understand you recently received a pleasant surprise from your sponsor.

JR: Our sponsor was kind enough to purchase, at an auction, a box of glass slides that were used by Mr Gardner. In 1917, he accepted the Cottingley Fairies, on behalf of Sir Arthur Conan Doyle, as being genuine. He toured with this set of slides giving lecture all over the world. These slides are probably the best representation that we have, other than the original negatives which are in a museum in Leeds and are not available to be printed, of the Cottingley photos. The photos that exist now are heavily retouched. That is, even sepia prints made in the early 1900s by several studios were retouched to enhance the details, which ruins them as scientific evidence. It is still quite evident that these are cutout paper fairies perched on the ground. There is no question of that. It is better to have unretouched copies so we have basic raw data. These slides present us with much better data than we previously had. In the next few years, these will be used in doing a definitive article on the Cottingley Fairies, the whole story and how this deception swept the world and certainly swept away Arthur Conan Doyle.

RC: Where do you see the JREF in 50 years?

JR: Well, I don't see me in it (laughing). I have two hopes for the JREF, as we affectionately refer to it. First, that I should be able to go to my office, close my door and continue to fight-

ing nonsense around the world knowing that on the other side of the door the foundation is operating, is well funded, and is self-supporting. As it is, I am spending too much of my time directing it and getting funding coming in. I shouldn't have to do that. So the first goal, is to shut that door and knowing that it would function well on the other side. Now, second is that should they open that door, some day, when I had neglected to come out for lunch, which is a sure sign of a disaster, and find me dead behind the desk. I want that they should merely pick me up, cremate me as soon as possible, paint the office and turn it into something useful, other than my office. I think that would be a very satisfying thing; for me to go knowing that the foundation would be continued. The perpetuation of the foundation is my most important goal at this moment. (Randi begins speaking with rising passion) I want the kind work that I have done and am doing to continue independently of my existence. That is extremely important to me.

RC: How could Australian readers help the JREF.

JR: They could join via the Internet. [<http://www.randi.org/>]

They can assist by helping to promote and advertise my series of lectures that will be offered in Australia in November, 2000. Also, by attending and adding their voices to the rational segment of the public who want critical thinking to be a part of the educational system in Australia. I must add the JREF memberships are available on different scales, so that financial support can be accomplished if a member joins at a higher level. Many have done so. We have already have some members in Australia.

RC: Yes, I know because I am a member.

JR: We have members in 15 different countries including China, of all places. We are well represented around the world. The membership is important to us, not because it brings in so much money, because it is not an expensive thing to become a member, but for what it represents. It means that by anteing up, that relatively small amount, on an annual basis you have committed yourself to supporting the JREF and we speak for you. Our voice is your voice. It is very satisfying to be able to go on a television program and know that so many people are being represented by what you are saying. I speak with many voices when I represent the James Randi Educational Foundation.

RC: Switching to your early career as a magician When did you change from a full-time magician to Skeptic?

JR: It happened slowly, a bit like puberty (laughing), it happened over a period of years. I don't remember puberty, I don't remember if I ever had it (laughing).

RC: Well that is proof it didn't exist.

JR: There you go. If you do remember that is proof that it did exist, right, let's not get into that. I was a magician, traveling around the world, entertaining people of every sort, colour, size, racial background, religious affiliations and philosophies. I was constantly asked questions about paranormal or psychic events. Eventually, I was asked by academic groups, for whom I was lecturing, could you give us a lec-

ture specifically on paranormal events. Over a period of years, I gradually dropped the magic act and went into lecturing full-time. Now, I still do parts of the magic act, in my lecture, because I use these things to illustrate points. I show the audience that they too can be completely deceived by simple magic tricks.

RC: What has been the response of other magicians?

JR: Well, at first, very negative. Very, very negative. There was a great resistance to my work. They thought I was betraying magicians. Which I have never considered to be true at all. I believe that other magicians, including Bob Steiner [Past National President of The Society of American Magicians] certainly agree with me on that. It should be the duty of a magician, a conjurer is a better term for it, to defend the art of conjuring as an art of entertainment rather than as a means of bilking people, of taking money dishonestly. I have never felt, in any way, that I have betrayed the trade. Not at all, in fact, quite the contrary, I believe that I have well represented the trade. The Magic Castle, the Academy of Magical Arts and Sciences, in Los Angeles some years ago gave me a special award recognising that very fact, that I was defending the art of magic. In recent years I have gotten more acceptance, but there are still magicians out there who hate my guts simply because I am not allowing people who do mentalism acts to continue lying to people. I don't think lying has any part of conjuring. Deception, for purposes of entertainment only, but not lying. I won't countenance any other kind.

RC: Is Doug Henning a magician who has gone over to the dark side, as it were?

JR: Doug is deluded I believe. I like Doug very much. He is a beautiful human being in many respects, certainly very honest and forthright but exceedingly naive. I received a letter from Doug, when he first got into the Transcendental Meditation movement, saying that he was working on levitation, that I'd be the first one he would demonstrate it for. Now that was 25 years ago. I am still waiting. My mailbox is still active and I don't see a letter from Doug Henning. In fact, Doug doesn't answer letters from me nor does he answer letters from anyone who is not within the TM movement. And that is an instruction directly from the Maharishi Mahesh Yogi, who has told Doug he cannot communicate with people outside the movement. That is what any cult does, it tries to isolate members, particularly prominent members, from the real world outside and therefore is able to control them. So Doug is lost to us, unfortunately. We just won't see Doug again.

[Doug Henning died after this interview still believing in Transcendental Meditation and never having demonstrated levitation]

RC: Is there any magician to carry on your work?

JR: Andrew Harter, who works at the JREF, is a local magician here in Florida. He is a very bright young man and very dedicated to a rational approach to conjuring and the world in general. He knows science very well, much better than I do or could ever hope to, particularly in the realm of quantum physics and such. Andrew is probably the only person,

at this moment, who is likely to become my successor. I'm 70 years of age now; I've only got another 50 years in me. (laughing)

RC: We hope.

JR: Yes, wishful thinking but I'm going to try. (still chuckling) It has to be someone who has a knowledge of science AND a knowledge of conjuring. That is not an easy combination to get.

RC: How do you avoid getting frustrated or burned out, as sometimes happens? Do you ever say "why bother"?

JR: It is a good question, why bother? The reason I bother, frankly, is that every now and then, maybe not as often as I would like, but several times a year I get a letter that reads approximately:

"Dear Mr Randi I thought you were a terrible person when I read your book and I set out to prove that you were absolutely wrong and as I looked into it I found out that, by golly, maybe you are right". Or, "You just changed the way I think about the world, thank you very much." Usually from young people and that is very, very rewarding. Obviously that is getting across to many more people because not many people bother to write. I do change a lot of lives. The work here at the JREF changes a lot of lives.

RC: When pseudoscience intrudes into your private life how do you deal with that? Someone mentions that their acupuncturist has cured them, do you let it go or...?

JR: No, I usually ask them what evidence they have. They say, "Well he did his thing and I felt better." I say, "Did you also change your brand of peanut butter?" They ask, "Well what has that got to do with it?" I say, "Well what has acupuncture got to do with it?" Then you have to reason with people as to what cause and effect is. That is the crux of the lack of reasoning that there is here. There usually isn't a necessary cause and effect. I got better on Thursday, therefore every Thursday I'll get better. It has nothing to do with it.

RC: Do you have any close friends that believe weird things?

JR: No, I don't and not because I filter them out. People fear someone who doubts these things because it is a lifestyle belief that they dearly want to hold onto. They will resist any effort to question that. That is very sad, very sad I think.

RC: During your life have you noticed any trends of pseudoscience and anti-science become more or less popular?

JR: Oh yes. In the last 8 to 10 years, science bashing and the belief in the absurd has increased enormously. Largely due to the media discovering that the money is in belief. As I've often said, you can always find a publisher for a book claiming that Adolf Hitler is alive and living well in Argentina with Martin Borman [Hitler's personal secretary]. But there is no publisher or agent who will consider a book saying Hit-

ler and Borman are both dead. Hitler died in a bunker and Borman died of old age. It has to be a positive story that flies in the face of rationality and expectation or you haven't got a story.

RC: I see a lot of shows on TV that present pseudoscience with a very limited, if at all, skeptical view. The John Stossel special showed that skepticism can be entertaining. Shouldn't there be more of these types of shows?

JR: Not necessarily, if it offends people. We are in a politically correct mode in this country. Anything that is offensive to *anyone*, whether it is peanut oil or lack of belief in the Tooth Fairy, must be avoided. It is getting to a point now where you can hardly express any thought without somebody jumping on you and saying that may be offensive to Asiatic lesbians with one arm or some such thing. And there are a number of them out there so we have to be very careful. I'm getting very tired of this business of trying to protect *everyone* from being offended in *any* way.

RC: But shouldn't skeptics be able to say but this is offensive to me? You are offending the reality of the world with what you say.

JR: Of course, but it doesn't work that way.

RC: Do you think there is a correlation between space exploration and combating pseudoscience? During the Mercury and Apollo programs people were excited by science which has started up again with the Mars Surveyor and the International Space Station. Will this give a chance to capture the hearts and minds of some children?

JR: Yes, I suppose so. But the thing that dismays me is that I sat in Lester Del Ray's home with Frederick Pohl, George O Smith, L. Sprague DeCamp, Robert Heinlein and Isaac Asimov, science fiction luminaries, watching Neil Armstrong step onto the moon. I am now surrounded by generation that says "Oh yeah, it was a long time ago that we landed on the moon". What an attitude. I was so amazed that I lived long enough to see that wonderful event of us stepping onto a body other than Earth. It is taken for granted now. So, maybe it takes much more to make people feel wonder and be fascinated and get into science because they feel it has all been done. People have an attitude "Oh, we'll go to Mars and that will be interesting" but there doesn't seem that much enthusiasm for venturing into space. At the time of the moon landing there was tremendous enthusiasm. Maybe it has become a bit too humdrum for us now. I would hope that wouldn't happen but I'm afraid it has.

RC: When John F Kennedy announced we were going to the moon he said, "We chose to do these things not because they are easy but because they are hard". Do you think that is a philosophy that has changed? We choose to do the easy things and avoid the hard ones?

JR: Yes, maybe, I'm not much of a philosopher but going to the moon is still a very expensive but relatively easy thing to do. Relatively.

RC: If you had the power to remove one stream of pseudoscience, which would you chose?

JR: *Psychic or religious healing because that causes death directly. It causes people to abandon medicine that could help them. Even if they can't be helped, they believe they can and they put all their money, efforts and emotional stability into that and are going to be severely disappointed. I think that is a great pity. I think it is reprehensible what is being done to these folks and I'd like to see that squashed once and for all. I don't think that will ever happen, frankly.*

RC: Do you have plans to write an autobiography?

JR: (pauses) Well, if anyone does it I guess it would have to be me wouldn't it? (chuckles)

RC: OK, how about getting a biographer?

JR: No, no I don't. I guess my life will be a collection of anecdotes. Perhaps someone will get them together someday but it won't be much of a picture of what I'm all about.

A prominent member of the entertainment industry has forced an agreement out of me that if anyone writes it for me it will be him. He wants to do it and one of these days if I get six months with nothing else to do I may sit down and go through it with him.

RC: When you visited Australia, you met Dick Smith and I was wondering if you would speak about him?

JR: *Oh, the Electronic Dick. (laughs) That is how he advertised himself on his trucks. That was his choice, not mine. He gleefully posed for photos that I have at home as proof. Dick Smith, they made him and they threw away the mould or the mould broke I don't know which but he will never be replicated. Unless someone saves some DNA or something we won't see Dick Smith again and more is the pity. We need more people like Dick. The guy is self-made, self-motivated. He is very motivated. He is the most ardent Australian that I have ever encountered. He absolutely adores his native country. Would do anything to support it and its reputation. Remarkable guy, he has been very very good to me and very good to the skeptical movement. I think everyone in Australia should be proud of him, although every now and then he may embarrass them by wearing a beanie with a propeller for a magazine cover or some such thing. It is because he is Dick Smith and you've got to accept that. He is a character. He knows how to get attention and he gets it. And once he has got it, he makes good use of it, to tell you something you should know. If you don't listen to Dick Smith, you are missing the boat. The boat is out there ready to go, he is at the helm, and if you want to hop on board you better get on there quick, because Dick is very busy and doesn't have time to wait for you. He is a great guy. I adore the man. He is one of my favourite people in the whole world, has been for many years, and I'm sure always will be. Now I must mention the beautiful Pip, who has put up with this monster all these years. So she deserves some special "Putting up with Smith" award. And his two beautiful children are credits to them. They are nice people. The Smiths are fine sterling folks that I am proud to know. Valuable people.*

Continued p 31 ...

Skepticism on 'fringe' and 'mainstream'

Mark Newbrook

My main question here is: How far and in what ways should skepticism be directed at 'mainstream' thought, as opposed to 'fringe' thought? I exemplify particularly (but not exclusively) from my own discipline, linguistics.

Fringe v mainstream

Skepticism in any given intellectual discipline is typically directed at ideas towards the outer edges of that discipline. It generally focuses upon positions within the discipline (or dealing with its subject-matter) which are not merely controversial, but so controversial or 'strange' that they can reasonably be called 'fringe' or 'non-standard'; they are strikingly different from the 'orthodox'/'mainstream' positions currently upheld by the majority of suitably qualified thinkers, and are not regarded (by these thinkers themselves) as serious competitors for these orthodox positions.

There is a contrast here with cases where the qualified thinkers are themselves seriously divided, so that there is **no** orthodoxy or consensus - although some positions may still be more controversial than others. Even here, however, comments of an overtly and specifically skeptical nature are often rare in the 'mainstream' literature itself. See later on these cases.

In many cases, the differences between 'mainstream' and 'fringe' involve some of the salient 'facts' of the discipline, but they may also involve explanations of agreed facts, methodological preferences, etc, and in some of the best known instances they involve entire theories. Sometimes the 'fringe' position or theory is novel, sometimes it is based on traditional beliefs from one culture or another, sometimes it represents continuing adherence to a position now deemed by 'mainstream' scholars to have been superseded (this may or may not be known to its advocates). But positions of all these kinds, in so far as they have any influence in society, are the obvious targets of skeptical attention. Such attention is much less often directed at the 'mainstream' itself.

For instance: skeptical medical experts consider (and usually then debunk) non-standard medical theories ('alternative medicine', etc) or novel cancer cures developed by unqualified experimenters; skeptical astronomers deal with UFOs or Velikovskyan catastrophism; skeptical linguists consider xenoglossia, Reverse Speech or wild philology. It is much less common to find a specifically skeptical treatment of orthodox theories of the aetiology of diseases, or of the development of a supernova, or of the historical phonology of Tamil - especially in a skeptical publication.

Note that in identifying the 'fringe' positions as obvious targets of skeptical attention we are not saying that they are necessarily **wrong**, or that the 'mainstream' that rejects them is right. Typically, of course, the 'fringe' is wrong, or very probably wrong; but only a scientific

neophyte would imagine that current orthodoxies represent final truth. Orthodoxies change, and indeed some orthodoxies were at earlier times deemed highly 'fringe'. Wegener's theory of continental drift was almost universally rejected as ridiculous when first proposed.

However, it must be borne in mind that theories which are basically strong do usually triumph in the medium- to long-term. This has been exemplified this century by (for example) the theory of continental drift, the view that the C10-11 Norse explorers reached at least as far as Newfoundland, and the 'minor-planet' version of cosmic catastrophism promoted by such as Clube & Napier and applied by Alvarez (still not without controversy) to the issue of the demise of the dinosaurs. And changes such as the eventual 'mainstream' acceptance of these theories generally involve the ultimately overwhelming accumulation of supporting evidence and theory, **not** a shift towards a more positive assessment of the specific arguments or claims of earlier advocates from the 'fringe'. It is also true that the outlook for 'non-standard' theories proposed by those with a good training in their chosen fields is considerably brighter than for those developed by rank amateurs. And for every Wegener (or Galileo!) there are hundreds of forgotten 'non-standard' thinkers who were simply wrong.^{1,2}

Focus on the fringe: why?

Now the explanation for the neglect of the 'mainstream' by skeptics may seem obvious enough. The skeptical enterprise involves subjecting the claims of 'fringe' thinkers/practitioners - who are typically not themselves academics or professional researchers - to tests of the kind which we imagine (usually correctly!) are routinely undergone by the claims of 'mainstream' scholars. The latter receive intensive and prolonged training and examination in the basics of their disciplines; their preliminary drafts and initial pilot studies are discussed and criticised by their colleagues and others; their 'finished' books and papers are exposed by house and journal editors to anonymous peer-review and often rejected or returned for re-writing, and - if and when published - are assailed in a barrage of further criticism; their experiments are replicated again and again in a systematic and determined effort to find sources of error or alternative explanations.

This is not the normal career of a 'fringe' publication, which is typically a book written at a fairly popular level (though, as noted, there are some very scholarly people on the 'fringe'), and is published by the author or by a press with no academic pretensions. Sometimes a larger or more prestigious press risks such publication. This is what the academically unpublished Velikovsky achieved in 1950, and leading scientists of the day objected furiously to the publisher's decision

to advertise his book as a major breakthrough in astronomy and ancient history. Nowadays there are many such books, but they are usually presented and advertised in such a way that the careful reader will realise that they are not 'mainstream'.

'Fringe' pieces of article length usually appear in journals which circulate largely among those who share the author's basic 'non-standard' position. One such journal is the very interesting *Aeon*, a neo-Velikovskyan organ which (along with the web-journal *Thoth*) promotes 'Saturnism'. There is a review process, but inevitably the authors and the reviewers - who form a small, close-knit group, very much on the edges of the relevant scholarly worlds - agree in upholding the basic ideas which divide them from the 'mainstream'; reviewers will generally attack only points of detail. (Some journals, such as the *International Journal of Cryptozoology*, are liable to be judged 'fringe' because of their subject-matter, but seem to handle their material in a suitably scholarly manner. They may still struggle, however, to find reviewers who are qualified but not too obviously committed to the cryptozoological enterprise.)

Those scholars and other well-informed people who are sufficiently committed to the skeptical enterprise provide the processes of testing and review which 'fringe' publications would otherwise lack. Naturally, their conclusions and assessments are frequently - indeed usually - negative; and the relevant 'fringe' writers generally ignore or reject the skeptical findings (producing counter-arguments which they at least perceive and represent as stronger). This pattern has led to a situation in which some 'fringe' writers do not invite comment from skeptics or indeed from 'mainstream' scholars, or attempt scholarly publication. Others initially invite academic comment in the (perhaps naïve) hope of rapid acceptance (and ensuing fame), but meet with searching questions and objections; these thinkers quickly become disillusioned at what they regard as the biased conservatism and hostility of orthodox thought, and reject either 'mainstream' methods *per se* or the manifestation of these methods which they themselves have encountered. They too proceed to publish in non-academic forums. (Such writers often come to exhibit a curious tension between the rejection of hostile orthodoxy and a continuing desire to be embraced by scholarship; the latter is manifested in appeals to published academic writings at any point where these can - even if with distortion - be adduced in support of the 'fringe' claims.) In particular, 'fringe' writers tend to turn against the peer-review process, which appears to them (from their necessarily limited perspective) to be principally a means of suppressing novel ideas and maintaining the 'status quo'. (This last is, in fact, a concept which looms much larger for 'fringe' thinkers than it does for professional 'mainstream' academics whose work is embedded in the explosively expanding literatures of unstable and rapidly changing disciplines!)

However: it is, of course, true to a degree that peer-review and the rest of the process of testing and review do tend to limit the publication of non-standard or novel positions. In a sense, of course, this is as it should be: disciplines are large and complex bodies of accumulated knowledge and theory, and ground-breaking changes need to be justified in strong terms. But it is natural for the advocates of new ideas - especially if they are not themselves fully familiar with the conventions of academic publication - to feel that their views are not being treated fairly when their papers are rejected on the basis of what either are, or at least appear to be, obscure technicalities or matters of pure convention. It is easy to laugh at the 'fringe' author who, for instance, refuses to include references to a tradition of scholarship which he believes his work has superseded at a blow (one should acknowledge a tradition even in arguing that it is thoroughly wrong); but not all cases are so straightforward. Editors and their readers (who should not, of course, know what qualifications or prior publications an author does or does not have) must be forever vigilant to ensure that they are not rejecting papers principally because the ideas appear too 'iconoclastic' - or indeed, because they themselves do not agree with them, for whatever reason. There is constant danger of this.

Another relevant factor involves the view taken by some editors that one should not comment in an academic forum (such as a refereed journal) upon ideas which have not themselves received academic publication, as in such cases there is no 'academic audience' for these ideas. Some even argue that academic publishing should be grounded only in existing thought in the relevant mainstream and should not (ever) be a response to amateur or non-mainstream ideas on the subject in question (one publisher's reader recommended that the publisher reject my proposed book on fringe linguistics for just this reason).

These policies, if rigorously pursued, would obviously block academic comment (even negative comment) on fringe ideas.

Life on the fringe

One example of a deep-thinking person whose work was rejected and whose academic career in fact collapsed, is John Trotter. In the early 1970s Trotter was a psychology lecturer in Australia. He developed radical, 'non-standard' views on the logical and structural nature of language, and incorporated these into papers offered for publication and into his teaching. If his main ideas are correct, much of the basis of linguistic theory and indeed some important aspects of contemporary thought on logic must be wrong. His papers were rejected by editors and reviewers whom he regarded as inadequately informed, and he was allegedly discouraged from presenting his views to students. Since that time he has operated only as a private scholar, publishing his extremely complex and challenging ideas (which he continues to develop) in self-produced pamphlets.

**...theories
which are
basically
strong
usually
triumph
in the
medium- to
long-term**

I am one of the very few academics who have examined Trotter's ideas in detail, and I have corresponded with him. I stress that I regard him as mistaken in some of his most important claims. It also has to be said that Trotter's tone is often dogmatic and arrogant; for instance, his study notes for his students listed some 'mainstream' linguistic concepts which, as he stated without argument, should not be used in their essays. In this respect he does appear 'fringe'-like and one can imagine other scholars regarding him with suspicion and indeed distaste. Nevertheless, he is altogether at a higher intellectual level than most 'fringe' thinkers, and in my view his ideas (whether ultimately judged right or wrong) could well warrant exposure in a suitable forum and fair scrutiny.

The same may be true of a range of other 'non-standard' thinkers. I have already referred to cryptozoologists; some (not all) of these researchers are extremely cautious and scientific in their approach and accept nothing without good evidence, but still struggle to publish in general zoological journals (and have in some cases given up the struggle). And, among all the hyper-diffusionist nonsense about lost civilisations and early trans-oceanic voyages of discovery, there are a number of cases where an apparently anomalous artefact or an alleged inscription deserves less hasty debunking and more scholarly attention. All fields probably have a few potential Wegeners lurking, and at any one time some of these people are probably getting a raw deal.

Bias in the mainstream

As noted, 'fringe' thinkers are generally convinced that 'mainstream' scholars, journal editors, etc, are rejecting their views not because these views really are faulty, but instead out of hidebound conservatism, bias, fear of losing their own status when their cherished ideas are overthrown, etc, etc (this applies whether they are actually getting a raw deal or not). One of their favoured responses to skeptical criticism is to demand that skeptics act in a more even-handed way, by directing a fair proportion of their skeptical attention at the 'mainstream', which in their own view is much weaker than its representatives would have us believe. And Trotter, for one, has urged the Australian Skeptics to stop worrying so much about 'fringe' thinkers (however influential) of no intellectual significance and to concern themselves instead with what he sees as the less obvious but disastrously damaging failures of the 'mainstream' - notably with the philosophical underpinnings of contemporary logic and linguistics, which he regards as grossly inadequate.

Of course, such a proposal may be in part a tactic for distracting attention from 'fringe' writers' own weaknesses. Nevertheless, it is a demand which deserves an answer. A fair answer might be: 'We have done this - and we find that the 'mainstream' generally holds up much better than you', or 'We have done this - and we have indeed found major weaknesses which the 'mainstream' should address (no comment **here** on your own weaknesses!); or at least 'We will do this'.

In contrast, many scholars confronted by skeptics trained in their own field take the view that skepticism really is unnecessary in the context of 'mainstream'

thought. They believe that the safeguards outlined above really do work well enough to obviate the need for specifically skeptical examination. In my own field I have been asked what difference there is between skeptical linguistics, as applied to the 'mainstream', and just plain linguistics, conducted within the usual academic constraints. This view is understandable, and, as noted, is not entirely wrong; but the amount of doubtful material which achieves serious publication suggests that additional vigilance is indeed needed. Linguistics is, in fact, among the fields where this may be especially useful; see below for some of the reasons for this and some examples³.

And it is certainly arguable that the degree of conservative bias which inevitably affects publication and acceptance of novel ideas does mean that some of the more obviously 'mainstream' works which **are** published may indeed owe too much of their success to their 'mainstream' status. It is almost as easy for a professional journal to be more tolerant than perhaps it should of a paper whose conclusions do not threaten the basis of the orthodoxy upon which its editors and others have rested significant parts of their reputations, as it is for *Aeon* to accept less than perfection in a Saturnist article.

A recent, particularly gross case of this kind involved the 1996 'Sokal Hoax', which was admittedly located in the rather surreal intellectual world of postmodernism. Briefly, Sokal wrote a spoof paper on the interface between physical theory and postmodernism, using highly favoured postmodernist motifs and arguments to support a claim which was in fact (quite transparently) utter nonsense (it implied an extreme relativist view of macro-physics). The paper was published as a serious submission by one of the key journals in the relevant field, and the upshots continue to reverberate. But at a more modest, less obvious level, there is no doubt that views in accordance with the prevailing orthodoxy (or sections of it) have a greater chance of publication - to such an extent that a certain proportion of what is published is probably not as soundly based as one would like to expect.

There are also other factors which may make it more or less difficult to publish. The Sokal case illustrates the fact that some aspects of postmodernism are currently very 'trendy' and indeed 'politically correct'; papers espousing the relevant views are liable to be favourably regarded. Another, not unconnected area which is currently much in favour is 'multiculturalism' (viewed positively), and another is 'environmentalism', at least in its more extreme forms (see below). Even anonymous reviewers (whose identity is known to the journal editor, at least) may prefer not to appear hostile to papers written within these frameworks of ideas (though there may be much to object to); and in public presentations (at conferences and such) where one can be identified it often requires considerable courage to speak in criticism of such an offering.

