

the skeptic

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Eureka Prize Winners

A JOURNAL OF FACT AND OPINION



Richard Saunders



Brendan McKay, Barry Williams and Trevor Case



Annie Warburton



Eureka Winner - Brendan McKay



Michael O'Rourke



Ian Rowland and Dick Smith

Skeptics Convention



Pete Griffith



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Under Attack

This has been a busy time for Skeptics around the country. We have seen the ever improving Eureka Awards ceremony, in Sydney, followed by one of our most successful National Conventions ever. Outstanding presentations in an excellent venue, it is a tribute to the small number of dedicated and active Skeptics in the Canberra branch that everything went off as well as it did, and they deserve all our praise. The Victorian branch has again involved itself successfully in the Great Australian Science Show, while the Queensland branch co-hosted a well-attended debate between a creationist and a scientist and the NSW branch held a special Dinner Meeting, attended by over 180 people, for our overseas convention guest speaker, Ian Rowland.

From this activity, it would seem that the Skeptical cause is in pretty good shape, with the first printing of our *Great Skeptic CD* being almost sold out and the *Water Diving DVD/Video* selling well, with many science teachers having taken up our offer of a free copy for their schools.

We can take heart from this but we should not drop our guard. There is still a long way to go yet before our society adopts a rational and reasoned approach to the ways of the world.

People are still committed to self-proscribed nostrums for self-diagnosed ailments, keeping the purveyors of worthless pills in business. A naturopath has been found guilty of manslaughter of a baby after treating him with an unproven device, but these devices continue to be promoted and sold, seemingly without check. More than 1500 people at-

tended the Queensland debate and the overwhelming majority of them adhered to the idiotic and pseudoscientific notions of the creationists. Illiterate Postmodern claptrap still pervades many parts of academia, to the detriment of excellence.

A straw in the wind

Perhaps one straw in the wind that shows that entrenched obscurantism is far from being in retreat, is reflected in the recent attacks by the media and bureaucracy on one of the nation's finest scientific institutions.

The Australian Museum came under attack in the media after a leaked government commissioned survey said that the Museum was not doing good work, not holding attractive exhibitions and, overall was not 'sexy'. Volumes could be written about how much attention should be paid to any study that thought that a leading cultural and scientific institution should be sexy. More could be said about a bureaucracy that would commission a survey in which this was considered a criterion. Apart from anything else, the claims made are patently and demonstrably untrue. Our tax dollars were not well spent.

The Museum, with which Australian Skeptics is proud to have been associated for many years, has just hosted the most successful celebration of scientific excellence ever seen in this country, the 2003 Australian Museum Eureka Prizes. The same media which attacks the Museum, paid scant attention to this major scientific event, while they happily dedicated many column centimetres

and airtime minutes to the results of mind-deadening pieces of trash "reality television" that happened to be going around at the same time. And the Logie awards (which, presumably, are very "sexy") rates pages of print and hours of time, as do the vacuous opinions of people of minor talent (though major teeth) in the Arts.

Reported complaints from some Museum staff are featured in the media, though often inaccurately, while letters to the editors from scientific staff which run counter to the prejudices of the media are ignored entirely.

The Museum has recently mounted several exhibitions that have had patrons queuing around the block seeking entry. It continues to produce world class science and to be an invaluable resource for those working in many scientific disciplines. Its Director, Mike Archer, remains one of the most accessible and media-friendly scientists in the country. Yet the Ministry of the Arts, the Museum's bureaucratic master, has reduced its funding while increasing that of many of the other institutions within its remit.

The media scents blood, and is on the attack and the reputation of this fine institution and its many dedicated and excellent staff, is being sacrificed on the altar of "sexiness".

This is but one example to show that the barbarians are not merely at the gates, they are in charge of the gatehouse. There still remains much for Skeptics to do.

Barry Williams

Around the Traps

Bookworms

As the SARS virus was attacking the rest of the world, some sort of literary bug seems to have been running rampant among members of the species *homo skepticus* of late.

Helen Lawrence, a Skeptic from Tasmania, has produced a book, *Making Friends with Fossils* (reviewed in this issue) which takes a tour of the various hominids who preceded us on the planet. She has also written a novel set in the early Tasmania of the Aborigines. Lynne Kelly, a science teacher and Skeptic from Melbourne, has just published a young adult novel, *Avenging Janie*, which looks at cultish behaviour and is full of good Skeptical stuff. Lynne has another book for schools in production, working title *Up in Smoke*, which debunks most of the topics that exercise Skeptics.

Helen Vnuk, late of the NSW Committee, just released *Snatched - Sex and Censorship in Australia*, about which she will be speaking at the NSW Skeptics Dinner Meeting on Oct. 11.

Long-time subscriber, Paul Livingston (aka Flacco), has just had published *Releasing the Imbecile Within*, a self-help book with a difference (also reviewed in this issue).

It might also be of interest that the Editor of this journal has almost completed his first book; when he finishes he plans to read another one.

Mars matters

Where were you when Mars came crashing through the window? Could we chance our arm here and say, never in the course of human history has so much twaddle been written about a perfectly natural occurrence by so many?

As mentioned elsewhere, Mars recently passed closer to us than it has for 60,000 years. Interesting but not such a startling phenomenon as the media would have us believe. Mars did not “appear as large as the Moon”, it didn’t bring earthquakes, or any other disasters. It just did what any astronomer could have (and did) predicted it would.

We particularly liked the US newspaper, quoting an unnamed “star gazer from Sydney” saying: “For the first time I will be able to see another planet with the naked eye”. She really should get out more.

More Mars

On a related theme, the creationists are quite grumpy about all this. Here are all these news outlets saying we are closer to Mars than we have been for 60,000 years, yet they **know** that the Universe is only 6,000 years old. Obviously it’s all part of an atheist, evilutionist, communist, media plot.

Star dreck

Meanwhile, astrologers have been weighing in with their equally vacuous clap-trap about the whole Mars thing. We’re not too sure who they blame for it all.

But maybe these star ignorers have something else to worry about. An English study, conducted over four decades on more than 2000 people born within minutes of each other, looking for later health effects of birth circumstances, found no common factors. The study had looked at more than 100 different characteristics of the group, and these included those that astrologers consider both significant and moderated by astral influences. The research was then analysed by Prof Ivan Kelly, a psychologist from Canada, Dr Geoffrey Dean, a scientist (and Skeptic) from Perth (WA), for any astrological significance, and found — none whatever! (How many Skeptics were shocked by that?)

Down to earth (or under)

Archaeology is a discipline that seems to attract more than its share of lunatic fringies, and now they have struck back. The May/June 2003 issue of *Archaeology*, published by the Archaeological Institute of America, had a special section “Atlantis and Beyond:

The lure of bogus archaeology” in which several writers demolished the claims of pseudoarchaeologists”.