Skeptics suffer

This trend also means that papers endorsing views contrary to those in political favour may struggle to achieve publication, even if they (and their authors) are otherwise sound; or, if they do achieve it, they may then be

subjected to withering and arguably biased criticism. This is what many believe happened to the anthropologist Derek Freeman when in the mid-1980s he began to publish his strongly-expressed criticisms of the theoretical assumptions, methodology and conclusions of Margaret Mead in her seminal work in Samoa. In the view of Freeman and his followers, the rejection of his ideas by many 'mainstream' anthropologists (perhaps especially the Americans) was grounded much more in a multi-layered, arguably unscholarly, definitely exaggerated loyalty to the memory of Mead (an American and something of a 'mother-figure' to many younger anthropologists) than in any real faults in his own case. Freeman naturally believes that the 'mainstream' of his discipline should accept his viewpoint, but after some 17 years this cannot be said to have happened; scholars are divided, with many still regarding Freeman's ideas as overstated or indeed wrong. In recognition of his struggle, he has been perceived by many as a skeptical hero, and in 1996 he was voted Australian Skeptic Of The Year. As one whose argument is with a large component of the relevant 'mainstream', he is a very unusual recipient of such an honour when compared to most other recent awardees, who have been feted for their struggles against ideas of a clearly 'fringe' nature. The case continues to excite great interest; there is little evidence of serious compromise, on either side.

Another prominent Skeptic who has encountered even more trouble on this front is Ian Plimer. Plimer has suggested that the forces of 'environmentalism' (which is the equivalent of a religion for many of its devotees) have reached such a position of political strength that it has become difficult (even for one of his eminence) to publish sound academic papers arguing that some of the claims made are unduly alarmist or may involve misinterpretations of the evidence. He himself has encountered a surprising amount of difficulty, for one so highly qualified/respected, in obtaining publication for views of this kind which he himself has reached on the basis of his professional understanding of earth sciences. And even when material of this type finds scholarly publication, it is often difficult to secure a fair hearing for it in the popular domain. The perceived need to support the environmentalist agenda is typically too strong. As a result, few non-experts are even aware that there is a well-informed, non-trivial body of dissenting opinion on these issues.

I stress again that none of this implies that skeptics - Freeman, Plimer, or anyone else - are necessarily correct in opposing 'mainstream' or majority viewpoints, any more than 'non-standard' ideas must inevitably be wrong. The issue is that of obtaining a fair hearing, especially when one is well qualified on the matters at hand. Where this becomes difficult, the need for skepticism about the 'mainstream' will obviously increase.

The case of linguistics

I said before that 'mainstream' linguistics is perhaps more in need of skeptical attention than some other disciplines. One reason for this is the relative lack of consensus or orthodoxy in linguistics, and how this is handled. I noted at the outset that such cases exist, and linguistics is a discipline replete with them. There are many competing 'schools' or 'paradigms' within many of the branches of linguistics, differing from each other on such fundamental and basic issues as, for instance, the correct grammatical analysis of English sentences as straightforward as *Mark has drunk his beer*. (This may surprise American readers who know some linguistics, as in the USA there is more of a dominant cluster of 'paradigms' in syntax and general linguistic theory, that associated with Noam Chomsky. Elsewhere, Chomskyan linguistics, while important, is only one among a number of leading 'paradigms'.)

Of course, all fields display **some** differences of this kind. Such differences - and indeed changes over time within the orthodoxy of a discipline - are often seized upon by 'fringe' writers as evidence that the discipline in question is shot through with disagreement, inconsistency and instability; it is ready to collapse and is held up only by the hidebound conservatism of the 'gurus' of academia. This kind of position is typically overstated and founded in limited understanding either of the discipline itself or of scientific method (or of both). But in the case of linguistics the degree of disagreement is so great that 'fringe' critics would seem to have a case. The British linguist Richard Hudson, well aware of this problem, compiled a long list of statements on which a large and diverse sample of linguists did agree. This was a valuable exercise and examination of the list serves as something of a corrective to any truly extreme view of the case; but many of the statements are rather general, and one does not have to go far into linguistics to find disagreement on very basic points.

And linguists more generally have not been conspicuously effective in dealing with this problem. Many, especially those influenced by postmodernism, adopt a quasi-relativist view on which it is acknowledged but is not presented as problematic. It is common for researchers and writers to announce, or to ask each other, which 'paradigm' or 'framework' they are using (or what their 'assumptions' are). Now of course it is possible for different 'frameworks' to address different aspects of the same data or issue, without there being any contradiction. But in many cases the different 'frameworks' do appear to be dealing with overlapping matters, and to be incompatible; all but one of them, at least, must be wrong, or at best, inadequate. Or, at any rate, no attempt has been made to reconcile them; and this is not perceived as a matter of urgency. One can make any set of 'assumptions' which is not self-confounding, and can ground vast amounts of detailed extrapolation in them,



Ian Plimer

with little fear that anyone will actually try to **disprove** any of these 'assumptions'. Non-linguists may be surprised at the very limited interest that many linguists show in the question of how far their 'assumptions' and 'paradigms' - or in some cases even their specific theories - might actually prove **demonstrably** preferable to alternative ideas.

Of course, one reason for this lies in the nature of linguistic data. Linguistics is an essentially empirical subject; but, in the more abstract or speculative areas of such a domain, it is not always easy to adduce decisive reasons or evidence for preferring one account or analysis to another. However, it is surely better to seek to address this kind of issue with whatever decisive evidence may be found, rather than to forge ahead at great length with any one 'paradigm' in circumstances where there can be little confidence that it really is the best available. (But a further problem here lies in the fact that different 'schools' do not by any means always agree even on what is valid evidence: some prefer cross-linguistic typological data, some deal rather in more abstract analyses of individual languages and in the often dubious judgments of native speakers about what does or does not occur in their own usage.)

The training of academic linguists and the nature of many linguistics departments contribute to these problems. Many departments have a strong bias towards one 'paradigm' or another. Most of these 'paradigms' have developed in such depth and detail that students must spend years familiarising themselves with one 'paradigm' before their grasp of the material is at such a level that they can make fresh contributions at the 'cutting edge'. Differences within the 'paradigm' are discussed, but its basics are typically unchallenged. Most Chomskyan linguists have never been required to justify **their** basic analysis of *Mark has drunk his beer*. And many of the central concepts of each 'paradigm' make sense only within that 'paradigm'. For an equally highly trained outsider, the issues being debated are often meaningless.

This would be more acceptable if there were one leading 'paradigm', very generally accepted for sound reasons. As things are, however, the situation discourages advancement towards a more unified discipline through the resolution of differences between 'paradigms'. By the time many academic linguists qualify, they have invested far too much time and effort in the learning of one 'paradigm' to contemplate rejecting it or querying its fundamentals, and they know far too little of any other 'paradigms' to even assess them fairly. In these conditions, it is rare for scholars to be overtly skeptical either of their own or of others' 'paradigms'. They live to a large extent in separate intellectual worlds, and even the wilder aspects of the various 'paradigms' are seldom subjected to the close, unbiased scrutiny which they deserve.

More problems for linguists

Indeed, there is a further tendency, most obvious in the case of Chomskyan linguistics, to take the view that where 'paradigms' differ one's own 'paradigm' is obviously correct, and in fact to present one's own 'paradigm' as the truth or at least the current undisputed orthodoxy. Students often obtain this impression

from 1st-Year textbooks written by American linguists of a Chomskyan bent. Indeed, Chomsky's department at MIT at one time offered only one course (out of very many courses in all) about the whole world of non-Chomskyan linguistics; this course was popularly known as 'The Bad Guys' and the ideas involved were treated with some disdain! And even linguists quite outside the Chomskyan 'world' may say things like: 'I suppose I ought to re-cast my ideas in the light of Chomsky's new framework'.

In addition, all currently fashionable linguistic theories fail at many points, making numerous predictions which are not borne out, or avoiding this only at the cost of insufferable non-specificity or a degree of abstraction that precludes empirical testing. This applies to more legitimately abstract 'core' areas such as grammatical theory, where many differences - especially **between** 'schools' as opposed to within them - do not seem readily resolvable from evidence. It also applies, very obviously, to some quite strictly empirical sub-fields such as second language acquisition, where there are competing, simplistic theories, all of them falsified by large amounts of existing data. And there are also major issues of this kind in 'trendy' areas such as feminist/ postmodernist linguistics and some areas of sociolinguistics, where there is a great deal of tendentious 'theorising', some of it apparently conducted for its own sake and very little of it susceptible to empirical testing. Linguists of these kinds **love** 'theory' and often appear to 'over-theorise'; they also try to develop precise (but empirically unverifiable) theoretical definitions of notions (such as 'speech community') which in fact seem to be incorrigibly vague. In addition, some of the argumentation used is fearfully loose and replete with *non sequiturs*. This is perhaps especially common in overtly feminist work, where it is often apparent that politically favoured conclusions and analyses (not necessarily the same ones over time!) are sought from the outset and are not subjected to adequate criticism.

For instance, one recently published and very highly acclaimed book on linguistic variation commences with a long critical review of earlier work on this theme, identifying many unproven assumptions which may have distorted the findings of this work. Much of this criticism is itself reasonable; but the author then sets up rival (and politically preferable) hypotheses/assumptions and presents them as very likely to be correct without rehearsing any empirical evidence to support them or even referring to texts where such evidence is presented. And some of these new assumptions do not appear especially plausible, or at least appear oversimplified; one can certainly not simply regard them as almost self-evidently correct.

In this kind of work, another common reaction to the existence of rival analyses is to 'deconstruct' these analyses, or at least those which the linguist herself does not favour. This postmodernist and indeed often relativist strategy serves to draw attention away from the (hopefully empirical) question of which analysis is preferable to the interesting but logically separate question of the motivations of those who proposed the analyses and the intellectual influences upon them.

Alarming, many linguists are so committed to their 'paradigms' (etc) that they are willing to adopt ridicu-

lous or empirically empty analyses (or even to 'fudge' data) rather than reject the relevant 'paradigm'. Some groups of responsible, empiricist linguists (the 'English Empiricists' associated with the University of Reading, many typologists, the highly critical Geoffrey Sampson) have been drawing attention to this problem for years, but as recently as 1999 I was in a discussion (on a conference paper on this theme) in which the point was apparently new to some and had to be hammered home again. Some linguists have adopted truly ludicrous positions in this kind of context. The creationist linguist Mark Baker has denied that Italian is descended from Latin, because a highly specific and contentious theoretical claim suggests that this is impossible.

In this situation, skepticism about much of what is published in the linguistic 'mainstream' is clearly warranted. Amorey Gethin, a not ill-informed if 'one-eyed' critic, has argued that the entire discipline of linguistics is essentially nonsense. While I would naturally not go this far, I can understand an outsider reaching such a conclusion. And a number of insiders, thoughtful linguists who have been more able than most to remain independent of the various 'paradigms', have written of these matters in an essentially skeptical way (while not necessarily identifying as skeptics). The most prominent of these is Sampson, who has antagonised some other prominent linguists by arguing very persuasively that their pet theories are empirically empty or obviously contradicted by inconvenient data. Sampson, in fact, goes along Gethin's road at least so far as to suggest that many of the unexplained facts and theoretical issues debated by linguists may find their solutions in other domains such as psychology, and that - while there is a clear role for linguistic **description** - a truly valid general linguistic theory would thus be minimal in scope. There are also some papers arguing along these lines which should be better known than they are, including a number by Hammarstrom. The most important of these (in a 1971 journal) illustrates how the published views of very eminent linguists may appear ludicrous when looked at in a different (more realistic, more common-sense?) way - and without undue respect for their reputations. However, there is clearly a need for much larger amounts of overtly skeptical activity of this kind from within the 'mainstream' of linguistics (and other such fields).

So where?

It should be repeated that the level of critical thinking among professional linguists is obviously much higher than among 'fringe' linguists. But in the 'human sciences' it is easy for scholars - despite assurances to the contrary - to be tempted to go beyond what the evidence and reasoning will bear, especially where they have theoretical 'axes to grind' or where they are ideologically motivated. As I have illustrated here with linguistics, a renewed dose of skepticism (whether or not so identified) can often be of great value in such a context. And cases such as that of Plimer suggest that even in the 'mainstream' of the so-called 'harder' sciences a degree of skepticism is by no means out of place.

But if this skepticism is to be grounded in adequate knowledge of the relevant disciplines, the observations of enthusiastic amateurs will not be enough. Outsiders

who comment on technical disciplines are seldom sufficiently versed in them, and it is easy for them to appear 'fringe' themselves (as indeed Gethin does at times), even in cases where particularly intelligent amateurs are doing their best to deal with the difficult subject matter. We must interest scholars themselves in the pursuit of skepticism with respect to the 'mainstreams' of their own disciplines.

Notes

1) I take it, then, that the main focus of skepticism is, or should be, the **approach** of those on the 'fringe'. Our legitimate targets are our targets because they are unscientific, irrational, wilfully ignorant of well-known counter-arguments, etc - not merely because they are (currently, at least) believed to be mistaken.

2) As noted, it is not **always** the case that the advocates of 'fringe' positions, even if not formally trained, would not know enough to discuss the more sophisticated and difficult 'cutting-edge' issues with which the relevant 'mainstream' is concerned. Many do not have such knowledge, of course; but there are also some extraordinarily well informed people out there with highly non-standard views.

3) There are many 'mainstream' scholars, of course, who also reject the skeptical enterprise in its more usual form as directed at the 'fringe', or at least decline to be involved in it themselves. This is partly because they regard most 'fringe' beliefs as unworthy of critical attention (rather like Trotter, though they would not share his views about the 'mainstream'). It has to be said that some scholars who think like this display their limited awareness of the difficulties lay people have in distinguishing between the 'fringe' and the 'mainstream', or between well- and badly-founded ideas. Naturally they themselves will not be seduced by superficially plausible but ultimately ridiculous ideas in their own field, but that is not the point. It could be held that they are 'living in ivory towers' and in some cases more or less deliberately abrogating the responsibility they surely have (collectively, at least) to inform an otherwise vulnerable public on such matters. Ian Plimer has demonstrated very well indeed how eminent academics can shoulder such responsibilities. (But another factor here is reluctance to give credibility to ridiculous beliefs even by challenging them. This latter is obviously an arguable and sincerely held position, and in some cases it may genuinely appear that ignoring a 'fringe' position is indeed the best course.)



A Skeptic begat a Skeptic who begat a Skeptic who begat a Skeptic who begat a Skeptic who begat a Skeptic who begat a Skeptic and the Subscription Manager was pleased and caused his countenance to beam. (Bazza 19:3)

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Free money

Richard Lead

The Martingale

The last column's passing reference to the Martingale gambling fallacy (20:1) produced some disagreement from readers. This is healthy, and inevitable when active minds are freed from dogma and encouraged to think.

To recap – the Martingale system involves doubling up after each losing bet. This results in each bet being larger than the sum of all preceding losing bets. Take a simple bet on either red or black on a roulette wheel - a winning bet recoups previous losses and provides a profit equal to the first losing bet. So if our first losing bet is \$10, and the gods cause our subsequent three bets to also lose, we will have invested \$150 ($\$10 + \$20 + \$40 + \80) and our fifth winning bet of \$160 will produce a net profit of \$10. Given the laws of probability, we must eventually win, and walk away with our free money.

Casino operators just love the Martingale.

There are two defects in the logic (readers may spot others). The first is the growing size of our investment. Four losing bets had us investing \$160. Should we have a run of seven losing bets (unlikely, as seven is our lucky number) we will have lost \$1,270 and our eighth bet must be \$1,280 just to win our original \$10. We will eventually either exceed the house limit, or more likely, lose all our rent money.

But the Martingale system has a greater silliness. What if we win? Assume our eighth bet wins, and we now happily hold our \$10 profit. What then? Do we start again, betting the \$10 a second time? But the Martingale system tells us to double up each losing bet until we win. If we continue betting, we have stopped using the Martingale. Of course, we could always walk away with our free money, and come back to the casino next week and start again. But roulette wheels, flipping coins, and similar random devices are time machines – they have no concept of time. When we return next week, the roulette wheel won't have noticed our absence. So logically, we can only win using the Martingale once in our entire lives.

There is however, a successful gambling strategy. It involves betting when the probability of winning exceeds the probability of losing. People who gamble in this way can be described with such technical terms as bookmaker, casino operator, poker machine owner, and similar. These people grow prosperous from gamblers

who follow a variety of other arithmetical strategies, which often involve compounding a run of losing bets in the hope of salvation with a winning bet. Let's examine some of these strategies, and see how a gambler's mind can be hoodwinked.

But before we start, two questions for the reader to mull over:

1. If we toss a coin and get six heads in a row, is the seventh toss more likely to come up tails than it was after the third toss?
2. If we have experienced six rainy days in a row, is the likelihood of a fine day tomorrow more likely than it was on the third wet day?

Make up your mind before reading on.



The author, captured on a recent visit to Sedona, Arizona, where the New Age meets the old frontier

Reverse Martingale

Instead of doubling up after each loss, we continue with constant-value losing bets until we have a win, and then we double up each win by letting it 'ride'.

The psychology behind this is seductive. If our first bet of \$10 wins, we 'let it ride,' meaning our second bet is now \$20. When this wins, our third bet is \$40. But all we have outlaid is the original \$10, with the rest being free money. No matter how many times we let the bet ride, all we can lose is our original \$10. If we decide to double up seven times (as seven is our lucky number) we will have won \$1,270 from a \$10 bet.

The defect, of course, is the concept of free money. Money is money, and before we let the bet ride, it was ours to use any way we liked. We had a choice of betting it on a roulette wheel, or taking it home to feed the children.

Averaging

Probability tells us that a flipping coin will produce roughly the same number of heads as tails. The more tosses, the closer to the 50/50 average we can expect.

So if a coin has produced six heads in a row, it is 'overdue' to produce tails to return to the 50/50 average. So we should bet on tails until the 50/50 average has been achieved.

It's quite amazing how many people believe this fallacy. If it has rained for six consecutive days, is the chance of having a fine day tomorrow greater than had it been after three wet days? The answer is yes, and the difference between this and the flipping coin is subtle.

(Argument about this from readers is both expected and welcome!)

It is very easy to toss six heads in a row – all we need do is toss five heads in a row first, and we then have a 50% chance of tossing the sixth. The coin has no memory, and will have a 50% probability on each toss.

The 1 3 2 6 System

With this system, we bet in a four-part sequence of winning bets. If we lose a bet, we start the sequence all over again. Our first bet is one unit, and if it wins, we then bet three units, and then two, and finally six. Let's take \$10 as our unit, and go through the five possible outcomes of a sequence:

1. First bet loses, we lose \$10 (and start again)
- 2.. Second bet loses, (the first bet must have won), we lose \$20
3. Third bet loses, we win a net \$20
4. Fourth bet loses, we break even
5. Fourth bet wins, we have won \$120

The logic of this system is impressive. Of the five possible outcomes, one breaks even, two are losses totalling \$30, and two are wins totalling \$140. As the wins are far greater than the losses, the more times we bet with this system, the more money we must make!

Casino operators will hate the Australian Skeptics for letting this secret out.

Can you spot the flaw in the logic?

Crossing off

Write the numbers one to ten in a vertical column. Our first bet is the sum of the first and last numbers (being eleven). If we win, we cross off these numbers and start again. The second bet will again be eleven (two plus nine). If our first bet loses, we write the amount lost at the bottom of the column, and our second bet will be twelve (one plus eleven).

When we have crossed off all the numbers, we must have won fifty five, this being the sum of all the original numbers.

Try it yourself by tossing a coin, and within a few minutes you will see how daft it is. This system is just a variation of our old friend the Martingale, and will result in a series of steadily-increasing losing bets.

The house percentage

It should be quite obvious that no arithmetic system, no matter how convoluted, can produce regular profits. In a 50/50 proposition such as the red/black at roulette, how can the order or the sequence of our bets possibly affect anything?

But these are not 50/50 propositions. The roulette wheel has eighteen reds, eighteen blacks, and one green. This green will pop up on average once every 37 bets, and slowly but inexorably transfer our wealth to the casino.

What is the house percentage on your favourite poker machine, instant scratchie, and lotto?

This columnist is grateful to have been blessed with

an addiction to red wine rather than cursed with an addiction to gambling.

Papua New Guinea

In the Autumn 2000 (20/1) journal, this column foolishly described Albania as the only country to be laid waste by a pyramid scheme. Sadly, at the time of writing, Papua New Guinea was being plundered by identical scams.

In late 1999 at least six independent pyramid schemes were offering PNG investors a generous 100% interest per month. Per month! At least A\$300 million was lost, representing PNG's entire domestic savings. Victims included not just gullible individuals, but also gullible government departments, and gullible churches.

This money is, at this very moment, no doubt enjoying the safety and anonymity of tax-haven bank accounts. Unless, that is, the promoters of the scams took the funds to a casino, and attempted to earn the required 100% profit by betting on a roulette wheel with the foolproof 1 3 2 6 system. Or perhaps by using a computer program to pick the next winner at the races. Or a share-trading computer program.

It seems the elite of PNG society were invited to be early investors. The Chief Ombudsman, Mr Simon Pentanu, has admitted earning a profit of A\$66,000, a huge sum by PNG standards.

Amazingly, at the time such pyramid schemes were legal under PNG law.

It would be premature for the Australian Skeptics to claim victory, and close shop. Our task sometimes seems endless.



...Randi from p 23

RC: When will we get a chance to see you again in Australia?

JR: *Invite me. I'm available. If I can just get a number of organisations over there ready to take me on a tour of Australia doing lectures, I can raise a lot of fuss. I'm a hackle raiser from way back. I raise hackles everywhere I go whether I just show up and smile or not. I like to do that because I think it accomplishes something. I'd be glad to visit on behalf of the JREF as long as I could bring some money back to support the JREF. My time is one of our most valuable assets and there is only a certain amount of that left. I look forward to visiting again. We will be waving our million dollar cheque as we travel around hoping to get them infuriated enough to allow themselves to be tested.*

RC: With the current exchange rate that is close to two million Australian dollars.

JR: *Oh, well that should get some attention.*

Richard Cadena: Thank you very much for your time.

Randi: *It has been a pleasure Richard. Thank you for asking.*



Lead astray – some thoughts about roulette

Martin Hadley

Richard Lead's article in the last issue included the following:

Some years ago I met a bright young spark who had just paid \$4,200 for a hand held computer, programmed to make him rich at the racetrack. The software was simply a Martingale. The Martingale gambling technique involves doubling up for each losing bet. So if your first bet wins, you pocket your free money and leave the racetrack, casino, stock market, or whatever. If your first bet loses, you double the value of your second bet. And so on until eventually the laws of probability mean you must win.

The logic is seductive, but I will believe it works when the first casino bans its use. Readers of *The Skeptic* are astute enough to see the flaws in the logic.

I suggest that the system does not work in the long run; but its consequences could be inconvenient to casinos in the short term and they have taken steps to confine it.

In my case, this conclusion was reached after experiments with roulette. Since this took some years, I expect I am one of the less astute readers.

Chapter 1 Aged about 12

I learned about roulette as a little towser playing with a toy set. It belonged to Grandma and she explained the rules. The wheel has 36 red or black numbers which can be bet on individually or in groups. The payouts reflect exactly the odds between 36 and the numbers covered by your bet – 35 to 1 for a single number (plus your own chip back), 8 to 1 for a group of 4 etc. But amidst the red and black numbers sits malevolently the green Zero which means a win for the House on all bets, except a bid on the zero itself.

It thus dawned upon my pubescent intellect that the House had a $1/37^{\text{th}}$ chance, if I remember rightly, of winning each spin. I concluded with satisfaction that it was not a game for me, and I went back to more pressing scientific questions such as why was I so steadfastly resistible to girls? (Grandma was never any help with that, but what can you expect?)

Chapter 2 Early 20s

My interest in gambling was rekindled by a close friend, who is now a high-ranking auditor of government expenditure. (With him and Grandma, is a pattern emerging of me being led astray by those I trust?) He didn't call it a Martingale, but the idea was this: you bet on the even money plays in roulette. You start by betting 1 chip. If you win, you pocket the winning chip and bet one chip on the next spin. If you lose, you double, and you keep doubling until you win again. When you win you will cover previous losses and be 1 chip ahead. Sweeet. You then go back to betting 1 chip. It can be done on any even money play, in any order.

So, bet 1 and lose; then bet 2 and lose again; then bet 4 and lose again – total losses are 7 so far. Next bet is 8

and a win covers the 7 and there is 1 left over. It works for bigger numbers too.

Could I check this out? I was still busy analysing why I was seriously resistible to the vast majority of right-minded girls, but what I had just heard was powerful interesting.

It gelled with a vague idea of mine that a gambler had one advantage, but only one, against the House. The gambler could decide when to leave. If the gambler was ahead, the House could not force him or her to continue. I reasoned that, thanks to the mathematics, some punters would be behind from the first bet and never get ahead. And the ones who got ahead would usually keep playing until they had lost their winnings.

I had been to one casino in '75 – illegal, but a comfortable and safe place with several police lounging around outside.

I recalled that drinks were free. Maybe this was also a factor.

Surely there was an opportunity for a sober operative, a clear headed youth, unsullied by shabby adult addictions, and who always stopped when he was ahead.

The obvious thing to do was to slip into the black tie, borrow the neighbour's MG and thrash over to the nearest casino, James Bond style. Instead I turned to my state-of-the-art 16K computer. (I mean K - this was 1983.) I wrote a program which would play roulette and make bets according to the system. To check the random number generator, the program kept a tally of wins and losses.

(I see now that the fact that I was spending precious leisure time in this not particularly virile manner may answer that other question.)

Chapter 3 Eureka

Two hours later the machine had run 25,000 spins. The ratio of wins to losses was about right and I had won over \$12,000. Seemed too easy.

While the computer was humming away, I had recalled some advice from another authority figure in my life – my Godfather – supposedly an office of religious and moral significance in a Presbyterian family. He told me that the way to win at roulette was to wait until red or black came up 3 or 4 times in a row. You then had a much better chance of the other colour on the next spin. (This from a worthy and successful man who is still on the Board of some HUGE companies and who practised as an auditor for years.)

Now even I could see through that one. But the idea of repeated results made me wonder about what sort of bad luck a lad had to be ready to endure along the path to roulette riches.

I adjusted the program to keep track of the longest

Continued p 34 ...

Who are these people?

Bob Nixon

In the first instalment of this series I focused on the "What we Got Right" section of *Your Destiny*. In this article I want to look at the regular contributors behind those predictions, the people whom editor Sue Short calls "Metaphysicians and specialist writers" and who she claims "bring you accurate and revealing predictions and forecasts, practical advice and the latest on alternative healing". In fact, as I pointed out last time, their level of accuracy is somewhat below what one might expect from people with insights into the working of the universe that are missed by the rest of us.

By "Specialist writers" I think we can assume that these people get paid for their services. Nothing wrong with that, but it does imply the word "professional". These people are professional seers and mystics. In some cases, though not all, they do this stuff for a living.

Heading up the cast of world-beaters is Melbourne's own White Witch, Kerry Kulkens. Kerry has been around a long time and was among the first to open a telephone psychic line. She runs a shop in the leafy suburb of Belgrave and is widely known to devotees of the New Age. She also provides the horoscope column for the Leader Newspaper Group, providers of the local freebie suburban papers. This despite the fact that it was pointed out to Leader that Kerry was recycling old columns. Briefly dumped, she has since reappeared.

Paul Fenton-Smith is the founder of the Academy of Psychic Sciences in Sydney and instructs in astrology, palmistry and tarot, all subjects of books Paul has written. In the December 1999 issue Paul offers an article called "All Change in 2000". In that article he predicts that New Year's eve is "likely to be more stressful than any we have experienced before". He then goes on to predict, with a stunning display of his insight, that "You'll be more likely to start the year with a hangover". Later he predicts that those of us who manage to stay around for the new millennium "will complete their present incarnations on this earthly plane sometime during the next millennium". What he seems to be saying is that those of us who are alive are going to die. Absolutely fascinating. More than that, Paul is predicting that those of us born in the 20th century will all die in the 21st. This, I predict, will prove to be a failed prediction, but I suspect Paul won't be around to be proven wrong – but then again it's equally likely that I won't be around to point out his mistake.

Sunny Jim is a palmist and clairvoyant out of Melbourne. You send Sunny a photocopy of your hand and he publishes his reading in his column. I offer one example of his staggering ability to divine the lives of those who seek his help. The letter reads "I am mentally and physically rebuilding my life after three years of hell: leaving a violent marriage...". To this Sunny replies "I am glad you signed your name on your letter as from that I picked up your marriage separation and that you

are still carrying the emotional scars of the past". See, clever these psychics, aren't they?

Sonyya Bellarose, yet another Victorian, is a spiritual reader and past life artist. She offers her own 1900 number. Sonyya (the name is spelled correctly) answers readers' letters. Her column is a good example of how difficult it is to determine just how accurate these magazine mystics are. Naturally letters sent by the faithful must be edited or they would doubtless fill a magazine of their own, but I find myself wondering how much additional information is imparted by the writer. From the April 2000 edition *Desperate of Perth* asks, "I am strongly attracted to a man I have known for two years. Does he feel the same attraction for me?" and adds her date of birth. Sonyya announces unequivocally that this is not the man of *Desperate's* dreams – "If you were meant to have a life together he would have proposed to you by now" – but there is another fellow waiting in the wings. It seems to me that if Sonyya was not privy to additional information from *Desperate*, her statement is one of remarkable irresponsibility.

Stella Reclaimer presents a regular monthly astrology column. I won't labour the point, every reader of *the Skeptic* knows what to expect from a horoscope, and Stella does not disappoint.

Edward Tamplin is listed as *Your Destiny's* resident astrologer (I wonder if anyone's told Stella). Every issue of *Your Destiny* contains a small booklet or middle insert of detailed horoscopes. This is Edward's job for the magazine. Again, there is little point in picking holes in a horoscope, at least not for a skeptical audience. I will say that my stars for December proved to be particularly disappointing, but then it's fair to say that Edward's column, like the rest of the magazine, is not aimed at the male of the species.

Jennie Angel is the proprietor of a telephone psychic line and gives private readings. Her offering in the magazine is the column "Ask Your Angel", in which she helps you tune in to your inner angels. To help you do so she offers each letter writer an angelic thought, such as "I now ask my angels to open my intuition so I can be guided towards my divine destiny".

Linda Clements is the only member of this stellar collection who causes the Skeptic grin to cross my face. Linda is Kerry Kulkin's daughter and she has clearly inherited a gift of some sort from mum. The psychic field is a limited one, of course and it would be wrong for daughter to go into competition against mum directly. In order to keep peace within the family Linda has chosen to become a pet psychic – there's that grin again. Linda works from pictures of living or dead pets – although the dead ones have to agree. If they do agree Linda offers a degree of comfort to mourning pet owners, but I still can't get that grin off my face.

Simon Turnbull, with apologies to the other mem-

bers of the cast, is the Big Name of this crew. Here he is, the President of the Australian Psychics Association himself. Simon specialises in celebrity predictions, and I pointed out in the previous article that he was absolutely correct in at least one prediction. He pronounced that Tom Cruise and his Australian wife Nicole Kidman would buy a house in Australia – stunning. Simon was the very first person in this country to offer a telephone psychic service – so depending on your view of that business, he should be thanked for providing such a facility to Aussies, or he has a lot to answer for.

Bringing up the rear is Tony Ward, from the Feng Shui Advisory Centre of Sydney. Tony offers help in making our living spaces pleasant and advantageous for the future. In the December 1999 issue Tony's offering is "Create your own Love Den". Now look, Feng Shui is, at its essence, something that I can't build up a great deal of skeptical energy about. It's simply about building a nice place to live or work. In his column Tony talks about making a place to which you might attract an intimate relationship. He advises music, soft colours, flowers and so on, along with a few more exotic fittings like a fountain and crystals on the windows. It's all pretty harmless stuff, but surely it's lost on an Australian audience. In this country a woman can seduce a man with eye contact alone, while for most Australian men picking up a discarded sock, or at least pushing it under a cushion, is sufficient preparation for a night of romance.

Your Destiny is useful inasmuch as it has identified for us the leading lights of the psychic industry in this country. Here they are, in all their glory. I guess it leads to the question "Why?" How did these people achieve such exalted positions within the pages of *Your Destiny* over the rest of the mystics throughout this great brown land? What are we to make of the thirty or forty other providers of psychic phone lines that are advertised in the same magazine? Are these people second rate? One, using the unmistakably mystical name Crystal Channel, has thirteen psychic lines to her name, yet for some reason she is not among the world-beaters *Your Destiny* has identified. Indeed, there are sixty-two psychic/tarot/clairvoyant 1900 numbers among the advertisements in *Your Destiny*, and the contributors to the magazine operate only a small minority of them.

The psychic industry in this country relies utterly on image. Successful psychics are those who can achieve notoriety and acceptance not with the customers, but with each other. Sue Short has assembled a group of people who have achieved just this required goal. Kerry Kulkens, for example, despite a total and demonstrable lack of ability, has managed to build a nice little business for herself based entirely on her claimed past performance and, more importantly, past media appearances. She keeps turning up in magazines, newspapers and on the telly so she must be good, meaning that when magazines, newspapers and the telly are looking for a big name they find Kerry. Little notice is paid to the question of whether or not she can do what she claims to do. Kerry Kulkens has achieved the pinnacle of fame – she is famous simply for being famous.

It's clear that these people take themselves seriously. Sonyya's assertion that her correspondent is with the wrong bloke and, in the same edition, Jenny Angel's

advice that one of her new friends has found Mr Right are examples of the belief these two have in themselves. With the faithful these are powerful people and their power over the gullible and confused is wielded with little thought for the possible outcome.

In the next article in this series we'll look at the featured articles appearing in *Your Destiny*.

Footnote

The last issue of *the Skeptic* contained the first instalment of Bob Nixon's series on the magazine *Your Destiny*. In that article Bob focused on the column entitled "What We Got Right", a regular feature of *Your Destiny*. Since that article was published two editions of *Your Destiny* have appeared, neither has contained the "What We Got Right" column. Coincidence?



... Roulette from p 32

run of losses and I ran it again. After 2 hours, there I was with another 12 grand. The bad news was that along the way, I would have had to find over 16 mil at one point to stay in the game.

Call it the Packer Paradox. You'd have to have Kerry's money to use this system. But with such wealth, why would you sit through 25,000 roulette spins to make 12 grand?

Which reminds me of another paradox I haven't yet put a name to. How often have you seen some well dressed gent or lady, bend over to pick up a ten cent piece on the ground? How often have you seen a person drop ten cents and not pick it up. But if you offered the person a lifetime vocation of picking up ten cent pieces and keeping the money- one by one mind, not grabbing great handfuls – then should they take it? It wouldn't be worth the trouble....

Chapter 4 Does it work?

I am open to correction, but every casino I know of has an upper limit on bets. Secondly, the minimum bet is usually higher for the even money plays than for betting on single numbers. This means that the number of available doublings is quite limited. Kerry and I will have to keep our day jobs.

What if there were not such limits? Would it be worth Kerry's while to get somebody else to do the betting with his almost unlimited money? I've had a bit of trouble with this question, but it seems that there is no really safe way of setting it up.

If you take a million and play to make a further million, you are more likely to exhaust your funds than to endure that many spins. What about a bit of moderation? How about taking a million, but aiming only for ten thousand? It seems to me that without the zero, the odds are that 99 rollers will make their ten thousand, but the hundredth will blow the whole million. With the zero there the odds are slightly worse.

Now I'm not going to say in print that Kerry is a harsh employer, but imagine being the one person in a hundred who had to front him with the bad news.

PS. I have run the system 3 times: won \$25; won \$50; lost \$100.

Trial by ordeal

Ben Clarke

The use of polygraphs in a variety of public and private applications including staff recruitment, police investigations, and insurance loss assessment procedures has focused attention upon the nature of these devices and the extent to which citizens' rights to privacy are infringed by such testing.

Efforts to introduce evidence of polygraph results in Australian courts raises questions about the scientific validity of polygraphs, and the admissibility of polygraph results under the rules of evidence. The compatibility of polygraphs with both the common law principals that underpin our justice system and Australian society in general, is also called into question.

What are Polygraphs?

A polygraph or "lie detector" is:

An instrument used to measure the autonomic nervous system responses in terms of blood pressure, pulse rate, respiration rate and galvanic skin response. In theory when a person tells a lie, fear of detection causes uncontrollable reactions in these physiological areas which the polygraph indicates with inked lines on a moving paper scroll.¹

The use of polygraphs in sensitive areas such as the questioning of suspects in criminal cases, recruitment processes (eg by the FBI), investigation of insurance fraud and interrogation of current or potential employees raises certain ethical issues. In particular, the appropriateness of compelling, or coercing people to undertake such testing, needs to be examined. The use of polygraphs also raises the broader question of whether we want to live in a society that is dominated by this type of testing.

Validity and accuracy

There is considerable debate about the validity and accuracy of lie detector tests in the questioning of crime suspects and others², and indeed about the validity of the technique as a whole.³

The most obvious concern is that lie detectors do not actually tell you whether the subject has lied but rather feed on physiological responses recorded during the questioning of a person.

An example of where polygraphs can give erroneous "results" is when nervous persons are tested. Persons of a nervous disposition may display galvanic responses, which may be interpreted as indicating that the person is lying when they are answering questions truthfully but are feeling stressed.

Others are able to 'beat the lie detector'. One method may be for a person to state a proposition numerous times until the person accepts its validity and consequently passes a lie detector test. For example, "the earth is square, the earth is square....".

Even proponents of polygraphs recognize a large number of categories of people who have been deemed unsuitable for polygraph testing.⁴

Concerns about the validity and use of polygraph testing have been voiced by the American Medical Association, the American Civil Liberties Union, psychologists, and congressional representatives.⁵

In 1988 the United States Congress passed the *Employment Polygraph Protection Act* which protects most private sector employees from polygraph testing, except in a few sensitive fields of employment (eg where national security is at stake).

Admissibility of polygraph results

The American approach

In the United States of America, (where polygraph testing is a growth industry) the admissibility of lie detector test results is determined by courts and legislators on a state by state basis.

In the Federal legal system, test results are inadmissible as substantive evidence.⁶ Whilst some states have allowed test results in criminal trials, states such as such as California have prohibited the admission of such evidence *unless all parties consent to its admission*.⁷ Other states such as Illinois completely bar the use of such testing in criminal trials. This prohibition extends to requesting, requiring or suggesting that a defendant submit to such a test.⁸

The preponderance of authority in the United States is against the admission of polygraph evidence with a variety of grounds having been asserted for refusing its admissibility including:

1. It intrudes on the ultimate issue which the Court must determine.
2. It does not fulfil the criteria of the Supreme Court of the United States test in *Frye Case*⁹ with regard to admitting scientific evidence.
3. It is hearsay evidence.
4. It relates to the credit of witnesses not suffering psychiatric illnesses and is therefore not a proper matter for expert evidence.
5. The elicitation of the responses is unfair because of the trickery and deceit necessary to obtain responses.
6. The testimony is self-serving for the Defendant.¹⁰

In *Frye's Case*¹¹, the court held that evidence obtainable from the use of scientific instruments or techniques is admissible if the instrument or technique has a reasonable measure of precision and is accepted in its scientific field or profession.

More recently, the approach of US courts has been to admit evidence where there is recognition by specialists within a profession or field of science, even though the wider professional or scientific group may be unfamiliar with the technique.¹²

The Common Law approach

The Supreme Court of Canada in *Phillion's case* rendered evidence of the results of a lie detector test inadmissible.¹³

A Scottish Court has followed this approach noting that the use of such techniques distorts the adversarial trial process.¹⁴

Neither the Privy Council nor the House of Lords have had the opportunity to consider this question.

The Australian approach

The admissibility of polygraph tests has not yet been considered by the High Court of Australia. It has however been raised in inferior courts.

In *Raymond George Murray*¹⁵, His Honour Judge Sinclair DCJ of the New South Wales District Court applied *Phillion* and held that results from polygraph examinations undertaken by an accused (with a view to substantiating his denial of the substance of the charge against him) were inadmissible evidence in the course of a criminal trial.¹⁶

In that case His Honour heard evidence on a *voir dire* from an expert witness who described himself as a Polygraph Examiner.

A Mr Glare gave evidence of having tested the accused by asking a series of questions and monitoring the accused's respiration, blood pressure, pulse rate and galvanic skin reaction of the accused. The questions went to the heart of the charges for which the accused stood trial and were as follows:

1. At 6.30pm on 7 July 1980 at Cremorne did you fire any shots from a firearm? Answer - No.
2. At about 6.30pm on 7 July 1980 at Cremorne did you point a firearm at these Police? Answer - No.
3. At about 6.30pm on 7 July 1980 at Cremorne did you say to those Police "You are not going to arrest me. I'm not going to jail". Answer - No.
4. Did you say to these Police "I mean I tried to shoot him"? Answer - No.

The responses were recorded on a polygraph chart, which Mr Glare interpreted as disclosing that "In his opinion the accused was speaking the truth in regard to the relevant questions".¹⁷

His Honour held that as a question of law this evidence was inadmissible for the following reasons:

1. The sole purpose of the evidence is to bolster the credit of the accused as a witness. However, the veracity of the accused and the weight to be given to his evidence, and other witnesses called in the trial, is a matter for the jury to assess and on general principals such evidence as adduced by Counsel is excluded.
2. The witness seeks to express an opinion as to ultimate facts in issue, which is peculiarly the providence of the jury to determine on facts presented by them by witnesses who perceive them by the exercise of their physical senses.
3. *It purports to be expert evidence but the witness is not qualified as an expert, he is merely an operator and assessor of a polygraph. Furthermore the scientific premise upon which his assessment is based has not been proved in this Court or in any Court in Australia. (italics added)*
4. Devoid of any proved or accepted scientific basis, the evidence of Mr Glare is simply hearsay which is inadmissible and of no probative value.¹⁸

In referring to the Canadian authority of *Phillian* His

Honour noted that in the Canadian case the polygraph operator

... like Mr Glare was neither a psychologist nor a psychiatrist though he had considerably more experience in the operation of an interpretation of the readings of the polygraph than Mr Glare.¹⁹

His Honour went on to note that:

Whatever may be the situation in some states of the United States of America, this "evangelical sideline", as it was described, in passing, by Mr Glare, which no doubt holds a genuine fascination for some people, has no place in a criminal trial in New South Wales ...²⁰

Statutory restrictions on polygraphs

With the exception of the *New South Wales Lie Detectors Act (1983)*, there is no legislation in Australia specifically prohibiting the admission of lie detector evidence in criminal trials. It would be interesting to see how a Court outside of New South Wales would respond to a case where all parties consented to the admission of lie detector evidence interpreted by an experienced well qualified and recognised Psychiatrist or Psychologist.

It may be the case that a Prosecutor who doubts the veracity of a complainant's account may wish to invite a complainant to undertake a lie detector test. The defence may well support such an approach, as a finding that the complainant "had lied" on the lie detector test may well persuade the prosecution to proceed no further with the case.

Such examination of the complainant would be a double-edged sword. If the complainant "passed" the lie detector test, then if this evidence was deemed admissible in the criminal trial, the defendant's position could be severely prejudiced. It would therefore seem unlikely that defence lawyers would support the admissions polygraph evidence, unless the accused or other defence witnesses had "passed" the test, or prosecution witnesses had "failed it".

The Lie Detectors Act 1983

Concern in New South Wales about the use or misuse of lie detectors by employers, insurance investigators and others has led to the enactment of the *Lie Detectors Act 1983 (NSW)*. ("the Act")

The Act prohibits requesting or requiring another person to undergo an examination based on the use of instruments or apparatus which monitor the physical reactions of the body or elements of stress, tone or variation or vibration in the voice for any prohibited purpose.²¹

Prohibited purpose is defined in the Act to mean any purpose connected with:

1. Matters relating to employment including application for or offer of employment, honesty and other means related to character terms of employment, promotion and other employment related benefits, transfer of employment, training in or continuation of employment.
2. Consideration of the acceptance of risk under a proposal for a contract or policy of insurance.
3. Consideration of a claim under an insurance policy or payment of compensation for loss or damage under an insurance policy or an application for any form of financial accommodation.

4. Establishing whether or not a person is guilty of an act or admission that is punishable by a fine or imprisonment.²²

Given the difficulties associated with lie detector tests, it would be appropriate for similar legislation to be enacted throughout Australia. Further, such legislation should include an additional category extending the prohibition on the use of lie detectors to the questioning suspects in criminal matters.

Polygraphs in civil litigation

Putting aside the difficulties of the rule against hearsay and expert evidence, polygraph test results could prove extremely useful in civil trials, particularly small debt claims and other relatively minor civil matters. Where parties to a dispute consented to testing by an independent suitably qualified psychiatrist or psychologist, should a Tribunal have regard to the results of these tests in weighing all of the evidence? It may be that such an approach would save court time and be of great assistance in minor matters such as small claim disputes. It would appear from the following case, that such innovation has already attracted the interest of at least one American court.

In a New York civil suit, it was ordered that both parties were to submit to polygraph examinations. The case concerned an alleged oral loan of \$1,010.00. The Judge explained his ruling by stating:

Even the wisdom of a King Solomon would be tried in a case such as this and that the particular situation presented an ideal situation for the use of such tests.²³

Conclusion

It is doubtful that results from lie detector tests will ever be held admissible in Australian criminal courts. While proponents of polygraph evidence claim that test results are a definitive indication of the veracity of an accused's denial of guilt, such the results are hearsay and amount to a self-serving statement which is inadmissible at both common law, and pursuant to statutory rules of evidence. Further, there does not appear to be any general acceptance of the validity and reliability of polygraphs within the Australian scientific community.

It is extremely doubtful that polygraphs will ever gain general acceptance within the scientific community. There are simply too many reasons why polygraphs results or interpretations of test results may be flawed. Indeed reliance on these instruments as an indicator of the veracity of a subject's testimony is reminiscent of archaic judicial methods of determining guilt or innocence.

Does the coercion of people to undertake lie detector tests vary significantly from subjecting hapless women in the dark ages to trial by ordeal? Do these devices any more accurately determined truth? Or have we simply invented a modern form of witch dunking?

While the scientific merit of witch dunking would be hard to fathom in any era, the reliability and accuracy of polygraph machines has been extensively tested.²⁴ The results of these tests have produced little scientific support for polygraphs as a method of detecting the truth. Stories about the inaccuracy of these devices are legion.

In a deserving study, Patrick and Iacono (1989) offered prison inmates, half of them psychopaths, \$20.00 to beat the polygraph. The psychopath did a little better than the non-psychopath, but the significant finding was that, using the control question technique, the polygraph examiners wrongly classified 45% of innocent subjects as guilty of crimes. In a later experiment conducted with the polygraph division of the Royal Canadian Mountain Police [Patrick and Iacono (1991)] the experimenters found further evidence to support the contention that the control question technique misidentified nearly half of innocent suspects of liars.²⁵

The problematic nature of polygraphs goes beyond the ability of participants to trick lie detector machines. Different conclusions may be drawn from the same polygraph data - leading to interpretations being challenged on the grounds of their subjectivity.²⁶ The lack of validation of industry standards for polygraphs further undermines attempts to admitted polygraph results as evidence in courts of law.

There is a need for uniform national legislation to prevent invasive polygraph testing from impinging upon the privacy rights of employees, accused persons and the public in general in their dealings with various public and private sector agencies.

Polygraphs could only be admitted into evidence in Australian courts if there is:

1. significant rewriting of the common law rules of evidence, and
2. general recognition of the validity, reliability and accuracy of polygraph testing within the Australian scientific community.

Until that time, Australian courts will continue to rely on that tried, trusted and time-honoured common law lie detector, the *12 men and women of the jury*.

Notes

¹ Brian Lane, *Encyclopedia of Forensic Science* (Headline Book Publishing PLC, 1992), Page 321

² American Civil Liberties Union (ACLU) Briefing Paper No 4 : Lie Detector Testing (Internet) URL: <http://www.aclu.org/library/ppb4.html>

³ Susan McCarthy "The Truth about the Polygraph", *Health & Body* March 2 2000 (Internet) URL:<http://www.salon.com/health/feature/2000/03/02polygraph>

⁴ Psychopathic liars, demented or abnormal persons, persons who are emotionally unfit, a heart condition, who have been in prison for a long time, who are hungry or thirsty, alcoholics, children under the age of reason, persons under medication or narcotics, over tired persons or people with colds, sneezing or coughing or suffering from emphysema are all unsuitable to be tested by polygraph. *supra* Lane page 322

⁵ *Supra* ACLU p 1

⁶ *United States v Hunter* 672F.2d815 [TENTH CIR.1982]

⁷ Wests Ann. Evidence Code 351.1

⁸ Illinois Rev. Stats., ch.38,155-11

⁹ *Frye v United States*, 54 App.D.C. 46, 293 F. 1013 (1923)

¹⁰ Page LBC Update Freckelton and Selby 1-1890

¹¹ *Supra* n9

¹² *People v Williams* 164 Cal. App. 2nd Supp. 858, 331 P.2nd 251 (1958)

¹³ *Phillion v R* 1978 1SCR 18

¹⁴ *Meehan (Petitioner)* 1970 JC11

¹⁵ *Raymond George Murray* 1982 7A Crim R48

¹⁶ *ibid.* p48

¹⁷ *ibid.* p49

¹⁸ *ibid.*

¹⁹ *Ibid.* p50

²⁰ *ibid*

²¹ Section 5(2) of the *Lie Detectors Act* 1983

²² Section 6 of the *Lie Detectors Act* 1983

²³ *Walther v O'Connell*, 72MISC.2D316, 339 NYS2d 386 [Queens County Civil CT., NY City 1972]

²⁴ *supra* ACLU p1

²⁵ OPSIT Page 1/189 [LBC]

²⁶ cf: Lykken, D.T., *A Tremor in the Blood, Uses and Abuses of the Lie Detector* (1980)

You can't change your sex

Sydney Bockner

Sex cannot be changed by surgical operations. The term "sex change operation" is misleading. Cosmetic surgery can alter the appearance of the genitalia, hormones can enlarge the male breasts and change hair distribution. Make-up artists can alter a male face into a pouting female one. These have changed your sex, haven't they? Actually, no they haven't. The only things that have changed are your name, title, appearance and dress. Even without surgery it may be difficult at times to differentiate male from female, with both sexes wearing their hair long and dressed in similar attire. Looking up their genes is one way of distinguishing their sex.

In the first place it is genes which determine our sex. We humans have 23 pairs of chromosomes - one from the mother's ovum, and one from the father's sperm in all our body cells. Genes (made of DNA) lie strung along our 23 pairs of chromosomes. Chromosome pairs numbers 1 to 22 are microscopically identical, but chromosome pair number 23, the so called sex chromosomes, are different. In the female number 23 has two paired large X chromosomes (so called because they resemble the letter X). In the male number 23 has one X chromosome paired with one small Y chromosome. It is this variation that determines sex differentiation (Diamond 1997). The ovum produces X chromosomes only, while the sperm produces both X and Y varieties.

Diagram 1 shows an X chromosome from the ovum paired (by chance) with an X chromosome from the sperm to produce a female. Diagram 2 shows an X chromosome from the ovum paired (again by chance) with a Y from the sperm to produce a male.

Other factors are involved - for example the steroid hormones and other hormones, and enzymes, which play an important role in the later maturation of sex.

Clearly, no amount of surgery can change the 100 million million body cells to alter the chromosome combinations that determine our sex. So a sex change is impossible. What may change is a person adopting the sex role of the opposite sex. There may be a psychological change, with the conscious, voluntary adoption of the demeanour of the opposite sex. This may degenerate into high (or is it low?) comedy, as recently reported in the British press, when a six foot two inch sergeant in the Parachute Regiment appeared on parade in high heels and a frock.

Persons desiring a "sex change" operation - more accurately-changing their gender role (Money 1955) have since the 1950s. been classified transsexuals. Be-

fore this, and the advent of hormone therapy and modern surgical techniques, they were all regarded as transvestites (persons who cross dressed). The term transsexual is used to mean a person having the characteristics of one sex and the supposed psychological characteristics of the other.