It also listed the five worst pseudoarchaeological web sites and five sites that refute them. Skeptics will be delighted to see an old friend leading the worst offenders listed below:

www.answersingenesis.org

www.eridu.co.uk

www.flem-ath.com

www.sitchin.com

www.grahamhancock.com

No real surprises there. The saner view can be found at:

www.talkorigins.com

www.millerandlevine.com/km/evol/index.html

www.intersurf.com/~chalcedony/wildside.shtml

www.ramtops.demon.aoo.uk

www.antiquityofman.com

The last site on this list, or a book that flowed from it, is the subject of a review in this issue.

Leadership?

Here’s a question for the media. Why is it that any time anyone who holds any sort of clerical title from any of the multitude of faiths that infest the world rates a mention in the press, he (and it is almost invariably a *he*) is accorded the soubriquet “spiritual leader”?

This is not to deny that some of them might well be worthy of the tag, but plenty of them would be more suitably labelled with terms like “rabble rouser” or “bigoted ratbag”.

Here in spirit (if not in person)

Come to that, what’s all this argy bargy about “spirituality” anyway? You can hardly turn on Radio National these days without hearing some

deadly earnest divine or academic banging on about it. This is usually in the context of explaining why less than 20% of those who claim adherence to one religion or other in the census, bother attending their various houses of worship. “Oh”, they say, “Australians might not follow an organised religion, but they are a deeply spiritual people”. This is normally accompanied by a mention of the level of local involvement in some or other example of New Age drivel.

Are we really so “deeply spiritual”? Not in Bunyip’s wide experience of his fellow denizens of this continent (and it would seem the lovely and talented Annie Warburton agrees with this — see her ode to spiritual incorrectness elsewhere in this issue). To us, the average Australian is about as spiritual as an old boot.

Could it be, in the context of social fads, that “spiritual” has a meaning not included in any of Bunyip’s dictionaries — as a synonym for “shallow” or “fatuous”, perhaps?

Good deeds

The NSW Skeptics recently offered a copy of our Water Divining DVD to The Australian Museum Society (TAMS) to

be used in the hands-on science education facility at the Museum. TAMS were grateful but told us that they did not own a DVD player, so the Skeptics decided to supply a machine as well.

One of our main purposes is to encourage children to take an interest in science, so on 26 August, members of the Skeptics committee and TAMS representatives gathered at the Museum to hand over a DVD player, the Water Divining and another natural history DVD. TAMS President, Paul Willis thanked the Skeptics and Skeptics President Richard Saunders responded briefly. The one thing that was missing was a camera to record the event. Still, the next story should rectify that failure.

Going to the dogs

We received quite a lot of favourable comment on the appearance of the two official Skeptic cats (and unofficial stenographers) in the previous issue, so it seemed only fair to give equal coverage to the two official Skeptic dogs in this one. The recumbent harrier beagle is Penelope and the superincumbent fox terrier is Chloe. Sheer self-indulgence we know, but we think it is a very funny picture.



Bunyip

Eureka Winners Announced

Seven years ago, when Australian Skeptics became an Australian Museum Eureka Prize sponsor, we were only the sixth organisation to do so. This year the addition of three new prizes brought the total number of major sponsors up to 21. Sufficient reason for the Director of the Museum, Professor Mike Archer, to claim in his welcome to the 800 guests attending the glittering gala(h) 13th annual Eureka Prizes dinner:

The Australian Museum Eureka Prizes are Australia's pre-eminent and most comprehensive national science awards. They raise the profile of science in the community by acknowledging and rewarding outstanding science-related achievements across science, engineering, journalism and education.

A record \$210,000 was presented to 21 Australian Museum Eureka Prize winners at the dinner which was compered by ABC personalities, Sally Loane, Adam Spencer and Robyn Williams at Fox Studios on August 12, 2003.



Richard Saunders with Critical Thinking Prize winner, Brendan McKay

\$10,000 Australian Skeptics Eureka Prize For Critical Thinking

NSW Skeptics President, Richard Saunders, announced that Professor Brendan McKay, a mathematician from the ANU, had won the 2003 Australian Skeptics Eureka Prize for Critical Thinking. This prize is awarded for work that investigates conventional wisdoms and beliefs that owe little or nothing to the rigours of scientific method.

Brendan McKay applied his knowledge of mathematics and statistics to comprehensively demolish claims that hidden messages and prophecies can be extracted from the Hebrew Bible by computer analysis.

In 1994, the academic journal *Statistical Science* published a paper claiming that predictions of me-

dieval rabbis were encoded in the Hebrew Bible. Subsequently US author Michael Drosnin used the code theory to predict the assassination of Israeli Prime Minister Yitzhak Rabin in his book *The Bible Code*. Drosnin issued a challenge, "When my critics find a message about the assassination of a prime minister encrypted in *Moby Dick*, I'll believe them."

McKay rose to the challenge. Not only did his detailed analysis reveal the statistical trick that led to the false prophecies, he used the same trick to find "predictions" of the assassinations of Gandhi, Trotsky, Martin Luther King, Kennedy, and Lincoln in *Moby Dick*.

"The false prophecies arise because you can analyse the text in billions of different ways — it's just random chance," says McKay.

For his commitment to critical thinking, Brendan McKay received the Australian Skeptics Eureka Prize for Critical Thinking for 2003.

A detailed paper on Prof McKay's demolition of the Bible Codes, as presented to the Skeptics National Convention, can be found elsewhere in this issue.

Other Winners of the 2003 Eureka Prizes

Australian Museum Eureka Prize for Industry
Wireless Monitors Australia, for Cent-a-Meter Wireless Electricity Monitor, a simple and unique tool to help households manage electricity usage and save money.

Australian Computer Society Eureka Prize for ICT Innovation
Soundbyte.org for a website that offers access to an array of music resources for teachers, students and young people.

Engineers Australia Eureka Prize for Engineering Innovation
John Dobozy, a Queensland inventor who developed a clean industrial process to convert old tyres into valuable commodities.

Australian Catholic University Eureka Prize for Research in Ethics
Craig Fry, Senior Research Fellow at the Turning Point Alcohol and Drug Centre in Melbourne, for research into drug misuse to illustrate the need for the development of ethical standards in public health.

British Council Eureka Prize for Inspiring Science
Researchers from the Australian National University, Ping Koy Lam and Warwick Bowen, who have dramatically demonstrated that quantum teleportation is possible.

GRDC Eureka Prize for Research to Improve the Environmental Sustainability of Graingrowing
Dr Ted Lefroy, and researchers from CSIRO and the University of WA. Perennial native grasses offer a new crop for grain growers and a weapon against soil erosion and salinity.