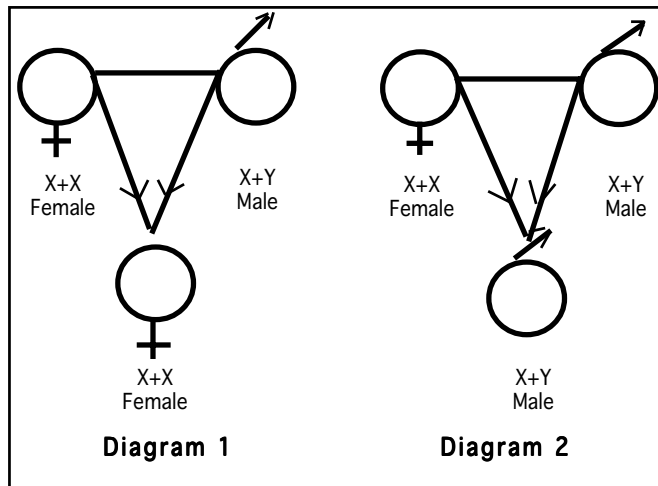
Hoening (1982) defined transsexuals as "persons born without physical abnormality in their genital organs, who are assigned to the opposite sex and reared in that sex. And yet in spite of all this, and often in the face of fierce resistance by parents and others, they develop, usually from the earliest age, a paradoxical gender identity which is permanent and unchangeable. Most transsexuals pursue their aim of physical change with fanatical fervour, and the idea appears to dominate their entire existence". Roberto (1983) states that transsexuals believe that they are members of the opposite sex, dressing and appearing in the opposite gender role. They perceive themselves as heterosexual, although their sex partners are anatomically identical. They have repugnance of their own genitals, and wish to transform them. There is a history of cross genital activities, and a persistent desire for sex conversion surgery.

Transsexualism is three times more common in males than in females (Eklund et al, 1988, Hoening & Kenna 1974). The World Health Organisation classifies transsexualism as a psychiatric disorder (W.H.O. 1978).

Gender reassignment surgery is a cosmetic procedure, in some cases allowing alternative sexual practise. Although the level of sexual interest is often low, sexual orientation is homosexual, but considered heterosexual by the subject (Garden & Rothery 1992). Gender reassignment surgery in the male consists of castration and neovagina construction. In the female the surgery encompasses excision of breasts, uterus and ovaries, and may include construction of an artificial

penis. Patients are also given hormonal treatment both before and after surgery. Women find it easier to assume and be accepted as male than it is for males to adopt the female role. Women do not seem to have much trouble living a masculine life, and it appears to be more readily accepted by society than it is for males (Snaith 1990). Further, the operations of mastectomy, hysterectomy and ovariectomy are commonly performed for other conditions, and have no associated taboos.

Mate-Kole et al (1990) at the special clinic at Charing



Continued p 41 ...

Faith cures: or does it?

Kirk Straughen

Introduction

Anthropological and archaeological research has revealed that some form of faith healing the idea that disease can be supernaturally cured through prayer, rituals and faith in God occurs in most cultures, and can be traced back to antiquity when disease was thought to be caused by supernatural agencies:

Perhaps the earliest writings in medical history are found in Assyrian tablets dating from about 2500 BC. Some of these contain incantations addressed by the magician to his tribal gods; others are a direct challenge to the evil demon of disease to yield to the magician's superior powers and to depart from his victim. (J. Ehrenwald: *From Medicine Man to Freud*, page 23.)

The question is: does faith healing work, and if so, why? Many believers would probably say that such healings are miraculous in nature, and therefore beyond the realm of scientific inquiry. However, this explanation is not satisfactory for the following reasons: Firstly, if we claim that an event is a miracle, what we are saying is that no natural explanation can possibly account for the phenomenon. However, by adopting this position we automatically dismiss in advance alternative possibilities, and one of these may be the only true explanation.

For example, the ancient Greeks thought that the goddess Demeter was responsible for vegetative fecundity. However, we now know the growth and reproduction of plants is non-miraculous in nature, and this clearly demonstrates the folly of uncritically accepting supernatural explanations. Secondly, the supernatural explanation is really no explanation at all, it is instead an admission of ignorance: The ancient Greeks were ignorant of modern biology and, as a result, made recourse to supernatural explanations to account for the growth of plants. Modern believers, in a similar manner, resort to the miraculous when their knowledge of science fails them. In this article I shall address the following questions:

1. Does God exist and can It interact with the world; that is can It 'hear' and respond to prayer?
2. Is prayer or faith healing an effective means of curing disease?
3. Are faith healing cures the result of natural or supernatural causes?
4. Can belief in faith healing prove harmful?

Fraud, coincidence & placebos

Faith healing 'cures' fall into several categories.

Firstly, there are the deliberate frauds such as those perpetrated by the televangelist Peter Popoff and the Rev W. V. Grant, both of whom installed accomplices in their audience to produce "miraculous cures", and used the techniques of stage mentalists to obtain information from members of the audience. This knowledge was then passed off as a divine revelation. Secondly,

there are illnesses of a self-limiting nature such as colds, backache, etc that, even if left untreated, will heal of their own accord. Thirdly, there are illnesses of a cyclical nature, such as multiple sclerosis and even cancer, where the sufferer can experience a temporary remission, and claims of faith healing cures can arise from the coincidence of these natural occurrences. Fourthly, there are psychosomatic illnesses and symptoms of organic disease that respond to the placebo effect, which is where a patient who firmly believes in the effectiveness of a treatment may be completely healed, or experience an improvement in their condition:

The placebo response obviously plays a major role in healing ... In fact, it helps explain a wide range of otherwise mysterious phenomena. At one end of the spectrum is voodoo death, in which a person's heart may go into an irreversible arrhythmia (abnormal rhythm of the heartbeat) at the sight of a harmless object he or she has been led to believe can kill. At the other end of the spectrum are the many instances of recovery that defy medical explanation. (R. M. Restak, M D: *The Mind*, page 161.)

The success or failure of faith healing appears to depend on two factors: firstly, the nature of the illness; and secondly, the psychological state of the patient. If a patient is suffering from a psychosomatic illness and has faith in the efficacy of the healing ritual, then the more likely they are to be cured. Could the placebo effect ameliorate or even cure diseases of an organic (non-psychological) nature, and what physiological mechanisms might be responsible? I think the answer may lie in the fact that the brain and immune system can communicate with and effect each other:

New molecular and pharmacological tools have made it possible for us to identify the intricate network that exists between the immune system and the brain, a network that allows the two systems to signal each other continuously and rapidly. Chemicals produced by immune cells signal the brain, and the brain in turn sends chemical signals to restrain the immune system. These same chemical signals also effect behaviour and the response to stress ... They also help to substantiate the popularly held impression (still discounted in some medical circles) that our state of mind can influence how well we resist or recover from infectious or inflammatory diseases. (E.M. Sternberg & P.W. Gold: "The Mind-Body Interaction in Disease", p. 8 in *Mysteries of the Mind*.)

Because of this mind-body interaction, our mental state (especially stress) can effect our resistance to illness. For example, people suffering from constant stress for more than two months experience an increase in their susceptibility to the common cold. On a more positive note, women suffering from breast cancer will, if they experience considerable optimistic support during their illness, tend to live longer than those who do not have such help.

Now, if a person suffering from a serious illness goes to a faith healer, and believes they will be cured, the level of stress they are experiencing as a result of the

illness may decrease, and their psychological sense of well-being increase. The accompanying physiological changes brought about by this shift in mental attitude may boost their immune system and thereby reduce the severity of the illness or, in extremely rare cases, cure the disease.

Although faith alone has, in some cases, been able to cure psychosomatic illnesses, it is largely ineffective against diseases of an organic nature. For example, in the mid-14th century an epidemic of bubonic plague (the Black Death) swept through Europe and devastated whole communities. The first onslaught occurred in 1348-50, with several recurrences in 1358-60, 1373-75; and sporadically from 1380 to 1400. The effect of the disease on the population was devastating:

No exact figures as to mortality are possible, but according to the most recent estimates the European population in the early 15th century had been reduced by 40% from what it had been in 1346. (*Encyclopedia International*, Vol. 3, page 48.)

This epidemic occurred at a time when religious faith was the norm rather than the exception. However, despite this fact, the prayers of priests and laity alike failed to avert the horrendous death toll. By contrast, the plague would not have been as severe if modern hygiene and medicine had existed at the time.

A harmless superstition?

Some people may regard faith healing as nothing more than a harmless superstition. Sadly, this is far from the truth as the following shows:

A recent US survey of college students showed a significantly lower life expectancy for those who attended Christian Science [a religion that emphasises faith healing] schools than for those who did not. Faced by such revelations, these naive people chose to ignore reality and turn their back on further examination of their dogma. And they continue to die before their time, having rejected what medical science - an admittedly imperfect art - can and probably would do for them. Saddest of all is the realisation that these people subject their children to these restrictions as well, often with crippling or fatal results. (J. Randi: *James Randi: Psychic Investigator*, p. 72.)

Another variety of faith healing that has received much publicity, is the so called 'psychic surgery' performed in the Philippines. These healers claim to cure disease by magically inserting their hands into the bodies of their patients, and remove tumours and other diseased tissue which is claimed to be the cause of the person's illness. The techniques of these healers have been examined and exposed as nothing more than conjurers' tricks - instead of pulling rabbits out of hats, they pull fake tumours out of people.

Unfortunately, many people have been deceived by these charlatans, as I well know - the wife of a friend (I shall not mention names for the sake of privacy) was suffering from terminal cancer, and in desperation her husband took her to the Philippines in the hope that these healers would be able to cure her. The healer removed what he claimed was the tumour and, so convincing was the performance, that her husband was certain he had witnessed a miracle cure. Regrettably, as a result of her illness, his wife passed away shortly after returning to Australia, and his grief was exacerbated because of his misplaced faith in these charlatans.

I think it can be safely said that if there was any sub-

stance to any form of faith healing, then conventional medicine would have been rendered obsolete long ago. Indeed, if there are people who possess the ability to magically cure disease, then why don't they come forward and visit terminally ill patients in hospital, and heal them in the presence of doctors who could verify their cures? The fact that such wonders are conspicuous by their absence is a good indication that these abilities don't exist. Instead, what we see is unscrupulous charlatans often making money out of other people's suffering, and offering nothing but false hope in return.

Supernatural explanations

Natural explanations aside, could faith healing have a supernatural basis? Many faith healers attribute their success to the intervention of supernatural beings, however, the question is: do the gods of the world's religions exist and, if so, can they interact with the material world? I shall now address this question. There are at least three arguments that attempt to prove the existence of God, and they are as follows:

1. The Ontological argument (from the Greek word for "being" or "existence"). This argument attempts to prove that the existence of God can be deduced from the idea of God.
2. The Cosmological argument (from the Greek word for "world"). Here it is claimed that the existence of God can be inferred from the existence of the Cosmos.
3. The Teleological argument (from the Greek word for "end" or "purpose"). This argument claims that the existence of God can be inferred from the fact that the Cosmos displays order.

Do these arguments succeed? The consensus of opinion amongst philosophers who have studied them is that they do not. This lack of evidence raises the following question: if supernatural beings exist, can interact with the world of nature and desire our worship, then why would they fail to provide adequate proof of their existence, or fail to ensure their existence was self evident?

Apart from the failure of the arguments, there is still another major problem with the idea of supernatural beings - namely, the very attributes ascribed to them by believers would prevent them from interacting with the material world. Firstly, these beings, at least in Western culture, are considered to be incorporeal - they are not composed of material structures, such as atoms, or forces such as electromagnetism. Secondly, these beings are thought to be divorced from our space-time continuum.

In order to highlight the problems associated with these attributes, let us consider how a non-material being could hear prayers addressed to it. We can hear prayers because sound waves travel down the ear canal to the eardrum which is connected to three delicate bones - the malleus, incus and stapes - that form the ossicles. Sound waves cause the eardrum to vibrate and these vibrations are transmitted by the ossicles to a structure called the oval window, and from here to the fluid contained in the cochlea, a spiral-shaped organ.

The cochlea is composed of a number of canals, each consisting of three chambers - the *scala vestibuli*, the cochlea duct and the *scala tympani*. As the vibrations travel

through these structures they impinge upon the organ of Corti, which is located in the cochlea duct, and it is the microscopic hairs of the organ of Corti that convert the mechanical vibrations to electrical signals which travel via the auditory nerve to the auditory centres of the brain. Given that we need material structures to perceive sound, how could a non-material being hear anything? Sound waves would pass right through it without having any effect.

Moreover, if supernatural beings do possess the attributes ascribed to them by believers, then they could not have any effect upon the material world - they would be the products of an alien continuum that would be governed by different laws incompatible with those of our Universe, and this is the reason why they could not operate in our cosmos, nor we in theirs. If believers claim these beings are within our Universe, then they become part of the natural world, and would therefore be subject to the limitations imposed by our physical laws. Moreover, another problem arises if this case applies - we have ample proof that Mind depends on matter for its existence, and no evidence that Mind can exist independently of matter. This being the case, it seems unlikely the laws of nature would permit the existence of non-material intelligences, and therefore such beings could not exist in our Cosmos.

In my opinion, believers are in a no-win situation - if supernatural entities are extra-continuum they can't interact with our Universe; if they are in the Universe then they can't exist because the laws of nature do not permit their mode of existence.

Conclusions

1. When seeking to explain events, reason requires us to apply Occam's Razor - the least speculative theory that best fits the known facts is the one most likely to be true. At the present time there is no conclusive evidence that supernatural beings exist and, given that this is so, the natural explanations for faith healing are more likely to be true than the supernatural alternatives.

2. The ineffectiveness of faith healing has been demonstrated by the fact that it not only failed to avert the Black Death and other diseases in ages where religious faith (rather than scepticism) was the dominant world view, but continues to do so in contemporary societies where religious belief is still extremely strong.

3. That faith healing can be explained by psychological and physiological processes, tends to reinforce the conclusion that we are dealing with a natural rather than supernatural phenomenon.

4. Belief in faith healing can prove harmful and even fatal when people place their trust in it rather than the proven treatments of modern medicine. In conclusion, we can safely say that modern medicine is the only effective answer to the ills of the human race, and that faith healing is nothing more than a potentially dangerous delusion.

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... Sex from p 38

Cross Hospital in London found that the outcome of gender reassignment surgery was generally favourable. Successfully treated transsexuals are mostly self-supporting, and not a drain on society compared with unhappy people with unresolved gender problems. Though gender reassignment should remain an option, according to workers in this field the pitfalls are many, including loss of family and friends, of work, and of esteem by others. Furthermore the end results may be worse than the former state. The outcome in male to female surgery was 50% satisfied, and female to male was 80% satisfied (Snaith 1990, 1993, 1994). Post-operative psychiatric support is advisable, but many refuse this help at rehabilitation into their new gender role (Kuiper *et al* 1988).

Occasionally nature makes mistakes. Rarely a male may have an extra Y chromosome forming XYY, and resulting in 47 instead of 46 chromosomes in his body cells. This is associated with the psychiatric abnormality of aggressive personality disorder, (Bartlett 1968). These males are also unusually tall, and have a significantly higher incidence of homosexuality (Daly 1969). The XYY pattern has also been found occasionally in transsexuals (Taneja *et al* 1992). Very rarely faulty chromosomal distribution results in abnormal genital anatomy as in hermaphroditism (Money 1955). However, these rare mutations should not influence our scepticism about sex change - which is impossible.


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Linguistic reconstruction and revisionist accounts of Ancient History

Mark Newbrook

The theme of this article is the startling uniformity of approach in many of the novel claims made about ancient languages. Such claims are sometimes made for their own sake, but more often they are invoked in support of revisionist positions on early human history.

Revisionist historical claims typically assert that some geographically and temporally separated cultures, normally thought of as unconnected, were in fact closely linked. There are two main ways in which this is said to have occurred. One involves initial cultural diffusion from an earlier common source civilisation, which is itself typically unknown to mainstream scholarship (sometimes this civilisation is said to have been destroyed in a catastrophe, eg Atlantis). The other way involves later (but still ancient) contact; eg, members of one culture completed long voyages and arrived in the territory of the other, and the cultures and languages influenced each other.

The alleged empirical evidence for such diffusion or contact is varied; eg, it includes folk-historical narratives, legends and myths, interpreted as referring to the events in question, and also surviving material artefacts which are held to display significant similarities which would be unexpected in the absence of contact or common origin.

However, linguistic forms (spoken and/or written) are very commonly invoked here -whether or not they themselves are of interest to the writers in question. One can readily see why. Linguistic forms (with their meanings) appear much more specific and much more easily identifiable than most other cultural traits, and the possibility of chance similarity seems much lower. The non-specialist author thus believes that a case for a significant connection between cultures can be supported especially well through language data.

For instance, it is observed that the male name *Madoc* is common in Welsh and that the male name *Modoc* is common in Mandan (an Amerindian language). It is held that the two forms are so similar that they are very probably etymologically related; and on the basis of a limited number of individual cases of this kind it is deduced that the Welsh and the Mandans had a common ancestor culture or else experienced influential contact (not recognised by contemporary mainstream scholarship) in remote times.

Such cases are in fact much more complex and uncertain. In the early years of historical linguistics, this kind of approach was common in mainstream scholarship; but we have now been studying language change and the reconstruction of unrecorded ancestor languages for over 200 years, and we have learned that one cannot rely on superficial resemblances of form,

even when accompanied by similarity of meaning, in establishing such etymologies. In the absence of continuous textual evidence, it can be established that words are **cognates** - that they descend from a common ancestor word or root in a common ancestor language - only if they display systematic correspondences in their phonology (the structural sound-units that make them up), repeated over large numbers of word-sets.

This is because language change is largely systematic and regular. In fact, some demonstrable cognates do not even resemble each other any more, because each has undergone major, separate changes.

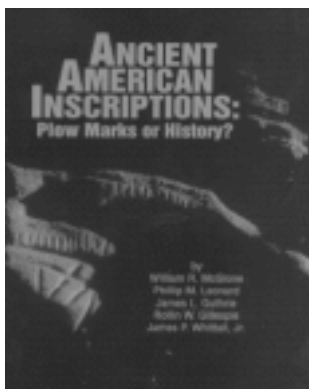
Another kind of case involves 'borrowing'; these are cases where an individual word from one language is taken over by another language in a contact situation (eg, English *restaurant*, from French). Partly because these involve interaction between two sound-systems, the changes are less predictable here; but they are still fairly systematic, not merely haphazard, and any claim that a word has the shape it has because it has been borrowed must be supported.

If we ignore these constraints, we are liable to make many errors. Most obviously, we may imagine that superficially similar words are cognates when they are in fact unrelated. For instance, we may imagine that

Latin *habere* and German *haben* are cognates; after all, they are very similar, they both mean 'have', and in this case we know independently that the languages themselves are related. But in fact these words are **not** cognate, they are unrelated, and their similarity is accidental. German *haben* does have a Latin cognate, but this is *capere* 'take', 'capture'; German(ic) words beginning with *h-* normally have Latin/Romance cognates with *c-*, as in *Hund* and *canis* 'dog', *hundert* and *centum* 'hundred', not with *h-* (because of different changes within the two language subfamilies as they diverged from Proto-Indo-European).

In the opposite direction, we are very likely to ignore genuine cognates which no longer resemble each other and which can be discovered, if at all, only by very careful analysis. For instance, we will almost certainly ignore English *cow* and *beef*, which are demonstrably cognate (one form is Germanic, one Romance) but which have long ceased to resemble each other and share only an approximate meaning. For more on this, see my article in *the Skeptic* 14:2.

We must also be careful not to place too much reliance upon **approximate** similarities of meaning between superficially similar forms. Mere relatedness of meaning is no more than an indication of **possible** cognate status. The case of *habere/haben*, where the meanings are in fact virtually identical, illustrates this well. Un-



supported speculation based on loose semantic links (or links which are valid only given certain contentious assumptions) is of little value here.

All this indicates that it is phonological systems which are decisive, not superficially similar words *per se*. In addition, genetic relationships between languages are often shown quite accurately by specific grammatical similarities. But few revisionist writers know enough linguistics to deal adequately with phonology or grammar.

It is true that some linguists on the fringes of mainstream thought have endorsed somewhat looser standards of evidence even in recent times. Swadesh and others developed the theory of 'glottochronology', which purported to allow reconstructions (and quite precise estimates of date) on the basis of large numbers of superficially similar potential cognates. The theory was rapidly undermined by contrary data, but Swadesh persisted, and towards the end of his life his proposals become truly wild. See 13) below on Marr, who was even more extreme.

More recently Ruhlen has argued that careful reconstruction is not needed in the initial task of establishing relationships and that mass comparison of such forms can take us back all the way to 'Proto-World', the ancestor (if there was **one** ancestor!) of all human languages, perhaps 100,000 years ago (though Ruhlen would date it more recently). Many fringe linguists could invoke Ruhlen as a supporter, but few seem aware of him (displaying their utter indifference to the literature; his ideas are available in a non-specialist book). Ruhlen's work has met with highly critical reviews and his ideas have not been accepted in the mainstream.

Somewhat less 'fringe' but still highly controversial is the work of Greenberg and the Nostraticists, who use a revived glottochronological approach and believe they can reconstruct a deep-time ancestor language, dated at around 10,000 years ago, as the common source of Indo-European, Semitic, Uralian, etc. Most historical linguists view the Nostratic 'paradigm' with suspicion. Specifically, Ringe has argued statistically that an alarmingly high proportion of the Nostraticists' 'cognates' could well involve chance similarity; only to a very small extent do their ideas hold up.

Some of the more sophisticated 'fringe' writers on language are aware of the Nostraticists and try to draw support from their more liberal ideas about what counts as good evidence for a claim in this area. Because the Nostraticists typically hold academic positions, 'fringe' writers can misconstrue (or misrepresent) their ideas as constituting the latest mainstream consensus.

Salient examples of the revisionist strategy are listed as 1)-16) below (this list is far from exhaustive!). As will be seen, a number of these proposals are partly motivated by nationalistic feelings, including the conviction that one's own language and culture are somehow pre-eminent and very 'old'. This is heavily implicated in at least some cases grouped under 1), 5), 8), 9), 10), 11), 12) and 14).

Some of the claims discussed are even more suspect than most, in that they repeatedly fly in the faces of **known** etymologies. This applies to some claims made under 1) below, to many made under 3), and to major elements of 6), 7), 9), 10), 11), 12), 14) and 15). In addition, in many cases (eg, 1), 3), 6), 7), 11), etc) the writers pay no attention to the positions of the various languages in their respective families with their well-established histories. All this renders many of the etymologies utterly implausible or indeed impossible. Other claims deal mainly with the remote past where the actual etymologies are uncertain, and the point here is not that those offered are known to be wrong but that there is no particular reason to accept them.

In some cases (notably in some claims made under 1) and 3) below) **multiple** etymologies with different sources are posited for the very same word. For obvious reasons, such claims are most unlikely to be correct.

1) Bekerie, Diop and other 'Afrocentrists'

On these undeservedly influential writers, see my article in *the Skeptic* 19:2. Their main linguistic 'evidence' involves their allegations that words (and loosely similar sounds) from Ancient Egyptian, Ge'ez and other widely-distributed/unrelated African languages have common origins. The intention is to argue that all African languages are really one family, possibly descended from Ancient Egyptian. Following up on the work of C19 precursors, some Afrocentrists also attribute many forms in European languages to African sources (see also below on Bernal).

Winters and others go further, 'deciphering' the genuinely mysterious Indus Valley script as Dravidian (Southern India) and linking Dravidian generally, Sumerian and even Chinese with African languages held to have been widely diffused by an early African diaspora. (As will be seen, Sumer arises repeatedly in this kind of context; it is popular because it is the earliest known civilisation and because its language - which can now be read - is genetically isolated, meaning that no related languages are known. Sitchin and other advocates of early extraterrestrial contact have advanced novel interpretations of Sumerian to suit their theses, but there is no reason to accept these. Recently Rohl in turn has offered his own nonstandard, unconvincingly loose version of Sumerian philology in support of aspects of his 'New Chronology'. I am currently looking at yet another non-standard interpretation of Sumerian and its cuneiform script, proposed by Linaker; this reinterpretation is apparently more sophisticated than the rest but it is still very strange.)

The level of the Afrocentrist writers' knowledge of linguistics itself is often very poor indeed, and they frequently ignore or reject (nonchalantly) the results of mainstream scholarship. Bernal's claims to the effect that Greek borrowed very heavily indeed from Egyptian as part of an Egyptian cultural 'invasion' of Greece are set in a more scholarly context, but these too have been generally rejected by classical scholars and Egyptologists following justifiably sharp critical reactions. Compare also 6) below.



2) Fell and the 'American Epigraphers'

Fell is the most prominent recent exponent of the claim that transatlantic and/or transpacific voyages brought representatives of many cultures to the Americas before the firmly established Norse settlements of around ten centuries ago. He and his many and varied associates (some of them professional academics) claim that the Norse penetrated deep into North America in medieval times, and, more importantly, they also identify the cultural and linguistic influence of Shang Chinese and later Chinese groups, Japanese, Indians, 'Celts' from Ireland or Wales, Egyptians, Phoenicians, other Semitic-speakers, etc, etc, and also that of Africans (some of the Afrocentrists as in 1) are again involved here, notably Van Sertima). (There are parallels here with similar claims for Australasia; see Richardson's article in *the Skeptic* 19:1). In most cases these claims involve the contentious decipherment of what are alleged to be inscriptions (on rocks etc) as being in known Old World scripts (or variants thereof) and in known Old World languages. However, the specific scripts and linguistic forms identified are sometimes rather unfamiliar, and their provenance is partly a matter of somewhat speculative reconstruction. Some claim that Mayan or other Amerindian languages have common ancestors with, eg, Semitic languages. Van Sertima and others also allege that there are borrowings into Olmec, Mayan etc from West African languages. Others have asserted that some Mesoamerican languages are in fact varieties of Japanese associated with permanent settlement in remote times. (In reverse, Smithana proposes that various Amerindian languages are the sources of many Japanese words, through early, unrecognised voyages between Japan and North America.) Still other claims surround allegedly mysterious scripts such as the 'hieroglyphs' used to write Micmac. There is a vast literature on all this. Some of it is much more scholarly than Fell's material and a few cases could conceivably have some validity. On the other hand, a great deal of the work is quite amateurish, and the evidence for most of these claims is flimsy to say the least. The main academic linguist associated with this tradition, Gordon, is generally agreed to have abandoned scholarly caution late in his life.

3) The 'Saturnists' and other neo-Velikovskians

There is an entire small world of non-mainstream scholarship based on the works of Velikovsky. Velikovsky was a self-taught writer on astronomy, mythology and history; his main claims (some of them reminiscent of C19/early C20 claims about Atlantis etc; see 5) below) involved recent major-planet catastrophes in the inner Solar System (during recorded history) and associated major revisions to the accepted chronology of the ancient Near/Middle East. The most prominent contemporary manifestation of neo-Velikovskianism is 'Saturnism', the view that Earth and other rocky planets orbited Saturn before catastrophic restructuring of the system a few millennia ago. The main Saturnist

journal is *Aeon*, but they have their own 'lunatic fringe' with even wilder ideas! Some Saturnists, notably Talbott (the author of the key book in this tradition), place much emphasis upon the similarity and alleged common origin of words in many apparently unrelated languages, which in their view relate to myths and motifs associated with cultural 'memories' of the earlier configuration and the ensuing cataclysm. Most of the Saturnists show little detailed knowledge of linguistics, but one of the *Aeon* committee is in fact a retired academic linguist (a Nostraticist) and two other linguists are currently becoming involved.

4) Temple on the Dogon and similar claims about extraterrestrial contact

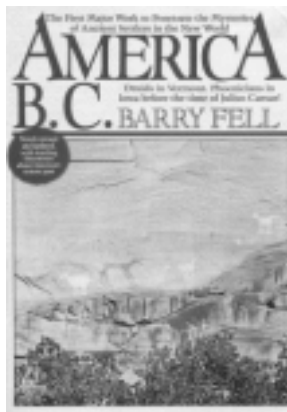
See the article by Newbrook & Groves in *the Skeptic* 19:4. Temple adopts the same kind of approach and simply does not know enough linguistics (though he clearly thinks that he does; he advances a novel theory on a quite technical issue, displaying his utter confusion in the process!). Most other writers of this type know even less.

5) Atlantis and other 'lost' continents/civilisations

Many of the less scholarly advocates of Atlantis and other 'lost' continents or local civilisations also adopt this approach, attempting to link various unrelated languages as part of a diffusionist account of the aftermath of a catastrophe. In a few cases (eg, that of the scientists Ryan & Pittman, advocating the possible sudden flooding of the Black Sea a few thousand years ago) there is a somewhat stronger case (academic linguists have helped Ryan & Pittman), but usually the level of linguistic scholarship is very low and the same C18 methods are adopted. One example involves dos Santos' claim (supported with a little more care than some employ) that Guanche (Canary Is.) is related to Dravidian; this claim is linked to a fairly traditional Atlantic model for Atlantis. Compare also 9) below.

A rival to Atlantis is 'Atland', located in the North Sea; the history of this 'lost' land is given in the *Oera Linda Book*, a Frisian work which appears to be a nationalistically motivated forgery. Supportive commentators on this work identify many 'cognates' involving Frisian and various languages of the ancient world.

In some cases there is inscriptional 'evidence' of the 'lost' civilisation. This sometimes appears to have been forged; eg, the tablets found at what some still regard as a genuinely mysterious site at Glouzel in France (the markings do not pattern like genuine texts in a natural language). In other cases no authoritative decipherment exists; eg, the 'Old European Script' which Gimbutas, Rudgley and others associate with a 'lost' Stone Age civilisation, possibly a matriarchy (again, it is not even clear that these markings really represent a script as such). I will comment separately on 'decipherments' of mysterious but clearly linguistic material such as the Phaistos Disk (note also the undeciphered Indus Valley script, Linear A, the Eastern Island tablets, the Voynich Manuscript, etc).



In another vein, the Flem-Aths, who believe that Atlantis was in Antarctica and that the Atlantean refugees arrived first in South America, endorse some extreme and unjustifiable claims about the structure of the Andean language Aymara which are associated with the idea that it is of Atlantean origin.

6) Hallet on pygmies

One of the theories of Hallet, the maverick Belgian explorer of Africa, was that the Ituri pygmies of the Congo region, notably the speakers of Efe, represent the original human population. This is reflected in their lore, which includes all the basic motifs of myth and religion, and in the Efe language, from which large elements of Egyptian, Hebrew and many Indo-European languages can be derived. The methodology is again the same: comparison of isolated forms which are superficially similar. (Others, such as King, have made other wild claims about the pygmies.)

7) Reinterpretations of the Bible

Like Salibi, Wilkens etc more recently, Daunt, writing in the 1920s, claimed that the scene of key events in ancient history (in this case the central narratives of the Old Testament) was not in fact the obvious location as normally interpreted (in this case Palestine) but some other quite distant location. Daunt placed the Biblical events further east, especially in India, equating Biblical characters with figures from the history and myth of that region. He supported these claims with linguistic equations of the usual kind, involving superficial similarities between isolated words. Another non-standard approach to Biblical languages is that of the British Israelites, who implausibly proclaim linguistic connections between Hebrew, on the one hand, and both English and Welsh, on the other.

8) Basque and Etruscan

Alonso and others have claimed that the contemporary isolated language Basque is related to an ancient, poorly understood isolated language, Etruscan. This is in no way impossible, but the evidence offered here is at the usual inadequate level. (Compare earlier C20 attempts to relate Basque to the Cretan Linear scripts; see my paper on the Phaistos Disk for details.) Associated with these ideas are attempts by Khvevelidze and others to link Basque with Caucasian, a language group which shares some general typological features with Basque but is not otherwise similar to it.

9) Hungarian as the ancestor language

Simon, a Hungarian author, argues for a wide-reaching version of the Atlantis story (see 5) above) incorporating Noah's Ark and tracing as much as possible back to a Hungarian-using civilisation in the remote past which was linked culturally and linguistically with Sumer and other civilisations in both the Old World and the New. The linguistics does not loom so large here, but where it does appear it is on much the same level as that of Temple, although Simon also works on his own computerised lexically-based dialect atlas of Hungary and

does seem to know something of the more traditional branches of the subject. Simon's work also links in with that of the American epigraphists; along with some other Hungarian enthusiasts, he accepts a Hungarian version of the Norse 'Vinland Map'. Most scholars consider that the Hungarian map is probably a recently forged special version (of a map which itself may very well be a forgery).

10) Hungarian as close to the ancestor language

Vomos-Toth, a second Hungarian writer, has developed a rival view of Hungarian as close to the ultimate ancestor language. Drawing off Lahovary and others, as well as his own investigations, he believes that Hungarian retains many features of a language called Tamana used universally before a catastrophe several thousand years ago (compare 3), 5) above); cognates also appear in Dravidian, Sumerian and African languages. The methodology for reconstruction is again on the same level.

11) Latvian as the ancestor language

Kaulins, a Latvian author, has been claiming since 1977 that Latvian is the oldest known language (and has therefore been remarkably static over a long period). He supports his claims with analyses of cultural manifestations and of blood-group distribution (there is actually a serious tradition of work in this latter area, which has produced some very thought-provoking results). However, Kaulins' main evidence is, naturally, linguistic. Unlike most writers discussed here, he knows enough linguistics to recognise his situation with respect to the mainstream, and he thus explicitly rejects rather than ignores contemporary ideas on the adequacy of evidence (compare Ruhlen). On this basis, Kaulins

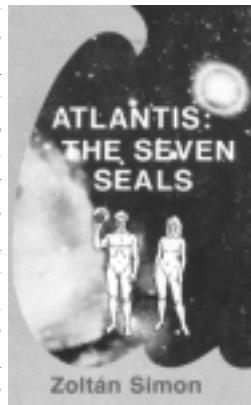
identifies many words in Ancient Egyptian, Greek, Sumerian etc as corruptions or (later) cognates of Latvian words. Naturally, he also rejects the mainstream view that Latvian has a mixed structure because of influential contact with Finno-Ugric and is the *least* conservative of Baltic languages.

12) Turkish as the ancestor language

In the 1920s, the new republican regime in Turkey tried to persuade Turks that their language was the ancestor of all human languages. This was partly a political move, made with a view to persuading conservative Turks to accept borrowed words for innovations (if all words were originally Turkish, it was surely legitimate for Turkish to 'reclaim' them); but nationalistic ideas were again a factor here. The linguistic evidence is of the same kind.

13) Nicolas Marr

Marr was a Soviet-era linguist whose Marxist-based ideas about language change became more and more 'fringe' in nature but were endorsed by Stalin, which protected him from criticism (a linguistic Lysenko). Eventually he came to hold (on less than persuasive grounds of the usual kind) that **all** words in **all** languages derived ultimately from the four syllables *sal*,



ber, yon and rosh in combination. After his death his ideas continued in favour in the USSR for 16 years until Stalin himself finally pointed out some unrelated inconsistencies in his theories.

14) Ior Bock, 'onomatology', etc

A more down-to-earth version of Marr is Ior Bock the Finnish sperm-drinker, who manages the 'Lemminkainen Temple' near Helsinki and claims that his family possesses a tradition of 'the oldest language in the world', known as *Rot* (pronounced like English *root*); this unwritten and allegedly unwritable language (naturally spoken in Finland!) is based on a 'ring' of 23 'sounds' (mainly syllables), each with a specific meaning, which combined in many different ways in the remote past to form all human languages. The resemblances are often very approximate indeed, and the derivations are typically far-fetched and naturally in conflict with those generally accepted.

A roughly similar claim, promoted by Alferink, involves new etymologies for modern words such as *Australia*, which are held to be constructed out of basic, allegedly ancient syllables or other short sequences; these have somehow retained fixed meanings (obscure to modern scholars and the general public) over long periods. Yet another, somewhat ludicrous proposal is that of Hietbrink, who believes that many words and phrases in a variety of languages are corruptions of expressions in (Modern) Dutch! Shaver's 'Mantong', published by Palmer in *Amazing Stories* as part of the 1940s 'dero' cycle, was again rather similar, although here the original language, like that of Ior Bock, was mysterious.

The advocates of such ideas often use the term *onomatology* to refer to their methods and results. I recently saw a large display in a central Melbourne street, attacking Freemasonry and featuring some very far-fetched 'onomastic' equations of haphazardly-selected parts of names etc with other very loosely similar words, to suit the promoter's case.

A slightly (but only slightly!) more sophisticated version of this kind of idea was developed by Cohane in his 1969 book *The Key*. This work focuses on Ireland and Gaelic, and also involves a great deal of very loose philology of the more usual type as discussed in earlier sections of this paper. (There has in fact been a string of works promoting Ireland as a major unrecognised centre of early civilisation or even as the remains of Atlantis.)

15) Mayan, Greek and Aramaic

A 1993 article in the creationist journal *Creation Ex Nihilo* exemplifies the real 'lunatic fringe' in the area represented by 13) and 14). Taking as its source Ripley's *Believe It Or Not* (!), it rehearses the claim that the Greek alphabet, as normally recited, is really a poem in Mayan! In charity, I will not comment on such a claim. Of course, Le Plongeon claimed a century ago that Jesus spoke Mayan on his cross, not Aramaic, and Mayan and the Maya are still very popular among fringe thinkers.

16) Another case in Australia

An intriguing Victorian case not yet available in print or on-line (mainly focused on links between the 'Celts'

and Egypt and on alleged early visits to Australia; see again Richardson) involves the owner of the Bowerbird's Nest Museum outside Heywood near Portland, a most unusual institution which Skeptics visiting the area should tour.

It will be seen from the above that the general nature of the main problem with the linguistic aspects of these theories/claims is very much the same. The authors, relying largely on 'common sense' examination of superficial similarities and knowing little or nothing of historical linguistics itself, are 'stuck' in C18; they are not even failing to re-invent the 'wheel' of careful comparative reconstruction, because they have not seen that this 'wheel' is necessary, and because the 'easy' method of relying on superficial similarities can readily be applied in such a way as to 'support' their nationalistic ideas or their revisionist histories. Being isolated, private workers or small groups of the like-minded, each with a conviction that they alone are right, they do not talk to each other, and so they do not observe that the same unreliable methods 'work' more or less equally well for all of their mutually contradictory claims. One can persuade oneself, using such methods, that **any** two languages are related; linguists faced with such ideas have occasionally done just this (eg, for Mayan and English), as a tour-de-force. Even when linguists do make a supportive contribution, they are mainly those who are themselves on the 'fringe' of academic scholarship; if they were not, they would scarcely be involved in such ideas.

But in some areas there is hope! I referred above to the occasional involvement of mainstream linguists in commenting on such views; and I myself am now being used by the Saturnists, as a consultant to *Aeon*! They know very well what my own views are, and they have their own 'pet' linguists already; but they seem to have some respect for my expertise and say they intend to try to take my criticisms on board. Of course, I will not induce them to abandon Saturnism; the linguistic nonsense (for so it is) is only a small part of their system of ideas. But perhaps, with my (to them, novel) criticisms, I will be able to show them why their method of finding linguistic connections around the world is as dangerous as it is; and just maybe, if they fail to defend this method even to their own satisfaction, they **may** even give it up and rely only on non-linguistic evidence. Specialists in other disciplines can then chip away further at that, if so motivated. And at the very least I am learning more about these dark outer regions of the world of linguistics.

References

Here follow some key references which are (fairly) readily available, ie recent books (in English) rather than papers in fringe or scholarly journals. The works listed are of a fringe nature except where marked [S] (skeptical) or [C] (controversial work by mainstream or near-mainstream linguists or other scholars). The views of some other recent authors (eg, Talbott and the other Saturnists with their journal *Aeon*, Vomos-Toth,

Continued p 47 ...

What's in a name?

Sir Jim R Wallaby

What is it about me that encourages inanimate objects to want to correspond with me? I am forever getting letters from "The Desk" of assorted people, at meetings I am invited to ask questions through The Chair, and just recently I found that I had been selected by "The Office of the Managing Director" to be included in a Who's Who of "highly respected professionals in your field of expertise". All at no cost to me, of course.

Now, while this Office seems to be fairly perceptive in its judgement of character, it appears to be at a loss when it comes down to what my field of expertise really is. It asks some questions about "Your Business", "Type of Organisation", "Your Business Expertise" and "Major Product Line" and, just in case I am unaware of just what it is I am highly respected for, it offers some handy suggestions for each category. I am tempted to respond by claiming my business is Banking, expertise in Nuclear Physics with a major product line in Snack Foods, just to see what the Office makes of that combination. Perhaps it will call on the advice of The Laboratory of the Chief Scientist. Why don't I ever get invitations from The Boudoir of Ms Fifi LaRue?

While we are considering the curiosities of the world, has anyone ever wondered how one acquires certain honorific classifications? We are all aware that the term "celebrity" applies to anyone who is famous for being famous, but, during the recent visit of our head of state to these shores, my attention was drawn to a curiosity. Her Majesty was met at a certain function by "dignitaries". How does one become a dignitary? Are there examinations to be passed, forms to be filled, money to be passed across? Is there some department of state to which one makes application? "I would like to become a dignitary. Please forward me the requisite application forms at your earliest convenience and advise me of the cost (plus GST)." Do dignitaries, like Masons, have a secret handshake?

Apropos of which, at what stage of history did someone decide that monarchs were majestic? And what would happen if His Catholic Majesty, the King of Spain, lost his faith and became an atheist? Or a Methodist? Or if the head of state of Monaco suffered from anxiety? Would he no longer be His Serene Highness? And are all highnesses necessarily tall?

Who decided that all bishops and dukes must be graceful - what happens to those who are clumsy? Why should we worship magistrates but merely honour judges? Or mayors come to that? Is a deputy mayor addressed as "Your semi-worship"? Are presidents and ambassadors all necessarily excellent? If so, where does this leave Vice Presidents and Deputy Chiefs of Mission? "Your Very Goodness"?

It's all very well for the Pope to be His Holiness; it would seem to be a *sine qua non* for the job (though there have been many to whom the honorific would appear to have been optimistic) but that aside, how come there

is no Vice Pope? And if there were, would he be His Quite Holiness? For that matter, why are all cardinals considered to be eminent - I've never heard of most of them. Come to think of it, why should we revere men of the cloth? What is it about cloth that confers this reverence? Would a parson dressed in animal skins not be so entitled?

While we would all agree that all politicians are Honourable, by what right are some of them Right Honourable? How does this apply to those whose politics are of the left? Is this discrimination in action? And does it apply to the sometime Justice Minister of NSW, Thomas Ley, who is widely believed to have murdered an opposing candidate during an election campaign, and who did murder someone else in England?

Perhaps we should get into this game and pass around a few honorifics of our own. How do His Inquitiveness the Chief Investigator or His Tyop the Edditor of *the Skectip* sound?



... Linguistics from p 46

Kaulins, etc) are available mainly on web-sites; a web-search will locate them.

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Some truth - at last

Barry Williams

Giza: The Truth; Ian Lawton & Chris Ogilvie-Herald; Virgin Publishing, London, 1999.

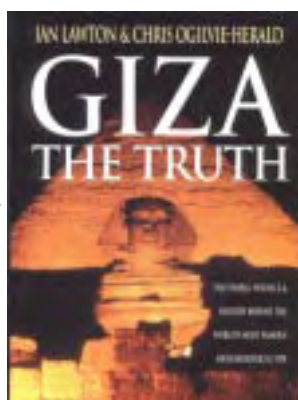
For anyone who is interested in Ancient History, and particularly Ancient Egyptian History, a visit to a bookshop can be an angst-ridden experience. We are constantly being assaulted by glossy volumes sporting pictures of the Great Sphinx or the Giza Pyramids, each promising to reveal "The Truth" about that fascinating ancient civilisation, and each written by someone with no discernible expertise in any of the disciplines which could reasonably be expected to inform the debate. These books are invariably poorly researched, often poorly written, usually badly argued and (regrettably) frequently bought with an avidity surpassed only by the devotees of the admirable *Harry Potter* children's fantasies.

There exists a sort of twisted hierarchy of ancient civilisations among fringe dwellers' Egypt is at the pinnacle, but this is especially dominated by the complex found on the Giza plateau (the Valley of the Kings, arguably a far more important historical site, invites far fewer odd claims). This is followed by the various meso- and South American cultures, while those of India, Cambodia, other parts of Asia and the Middle East are often relegated to footnotes. Easter Island, with its massive head sculptures seems to have a special niche. It would be an interesting psychological study to find out why this is the case, and to discover what role the pyramid shape plays in driving fantastic imagery.

Readers can barely imagine the trepidation with which I selected the subject volume for a cursory browse. It seemed to exhibit all the danger signs - Sphinx and Pyramid on the cover; "The Truth" as part of the title; authors unknown. My bullshit detector should have been screaming at peak volume, and disturbing the other browsers in Abbey's estimable bookshop. Perhaps there really is some destiny that shapes our ends, or perhaps the very fact that the author's names were completely unknown to me (no Hancock, no Bauval, no Alford, none of the usual sub-daniken suspects), but something made me buy it and I am glad that I did.

This book is very different from all the pseudo-archaeology around for very good reason. The authors, like all those who write the best selling volumes of obscurantist twaddle, are not skilled in the necessary disciplines, and they clearly would like to believe that there are mysteries beyond those that traditional historians and archaeologists have revealed about Egypt, but they are honest reporters and they speak of what they find and not what they would like to find. They are Skeptics, in fact.

There is little new in this book about the great mysteries of Egypt; what there is a great deal of useful information as encompassed by the sub-title: "The people, politics and history behind the world's most famous archaeological site". As the authors are well versed in, and from their tone might be assumed to be somewhat sympathetic to, the claims made on the Egyptological fringes, and as they know personally many of the people involved, they are well placed to deal with the



politics and personalities of the inhabitants of the "alternative" scene. And they pull no punches. They are extremely caustic about the contributions made by Zecharia Sitchin, regarded by many fringe dwellers as the acme of scholarly investigators. They demolish some of his more pretentious claims in meticulous detail. For example, Sitchin has claimed, and many other fringe authors have accepted without question, that builder's graffiti found in the Great Pyramid indicating that it was indeed a structure built for the king Khufu, is a forgery perpetrated during 19th Century exploration. This claim is examined and shown to be entirely unsupported by either documentary or physical evidence, and indeed to be physically impossible.

The book examines in detail the bizarre personalities and Byzantine politics displayed by the denizens of the archaeological fringe; the incestuous temporary alliances, the bitter fallings-out over matters of doctrinal purity; the accusations of plagiarism and worse. Above all, it maps the egos that drive the community of self-described "alternative Egyptologists". One cannot help but feel that this community engages in the sort of ideology and ego driven brawls that characterise extremist political movements rather than the polite disputation of scholarly debate.

The authors investigate the airy claims of the "alternatives", measure them against the more sober analyses of the professionals, and in almost every case, come down in favour of the latter. But they are not completely won over to the side of scientific objectivity. In the middle of the book they allow themselves to entertain the possibility that some form of "sonic energy" could have been used as an assistance in lifting heavy pieces of masonry, but as neither of them is a physicist and as the book is otherwise excellent in doing what it does in exposing pseudoscientific fantasy, they can be forgiven for this lapse.

This book is a must-read for anyone who is interested in one of the earliest major civilisations our species established, and who regard informed scholarship as the *sine qua non* for discovering things about our past; or for those who believe that fantasy more properly belongs among the many amusements we have devised for our entertainment.

NWO, so what's the problem?

Bob Nixon

I've mentioned the New World Order in these pages previously. It's the mother of all conspiracy theories. The Kennedy assassination, the Gulf War, the importation and sale of illegal drugs, loonies who go nuts with guns. At some point, when you read the stuff I read and talk to the people I talk to you'll find a connection between all these things and the NWO.

We're all doomed either to fight the attempted takeover or submit to the onslaught. The NWO seeks to control everything, and in fact behind the scenes they're already at it. It's Jewish bankers, mainly, but the Rhodes Scholars are in on it too. Bob Hawke runs this place, for example. Your standard Freemason isn't in on the deal, but the Grand Wizard or Fourth Dan or whatever the bosses call themselves most certainly are. NWO operatives are everywhere, and we cannot escape their influence. The NWO runs the government, all of them, the military, the intelligence agencies, the corporations, you name it, if there's a connection with something moderately suspicious, or something that can be made to sound suspicious, it's a dead certainty that the New World Order has a hand in it. In the past century they've engineered wars, manipulated the global economy and fiddled with the social order.

These guys are organised. It seems to me that if we want some efficiency in our lives these are the boys we need pulling the levers. Since the days of the crusades these faceless men have been driving their ever expanding empire, and all without any of we ordinaries catching on. Only in the last decade or so has the truth behind their evil deeds been made available to us by those intrepid and fearless journals of the alternative media. We're dealing here with an organisational capacity unrivalled in human history. While the rest of us have been fiddling around the edges with elections and petty attempts to better our lot, these guys have doing the business.

Do you see where I'm going with this? I'm as skeptical as anyone that there is such an entity as the NWO, the difference is that I want there to be. The theory goes that the evil empire, when it reveals itself, will enslave we poor buggers in the trenches and make us do their evil deeds. That ignores their organisational ability. There are six billion people in the world, give or take. I can't see how they'll need all of us to be their willing slaves on any given day. There'll be some sort of roster system, I expect. They'll do it by landmass, I think (no countries when the NWO takes over, of course). On our landmass we might have Sydneysiders at the ends of the strings on a Monday afternoon, with Melburnians willingly touching their toes every second Wednesday. Now look, call me Quisling, but I'll happily break rocks for a living if I'm working a one-day fortnight. Perhaps this New World Order thing is simply about a life-style choice.

And what would they have us doing? Breaking rocks can't be right because where's the gain for a banker? (We've dropped the Jewish of course, because all religions as we know them are just part of the plot and can now be ignored). A banker understands money, he understands that if he is to advance we must all advance. How can he maintain his wicked ambitions if we're not forced to create additional wealth for him to take? How can he enjoy that wealth if we're not making Rolls Royce chariots for him? The building industry is vital to create his palaces; the food preparation gurus must cook his meals.

Then you've got your armies, the men with the guns the rest of us should have had until the NWO took them off us. Why do we need armies? By this time we've got a One-World Government. The only function of the men in green would be to keep the rest of us in line. No problem, I'll stay in line and we can ditch the army, more people to help with the rock breaking, I suppose. More significantly we'll have lots and lots of money that used to be used to build bigger and better weapons to aim at the poor buggers on the other side of the wire who, when the NOW takes over, will be in the same ditch as the rest of us.

Maybe what this world needs is a dose of One World Government, not the United Nations of course, they're only a front anyway. I mean a proper government, one that can tell us what we need to know and keep from us all those things we don't need to know. At the moment the decision about what is and is not public knowledge depends on the current political colour of a ruling party or the whim of a dictator. Much easier, and less confusing, if the board decides at its Wednesday afternoon meeting and issues a press release in time for the morning paper.

It's the same with the economy. At the moment we've got highly skilled, well educated economists who can't agree among themselves and have the track record of your average astrologer. All those economic levers would be consolidated into one, albeit very large, joystick. At the tiller would be an experienced banker. This guy would have total control over the way the economy works, or doesn't work. The point is we'll have someone to blame and the mechanism to do something about it if the place goes splat.

Now don't be afraid. There will undoubtedly be a small disruption to some aspects of your daily life during the transition phase. The troops will be on the streets for only a few weeks while the new regime is installed and dead wood is weeded out of the system. You may find the police are a little more abrupt than usual, but if you do as you're told you can be assured that those are only warning shots. Minor difficulties will be experienced in the areas of radio and television broadcasting, but be assured that once you have been shown the faces

The rise and rise of a web site

John Stear

In all of these efforts, [to promote creationism in schools] the creationists make abundant use of a simple tactic: They lie. They lie continually, they lie prodigiously, and they lie because they must.

William J. Bennetta, president of The Textbook League

My anti creationist web site, *No Answers in Genesis!*, was conceived around July 1998. I was discouraged from setting up the web site by some Skeptics who, not necessarily in hindsight, should have known better. However our esteemed editor and some other Skeptics urged me to go ahead and launch, so I proceeded.

The first inclination was to create a mirror site to the highly successful creationist site *Answers in Genesis*. For obvious reasons I planned to call it *No Answers in Genesis!* *Answers in Genesis* (AiG) has massive financial backing and as a result, hosts an extremely professional web site. In my naivete I thought it would be simple to set up a "mirror" site - one that would refute, on a regular basis, the outlandish claims promulgated across the world wide web by *Answers in Genesis* and, as a spin off, refute some of the (mis)information promulgated on other similarly oriented sites on the Internet.

This initial enthusiasm was misdirected. In order to properly refute, on a regular basis, the absurd claims of AiG, I needed the co-operation of a number of the many scientists working in relevant disciplines in Australia (I had hoped that my proposed web site would consist of predominantly Australian content, that is, the contributions would be mostly provided by Australian scientists). As it has turned out, there is much Australian content on NAG! Scientists of the stature of Colin Groves, Ian Plimer, Mike Archer, Alex Ritchie, Ken Smith, Michael Creech, Margaret Kittson, Jim Foley, not to mention the redoubtable Sir Jim R. Wallaby (whoever he might be!) have all contributed to NAG! But, like serious scientists the world over, they are not necessarily able to contribute at the drop of a hat, which is what would be required.

Nevertheless, I took the plunge and NAG! was launched on 30 September 1998. I was not confident that, among the plethora of anti creationism web sites out there in cyberspace, my humble effort would really attract more than a few visitors, or indeed, have any

appreciable success in combating the creationist scourge. As it has turned out, it has attracted many more web surfers than I had anticipated.