Royal Botanic Gardens Sydney Eureka Prize for Biodiversity Research
Atlas of Australian Birds, published by Birds Australia, won the Prize for Biodiversity Research.

Royal Societies of Australia Eureka Prize for Interdisciplinary Scientific Research

Researchers from the University of Sydney, Westmead Hospital and the Mental Health Research Institute of Victoria, for developing a successful model of how electrical activity is generated in the brain



Eureka compere and ABC presenter, Sally Loane surrounded by Skeptics.

Sherman Eureka Prize for Environmental Research
CSIRO Climate Impact Group, the best source of climate change information in Australia for the past 16 years.

University of New South Wales Eureka Prize for Scientific Research
Prof Levon Khachigian (UNSW), using DNA-based enzymes, has developed a class of novel strategic drugs that could dramatically reduce the death rate from atherosclerosis, act as anti-cancer drugs, and fight the commonest form of blindness in the elderly.



Skeptics attempting to win the Eureka Prize for Drinking a Lot

Education, Science and Training Eureka Prize for the Promotion of Science

Dr Cathy Foley, leader of a team in high temperature superconductivity research at CSIRO's Division of Telecommunication & Industrial Physics, also managed to tally up hundreds of talks to schools and community groups, TV and radio segments.

Education, Science and Training Michael Daley Eureka Prize for Science Journalism

Sonya Pemberton, for her documentary, *Alien Underworld*, which followed geologist Dr Philippa in her struggles to convince the international scientific community that nanobes are alive.

Environment Australia Peter Hunt Eureka Prize for Environmental Journalism

ABC Current Affairs reporter Nick Grimm for his coverage of the formation of the Wentworth Group.

Engineers Australia Eureka Prize for Engineering Journalism

Coverage of the search for answers after the Canberra bushfire tragedy won the Prize for Andrew Holland from the ABC's *Catalyst* crew.

Pfizer Eureka Prize for Health and Medical Research Journalism

Daniel Williams, Senior Writer for *Time* won for the story of an apparent step forward in the treatment of multiple sclerosis by Dan Milder, a Sydney neurologist.

Reed New Holland Eureka Science Book Prize

The Waterbug Book by John Gooderham and Edward Tsyrlin, is a comprehensive guide to yabbies, water boatmen, snails, clams, worms, shrimps and all the other beasts that live in the rivers, streams, ponds and wetlands across temperate Australia.

Bent Spoon

The nominations for the Bent Spoon Award (“presented to the perpetrator of the most preposterous piece of paranormal piffle”) this year were as varied as usual and there were several worthy contenders for this least sought-after award. The media, particularly television, came up with some truly awful contenders, none more so than the appalling *Search for the Spirit of Diana* shown, with complete lack of taste, by the 9 Network. The Victorian education system did itself no favours by indicating in a science examination paper that the ability to walk on hot coals was a function of mind over matter.

However, by far the most popular area for nominations was the field of “alternative” medicine. This is hardly surprising, when the Pan Pharmaceuticals scandal, which threw the whole industry into a panic, is considered. Indeed, Pan itself received several nominations, as did the TGA for not exposing matters sooner, and the nation’s pharmacies for selling so much of their dubious products

There was support for all of these nominations, but the judges decided that Pan was not specifically doing anything paranormal, merely carrying out “normal” activities in a very bad way, while the TGA, which should have been more alert, suffered from limited resources.

Finally, one candidate did emerge from the deliberations and it was one that was most deserving of the award. The Complementary Healthcare Council is an industry group, consisting of manufacturers and practi-

tioners of products and therapies of dubious value, though immense popularity. Where a responsible organisation might be expected to clean up its own industry by throwing out dangerous practitioners or exposing dubious therapies, there is no evidence that the CHC does any of this. Whenever there is a sign of regulatory interest in any of their modalities, this body lobbies furiously to keep scrutiny to a minimum. Moreover, following the Pan debacle, this industry approached the government seeking millions in taxpayers’ money to “educate” the public on the value of their products. Fortunately this example of unmitigated gall was not met with success.

For these reasons and others we are delighted to announce that the Complementary Healthcare Council of Australia is the winner of the bent Spoon Award for 2003. There has never been a more worthy one.

On a positive note, the Skeptics were delighted to announce that two of our longest serving and hardest working members had been made Honorary Life Members.

Ian Bryce has been a member of Skeptics committees since the inception of the organisation and has been the leading technical expert investigating a multitude of pseudoscientific claims. Bob Bruce has been the stalwart of the Queensland Skeptics for almost as long, and has been instrumental in making his branch a powerful voice for reason in the northern state. Congratulations and thanks to both Ian and Bob for their efforts.



New Life Member, Ian Bryce

Eureka

Adam Spencer/University of Sydney Eureka Schools Prize for Lateral Thinking

Janak Ramakrishnan, Rachael Tiong and Lisa Law, from Baulkham Hills High School, NSW suggested a programme of virtual reality solutions to drug use by the young.

EPA Allen Strom Eureka Prize for Environmental Education Program

Schools can slash their waste by following the EcoRecycle Victoria Waste Wise Schools’ Program devel-

oped by the EcoRecycle Victoria and Gould League.

Macquarie University Eureka Schools Prize for Earth, Environmental and Planetary Sciences

What can be more environmentally friendly than a solar cell for desalination? Ryan Bose, a Year 9 student at Keebra Park State High School in Southport, QLD, found the answer is a solar furnace. (Two other prizes were won by students from this school.)

University of Sydney Faculty of Science Eureka Schools Prize for Biological Sciences

A team of 9 students from Year 10 at Shenton College in WA, decided to look at their local environment and investigate what impact it has on germination and growth of a range of West Australian native plant species.

Details of all winners can be found on the Australian Museum web site: www.amonline.net.au/eureka/

Convention Roundup

The Annual Skeptics Convention held in Canberra 22 to 24 August was a tremendous success, with approximately 210 people participating over three days. It was a tribute to the skills of the Canberra committee members, Pete Griffith, Vicki Moss, Michael O'Rourke, Peter Barrett and David Wilson. Branch Secretary, Vicki Moss, provided the following summary of events.

The convention began with a Young Skeptics Afternoon, which was attended by more people over the age of 40 than under 20, which presumably shows that Skeptics are only as old as they feel. Nevertheless it was a fun afternoon which included:

Nicholas Johnson's magic show

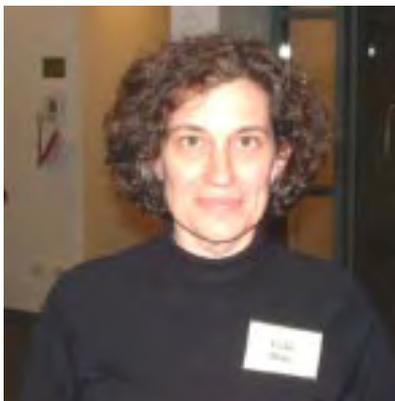
Peter Barrett's talk on whether the moon landing was faked.