NAG! has now been on line for more than two years and, as I write, the number counter has ticked over to 56,159 visits. As has often been said, the number of visits a web site receives doesn't necessarily indicate the success that site is having in imparting its message to others. However, I have no doubt that NAG! is competing favourably with other anti-creationist sites. Children can rarely make wise choices about their education - informed parents can, and I believe that the most effective way to combat creationism is to educate parents. If NAG! has given even one mum or dad pause for thought about their child's education then it will have fulfilled its purpose.

Having said that let me blow my own trumpet for a moment and report that on April 11 two American media web sites featured a story on the Australian Director of the US branch office of AiG, Ken Ham (as has been mentioned in *the Skeptic* before, we appear to have developed a trade surplus in irrationality with the USA) and the new Creationist Dinosaur Museum in Boone County, Kentucky. I quote from the article:

The war [science/creationism] also rages on the Internet, where the *No Answers In Genesis!* Web site denounces the *Answers In Genesis* site.

The article included links to the following web sites: *Answers In Genesis*; *No Answers In Genesis!*; *Center for Scientific Creation*; *National Center for Science Education*; *Science and Creationism*.

Following the posting of this article to the 'net, visits to NAG! increased more than threefold. On one day I received 589 visits. The usual is about 100-150. The numbers are continuing at about the 250 level which are close to double the norm.

I'm a member of an anti creationism e-mail group and recently an American member noted the following:

John Stear's NAG web site has been growing rapidly, and is probably the 2nd biggest anti-creationist site.

The biggest is, of course, is the *Talk.Origins Archive*.

Naturally I am gratified that my web site has progressed from its humble beginning in September 1998 to being what I believe is Australian Skeptics' most formidable weapon against creationism. But, as in all things skeptical, complacency can be dangerous and the fight against pseudoscience is far from won. I may not see the victory of rationalism over irrationalism but I'm extremely proud that *No Answers in Genesis!* is at least contributing in no small measure to combating the increasingly pervasive humbug of creationism.

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and heard the voices of the ruling elite every day for three weeks normal services will resume.

In short, I want to assure all of you that there is nothing to fear. I'd also like to point at, to any members of the NWO who may be reading this, that you have my full support. Any chance I could be Governor of a city somewhere nice?

Shedding light on a forgotten pioneer

Rob Hardy

Scientist, Soldier, Statesman, Spy: Count Rumford: The Extraordinary Life of a Scientific Genius; G. I. Brown; Sutton Publishing, Ltd.

I can conceive of no delight like that of detecting and calling forth into action the hidden forces of nature.

So wrote Count Rumford in 1797. There are few scientists who can claim to have done as much of both detecting and putting into action nature's forces, and yet Rumford, though he may be remembered as a researcher who put forward our understanding of heat, is remembered for little else.

The title of a new biography itself will hint how much else is forgotten. It is a brisk and lively overview of an overlooked star. Count Rumford was born, not to a hereditary title, but as Benjamin Thompson, on a farm in Massachusetts. His schooling was fair, but was far more eager to be tinkering with gadgets than doing his studies or helping on the farm. His first job as a shop boy was a failure; he was too busy using the shop's inventory to make machines, or reading a book on science, to take orders from customers. His tenacity for self-education and self-reform is reminiscent of the inspirations of the young Ben Franklin. He eventually found a calling in teaching the families of rich colonial folk, until he married a rich widow. Ingratiating himself into the military, he was quickly promoted to major. He was on the British side during the Revolution, and was evacuated from Boston after giving various intelligence to the British forces. He never saw his wife again and never inquired about her until he wanted to remarry thirty years later. Moving to London, he was involved in trying to help settle loyalist refugees. But he really went to work experimenting with gunpowder. There was a view at the time that moist gunpowder was more powerful because it would produce steam; Thompson proved experimentally that it was best to keep your powder dry. He developed a free-swinging pendulum target which would register the force of the bullet that hit it; ballistic pendulums are still used today.

With the war over, Thompson decided that soldiering would be the best way for him to gain his fortune. By good luck and contacts, he was appointed as a Colonel in Bavaria; the British government allowed this because it was promoting Bavarian relations at the time, and it could use intelligence reports from the area. He was made a count, and was essentially in charge of the Bavarian army. Various humane treatments to improve the soldier's lot are credited to him. He researched nutrition in order to feed the troops more efficiently, and did experiments to find out what clothing was best for uniforms. He developed a special thermometer for experiments that would test the heat conductivity of different cloths, and found that fluffy materials like wool

or eiderdown were better at retaining heat than tightly woven cotton or silk.

Uniforms were reformed, but the manufacturers didn't want the changes. Rumford's bold plan for overcoming this opposition was to round up all the beggars, a blight on Bavaria at the time, and put them to work in the workhouse. He ensured that the beggars were employed, but insisted that they had to be made comfortable and happy before they could be made virtuous. It was a social experiment that was enormously successful.

Part of Rumford's duties took him to Munich to supervise the cannon foundry, where he was to do his most famous work. He saw that the boring machines which drilled the holes in the cannon shafts produced enormous amounts of heat. He determined to investigate this process, and in so doing resolved one of the great scientific problems of his time. No one knew what heat was. Some said it was the motion of particles within matter, and some said it was a mysterious fluid called caloric that flowed into matter to heat it, and out when matter cooled.

Rumford made special equipment to measure the heat produced in the boring operation, boiling water with no fire. Heat was produced by friction, that is, motion. He also weighed bodies before and after heating them; if they were charged with caloric, they ought to weigh more when hot, but as this did not happen, he knew he had given a body blow to the caloric hypothesis. He was able to get a value that showed how much work yielded how much heat, and though it was inaccurate, it was the starting point for refinements by Joule in the future.

Rumford studied light as well. He developed a photometer, and with it he was able to measure the brightness and efficiency of the artificial lighting of the day. His studies led him to modify the wicks, oil reservoirs, and lampshades to make the Rumford Lamp. He redesigned fireplaces and chimneys, demonstrating that the standard straight-shot chimney of the day caused turbulent flows and was liable to downdrafts. Narrowing the entry from the fireplace to the chimney shaft, he made the fireplace more shallow to improve heat dispersion into a room. He invented the damper. He developed a new form of cooking range, something like the stoves we have today, known as the Rumford Roaster; cooking meat could now be done efficiently in an enclosed space instead of turning on a spit over an open flame. He did not take patents on his inventions. His greatest bequest to posterity was the Royal Institution, whose laboratories and lectures made London a scientific centre.

Rumford was a lively and sociable man. He had plenty of affairs with women in many countries, but

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rule, and as will now be demonstrated, underscores the hypothesis's untestability.

Methodological objections

Scientists involved in the search for extraterrestrials have generally adopted a 'nuts and bolts' attitude, a kind of agnosticism regarding the Fermi Paradox. 'Let's not worry about why the aliens aren't here. Let's build instruments capable of uncovering them in their natural habitat. A pragmatic approach at least offers the chance of success'. And success would be important. (Shostak 1998, 137)

These are the words of a leading light in the pro-SETI camp, and they betray a philosophical naivete underpinning his work. Certainly, microelectronics researchers don't get hung up on the presently insoluble question of why the universe obeys quantum rules. Instead, they get on with their work and the sum total of knowledge is increased as a result. It's okay not to know it all, but your hypothesis should give you new insights. What will now be demonstrated is that SETI has proved itself to be incapable of fulfilling that criterion.

Since the 1959 Morrison-Cocconi paper in *Nature*, in which a practical interstellar communication method was described, the science of SETI has focused on the development of newer and more sensitive pieces of equipment (Drake & Sobel 1997, 31). Lagging far behind was the SETI hypothesis itself. It remains in serious need of revision or more logically, rejection. At its heart is the fatal bias of self selection, of wanting to see something that patently is not on view. If intelligent alien life is broadcasting to the stars, how would SETI teams ever know?

It is supposed that ET will probably focus on the 21-centimetre wavelength of hydrogen, because that is a pretty quiet and cosmically significant band to transmit on (Shostak 1998, 151). It is further supposed that our machines are sufficiently sophisticated to be able to detect a signal originating from an extraterrestrial civilization (Drake in Yervant & Terzian 1997, 93-5). Moreover, it is considered that such aliens will probably make it easy for us, because they will be sending messages to anyone who can receive and in a language that any other species could decode (Shostak 1998, 194).

Surely this is far too many 'ifs' for rational comfort? Given how much uncertainty is fundamentally imbued with the practice of SETI, does it seem at all reasonable to scan the entire universe for ... what? Signals that the machine's designers think fit a subjective model of artificiality. Signals that, given the vastness of space, the many different modes of interstellar communication other than radio, and the astounding gulf assured to exist between human and alien biology and culture, may be too subtle to detect, understand or be useful. Signals that may well be no more than a misidentification of an unexpected or unknown astrophysical phenomena. Signals that, in light of Fermi's observation and the conflicting evidence from terrestrial biology, almost certainly aren't there to be found.

Is the existence of alien signals - which will undoubtedly be quite contentious to identify - worth spending

decades or even centuries in searching? Can the outcome of that indication be of so great importance when the oft-touted payoffs of new scientific knowledge and wisdom can be brought into being by humans acting directly to bring them about? (Davies 1995, 36)

Is SETI worth the time, effort and resources to transform it from backyard irrationality to international priority? SETI takes a very useful tool for understanding the cosmos - the radio telescope - and converts it into a cathedral. When the scientific veneer is scraped away, the pro-SETI argument is essentially a religious one. Perhaps the aliens are testing the SETI community's faith by taking great pains to make their existence anything but obvious. (Alternately, their offence at our speciesist view of their motivations may have permanently barred us from the Galactic Club.)

It may well be that SETI work is more pious than worldly concerns such as medical research, but it is clearly far less productive. That's a hallmark of pseudoscience, and as in the Great Plague, it is of no use to human beings. Cocconi seems to have distanced himself from the SETI community, perhaps disappointed that his joint paper with Morrison could have spawned such hokum (Drake & Sobel 1997, 53). It is time the SETI community were honest to the lay public and themselves about the real odds of success that their enterprise has. It is a sad irony that Sagan was ever keen to remind people to be critical thinkers, yet this cause he championed was and remains utterly reliant upon the cash of the credulous. It is embarrassing that scientists who consider themselves to be working in the public interest act in this way, yet the double standard - unwitting or otherwise - goes on.

Philosophical objections

Sometimes when I look at the stars twinkling in the sequined panorama of the sky, I wonder if, among the most common interstellar missives coming from them, is the grand instruction book telling creatures how to live forever. (Drake & Sobel 1997, 162)

These poetic absurdities are found in a recently published book recommended by Sagan, that offers a popular - if not subjective - account of the history of SETI. Whilst they make Sagan a more complex figure, they do not detract from his contribution to planetary astronomy and the many important social causes he lent his talents to, such as nuclear disarmament. After all, Kepler believed that astrology worked and Newton spent a lot of his time in the pursuit of alchemy (Mendelssohn 1976, 70. Bronowski 1973, 234). Yet we do not accord these irrational behaviors any credence simply because they attracted some great minds to them.

So too it must be with SETI. (May the Planetary Society take note!) As a hypothesis, it is utterly inadequate and deserves no further time until and unless a profound new insight arrives that revises SETI's present pseudoscientific status. Meanwhile, there is a wealth of opportune questions to tackle.

Had Sagan been able to see beyond his devotion to the SETI hypothesis, he would surely not have given such time and effort in its name. Contact would probably have been a different, less proselytising novel. Is it

unreasonable to concede that William Proxmire, the Senatorial SETI snuffer, had a point?

As is often the case in the public understanding of scientific matters, the media has not performed an adequate job of presenting the flaws in SETI. Australia's national public broadcaster, for instance, has broadcast at least two programmes about SETI in the last twelve months and both times there has been an unabashed pro-SETI bias in each: the glossy pop-astronomy BBC import *Universe*, and the home-grown *Compass*. Even *Nine's 60 Minutes* joined in, an interview with Seth Shostak by Geoff McMullen. With such shoddy fare for the public to base their judgements about SETI's worth, is it any wonder that SETI teams continue to successfully peddle their snake-oil?

Having a skeptical equivalent of *Media Watch* as a regular segment on *Quantum* might go some way towards redressing this balance, but it would still be only a drop in the ocean.

Skeptics in Australia and elsewhere bring organizations and individuals to book when they cash in on the credulity of the public. The work of Ian Plimer speaks well of the commitment of certain members of academia to alert the non-specialist when s/he is being taken for a ride. Irrespective of their good intentions, the SETI community is doing this by pursuing non-science on the public purse, even if it is only partially so. Voluntary donations might dwindle if a skeptical disclaimer about SETI's worth had to be given to all potential patrons.

To read of the SETI faithful disseminating their views in NSW schools brings to mind QLD's Genesis groups but perhaps it is merely an occasion for school children to develop reasoning skills by picking the SETI hypothesis to pieces. (Oliver 2000, p22) As the young Jason de Moiser sadly learned, intelligence, common sense and social conscience are in short supply. (de Moiser 2000, p41) It is critical for schools and the communities in which they exist work at bettering the current record. An analysis of the structure of both five-week modules and their suggested resource material is needed. It remains to be seen whether much has changed since the days in which Richard Feynman served as a resource reviewer for California's State Curriculum Commission. (Berry 1993, p195)

From the author's personal experience as a student, teacher and user of school and municipal libraries, he is doubtful that this is the case. The SETI hypothesis has more holes than a Swiss cheese factory. Over forty years of work has failed to improve or refine the hypothesis into a semblance of credibility. It is an interesting question, but for now it is time to let it go. There's far too much else to be concerned about. If the aliens are as smart as the faithful hope them to be, they'll understand. If this sentiment of Sagan's is anything to go by, it seems reasonable to suspect that on some level he probably would too: My own view is that it is far better to understand the Universe as it really is than pretend to a Universe as we might wish it to be. (Sagan 1997, 218)

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...Pioneer from p 51

seems to have been unfortunate (except financially) in his first marriage, and even more so in his second. Madam Lavoisier was the widow of the brilliant Antoine Lavoisier, known as the father of modern chemistry but who had lost his life in the French Revolution during a spell when the revolutionaries decided they needed no scientists. She and Rumford knew each other for a long while, and prospects for a happy marriage were good. A paper in London reported,

Married; in Paris, Count Rumford to the widow of Lavoisier; by which nuptial experiment he obtains a fortune of 8,000 pounds per annum - the most effective of all the Rumfordizing projects for keeping a house warm

They were wildly angry with each other as soon as they wed, however, and their public squabbles made Paris laugh.

They were divorced, and Rumford took up house with a daughter from his first marriage, becoming more and more a recluse. When he died, there were few people in attendance at his funeral. It is surprising that one who worked so tirelessly (and successfully) for bettering all classes of humanity should have been so badly remembered even at his death, but *Scientist, Soldier, Statesman, Spy* makes plain that his benevolence was tainted with vanity and truculence. This is a fine brief portrait of an enigmatic and largely unknown man. A commentator wrote, "Although Rumford disliked people to his dying day, as much as they disliked him, he loved humanity."

The age of things

Ian Plimer (20:1, p23-26) gives a useful compendium of dating methods, give or take one or two errors and irrelevances. But I am left wondering whether any open-minded creationist (if you will pardon the oxymoron) is likely to be convinced by it. My main reason for writing is that I think that there are basic questions not addressed. However I will carp at one or two other matters at the same time.

The beer glass analogy is given far more space than it's worth. I don't find it at all helpful. There is also the strange assertion (page 24 para 1) that "generally the higher the radioactivity the shorter the half life". This would be true but not, I think, particularly relevant if "radioactivity" were replaced by "disintegration energy".

In para 2 we read that ^{238}U decays to ^{206}Pb . This is simplistic, since the decay chain includes about 13 other nuclides. The end result is as stated, but there is the possibility of radon gas escape through time, leading to a reduced amount of ^{206}Pb in the sample and a falsely low estimate of its age. As a further complication, not all ^{206}Pb is radiogenic (ie derived from the decay of ^{238}U). Some is *primaeval*, ie as old as the Earth, and this has to be measured in non-radioactive lead deposits, or else accounted for by comparison with other series, eg ^{235}U or ^{232}Th , ages of the sample.

In para 3 it is suggested that no nuclear reactor could work if the half life of ^{235}U were not known accurately. The logic of this escapes me completely; why did the absence of anyone with this knowledge not prevent the prehistoric Oklo chain reaction from happening?

Here, for many, will be a major weakness of Ian Plimer's arguments. Dating depends crucially on a knowledge of the half lives of ^{238}U , ^{235}U , and other nuclides, yet these are simply produced as from a hat. Doubters may well ask how we know these half lives, and the much more difficult question of how we know that the half lives don't change over geological time.

Before answering the first question, a small amount of algebra is required. Early studies by Rutherford and Soddy (1902 and 1903) showed that for all known radioactive species (radionuclide or simply nuclide) the number of atoms decaying in unit time (the rate of decay dN/dt) is proportional to the number N of atoms present. Thus $dN/dt = -kN$ where k is the decay constant for the particular nuclide (the negative sign is required because N decreases with time). From the expression for dN/dt we obtain $N(t) = N(t=0)\exp-kt$. Putting $N(T) = N(t=0)/2$ we obtain the half life $T = \ln 2 / k$. The number of atoms of the nuclide is halved in this time and so is the decay rate kN , called the activity A .

For the first question we use the relation $A = kN$. The number N of atoms in a chosen sample of the pure nuclide is measured by weighing the sample and dividing by the weight of a single atom. The latter is known with great accuracy from systematic mass-spectrometry covering all the known nuclides. These masses are essentially determined by accelerating beams of at-

oms in ionic form, by measured voltages, and bending the ion beams in measured magnetic fields. There is no room for argument that the masses so measured are other than accurate. Next the activity A of the sample is determined by counting the number of particles emitted per second as a result of the nuclear disintegration. Very thin samples are used which absorb essentially none of the particles, and these are completely surrounded by the sensitive volume of the detector. The activity A is thus determined, usually to much better than one percent. From the measured values of A and N , k the decay constant, and hence the half life $T = \ln 2 / k$ is also known with great accuracy.

Measurements of sample ages may be made in a number of ways:

1. In ^{14}C dating the specific activity (activity $A(t)$ (activity per gram) is measured and compared with the specific activity $A(t=0)$ when the sample stopped accumulating ^{14}C from the biosphere. This latter figure is assumed as a first approximation to be the same as in present day living carbonaceous material. This is equivalent to assuming that the cosmic ray flux incident on the atmosphere which produces the ^{14}C has not varied significantly over thousands of years. Comparison of

radiocarbon dates with tree ring dating of the same samples shows this to be valid.

The limit on ^{14}C age determination of about 40,000 years, imposed by the difficulty of counting samples after 8-10 half lives, has been extended to nearer 100,000 years by mass spectrometry/accelerator studies, in which the actual number of ^{14}C atoms per gram is determined, rather than the disintegration rate. ^{14}C dating is restricted to formerly living (carbonaceous) material or deposits containing fossil carbon as calcium carbonate.

2. In uranium-lead dating, mass spectrometry is employed to find the relative numbers of ^{206}Pb and ^{238}U atoms. Assuming the number of lead atoms $N(\text{Pb})$ can be corrected as mentioned earlier then $N(\text{Pb})+N(\text{U})$ gives the original number of atoms of U . Since $N(\text{Pb})$ is about half of this so also is $N(\text{U})$, and $N(\text{U})(\text{present}) = 0.5N(\text{U})(\text{Original})$. It follows that the rocks were formed about one half life, ie 4.5 billion years, ago. Any rocks containing traces of uranium are potentially datable by this method. Other radioactivities suitable for dating younger rocks and rocks not containing uranium are listed by Ian Plimer

The answer to the second question, "why can we assume that the half life is a constant?", is less clear cut. There are two approaches:

1. From ^{14}C tree ring data. Assume that the tree rings give the correct age of the sample. Now fit the ^{14}C sample counting data to the correct ages treating the half life, or the decay constant, as unknown. Then in the decay equation $A(t) = A(t=0)\exp-kt$, $A(t)$ is measured, $A(t=0)$ is the present day ^{14}C activity, and t is the tree ring age, so that only k is unknown and therefore calculable. This calculation can be performed for as

Explanation

Mistaken identity - again

Barry Williams

many samples as desired spread over several thousand years; the result is that k and therefore the half life is constant to the order of accuracy allowed by the counting statistics and uncertainty in the knowledge of $A(t=0)$. This latter quantity is, for this calculation, assumed to be constant.

2. The desire to force a geological dating by ^{238}U - ^{206}Pb of 4.5 billion years into a framework in which the process began 6000 years ago is fraught with difficulties. We have to postulate an initially very short half life which is changing very fast as a function of time, so that it becomes 4.5 billion years after 6000 years. Further, the "average" half life must be about 6000 years so that the data from the sample gives the age as 6000 years. This would result in the present day half life increasing rapidly from year to year. Such half life measurements have been made on ^{238}U , ^{235}U , and other nuclides over a number of years, although not with the intention of testing a hypothesis which is so unscientific as to be ludicrous, and no changes have been detected. The conclusion is that radioactive dating studies give quite definite, robust, values for the ages of minerals, and there is no way that these can be reconciled with the age of the earth asserted by creationists.

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E.Rutherford and F.Soddy, *Phil.Mag.* 4 370 and 569 (1902) and 5 576 (1903).

Author's note

My partial C.V: PhD in x-ray crystallography at Queens College, Dundee, Scotland. Clinical Physicist at Royal Marsden Hospital, London. Senior Lecturer in Physics at Otago University, N.Z: specialities, nuclear, ionising radiation, and medical physics. Retired since 1987.

Editor's response

Thank you very much Bob for this elucidation on some of the points raised in Ian Plimer's article. We fear that any fault in his article lies with our own editorial judgement rather than with the good Prof.

A stock phrase we frequently receive in messages from lay creationists who have been misled by creation 'scientists' into believing that "radioactive dating" (among the more common of the mis-identifications they use) is a fatally flawed technique for measuring the age of anything. Rather than constantly having to reiterate that there are many methods used for dating, of which various radiometric measurements are among the most useful (within their constraints); that these various methods are independent of each other; and that they tend to support each other, we decided to seek expert opinion from those whose fields of expertise are involved in either devising or using these techniques.

Ian was first off the mark, as a geologist who uses a variety of methods of dating mineral bodies and rock strata. Your contribution clarifies the scientific processes by which these measurements are made. If others would like to add to our understanding of how this all works, we can put it on the *No Answers in Genesis* web site and point the creationists' dupes to that source. **BW**

As I have mentioned before in these pages, it seems I am fated to spend much of my life being mistaken for someone else. When not having my face emblazoned across several of the world's newspapers as the discoverer of Noah's Ark (an error for which News Limited apologised) or being accosted in the street with accusations that I am, *inter alia*, Phillip Adams, P P MacGuinness or Rodney Marsh, I have also achieved some little notoriety in the past year or so as a closet Wiggle (see photo below).

Many Skeptics have drawn to my attention this advertisement for the job agency run by the Salvation Army, and I must confess that the likeness is remarkable. In fact my four-year-old grandson, Christopher, is convinced that it is my face that adorns billboards and bus sides.

However a little research revealed that the extremely good-looking bearded gent in the photo is a part-time photographic model from Melbourne, whom I won't embarrass by mentioning by name. I simply hope that he doesn't have to spend much of his time denying that he is the Editor of *the Skeptic*.



The significance of the year two thousand

Chris Manning

Barry Williams is correct when he says (19:4) that this year 2000 is not the beginning of the new millennium. In fact, it is the end of the old one. But why does it matter? What significance does the millennium have, whenever it comes?

Its significance (if any) can be ascertained by considering three things:

- a the number 2000 itself;
- b the event (the birth of Jesus Christ);
- c the unit of time (the year).

The number 2000

People think there is something auspicious about a number like 2000, but is this attitude warranted?

We consider such a number auspicious because it is a "round" number. But what does that mean? It means that it ends in several zeroes. In other words, it is a multiple of a power of the number ten, on which our system of arithmetic is based:

$$2000 = 2 \times 10 \times 10 \times 10.$$

Is there anything special about the number ten? Not really. We use a base ten system of arithmetic only because our ancestors counted on their ten fingers (including thumbs). Systems based on other numbers are perfectly possible and just as valid. For example, there may be intelligent beings elsewhere in the Cosmos who have four tentacles, three suckers on each tentacle and use a system based on the number twelve.

There is no reason in theory why special things should happen in years which are multiples of powers of the number ten, unless perhaps because people expect such things to happen and thereby bring them about.

What do we find when we look at history? Well, the year 1000 was pretty boring. The world didn't come to an end. Nothing much happened in any "century" year either, except that Giordano Bruno was executed by the Inquisition in 1600¹.

In a system not based on the number ten, the number 2000 would be written differently, and might not be "round". Let's see then how the number 2000 is represented in some other base systems (Table 1)²:

We can see that, in general, 2000 is not a round

Base	Base ten number 2000 expressed as	Base	Base ten number 2000 expressed as
12	11T8	6	13132
11	1559	5	31000
10	2000	4	133100
9	2662	3	2202002
8	3720	2	11111010000
7	5555		

Table 1

number when expressed in other bases. So its roundness is not a property of the actual quantity, only of the way we express it.

What numbers *are* round in other bases? Or, putting it another way, which years would have been considered auspicious by the twelve-suckered beings mentioned above? And in how many of *those* years did anything significant happen?

Well, Captain Cook was born in the nice round base twelve year 1000 (1728). King John signed the Magna Carta in the base nine year 1600 (1215) and the Battle of Waterloo occurred in the base eleven year 1400 (1815). Significant events, no doubt, but hardly end-of-the-world stuff.

So, it seems that there is nothing special about the year 2000 or any other round-numbered year. The numbers are multiples of powers, a mathematical property which has no bearing on history.

The event

We are celebrating the 2000th anniversary of the birth of Jesus Christ, a semi-historical person whose date and year of birth are uncertain. Most people seem to think he was born around 4 to 6 BCE³. Christ appears to have been an obscure rebel leader in an obscure outpost of the Roman empire at an obscure time in history. His significance for future human history was due to accidental causes, eg the decision of the Emperor Constantine to adopt Christianity as the official religion of the Roman empire.

Other calendar systems are in use around the world which date from events connected with other people or not connected with people at all. For example, the Islamic calendar begins with the Prophet's flight from Mecca in the year we would call 622 CE and the Jewish calendar dates from the supposed creation of the world in 3761 BCE⁴.

Our system is simply the one most widely used. And there is nothing to prevent us from devising a new calendar based on whatever event we think is most deserving of celebration. I personally favour a calendar based on the birth in 1939 of the comedian John Cleese⁵. (Notice: same initials!)

What is special in any case about the event of someone's birth? We talk about a person "coming into the world" but of course they were already in it! It would be more logical to celebrate a person's conception. That is when their genotype comes into being. And whereas Christ's birth was very ordinary, his conception was miraculous. All the more reason to celebrate it!

The unit of time

The unit of time is of course the year, which is the amount of time it takes the Earth to complete one orbit around the sun. The Earth's orientation with

Another view

respect to the sun depends on its position in its orbit, and therefore varies on a yearly basis. Since it is this orientation which largely determines such things as the weather and the hours of daylight, it follows that these things also vary on a yearly basis. The ability to know when it would get dark or cold, or when to sow crops, were vital to our distant ancestors. In our modern world they are less important. We eat imported food, we turn a light on when it gets dark, and we watch the seasons pass through the windows of our air-conditioned offices.

The insignificance of the Earth year will be more apparent to our space-faring descendants, who will have to devise new calendars to take account of the various periods of rotation ("days") and revolution ("years") of their colonised worlds. This will most likely happen first on Mars, where the year is about 687 earth days (669 martian days) long⁵. Or maybe the colonists will devise a universal calendar which ignores such local idiosyncrasies. The Earth year would fall into disuse and would eventually be forgotten.

The Earth itself is an insignificant speck in the grand scheme of things. Even before you have left the Solar System, it has ceased to be a naked-eye object⁶. It is probably not detectable at stellar distances, except from the rubbish put out by our electronic media. If the Earth is annihilated by an anti-matter bomb, it will not be missed. There will be slight changes in the orbits of the other planets. Nor is there anything special about the Sun, a very ordinary middle-aged, middle-sized star, lost amongst countless other stars just like it, composed as they are of hydrogen and impurities⁷.

Summary

This insignificant ball of rock we live on, has circled an insignificant ball of gas a certain unimportant number of times since a point in the past when a certain person of no special significance was not born.

Still, any excuse for a party!

Notes

1. This and other historical statements are based on nothing more than general knowledge and school history lessons. I am happy for any professional historian to supply a clarification or correction.
2. Our system of arithmetic is base ten, that is, it is based on successive powers of the number ten. Base eleven arithmetic is based on successive powers of the number eleven, and so on. For example:
$$2000 \text{ (base ten)} = (2 \times 1000) + (0 \times 100) + (0 \times 10) + (0 \times 1)$$
$$= (1 \times 1331) + (5 \times 121) + (5 \times 11) + (9 \times 1)$$
$$= 1559 \text{ (base eleven)}$$

Where the base is higher than ten, you need a symbol for "ten". I have used a capital "T".

The number 2000 is still round when expressed in bases two, four or five. However, this is purely a mathematical consequence of the fact that it is round in base ten, since two and five are factors of ten and four is a power of two.

3. See for example Crystal, D. (1994) *The Cambridge Biographical Encyclopedia*. Cambridge University Press.

4. O'Neil, W. M. (1975) *Time and the Calendars*. Sydney University Press.

5. See any basic astronomy book, eg Moore, P. (1979) *The Guinness book of astronomy facts and feats*. Guinness Superlatives Limited, Enfield, Middlesex.

6. I assume this would be the case as the outer planets are not naked-eye objects when viewed from Earth.

7. This is how some famous wit once described the Universe.

Far be it for me to cast nasturtiums or cut down tall poppies (You can if you're an horticulturist, Alan. Ed), but for a mathematics/computer expert and active Skeptic, Peter Bowditch demonstrates some uncritical thinking in his article ("Y2K - What went wrong", 20:1). He seems to have been carried away by the populist extravagance of the last New Year's Eve and refers to January 31 2000 as "the first end-of-month for the millennium". This it is not.

Furthermore, has our esteemed editor fallen down on his job? Methinks I recall an aside in one of last year's editions where he makes the correct comment on the topic, so I can only assume it passed him like a missed chance in the slips.

I realise that for the vast majority of the population the time is long past; besides, why should we let the facts get in the way of a good story? And who needs a reason for a celebration anyway? But are we not being too uncritical in going along with all the recent millennial hype?

To continue the above analogy with a sport with which our editor is undoubtedly familiar, perhaps I can demonstrate very simply that, in fact, the new millennium is not yet upon us - assuming we allow the commonly accepted (though actually apocryphal) date for the birth of Christ.

A batsman is not credited with his century until the 100th run is completed. He hits the ball and begins running. It is only when he crosses the crease at the bowler's end that he completes the run and achieves his century. The start of the run can be likened to the start of a year. Like the run, the year is not completed until the last day is over. The batsman's century is not over until the end of the 100th run and a century of years is not over until the end of the hundredth year.

So the first century was not over until the end of the year 100 and the second millennium will not be over until the end of the year 2000, this current year.

A second simple example. Count your fingers. Barring an accident with a sharp instrument, or a genetic abnormality, there will be ten. If we call them years, we have a decade. The second decade starts with year eleven and ends with year twenty. Likewise with centuries and millennia - the final years end with a zero and the beginning of the next century or millennium being something-or-other and one.

So we have not yet entered the third millennium, which will start with the year two thousand and one.

At this stage of proceedings, there is little point in arguing the toss with the populist media or the general public, but we should not uncritically fall in with their beliefs just because they are loudly proclaimed. This belief is, after all, incorrect and although we may be unable to persuade them of their error, we should not perpetuate it ourselves.

Alan Moskwa
Kensington Park SA

(Around the corner from Don Bradman's home)

Visit the WorldConvention web site: www.geocities.com/skeptics2000

Depression - a contrary view

Regular contributing psychiatrist, Sydney Bockner, has let his usual Skeptical standards slip with his latest article 'True meaning of depression' (20:1) based on a talk he gave to Skeptics (SA) in February.

In a well-meaning attempt to alert us to the need for therapy for depression when it reaches a critical level of severity, he has unfortunately used the unsubstantiated "chemical imbalance" medical model arguments of biologically-inclined psychiatrists in their demarcation disputes with such 'competitors' as clinical psychologists offering psychological therapies.

These arguments, arising as they do out of the medical model tradition and bias, and further encouraged by attempts to defend professional territory, ignore recent research, and result in a highly unskeptical article (in the sense that the opposite of skepticism is propaganda).

The problems begin in Paragraph 1. The "serious diagnosis of Endogenous Clinical Depression" is not a currently recognised official diagnostic option, despite the impression conveyed by Sydney's use of capital letters. The most used diagnostic 'bible' worldwide, the Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition) of the American Psychiatric Association (DSM - IV), does not recognise this "frequently missed" "serious diagnosis".

Sydney goes on to distinguish the "symptom ... simple unhappiness ... a reaction to stress ... Reactive Depression ... Unhappy moods ... do not signify illness" from the "diagnostic entity ... Endogenous Depression ... originates from *within* ... far more serious condition, with a different symptomatology, prognosis, and treatment." DSM IV recognises several depressive 'diagnostic entities' that vary according to symptomatology, duration and severity. But attempts to distinguish according to origin (internal versus external), have consistently failed. Paykel *et al* (1969) found that 'endogenous' depressions cannot be distinguished from 'non-endogenous' ones in the occurrence of life events prior to onset. Zimmerman *et al* (1986) was unable to find consistent differences across four measures of "endogenous versus non-endogenous" for the occurrence of stressful life events, social support, personality disorder, divorce/separation, or family history of hospitalised depression. Sinaikin (1985) cites seven references to support his conclusion that "It is clear that the mere presence of a precipitant does not preclude the development of an autonomous (biological) depression" (p. 202). Wilkinson (1989, p.19) added "Precipitating events have been shown to precede both types of illness and the existence of two distinct symptom clusters has not been confirmed." Sinaikin's (1985) summary is: "In the light of the virtual explosion in knowledge about affective disorders, the practising clinician can no longer be satisfied with simplistic dichotomous diagnostic systems such as endogenous-reactive." (pp. 208-9).

Sydney then claims that biological depression needs

antidepressants, but reactive depression needs psychotherapy. But it has long been known that tricyclic antidepressants can be effective with 'non-endogenous' depressions (Raskin & Crook 1976). Even response to that most biological of all treatments, electroconvulsive therapy, is not predicted by *any* of the major proposed definitions of 'endogenous' depression (Zimmerman *et al* 1986).

Current research-based best practice guidelines (too many references to cite) recognise the psychotherapies most effective with depression (Cognitive-Behaviour Therapy and Interpersonal Psychotherapy) as most useful with mild to moderate depression, while antidepressants are most useful with moderate to severe depression, and ECT is justifiable with severe depression. This has nothing to do with presumed aetiology. It has been found empirically in controlled studies; and is most likely because CBT and IPT require insight and motivation to be successful, and severely depressed people lack these.

Sydney attempts to list key features that distinguish endogenous (versus reactive) depressions. He mentions lack of insight, not crying, loss of interest, early morning waking, worse symptoms in the morning than evening, self-blaming, and prominent physical symptoms. Such typology has frequently been assessed empirically. Young *et al* (1986) were not able to find any criteria for consistent sub-typing. "Guilt and worse in the morning were also found to have no relationship to either sub-type" (p.265). Zimmerman *et al*'s (1986) study found *none* of the major 'endogenous' measures predicted level of cognitive distortions (such as lack of insight, or self-blaming attitude). Davidson *et al* (1984), in a review of five diagnostic scales for melancholia (the nearest DSM - IV gets to 'endogenous'), found no single vegetative symptom or sign to be characteristic of all scales. Nelson and Quinlan (1981) produced similar results. Davidson and Turnbull (1986) reluctantly admitted (because they wanted what Sydney had claimed) that no pathognomonic or "core" symptom for endogenous depression has been found (p. 203).

Surprisingly, Sydney's only two references in the article are to psychiatrists that disagree with him! Kendall (1976) has argued that the differences alleged to be associated with the endogenous-reactive distinction merely represent a continuum of severity. In Zimmerman *et al*'s (1986) study, one of the only two dependent variables that was consistently different across four measures of 'endogenous versus non-endogenous' was Symptom Severity.

His final argument, again unreferenced, is that "the endogenous type has been shown to be related to chemical (neurotransmitter) changes in the brain. There is little evidence of this in the reactive type." The neurophysiological basis of depression is not yet known (Davies and Burrows, 1986, p.75), let alone sufficiently fine in measurement to distinguish different depressive phenomena.

We are at the point of suspecting lowered availability of norepinephrine and/or serotonin at receptor sites in the limbic system. But psychiatrists' frequent references to a "chemical imbalance" when persuading their patients to take antidepressants is at this stage no more than a persuasive tool, and an inference from the effectiveness of antidepressants (via their neurotransmitter effects) with many patients. The circularity of this argument is clear.

Attempts to develop medical tests to detect depression levels or types have been singularly unsuccessful to date. The much-heralded Dexamethasone Suppression Test has been a dismal failure. Among others, Zimmerman *et al* (1986) did not find it reliably distinguished 'endogenous' and 'non endogenous' depressions.

A major problem with the biochemical theories is that "it is possible that some biochemical changes occur as a result of depression, or that changes in biochemistry might also occur as a result of exposure to certain environmental stresses" (Wilson *et al* 1989, p.53). In a sense all human thought, behaviour, and feelings are underlain by chemistry. We have known for some time that CBT alters people's biochemistry in anxiety disorders, depression, and obsessive-compulsive disorder. And that tablets affect thought, feelings and behaviour. To assert a chemical basis (yet unknown) as an argument for biological treatment is not enough. (It parallels the Freudian tactic of asserting an unproven, and unfalsifiable, intrapsychic theory to justify an untested therapy. Since tested, by non-Freudians of course, the therapy has been found to be quite useless, but that's another story altogether.)

Sydney's arguments seem to come down to two:

(a) Some depressions are minor and not worth seeing a psychiatrist over;

(b) Some are serious, and therefore biological, and therefore should be treated by a psychiatrist with medication.

With no empirical support in the literature, this sounds much more like a sales pitch than an education for the (skeptical) public.

The irony in all this is that Sydney needn't resort to this simplistic, dogmatic line in order to justify his profession. Sprinkled through my arguments have been admissions, based on empirical outcome research, that antidepressants, and even the dreaded ECT, have good support for their efficacy, especially with severe (not "endogenous") depressions.

The medical model sits comfortably with epilepsy and schizophrenia. It isn't useful with jealousy bouts, grief, or addiction to the Internet. Depression lies somewhere in between. And the skeptical discernment of such grey areas is not assisted by nonempirical propaganda from one side.

I look forward to future contributions from Sydney, assuming he will resume his usual informative research-guided skeptical stance.

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Gary Bakker
 Launceston, TAS

Warning

As part of Science Week, the editor was invited to participate in a Science in the Pub event, where each participant was invited to pen a poem describing their position. It is presented here simply as a warning to other who might foolishly seek so to prevail on him again.

Ode on a Distant Prospect of Pymont Bridge

*When the New Age turns you apoplectic,
 Causing ulcers, both gastric and peptic,
 Do not despair
 It will clear the air
 When you subscribe to the Skeptic.*

*When the new diet makes you anorexic
 And all medicine turns your skin septic,
 Just take a stand
 Salvation's at hand
 When you subscribe to the Skeptic.*

*When old lands slip 'neath the Atlantic
 And Ufos zooming 'round make you frantic
 Forget this inanity
 You'll salvage your sanity
 When you subscribe to the Skantic.**

*When confronted by claims apocalyptic,
 And you'll swear if you hear one more mystic
 Far better by far
 Than to wish on a star
 Is to forthwith subscribe to the Skeptic.*

* This cost three penalty points on my poetic licence.

Magic and medicine

Barry Williams



Steve Walker

Most branches have discovered the value of combining public meetings with a dinner and a presentation on a topic of interest to Skeptics, and NSW is no exception. For the past year and a half we have been conducting quarterly dinner meetings at the Chatswood Club, with regular roll-ups of 110-120 Skeptics and their friends. However this did not adequately prepare us for the deluge of acceptances we received for our April 1 meeting, when 180 (plus) people reserved seats for the special "Magic Night".

The evening's events was conducted by Steve Walker. He was ably supported by two other remarkable magical Skeptics, Peter Rodgers and Kent Blackmore, with further contributions from other magicians doing close-up magic for the entranced patrons after the formal presentations.

Steve, Peter and Kent, apart from all being professionals at their craft, also demonstrated completely contrasting styles of presentation. Steve is surely one of Australia's best entertainers not earning a full-time living from his craft. He has a genuine comic talent, enhanced by the Yorkshire accent he has retained despite many years residence in this country. (I must apologise to Steve here. In my

"Musings" article in the last issue, I accused him of being born in "Duesbury", which is, of course, spelt Dewsbury and my thanks to Mark Newbrook for pointing this out.) He is seriously funny and professionally superb.

Peter's style is the antithesis of Steve's; he comes across as a little diffident, self-effacing even, and his act takes full advantage of this. As Steve said on the night, people expect him to be always engaging in trickery, but they don't expect it of Peter, who thereby can engage in lying, cheating and chicanery to his heart's content. Needless to say, Peter is a very accomplished magician.

Kent explores a different territory again. Tall, thin and dressed in his trademark all-over black, Kent's act borders on the mystical. He could make a very good living as a psychic or spiritualist, and gather a considerable following, if that was the way his mind worked. Fortunately he, like his fellows, is committed to the Skeptical cause.

This was one of the most successful events the NSW branch has ever conducted and it was certainly the largest attendance we have ever had at a dinner meeting. Those who enjoyed it are asked to note that our next meeting will be held on Saturday, June 24 (soon, so don't delay) when Steve



Kent Blackmore



At the Canberra Science Festival L to R Canberra Skeptics Pierre le Compte and Peter Barrett with meteorological guru, Steve Symonds, Richard Gordon and Barry Williams

Roberts, the infamous Dr Bob of the web site Trivia Quiz, will enlighten us with "Confessions of a Skeptical Triviologist: Why I'm still learning" (details in WatsOnWare).

* * *

On a different topic, several members of the NSW were involved in activities to do with Science Week. Richards Gordon and Lead and your correspondent trekked to Canberra where Richard G confronted a practitioner of "alternative healing" in a debate. His approach was a simple one - "where's your evidence?" - and he excelled, despite the vast majority of the audience of some 300 being supporters of alternative techniques.

From this and other recent encounters and from reading various alternative health magazines, it is still difficult to understand what exactly alternative practitioners are trying to say. Some of their claims about the failings of orthodox medical practice - too little time with patients, not listening, etc - do make some sort of sense, but they are largely involved

Continued overleaf ...

Acta Sceptica Victoriana

Grant Stevenson

Even Sceptics find it easy to fall into a rut. We expect this of our less than critically minded acquaintances but consider ourselves immune to such an odious failing. Never the less, despite our best attempts, we too are all too prone to the allure of habit.

Sceptics Committees are no less susceptible than ordinary folk. We attribute it to (what we call) "Skeptical burn out". It's hard to be ever alert, ever enthusiastic, when, despite your best efforts, no matter how many you lop off, the Hydra continues to sprout more heads.

It's even harder to be and look fresh when you find yourself (repeatedly) battling the same head (specious belief etc) – repeatedly regrowing no matter how many times, or how decisively/authoritatively it has been previously cut off/disproved/refuted. This has become even more evident to me since my elevation to the giddy heights of the Presidency of the Victorian Committee!

Of course, if the skeptical message is to make any deep impression, an active and interested body of people of a sceptical persuasion in the community is of much greater importance than even the most enthusiastic (or rabid?) of committees! The best thing a committee can do is support these people. To this end, we recently implemented a number of innovations.

Quarterly meetings

Following the very successful formula of other state groups, we have started holding quarterly dinner meetings. For a set price (non-alcoholic drinks included, open bar available), we have a two course meal, followed by tea and coffee, and a talk or presentation. Most importantly, plenty of opportunity to meet and talk to like-minded folk is thrown in for nothing!

On the suitably auspicious date of March 15, the first of these evenings was held at the Dallas Brooks Hall Convention Centre. Professor Ian Plimer entertained (and as he is prone to do – challenged) just on a hundred Sceptics and their guests. It was a marvellous night.

The second of our dinner evenings will be held on Wednesday 28th June. Dr Steve Basser will address us on that still most topical of issues – Anti-immunisation. It promises to be an enlightening, if disturbing, evening! Bookings are essential! (Telephone 1800 666 996 or refer to "WatsOnWare" for details)

Also - mark your diaries for future Dallas Brooks meetings:

Wednesday 27th September and Wednesday 6th December 2000.

'Phone around

In late February / early March, the committee started a " 'phone around" so as to make personal contact with each of the Victorian subscribers to *the Sceptic*.

At the same time, individual committee members identified themselves as "a point of contact" between the subscriber and the committee. So far, we have contacted metropolitan subscribers only. We plan to contact country members in the near future.

New telephone number

In March we set up a new Victorian Sceptics telephone line – 1800 666 996.

We have hitherto had to change the 'phone number as the 'phone follows the President. (At one time there were three different 'phone book listings for the Vic Sceptics – all with different numbers!) We hope its such a memorable number that you'll never have to look it up again!

Sceptics on the radio

In addition to a weekly Saturday morning Science show hosted by Dr Steve Roberts and Vince Butler on Community radio 94.1 FM Whitehorse Boorondara – something for regional subscribers only. I now have a fortnightly spot on Ben Knight's Friday morning program on ABC Regional Radio. Tune in!

Email newsletter

And in April a new egrop for Victorian Sceptical News and events was set up. Anyone may subscribe to this by contacting: vic_sceptics_news@egroups.com

... Magic from previous page

with the *administration* of medicine, not with its *science*. They also seem to be obsessed with money, never missing an opportunity to point to "multi-national pharmaceutical companies" as being the big ogres. As though the manufacturers of homoeopathic remedies and vitamin supplements are doing it from purely altruistic reasons.

However, it is when alternative practitioners seek to defend their own

practices that the language degenerates into new age babble. Terms like "energy" and "paradigm" are thrown around as though the speakers know what they are talking about, but the context of the discussion leaves grave doubts about it. These terms are not used for enlightenment, they are used as mantras and are about as useful. While it is always possible that some alternative therapies might have some beneficial effects, unless we seek evi-

dence, and recognise that science is the way to seek it, we will never know.

In the end, altmed practitioners are talking about folk remedies, while science, through projects like human genome research, is well on the way to providing a recipe for folk.

Science, sex and *The Simpsons*

Kathy Butler

We encourage the community to keep abreast of current science in the newspapers and television, but can we always believe what we see?

Do you remember this story? In the US last year, a high school science student got 49 people to sign a petition to ban a potentially lethal substance, dihydrogen oxide. He provided the necessary information: it is a major component of acid rain, a post-mortem finding in cancer patients, and can be lethal if inhaled. Only one person declined, noting that dihydrogen dioxide is a fancy name for water.

Graeme O'Neill has been reporting science for over 25 years. He is currently the science editor for the *Sunday Herald-Sun* and uses this story to demonstrate the effect that manipulative writing has on our understanding of science. The most recent example is the hysterical reporting of the genetic modification of food crops. Some very clever operators, he says, have horrifyingly manipulated community opinion. There have been recent predictions of GM foods causing cancer, producing toxic proteins, or becoming super weeds, all of which are either untrue, or at least highly unlikely. This has encouraged a community distrust of genetic engineering, based on the hysterical tone of reporting rather than any particular facts. There are enormous benefits from genetically modifying food crops, not least of which is feeding an increasing world population, and using fewer chemicals to do so. News articles, however, have focussed on disaster scenarios, which are unlikely to occur.

Television reporting, too, suffers, particularly in its brevity. Paul Willis from ABC's *Quantum* says that television science reports must be pared down to as little as six minutes per item. Science journalism for television requires specialist knowledge and a large production team, making it less attractive for com-

mercial networks. *Quantum* stories each require at least ten production staff, and are about a month in the making. And if you ever wondered whether your TV

presenter actually understood the science, Paul says that the *Quantum* reporters certainly do. Presenters on shows like *The 7.30 Report* have a pretty good understanding, he says, but the news-style programs on the commercial stations fall behind. Says Paul: "They display little understanding, unless it's sensationalist claptrap."

If adults find it difficult, how, then, can school children decide when things are not as they appear? Science teacher Dave Davies uses various demonstrations to help his students learn critical evaluation. His most spectacular act is lying on a bed of nails. "I first assure them that it is a trick. In spite of its appearance no superhuman effort or supernatural

assistance is required. The physics is simple: when your weight is distributed over a large number of nails, each has only a small downward force and you won't be injured." Dave is also a veteran firewalker, demonstrating to the public in his role of education officer for Australian Skeptics. Authors tend to ascribe a great deal of mysticism to firewalking. The coals burn at 600 degrees Celsius and the hot air makes it uncomfortable to stand close by. The task seems impossible without supernatural help. Actually, anyone can do it. The science is quite simple. Although the temperature is extremely high, wood embers transfer heat poorly and bare feet won't be burnt in the few seconds they are in contact. A spectacular exercise, but easily explained when critical thinking is applied. And the only preparation you require is to take off your shoes. Dave's teaching aids extend to "psychic" spoon-bending (*a la* Uri Geller), magic tricks and an episode of



A science new story?



Paul Willis

the Simpsons!

Dave Davies, Graeme O'Neill, Paul Willis and Guy Nolch (editor, *Australasian Science*) will be speaking at the Australian Skeptics Science Symposium. La Trobe Uni, July 26. Ph/fax 9841-0581 or see WatsOnWare this issue.

Celestial architects

Peter Earsman

*In order that this treatise be more readily absorbed,
It is preferable some things be presupposed,
Things like language and the spoken word, (in order not to sound absurd),
To English will be hereinthus transposed.*

*In a place beyond the galaxies, (oh, miles away from here),
Was a place for budding Gods, a kind of school,
And their task for this semester, was to go into sequester
And design a race of people from their stored genetic pool.*

*In addition to this task they also must design a place,
For these people to exist and procreate,
They had seven days to do it, and then having gotten through it,
They'd be graded out of ten (pass-mark was eight).*

*Ah, perhaps I should have mentioned, they had powers that went beyond,
Any bound'ries that mere mortals could have thought of,
Total power, understanding, laws of physics notwithstanding,
All was possible and legal, (oh well, sort of.)*

*After seven days they gathered in the classroom feeling smug,
Took their places, in a group, right up the front,
Then with face as black as thunder, their instructor tore assunder
All their efforts in creation, thumped the desk, "May I be blunt?"*

*"Let's begin please with this planet you so carelessly designed,
Well, its round, I guess, that's good, but don't you think,
If you must have all this water, logic hints perhaps you oughta,
Make it something that the people there can drink?"*

*"And the weather, oh my goodness, what caprice, what randomness,
To have rain that flood, cruel sun, then driving snows,
Poison swamp and rocky mountains, frozen tundra, larva fountains,
Why it all can't be say, pleasant, heaven knows.*

*"Nearly four fifths of its surface is unsuitable for life,
Of the kind I bade you make for me at least,
Sandy deserts, bitter oceans and dead plains which feed the notion,
That your world is barely fit for man or beast."*

*And the group of proud creators, sank down lower in their seats,
As the tutor criticised their earth creation,
In the way some parts were earthbaked, others cold or shook by earthquakes,
"It's a mess, a woeful job – a bomination!"*

*"Now let's move on to the people that you've made to populate,
This odd orb, this woeful world, this sorrow sphere,
It is obvious to me, my friends, that not a thing can near amend,
Their melancholy life upon that loveless globe down there.*

*"The best way to approach this is to take a downward path,
Starting at the head and ending at the toes,
First the brain, now here's a thought, you seem to think that what I taught,
You counts for nothing, but you're wrong and boy, it shows!"*

*"The brain is in the head, you got that right, you get full marks,
But you've made it so it lacks all common sense,
It can rationalise, exaggerate, extemporise, hallucinate,
But in things that really matter, rather dense.*

*"And the eyes, what? Only two? And both in front? None in the back?
You ignore completely all that is behind?
And the door to the digestion, will (by labial suggestion),
Be misused in sexual play I think you'll find.*

*"On the subject of digestion, and the fuel-needs of these folk,
What in Cosmos, pray do tell me, were you thinking?
They must eat THREE times a DAY? Then each morning under-lay,
Rendered food that's deadly poisonous and stinking?"*

*Then the tutor paused and cast his awful gaze about the room
And the class looked down in bleak humiliation,
"I have lots of things, he said, to discuss with you – instead,
I'll just end this by discussing procreation.*

*"It's a great idea to make the act of furtherment a pleasure,
And I have no quarrel when this gift is used,
But designing all the girl-bits, with the best bits hid by furred-bits,
You've created quite a maze that has the menfolk all confused.*

*"Nothing subtle in the making of the genitals of men,
I discovered when I made my last inspection,
But with such disparate sizes, when the chance to use it (rises),
At least half the time it meets amused rejection.*

*"All in all a dismal failure, I'm beside myself with wrath,
What was going on inside your little brains?
But they'll have to make a go of it, their own canoes to row a bit,
But so it's not a waste of time, I've taken up the reins.*

*"With a view to making 'Earth' a far more pleasant place to be,
I've arranged some subtle changes to be made,
You'll be glad to hear the news that I have introduced some hues that
When applied to different skins will cause intolerance to fade.*

*"And I've also planted seeds ecclesiastic in their heads,
Gave them something (or somebody) else to blame,
Now won't each discrete theology, encourage symbiology?
Discussion twixt beliefs of different routes yet sim'lar aims?"*

*"So we'll leave them there to simmer for a few millennia,
Then go back to see how they are getting on,
If there's any still alive when we return I'll add a five
To the marks I've given so far – but you'll still all bloody fail."*

The wood and the trees

Letters

In *the Skeptic*, (17:3) Dr Colin Keay has delivered a numerate defence of nuclear energy production; with a sideswipe at the anti-nuclear lobby in general and Dr Helen Caldicott in particular. But at the same time he exposes himself to a criticism which is often directed at scientific experts and their pronouncements: they are so immersed in their speciality that they are often less than understanding of the concerns of lesser mortals.