Lynne Kelly's introduction to skepticism

Pete Griffith's demonstration of psychic surgery

Neal Newman's talk about NASA's Mars exploration program

Winners of the cartoon competition, **Justin Bush** and **Jack McLinden**, were announced.



Vicki Moss



Pete Griffith

On Friday evening a forum on alternative remedies was held. It was all too much for one participant who, after several attempts at heckling, left very early on.

Pete Griffith spoke about which alternative remedies may receive rebates from health funds. He described how poisonous remedies can be made safe and the problems of those that have not been fully tested for their effects.

Bob Montgomery explained some of the tricks our minds can play on us. He spoke about how the brain is designed to elaborate on the information it receives, concluding that we are programmed to make emotional decisions rather than use logic.

Peter Bowditch advised us to analyse what remedies we are taking and whether they are dangerous. He spoke of the dangers of those practitioners who say they can prevent or cure diseases when they clearly cannot.

Val Johanson spoke about the efforts that the Complementary Healthcare Council is taking to regulate the alternative remedy industry.

She encouraged people to inform the ACCC if they are aware of dangerous practitioners or those making false claims.

Saturday

On Saturday there was a line-up of speakers on many topics:

Professor **Colin Groves** illustrated the evolution of a number of animal groups and how one can predict what is in the fossil record. His talk ended with a graphic of the amazing similarity between dolphins and cows.

Dr **Trevor Case** described some fascinating research into the tricks people's minds play when they are reminded of death. He explained how people express their immortality through a belief in an afterlife.

Steve Symonds gave us a turbulent overview of weather forecasting, the mythology surrounding it and the pitfalls of cloud seeding. He finished with some spectacular images of lenticular clouds (with UFOs inside them).

Dr **Borek Puza** enlightened us on some of the sampling errors people make either deliberately or accidentally, when interpreting statistical results. Examples were homeopathic testing and perceived incidence of disease.



Michael O'Rourke

Peter Bowditch enthralled us with an exposé of the truth behind the Snowy Mountain Scheme. He claimed, tongue well planted in cheek, that its tunnels were created as shelters to house important US citizens in the event of nuclear fallout (as in *On the Beach*).

Richard Saunders gave us an entertaining brief on the abilities people display when faced with obvious holes in the plot. Such people as Trekkies and water diviners often undertake mental gymnastics in order to save their beliefs.

Professor **Brendan McKay** showed how he has cracked his own bible code. When the text of *Moby Dick* is recorded in lines of 3,000 letters, he can seemingly find whatever he looks for, including McKay, Bible, Code, Eureka and Prize, all within close proximity.

The convention was extremely fortunate to have as our overseas speaker **Ian Rowland**. He gave a display of card tricks, spoon bending and cold reading and horrified the audience by inserting a five inch nail up his nose. The message to take away was that psychics are really just people who couldn't quite make it as magicians.

Prior to the dinner, participants were invited to submit limericks about the speakers. A reading of the most humorous of the limericks formed the entertainment at the dinner, followed by card tricks by **Ian Rowland**, **Peter Rodgers** and **Steve Walker**.



Convention audience enjoying the fun



Magician, Peter Rodgers, reveals all to Annie Warburton

Sunday

On Sunday we heard from five speakers about getting the message across and two speakers about the Planet and Beyond.

Professor **Chris Bryant** and Dr Sue Stockmayer from the ANU's

expressions in their minds, he helps people understand science.

Dr **Jeremy Bailey** spoke of the work being done to find out whether extraterrestrial life exists. The search is for little green bacteria rather than little green men.

Dr **Colin Keay** gave us a thought provoking synopsis of hormesis, the fine line between having in our bodies sufficient of a substance but not an excess.

In the closing remarks, **Pete Griffith** and **Peter Barrett** read out the best of the acronym competition.

Several papers presented at the Convention appear in this issue and others will be forthcoming in later issues.



Dining Skeptics of the non-bearded persuasion

Centre for the Public Awareness of Science, spoke of the importance of getting people to understand science, giving some humorous examples of the traps people fall into when they do not portray their messages with absolute clarity.

Lynne Kelly, a science teacher, gave a vibrant talk about how she gets her message across to children. She astounded us with her ability to address the many questions that teenagers ask.

Annie Warburton gave a very funny talk about spiritualism. Providing many examples of the use of the word, she showed that it has different meanings for all of us and no meaning at all for many present.

Professor **Mike Gore** gave a string of fascinating demonstrations. By creating lasting im-

Busy Times for Our Guest



Drs Karl and Paul with Richard Saunders

The Chatswood Club was full to overflowing on Saturday August 30, for a special Skeptics Dinner to give Sydney folk the chance to see our British convention guest, Ian Rowland, in action. Ian had wowed the audience with his performance the week before at the Convention in Canberra, and before that he had flown to Melbourne, along with some Sydney Skeptics, to assist the Victorians with their stand at the Great Australian Science Show.

One of the first people to book was none other than Sydney University science guru and ABC commentator, Dr. Karl Kruszelnicki who brought his whole family. Another of the ABC's finest, Skeptic of the Year Paul Willis came along and among the guests was Brian Wilshire from Radio 2GB with his wife Ruth. Many more long time friends and Skeptics took the opportunity to be part of the fun.

Before Ian's performance, acknowledgments were made to new honorary life member Ian Bryce and to the work of the Junior Skeptics, Belinda Bowdtich and Gillian Brown.

Then came the show and what a show it was. Everything from spoon-bending, card tricks, mentalism to the creation, in front of the whole audience, of a 'paranormal object', namely two squares of newspaper joined together as links in a chain..... but with no joins!

Ian finished his show (and almost himself) by hammering a 5 inch nail into his nose. Skeptical audience members exam-



Ian Rowland amazes Dick Smith and Barry W

ined the nail, the hammer and the nose! All were genuine.

One of the highlights of the night was question time when Ian was able to expand on his thoughts about the so-called psychics and how they cheapen the noble art of magic.

A wonderful performance and even more amazing considering Ian had flown in that afternoon from a 5am tour of Uluru.

Ian Rowland has a busy and fruitful time during his first visit to Australia, with his several Skeptics commitments and other activities with the local magic groups, but it was not all hard work. On one of his less busy days, he accompanied Skeptics Richard Saunders and Barry Williams to meet our patron, Dick Smith. Always a gracious host, Dick invited his guests all to join him in a flight over Sydney harbour in his new helicopter. They haven't stopped talking about it since.

Before leaving, Ian expressed his delight with his visit to Australia and we must say just how much we enjoyed having him as our guest.



Helen Vnuk removes a nail from Ian Rowland



Confessions of a Codes Buster

**If you go looking for codes
you are bound to find them**



Brendan McKay is Professor of Computer Science at ANU and is the winner of the 2003 Australian Skeptics Eureka Prize for Critical Thinking.

My first public contribution to the study of mathematical miracles occurred around 1974, when I was “assisted” into the street by two burly gentlemen from a certain Christian church in Melbourne. My crime had been to distribute copies of my pamphlet *The Divine Nature of the Wizard Scientifically Demonstrated*, which proved by mathematical means that a friend of mine was just as divine as he claimed to be. The motivation behind the pamphlet was the promotion by the aforementioned church of the work of the great Harvard mathematician Ivan Panin, who had irrefutably proved the divine inspiration of the scriptures and whose work was certified by the Nobel Foundation.

Looking for patterns

Ivan Panin was a Russian, born in 1855, who emigrated to the United States. In 1890 he discovered “amazing numerical patterns” in the Hebrew and Greek texts of the Bible, mostly involving counts of letters and words together with extensive use of *gematria* (numerical values of the letters). He wrote many books and left 43,000 pages of notes to lucky future generations.

Alas, this great Harvard mathematician turned out to have received an arts degree in literature, with mediocre grades in a few low-

level mathematics subjects, while the Nobel Foundation was merely a Californian businessman named Nobell. Still, quibbles aside, those numerical patterns are really there in the Bible (most of them, anyway) and deserved a response. Hence the pamphlet. Now we know that patterns like Panin’s can be found in any text, and even in the details of my friend’s life.

Panin was only the most prolific of many numerical pattern finders; in fact, the genre is not even restricted to the Bible. A few decades ago, an Islamic cleric named Rashad Khalifa found miraculous patterns involving the number 19 in the text of the Qur’an. They aren’t as plentiful as Panin’s but frankly I like them better and don’t even mind that he had to make more and more brazen adjustments to the text of the Qur’an that culminated in the deletion of two whole verses. Unfortunately the euphoria of success was too much for him and he used his system to prove that he himself was the next great prophet after Abraham and Muhammad. I don’t know if that’s why he was murdered.

Kabbalistic literature

Of course, things like this are known in the Judaic tradition too but there is a difference. Whereas the examples I described above were con-

cerned with patterns that are miraculous merely as patterns, Jewish writers have been more interested in the extraction of actual information from the Bible text. There are many examples in the Kabbalistic literature where devices such as reading the text backwards, extracting the first letters of each word, and so forth, were used to find words and coincidences whose appearance taught us something about the place in the text where they were found. An example of particular interest to us appeared in the *Genesis* commentary of Rabbi Bachya ben Asher, who lived in Spain in the 13th century. Bachya found that taking every 42nd letter starting with the first letter of the Bible gave the expression *baharad* which traditionally specifies the day and time of the creation — quite a nice thing to find embedded in the creation story.

For some reason not much was done with Bachya's discovery until the middle of the twentieth century. Its modern revival was left to a Slovakian, Rabbi Michael Dov Weissmandl, who would be more famous (and very deservedly so) as a hero of the anti-Nazi resistance in war-time Europe if it wasn't for his vitriolic attacks on the Zionists. Weissmandl used his long stay in a secret underground bunker in Bratislava to make many Bachya-like discoveries. The rules are very simple: start with any letter of the text and skip forward (or backwards) with equal length steps. You can choose the length of the steps (Bachya chose 42) but you have to use the same length for each step. This will give you a sequence of letters which, if you are lucky or your text is the word of God, will form a meaningful word or phrase. Such an embedded word is popularly known as a *code*.

After the war, Weissmandl moved to America and his students continued his work. About 1980, one of them showed the technique to an Israeli schoolteacher named Avraham Oren and this is where the story starts to get more interesting. Oren was intelligent enough to know

that subjective impressions are not sufficient to decide if something like this is real or not (that is, whether those structures are in the text by accident or design), and enough of a scientist to admit that he didn't have the skills to decide. So he took some examples along to the Mathematics Department at the Hebrew University of Jerusalem.

One of the mathematicians who met with Oren was a brilliant but enigmatic Russian, Eliyahu Rips, who had made headlines in 1969 by setting himself alight in the town square of Riga in protest at Soviet actions in Czechoslovakia. A campaign lead by American Jewish mathematicians (mistakenly believing he had been protesting Soviet treatment of Jews) secured his release from the sanatorium in which he had been incarcerated and he migrated to Israel soon afterwards. When Rips saw the examples provided by Oren, he immediately fell in love with them and devoted himself passionately to their study. He soon brought in his religious studies partner Doron Witztum, a physics dropout, and a student, Yoav Rosenberg. Together, Witztum, Rips and Rosenberg (WRR) made the next important discovery: sometimes the codes for several related words could be displayed in a small rectangle if the text was written out in a particular fashion.

Australian example

It's about time we gave an example, so let's take a look at the Australian Constitution. Starting at letter 9390 and skipping forward 3083 letters at a time, we find the word Howard. Similarly, starting at letter 12475 and skipping forward 6164 letters at a time, we find the word Tampa. It appears that the Australian constitution predicted our prime minister John Howard and his role in the infamous Tampa affair, but at first sight it looks like these two codes are far apart in the text. However, if we write out the Australian Constitution with 3082 letters on each line, we can cut out a very small rectangle that contains both codes. Now

Howard and Tampa have the appearance of very close proximity (Fig. 1).

T	T	O	N	S	O	F	S
T	H	E	N	A	R	L	I
N	I	O	W	T	H	E	R
I	L	I	T	A	R	O	R
L	T	H	F	O	R	Y	D
F	F	I	R	M	R	P	U
V	A	L	A	N	E	D	B
E	X	C	E	P	T	M	I
M	O	N	W	E	A	I	O
H	E	S	T	A	T	L	T
L	L	B	E	T	A	K	E

Figure 1

It isn't always possible to fit two codes into such a tiny rectangle, but WRR noticed that it could be done quite often when they looked for pairs of related words in the Hebrew text of the Bible. When they tried pairs of unrelated words, on the other hand, they felt that a small rectangle was possible rather less often. Somehow the Bible seemed to "know" whether two words were related or not. If the two words referred to modern events or knowledge (say, disease and bacteria), then a miracle was the only plausible explanation. WRR were soon convinced that they had discovered nothing less than scientific proof that the Bible was written by God and set themselves the task of convincing the scientific community of it. For that they needed more than anecdotal examples; they needed a formal experiment.