Professor Keay nominated a number of "Scares" put out by the anti-nuclear lobby and he set about allaying the fear.

"Scare 2. Nuclear power is far too dangerous - Chernobyl". No' says Dr Keay, the direct death toll from the Chernobyl disaster was greatly exaggerated in the media when thousands were killed by dam failures in the same general period. But that attempt at correcting a perspective seems to me to be based on a rather dodgy non-sequitur. Concern about dangers from the nuclear industry has no relation at all to concern about bursting dams or road carnage that I can see.

I have no basis for questioning Dr Keay's assertion that the 2 million Byelorussians downwind from Chernobyl would have been in more danger from background radiation had they lived in Sri Lanka or Brazil, but I think that misses the real lesson of Chernobyl. Chernobyl was operated and maintained in what many, if not most, people thought of as a stable economy which could afford proper safety standards, yet something failed. Russia now has 'apparently' dozens or hundreds of rusting nuclear-laden submarines which they can't afford to render safe and as products of the nuclear industry should surely be counted when assessing the pros and cons of that industry.

The point is, that of the 442 power stations in 32 countries which Dr Keay mentions as being in "highly reliable operation," some may also find themselves subject to the winds of economic change and social unrest which can blow up at any time. Nigeria was once an oil-rich country which could certainly have afforded a nuclear power station. Look at it now.

"Scare 4. Nuclear power reactors produce plutonium for bombs". Dr Keay's answer. "Only if governments

We welcome letters on any topic of interest to other Skeptics. Letters may be edited for the sake of clarity, brevity or serendipity.

want: them to." But isn't that precisely what the governments of China, Israel, India, Pakistan and North Korea have wanted to do and done? How many more governments "wanting to" will it take before Dr Keay is as scared as I am? The Holocaust was conducted by some of our fellow human beings, as was the mass butchery in Cambodia, Ruanda or Stalin's Russia. Can we really dismiss the thought that people like that would not hesitate to unleash the worst form of nuclear energy against millions if it suited them?

"Scare 5. Nuclear power produces large quantities of highly dangerous radioactive waste."

"Scare 6. The problem of ultimate nuclear waste disposal."

The rebuttals of these two scares can be taken together. Of No 5: "The most dangerous component is small enough to be stored under water for decades if necessary until it can be reprocessed for valuable isotopes or disposed of." And of No 6 Dr Keay quotes an author who said that there's no good way to get rid of nuclear waste. "This has been a myth for many years." replies Dr Keay "The Australian Synroc process is near-perfect, but expensive. The Swedish copper encapsulation approach is also excellent".

So, one might ask, why does any problem remain? Why not just pop the worst waste under water on the site where it is created? Why does a private firm like Pangea have to go trolling around the world looking for someone somewhere either desperate enough for money or submissive enough to take their waste? In my opinion the answer is that communities everywhere have learnt from the bitter experience of cases like the US testing site in the Pacific, the chemical disasters at Bhopal and Northern Italy and the dam collapses. The lesson is to treat all soporific assurances from experts, governments and industrialists with the greatest scepticism, especially where vast amounts of profits are to be made. Things are done which do not always have the safety of ordinary people as a top priority. That is the

world in which experts have to live and debate.

"Scare 7 Plutonium is the most carcinogenic substance known." Not so, says Dr Keay, there are much worse ones. Thorium-232 is fourth in the top ten and is very common, especially in some beach sands. Think about that!

Further, he quotes a study of 7000 nuclear plant workers who were screened for plutonium contamination, "The men who were found to show plutonium in their urine proved to be healthier than the overall US population, and their death rate was much lower! They also had fewer mortalities from lung and bone cancers - in fact no bone cancers at all were detected, yet that form of cancer is one that plutonium is most likely to induce". If those results get out I fully expect to see bottles of plutonium health syrup alongside the echinacea and ginseng on alternative therapy shelves any day now. Some nostrums have been based on much weaker evidence than that. But, seriously, I would like to see a sceptical review of those particular results before I would drink the syrup.

"Scare 8. No nuclear power reactors have been satisfactorily de-commissioned". Not true, says Dr Keay, 70 power reactors have been retired from operation. One in the US was returned to green-field condition by 1987. One in Bavaria was dismantled and the site returned for agriculture in 1995. "And so on, with the remaining 68 reactors in varying stages of disposal." With only two out of 70, and 442 to go I would prefer to wait until we get a larger number of completed disposals before ruling off on this scare

Wherever truth, falsity or obfuscation lie in the debate, I sincerely hope that my and other Skeptics' descendants will have no reason to curse us for failure to have recognised the problems and contributed whatever we can, now,

**John Warren
Annandale NSW**

Fuel for thought

I appreciate Colin Keay's comments ("Energy needs") in the Summer 1999 issue (19:4). I was a little surprised by his vitriolic response (being accused of "lies", "furfies" and "aberra-

tions”) to what I thought was a fairly emotionally neutral topic. I must state for the record that I am no expert in energy matters. What I had written was from the point of view of a layman from general reading and if it generates useful discussion (and even action) then so much the better. Notwithstanding Dr Keay’s learned comments, I am reasonably thankful not to have been in the vicinity of the Chernobyl reactor when it blew its top and I suspect not a few people share this sentiment.

**Geoffrey Chia
Brisbane, Qld**

Fringe claims

Lin Fritschi attributes to S Kitessa (19:3, pp 65-66) the comment that merely labelling a theory *fringe*, as I allegedly did in my article in the previous edition, is not an appropriate criticism (because criticism of any theory, whatever its source, should involve unbiased assessment of its claims).

Fritschi appears doubly confused here. Firstly, Kitessa does not in fact make this point, but (among other things) objects to the use of broad category terms such as *fringe* to avoid discussion of detail. (I answer this point in my rejoinder in *The Skeptic* 19:4, p 67-68). Secondly, I do not label theories *fringe* without careful assessment; but in my view, this is a reasonable description of the Afrocentrist theories I was discussing in my article, both in terms of the ‘scholarship’ of the authors in question and in terms of the weakness of the evidence/argumentation offered in support of their claims. I rehearsed much of this in the article. Having done this, I do not have to repeat it every time I use the term *fringe*. Anyone who is interested in criticising my own views on such matters or in receiving more detailed information is welcome to contact me.

In fact, I am very interested indeed (perhaps more interested than most Skeptics) in subjecting the ‘mainstream’ of my own discipline, as well as the ‘fringe’, to skeptical assessment. An article by me on this very theme is in this issue.

Fritschi makes some interesting comments about Pinker and about Keay’s brief review of his book in *The*

Skeptic 19:2 (p 45). Pinker’s work on linguistics involves some quite technical and contentious issues (which is not always obvious from his own discussion) and in all probability only another linguist could review those areas of his book adequately. But it is not surprising or unusual if his ideas about other disciplines where he is less expert are even more contentious (as Wertheim has argued is the case). While I have no quarrel with Keay’s supportive and rather general comments on Pinker, I agree with Fritschi that a more detailed and more critical review might have been justified here, and that in general terms we must not appear to give our ‘allies’ an easy run while subjecting other writers to intense and hostile criticism merely because we see them as the opposition.

However, I do think that Keay in his rejoinder has a point when he argues that in pieces such as his other article (also criticised by Fritschi) one is justified in adopting a specifically skeptical ‘bias’. Single-minded (but rational) adherence to standards of argumentation and evidence is not the same as unjustified incorrigible acceptance of a particular theory or position. If we become ‘radical Skeptics’ and challenge rationality itself we **cannot** be coherently skeptical about any specific claims. There is an important philosophy-of-science issue here. And it is an oversimplification to say, as Fritschi does, that all scientific questions have ‘two sides’. For a start, some have many ‘sides’. But, more importantly, one ‘side’ may prove to be much better supported than another; and if this is so we must acknowledge it and proclaim it. We must not **start** with a bias towards one theory or conclusion; but we cannot expect **all** theories, on examination, to warrant ‘equal’ treatment.

**Mark Newbrook
Monash University**

Humanity and animals

A very long-standing western custom, which I believe to be rationally unjustifiable, is the allotting of vastly more rights and privileges to Man than to animals.

The custom seems to have come down to us from the Old Testament – “And God created Man to hold do-

minion over the beasts of the field” or some such. It was passed on from the Jews to the Christians and Muslims; and – I suspect – even those of us who have freed our minds of the God-made-the-rules concept, have not got rid of all the baggage that came along with it.

Eastern cultures do not all seem to place man on a higher plane than animals, the Jains in particular. However, I’m certainly not advocating replacing Judaeo-Christian bullshit with Eastern bullshit.

Where is the justification for giving Man virtually all the rights and animals practically none? A number of other species are much more numerous, mosquitos are probably more widespread across the Earth, many mammals and a few reptiles are stronger than man, cockroaches are much better survivors. In man’s favour, he is probably more intelligent than any other animals (there is some doubt concerning porpoises), man is technological, man has the power of life-and-death over all other animals (as individuals – the smallpox virus is the only species that we have come close to entirely exterminating intentionally). But this is justifying our privileges by the ‘might is right’ argument; we have the guns so we make the rules, I can’t see any moral vindication here.

How can we justify holding the lives of our worst criminals ‘sacred’, while allowing many animals to be killed, used and miss-treated by many people at whim? A specific example – cattle are held in feed lots for months, standing around in shit all winter, in the hot sun all summer (1250 died of heat exhaustion in a single incident at Griffith in February this year), so that we can eat steaks with marbled fat. It is unimaginable that any humane society would allow its citizens to be treated in this way. (I’m an ex-dairy farmer, so probably have more sympathy for cattle than most readers do. I’ve observed that their behaviours have a lot in common with ours: they find shelter from cold winds if they can, they find shade on hot days if they can, they like to sit in a patch of green grass under a shady tree, as I do.)

On the other hand, vegetarianism is not justified by this argument. If animals have rights then why should plants not? Fruitarianism? Fruit is designed to be eaten. But it is impossible to grow fruit without depriving other plants of the space needed for ‘your’ production plants, and you must protect ‘your’ plants from predatory animals and insects. It is impossible

to make a living without disrupting the lives of other species to some extent.

However, if animals and Man logically have equal rights, and people are allowed to kill animals, how then do we justify stopping people from killing each other? Expediency? Should we stop people from killing each other in all cases? Capital punishment?

Western Man (I know much less of Eastern cultures) has traditionally tried to justify power: kings were held to have God-given right to rule, modern democratic governments have a mandate from the voters. If one doesn't accept Biblical justifications, where does our right to exploit animals come from?

The one-sided division of rights between man and animals is a glaring anomaly of modern life; it cannot be justified by rational argument, yet the great majority of people seem to unthinkingly accept it – probably because it has always been so. Several centuries ago it was generally accepted in most countries that a few men – kings, noblemen – had much more power than the masses; slaves had very few rights. Gradually the idea of democracy and equal rights for all men spread; but women were left out for a long time. Now Western democracies generally accept the principle of equality of opportunity among people. Logically the next step is to critically consider the position of animals.

What would I replace the current situation with? Votes for dogs? I don't entirely know, certainly less cruelly exploitative treatment of some domestic animals, but beyond that?

I'd be very interested in Skeptic's opinions on this subject.

David Clarke
Crystal Brook NSW
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Quack medical machines

The turn of the century brought forth many exciting inventions; electricity was on it's way, the American mail order catalogues all listed each and every thing you needed to bring the magic into your home! With it came the snake-oil salesman, and if electricity could light your dark rooms think of what it could do for your aches and pains!

The first machines were simple mag-

netos, with one or two permanent magnets, a spinning wool covered coil and Bingo, a tiny bit of electric shock. You held the two brass tubes in your hand and a friend turned the crank. The claims of cures were beyond belief. The amusement parks always had a battery powered machine that for your penny gave you a series of shocks! Forty odd years ago I saw the machines in action at Coney Island.

The later machines were simple battery operated "shockers" that used the familiar 12 Volt Bell battery. The top of the machine in its wooden box had a metal plate and a wooden handled electrode with a sponge on top that you wet with water before applying to the skin. The metal plate, with its attached wire, was the ground or earth that completed the circuit. That type of machine was sold well up into the 1940s. I have also seen some wonderful pre-1900 American and English machines where opening the cover sent lead electrode into an acid solution, starting the electrical process. The good news was when radio came in; all the quack manufactures then became radio manufactures as they were the only group that knew how to wind a coil.

"Cupping" and Bleeding was another form of Quackery that was with us for a very long time. Dr B. Rush, George Washington's personal physician, bled poor old George to death. In later years he admitted they should not have bled him the third time. Many barbers bled their customers to rid the body of excess "bad" blood. The medical name of this madness was called "phlebotomy" and is still practised in parts of central and eastern Europe. The familiar red and white striped barbers' pole was a advertisement for blood letting as well as the usual barber's work.

There are a few great web sites with big collections of quack machines, if any Skeptics are interested they can contact me on marvin@tech2u.com.au and I will give them the web sites.

In America we have an expression "I'm from Missouri, show me" - a good credo for Skeptics.

Marvin Tanner
Roseville NSW

Nature of language

James Gerrand disputes my statements made in 19:4 (p. 70); but it is he rather than me who is 'in a twist', or

at least confuses two issues. As I stated, all physiologically normal (adult) humans are very similar indeed in respect of fluency in their first languages; thus there are **no** substantial differences which anyone might even try to relate to non-linguistic matters (genetic or environmental). On the other hand, children **do** differ somewhat in respect of the rate of acquisition of their first languages. Environmental factors are important here but so too are genetic factors, and this is what is involved in the findings now quoted by Gerrand. But this is obviously a different issue, not mentioned in Gerrand's initial letter (*the Skeptic* 19:3, p. 65). His initial point is indeed confused/mistaken.

Surprisingly, Gerrand also confuses the issue of fluency with that of the identity of a speaker's first language. Contrary to what he now seems to be stating, he did imply in his initial letter that the two speakers in the hypothetical case discussed would have different first languages; and this is, of course, correct. If he now really means to make the opposite claim (ie, that, despite growing up in different linguistic environments, they would have the same first language), he is completely (and obviously) wrong. But I think that he is in fact confused here, and that his intention is to comment on a totally separate issue, that which I discuss in 1) above: the question of how fluent the two speakers would be in their respective first languages, and by what stage of life.

Jane Curtain suggests another important point in respect of that issue: it is surprising that Gerrand should present as evidence the case of a single child. Still further, he presents **no** evidence as to the nature of the causes of this child's remarkable linguistic abilities - if so they be.

On my other initial point: I think that most readers of Gerrand's comments on Freeman and Mead would share my judgment that his approach appears partisan. It is illustrated again in the final paragraph of his latest letter. This is a disputed matter. Gerrand is entitled to his own view, but he should not talk as if the issue is settled to the satisfaction of all competent judges, which it very clearly is not. Gerrand also quotes me selectively and indeed tendentiously/misleadingly; I said that he seems to regard Freeman not as 'a saint' but as 'the academic/skeptical equivalent of a saint'.)

Mark Newbrook
Monash University VIC

Sub-Stove v sub-Chalmers

I do hate to read of quarrels between friends (*the Skeptic* 20:1 p68-9) particularly when it gets so bad that Dr Johnson's foolish retort of kicking a brick is transformed into a punch in the face. Given Johnson's reported preference for victory in debate to being on the side of truth, I find it particularly surprising that such an obtuse remark has found currency. It does nothing to repudiate Berkeley's argument that, because we perceive the real through the senses, the real is in the mind. Strange that if pain proves the existence of the Real then no major philosophy has been built on that foundation. Perhaps it has. Kant is less rhetorical, but no more convincing, in his observation that the blameless Berkeley degraded bodies to mere illusion. I have no doubt that the brilliant Berkeley could quickly have informed Kant of the usually very different perceptual character of bodies and illusions. All of which is only slightly to the point- which is that one has to deal with Berkeley more effectively than this to count as a realist.

What a dreadful ordeal it is to wade through Stove's logic in *Popper and After* only to find that his triumphant conclusion is bleeding obvious. I quote: "Nothing fatal to empiricist philosophy of science, in other words, follows from the admission that arguments from the observed to the unobserved are *not the best*; unless this admission is combined, as it was combined by Hume, with the fatal assumption that *only the best will do*."

One does not need an armoury of logic to realize that Hume was concerned with Certainty unless, or course, one is concerned to show off one's armoury of logic (as I have no doubt Stove was required to do when he originally fashioned the argument). Hume may not have been able or have dared to challenge Descartes' worthless supposed Certainty "*Cogito ergo sum*" but he effectively destroyed any pretension science might have of achieving Cer-

tainty through observation. Certainty and certainty are two quite different things and Hume's argument should not and cannot be used to deny science's pretension to certainty. Accepting that induction cannot provide Certainty might also make one an anti-Realist, but just as the argument does not concern certainty, nor does it concern realism. Accepting Hume's argument does not necessarily make one an anti-realist.

Why does Scott Campbell think he disagrees with "we have no absolute foundations on which to base our knowledge of reality" when he is of the view that the assumption that "only the best will do" is a demand fatal to induction? I suspect two reasons: because he is adamant that induction can yield truths; and because he thinks that somehow Truth can radiate down from logic (and mathematics).

Scott accepts the logic of the observation, which I incompletely quote from him: "The rejection of induction entails that our beliefs have a zero probability of being true". He correctly insists that induction can lead to knowledge. It is my guess that the problem for Scott is that he is unable to distinguish between Truth and truth and imagines that if truths can be derived from induction then they must be Truths (regardless that "only the best will do" is fatal). If the quote is correct then it is a reflection on the formal logic into which the problem has been cast. So much the worse for Popper and the logic (unless perhaps we capitalize 'true' in which case the zero result is apt). It is not even remotely sensible to argue that because Hume correctly showed induction could not produce Certainties that therefore any opinion based on observation is false- it merely argues that such opinions are not necessarily true (True). Formal logics tend to be poor at handling relative truth and it is my impression that even probabilistic logics are not really relativist but are concerned with a statement's relationship to Certainty. One might conjecture that mathematics and logic are tools that work best in areas of very high certainty.

The formal systems of mathemat-

ics and logic give the appearance of dealing in Certainties. I would suggest to Scott that merely by calling them formal (ie contrived) systems is enough to counter this view.

We are entitled to presume that Scott Campbell thinks he is a Realist (it not having occurred to him that the best need not do and he could opt for being a realist) and we can guess that this is because of his attitude to logic. If, in his learning of many subjects, Scott has managed to find one called 'logic' which has miraculously become an over-arching Logic that is then able to transform inductive truths into Truths I hope he will be able to retrace his steps (Certain steps presumably) so that others might more securely follow him. I think Scott has some work to do to convince us that absolutism is not relatively foolish.

I presume that Scott's objection to the conflating of the history and philosophy of science concerns a distinction between what science has achieved and how it has achieved it, which is fair enough. But heaven forbid that we instead conflate the philosophy and logic of science. Logic cannot be equivalent to philosophy unless one assumes that all considerations are bound by formal logic including formal logic itself (computer programmers can laugh at the self-reference if no one else will). This would seem to leave us powerless to consider formal logic itself which is plainly silly.

I have said nothing of Chalmers. He may have relativist leanings but I do not think he has a clear understanding of the difference between Truth and truth, Certainty and certainty. These distinctions enable one to deal much more effectively and simply with the philosophy of science.

**Lawrence Trevanion
Canberra ACT**

About our authors

Paul Blake works in the Regional Geological Mapping program of the Geological Survey of Queensland. He is doing a PhD part-time on "The Middle Palaeozoic corals and tectonic evolution of central coastal Queensland", whatever that means.

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Paul McDermott is presently studying for a Diploma of Information Technology in Network Engineering at BIT. He is not the host of a popular TV comedy programme.

Richard Kocsis is a lecturer at the School of Police Studies, NSW Police Academy and is the winner of the Australian Skeptics Eureka Prize for Critical Thinking for 2000.

Richard Lead is the little treasure(r), about whom the famous hymn, *Lead Kindly Light* most definitely was not written.

Chris Manning lives in Melbourne. He is qualified in mathematics and has also studied science, philosophy and education. Despite being a vegetarian, he once cycled from Melbourne to the Gold Coast in 18 days.

Mark Newbrook, linguist and Melbourne Rugby League buff, seems to get a lot of mentions in this issue. Is this evidence of corruption in high circles? No.

Bob Nixon, *Chef de Investigations pour le Skeptique et sur le pont d'Avignon*, is not French.

John Stear is a former public servant and now a man of leisure (how can he tell the difference?) who lives at the Gold Coast. His hobbies include getting up creationists' noses.

Grant Stevenson, president of Vic Skeptics, is an architect who knows the true meaning of wainscoting.

Kirk Straughen is a clerical officer with the Qld Government and is an occasional contributor to *the Skeptic*.

Sir Jim R Wallaby is both an eminent dignitary and a graceful celebrity. He is now awaiting the pay-off.

Barry Williams, boy editor, is wondering if having two articles by lawyers and two by psychiatrists in this issue has any underlying significance.



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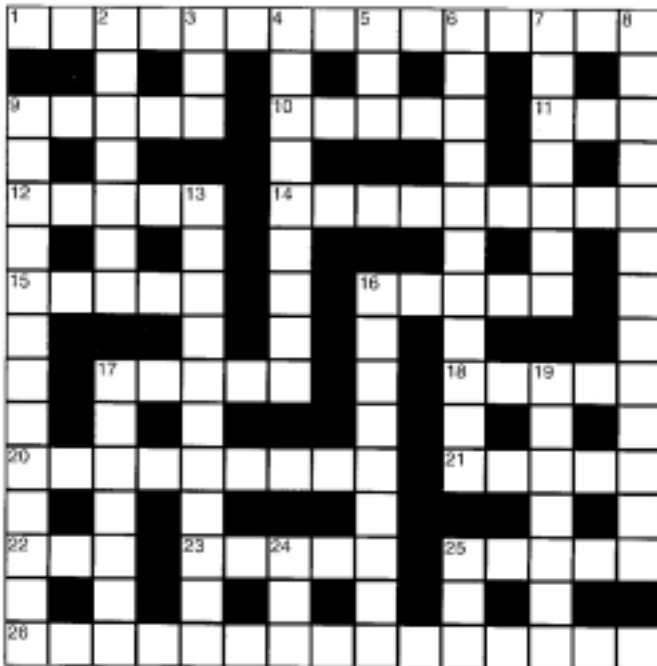
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The Skeptic Cryptic Crossword No 7 - Winter 2000

Clues



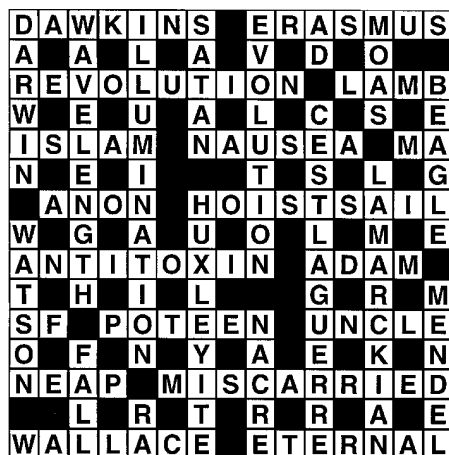
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Entries will not be opened until August 1 and the first correct entry opened will be the winner. The prize will be a book by Richard Dawkins.

Solution to Crossword No 6



The winner of of Crossword No 6, and a copy of Richard Dawkins' *Climbing Mount Improbable* is Phillip Milan of Winston Hills, NSW.

The Whelm Index increased significantly with No 6 and we are delighted.

Across

1. Fantasies about kidnapping foreigners? (5,10)
9. Seems I will go down the gangway. (5)
10. Sanctimonious stench? (5)
11. Pay-back for bark. (3)
12. Loony males burnt witches here. (5)
14. Got the dogs' disease but will paint. (9)
15. Garish Geller into the pounds and pence. (5)
- 16 & 6 down. Aliens are more earthy. (5,11)
17. Short circuited and raced madly about. (5)
18. A fool to back Amin. (5)
20. Financial interest in a puny rice pudding. (9)
21. Nowheresville for a total amputee? (5)
22. I want to be in that number. (3)
23. Last month's engineer, perhaps? (5)
25. Monsters, you left the rogues in disarray. (5)
26. Wizards aloft make alien sounds. (6,9)

Down

2. Al ruins the narrow islander. (7)
3. Suffered imminent demise in crazy den. (1-1-1)
4. Brain wide open? (5,4)
5. Skylight leads you to the Foreign Office. (1-1-1)
6. see 16 across.
7. Washington capital for the games site. (7)
8. Set posits ruin for Skeptical targets. (13)
9. Kelvin's indisputable measure of spirits? (8,5)
13. Shaman or the menthoidal Dr MacKenzie? (8,3)
16. *Per annum ad infinitum*. (5,4)
17. Leach my old chemistry set. (7)
19. Dunk in the grim Mersey. (7)
24. Further agreement in oui, aye, si, etc. (3)
25. Gong on the astral plane. (1-1-1)

Deadline for the next issue is August 1.

Contributions may be sent by email, mailed on floppy disc (most formats) or clear printed hard copy to:

**The Editor
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