The first requirement for a formal experiment was a list of pairs of related words. Witztum had once before noticed that the name of the famous Zionist Theodor Herzl appeared as a code in close proximity to his date of death, but secular Zionists are not held in high regard in the strict religious community to which Witztum and Rips belonged, so they decided to use the names and

dates of birth or death of famous rabbis instead. (In Hebrew, dates can be written using only letters.) So they compiled a list of 34 medieval rabbis and ran a computer program designed by Rips that measured the closeness in the Bible of these word pairs (each pair consisting of the name of a rabbi and his date of birth or death). The answer was astounding: a 1 in a billion chance that such a degree of closeness could be the result of chance alone. Then they sent their results to the mathematical economist Robert Aumann for publication in the *Proceedings of the National Academy of Sciences* of the USA (PNAS).

Publication

Editors of scientific journals are no strangers to crackpot submissions. Many people with a new (or old) harebrained “discovery” send it to a journal and mutter about conspiracies when they get an immediate rejection slip. WRR’s paper didn’t receive this treatment for several reasons. One is that it had the superficial appearance of scientific work, but more importantly it had the active support of a number of highly respected mathematicians including Aumann himself. However, Aumann needed the approval of a referee and for this he chose a celebrated statistician, Persi Diaconis.

Diaconis didn’t like what he saw. The measurement method was excessively complicated, and he suspected that it had been illicitly adjusted to give the desired result. To catch WRR at this crime, Diaconis demanded that they use the same measurement method on new data. WRR compiled a new list of 32 different rabbis and ran their program again. To Diaconis’ consternation, the result was just as miraculous as before.

Now Diaconis tried a different tack. It was clear that the measurement

method suffered from various technical difficulties. Perhaps that was the explanation. Diaconis devised a different measurement method himself, and set WRR a tough target. A result of 1/1000 or better would be taken as success, worse and the paper would be rejected. This time he was sure the codes were history, but then the results come back: 60 times better than the target. What to do? Despite the prior agreement, Diaconis could not bring himself to publish the paper in PNAS, but instead suggested a statistical review journal, *Statistical Science*. WRR sent their paper to that journal, which insisted on refereeing it again. After a few years of to and fro, the paper appeared in 1994 with the editor’s preface: “Our referees were baffled... the paper is presented as a challenging puzzle.”

The Bible Code

Needless to say, the editor’s reservations were not enough to prevent the phrase “peer-reviewed scientific journal” from becoming the mantra of the growing multitude of codes believers. The reprinting of the paper in full in a best-selling book *The Bible Code* by Michael Drosnin (1997) made it possibly the most widely distributed scientific paper of

all time. Drosnin had another trump card as well: he had successfully used the codes to predict the assassination of Israeli prime minister Yitzhak Rabin in 1995. His book built on this by showing how the codes had predicted an impressive array of historical events, from assassinations to earthquakes, and predicted more to come in the future. Oprah seemed impressed.

Of course the skeptics didn’t keep silent and better media outlets reported their concerns. Drosnin retorted, “When my critics find the assassination of a prime minister predicted in *Moby Dick*, I’ll believe them.” However, when I used a live Italian TV show to confront him with the assassinations of Indira Gandhi, Leon Trotsky and Martin Luther King, all encoded in *Moby Dick*, he seemed strangely reluctant to keep his promise. American skeptic Dave Thomas joined in with findings of UFO and Roswell, and many others. Recently Drosnin has published a second book, more absurd than the first. Our reply is that even Drosnin’s book itself contains codes, for example the Bali bombing predicted in a page dealing with terrorism (Fig. 2).

So much for Drosnin. His nonsense is an easy target, but we must not forget WRR’s paper, which is far more sophisticated. WRR’s experiment cannot be refuted by finding codes in *Moby Dick*. They don’t even claim that codes can’t be found in *Moby Dick*. Rather, what they claim is that the Bible does it more often, or more accurately, or with more compact letter arrays, than other books do. Witztum and Rips’ paper appeared to show precisely that, and we were determined to find out why. For this purpose I teamed up with a small group of Israeli scientists who had started working on it independently. The principals were Dror Bar-Natan, Maya Bar-Hillel and Gil Kalai, all of the Hebrew University.

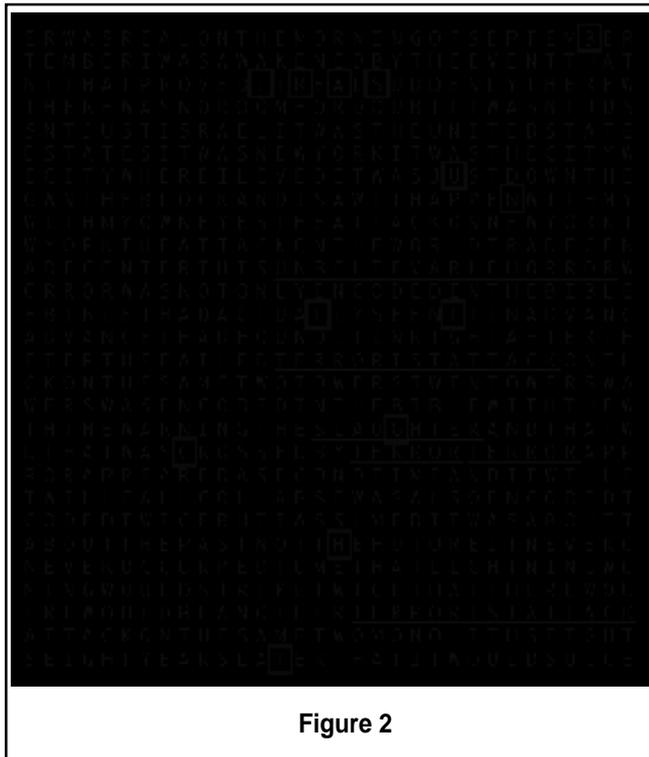


Figure 2

Analysing the method

Our approach was first of all to look hard at the analysis method. We found some significant problems with it, but could never be satisfied that those problems provided sufficient explanation for the result. The breakthrough we needed was provided by a friend in the Ultra-Orthodox community, who noticed that some of the names used for the famous rabbis were doubtful, and some other names were missing. To understand this, notice that it is normal for someone to have many names. As well as John Howard, there is Mr J. Howard, Mr Prime Minister, Honest John, and plenty of others. The same was true of medieval rabbis, and there was also the question of spelling, which used to be far less of an exact science than it is today. Of course the codes performance of different names or spellings are not all the same, so the possibility exists of selecting the names and spellings which perform best, thereby skewing the outcome of the experiment. To prove that biased choice of names and spellings could provide a plausible explanation for WRR's result, we constructed our own version of the data deliberately biased towards the Hebrew translation of *War and Peace*. Our claim, which has survived attack pretty well, is that our data is just as historically and grammatically correct as WRR's data, yet it displays the codes just as strongly in *War and Peace* as their data does in *Genesis*.

Of course, the mere opportunity for a crime does not establish that the crime was committed, so we also sought indications, both in the historical record and the data itself, that some type of biased data selection had occurred. For example, we discovered an early recorded lecture of Rips that appears to contradict

the official account of how WRR's experiment was conducted. We also conducted a number of experiments ourselves including a re-enactment of WRR's experiment using an independent expert (as they claim to have done) to choose the names and spellings. In all cases nothing beyond chance phenomena was found. We presented all this evidence in a



The author holding his Eureka Prize trophy

paper published in *Statistical Science* in 1999.

Another codes experiment

Another codes experiment is worth mentioning. About 1990, an employee of the US National Security Agency named Harold Gans ran an experiment that matched the names of the great rabbis against the places (as opposed to the dates) of their birth and death. He obtained a very strong positive result. This is often presented as proof that WRR's data was not improperly adjusted, since adjusting the names and spellings to work well with the dates would prob-

ably not make them work well with the places. However, this argument forgets the spelling of the places. Most of the place names were European cities that can be transliterated into Hebrew in multiple ways. Gans obtained his data from an Israeli associate of Witztum, who produced a very complicated algorithm by which he had extracted the place

names from two encyclopedias and selected spellings. American mathematician Barry Simon later commissioned a rerun using the spellings precisely as in the encyclopedias, but the result was completely negative.

A more thorough examination of the Gans experiment was carried out by a committee at the Hebrew University that included both the codes proponent Rips as well as the skeptic Bar-Natan. The committee designed two separate reruns of Gans' experiment, each using independent experts to compile the data. These experiments were completed in early 2003, and the results were absolutely negative. This made it completely clear that the strong positive result obtained by Gans is a reflection on his data, and not a sign of anything unusual going on in the Bible.

That would sound like the end of it, but we skeptics know that things like this never die just because they are disproven, they only blink a few times and carry on regardless. The International Torah Codes Society, which includes a few real scientists, runs conferences in Israel each year (sometimes with Israeli government sponsorship) where the latest experiments proving the codes to be real are earnestly discussed. Excuse me if I get back to my real work for a while.



Lies, Damned Lies and Statistical Traps

A knowledge of statistics is vital to our understanding of the world, but incomplete knowledge can trap the unwary



Borek Puza is a lecturer in statistics at ANU and thus knows whereof he speaks.

Statistical traps may be defined as ways in which statistics can be misinterpreted. An understanding of these traps is important because statistics play a vital role in decision making, whether that be in government, business, science, or in your GP's surgery where you are trying to decide on a treatment for a serious illness. This article consists of several examples of how apparently obvious interpretations of statistics can be very wrong. These illustrations emphasize the message that when initially confronted with an argument based on 'statistical facts' it is always good to be skeptical.

Randomisation and double blinding

In the last issue (23:2, pp 36-37) I described the *Horizon Dilution Experiment*, which was conducted in 2002 and shown on *Horizon* (BBC) and *Catalyst* (ABCTV). This homeopathic experiment showed no evidence for a difference between plain water and a dilute histamine in their effects on human blood. In my article I discussed the importance of randomisation and double blinding in scientific experimentation, and showed how the positive findings of other researchers, in particular Madeleine Ennis, may have come

about by neglecting these two principles. For more details, see my previous article, Brown and Ennis (2001), and a transcript of the *Horizon* program at www.bbc.co.uk/science/horizon/2002/homeopathyqa.shtml

The single control trap

Another way in which the positive findings of Madeleine Ennis may have come about is as follows. Consider Figure 1 which shows the percentage inhibition of basophil activity for 20 different dilutions, ranging from 1 in 100 to 1 in 10 to the power of 40, as estimated in Brown and Ennis (2001). If there is no difference between plain water and dilute histamine, one would expect about half of the bars to go up and half to go down; so the fact that there are 18 up-bars and only 2 down-bars suggests a difference. However, it is not clear from Brown and Ennis (2001) whether the 20 histamine dilutions were compared to the same control or to different ones. This illustrates another statistical trap. If the dilutions were all compared to a single control it would only need that control to be far from the mean of all 21 groups by chance to produce the significant differences shown in Figure 1.

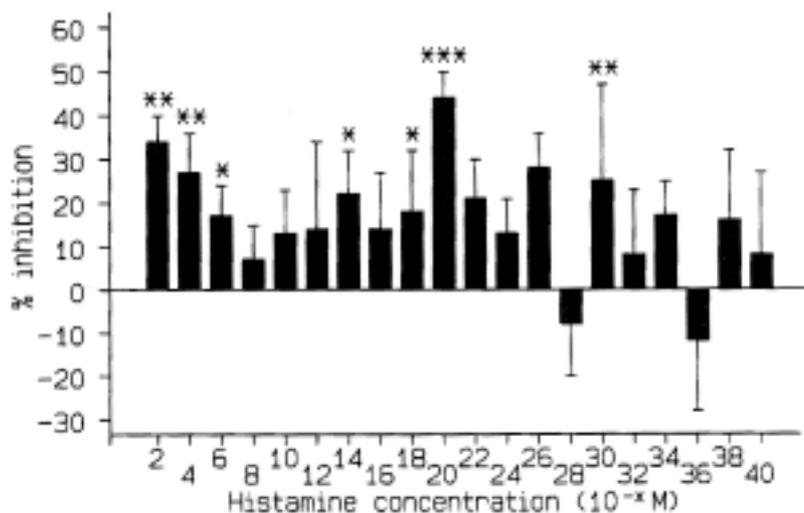


Fig. 1. Percentage inhibition of basophil activity by histamine dilutions (data of Brown and Ennis, 2001)

Hypothesis testing and p-values

Hypothesis testing plays an important role in science. For example, from the results of the first laboratory in the Horizon Dilution Experiment, the p-value for the test of no difference between plain water and histamine was found to be 0.6. This means there was a 60% chance of getting a result as or more extreme as the result obtained, assuming no difference between water and the histamine. Then because 60% is a considerable probability we have no reason to doubt the assumption of no difference.

There are many ways in which a p-value can be incorrectly calculated. One of these is *post hoc* testing, whereby the hypothesis test is chosen only after the data have been collected and patterns have been looked for. Another way is to recalculate a p-value after increasing the amount of data. Both of these practices have the effect of making it more likely that a non-existent difference will be found.

When looking for patterns in data, calculating p-values *post hoc* and with unclear stopping rules can be a valuable tool. But a small p-value calculated in this way should be treated with extreme caution and used only to motivate a further experiment where the details of any

hypothesis tests are decided on before the data are collected.

It is important to keep in mind the difference between statistical difference and practical difference. For example, the Princeton Engineering Anomalies Research (PEAR) program (<http://www.princeton.edu/~pear/>) has after more than 20 years concluded that humans can by pure thought influence a random 0-1 number generator to produce 1's with probability about 0.501 rather than 0.5. Apart from anything else, the tiny p-values used to justify this conclusion are suspect because they are based on data from an ongoing experiment with no clear stopping rules.

Publication bias

The researchers who conducted the Horizon Dilution Experiment have written a paper but are having difficulty getting it published in a scientific journal. So far they have been turned down by *Nature*, *Science*, *Nature Medicine* and the *British Medical Journal*. This illustrates the phenomenon of publication bias, whereby studies with an interesting positive finding are more likely to be published than ones with a negative finding. Thus the scientific literature ends up containing more studies that show a false hypothesis to be true

than studies which show that hypothesis to be false.

To illustrate, consider 1,000 experiments to test whether the probability of heads coming up on \$1 coins is different to the probability of heads coming up on \$2 coins. If a p-value of 0.05 is considered significant, then about 50 studies will conclude there is a difference and perhaps 20 of these will be published. On the other hand, perhaps only 2 of the 950 studies which show no difference will be published. The end result will be 22 studies, almost all of which support the hypothesis of there being a difference.

Biased sampling

Consider a large flock of red spotted flagtails flying in the sky. As the ornithologist who discovered this species, you are interested in the average weight of these birds. But time is short and the flock is almost overhead. So you implement an emergency sampling technique by blasting away randomly into the flock with your machine gun. Several dozen birds fall to the ground and you find that their average weight is 176 grams. Is this a good estimate of the average weight of all the birds in the flock?

Consider a bullet flying randomly through the flock. That bullet is more likely to hit a big bird than a small one. Therefore the sample probably contains an unduly large number of big birds. This implies that the 176 gram estimate is biased and too high.

On the other hand, consider two birds which happen to have been hit, a small bird and a large bird. The large bird is more likely to survive the bullet wound than the small bird, and hence more likely to keep on flying. This means that the sample contains an unduly high number of small birds and the 176 estimate is too low. Furthermore, the birds which have been shot down may have bits missing, implying once again that 176 is too low.

We see that there are several sampling biases at work, not all acting in the same direction. Thus the situa-

Lies, damned lies

tion is complex and it would be very difficult to calculate a good estimate of the average weight of all the birds in the flock using the weights of the sampled birds. Ethics and gun laws aside, shooting the birds was not a good idea.

Biased sampling is also a serious concern in surveys. For example, consider a study where people are asked for their annual income before tax. It is possible that people with a high income will be reluctant to reveal that information. Consequently, if we simply ignore these people and average only the incomes of those who respond, we may get an estimate which is lower than the average income of all persons in the population. This type of sampling bias is also called non-ignorable non-response.

Simpson's paradox

Consider a test for a particular cancer which has been used to screen (ie, test randomly) persons in the population. We wish to decide whether screening has value on the basis of data which has been obtained on 5,500 persons in the population who had the cancer over the last 20 years. That data is summarized in Table 1.

	Screened	Unscreened
No who survived	1,850	1,550
No who died	650	1,450
Total number	2,500	3,000
Proportion surviving	74%	52%

We see that a total of 2,500 persons in the population had their cancer discovered by way of screening (ie, via the test when they thought they were healthy). Of these, 74% survived. 3,000 other persons in the community ended up getting the cancer. (These persons found out that they had the cancer only after presenting to their doctor with symptoms.) Of these 3,000 unscreened cases, 52% survived.

It would appear that screening improves a person's chance of surviv-

ing. This makes sense because early detection means early treatment, which is always a good thing.

However, it is possible that screening makes absolutely no difference to people's chances of surviving the cancer. How can this be? Well, suppose that the cancer comes in two distinct forms: a slow growing tumour which lasts a long time and is relatively easy to treat, and a fast growing tumour which is very aggressive and kills within a short space of time.

Then if we randomly test (ie, screen) lots of people in the population, those who test positive will tend to be those with the slow growing tumour. To see this, recall the bird sampling example, to which the situation here is perfectly analogous.

It follows that the screened cases will most likely contain an unduly high proportion of slow growing tumours. The situation might be as depicted in Table 2.

	Slow growing tumours		Fast growing tumours	
	Screened	Un	Screened	Un
Survived	1,800	150	50	1,400
Died	600	50	50	1,400
Total	2,400	200	100	2,800
%surviving	75%	75%	50%	50%

We see that in each of the two groups the persons who were screened had no advantage over those who were not screened. The type of contradiction between the conclusions that can be inferred from Tables 1 and 2 is called Simpson's paradox. It is due to failing to take into account an important variable, called the confounding variable, which in this case is whether a person's tumour is slow or fast growing.

Simpson's paradox is a very common phenomenon. As another example, consider collecting data on left-handed (LH) and right-handed (RH) persons over several decades and calculating the mean age at death for each group. We might thereby

conclude that RH persons live longer on average than LH persons, even though there is no difference in any given year. The paradox in this case would be due to the proportion of LH persons in the population changing over time.

Self-selected samples

One type of survey that has become very popular in recent times is the Internet poll. For example on 28 January 2000, such a poll was conducted at www.ninemsn.com.au with the question: "Should the Australian flag be replaced with a new one?" Of the 9453 persons who responded, 4941 answered yes, a proportion of 52%.

However, it is plausible that opponents of the Australian flag felt more passionately about the issue than proponents and so were more likely to register their vote on-line. If that is the case then the sample of 9453 contains an unduly high proportion of yes-responses. Consequently, the 52% figure is too high.

The only way to really find out what proportion of the Australian population want a new flag is to conduct a properly designed survey, one involving a large sample into which each person in the population has an equal probability of being selected. Such a survey was in fact conducted around the time of the Internet poll. This survey, the Australian Constitutional Referendum Study 1999, resulted in a random sample of 2223 Australians of whom 823 or 37% stated that they want a new flag. The fact that this proportion is lower than 52%, is consistent with our initial hunch that opponents of the flag were more likely to vote than proponents.

Another problem with Internet polls is that people can vote several times. Furthermore, some people may not have access to a computer, and not everyone will be aware that a poll is being conducted. Thus Internet polls are practically useless, and don't tell us anything about anyone except the people who participate in them, if that. The same goes for phone-in polls and all other volun-

teer surveys. The basic problem with these surveys is that they result in a self-selected sample.

Note that phone-in polls are not the same thing as phone polls (although the latter term is often mis-used). Phone polls are a reputable type of survey wherein persons are selected into the sample in a scientific manner. But this is not to say that phone polls are immune to bias. One phone poll in the 1930s wrongly predicted an election. In those days only wealthy persons had phones, and so the sample ended up with very few low income earners. But it was these numerous poor people who ended up having the last say at election time.

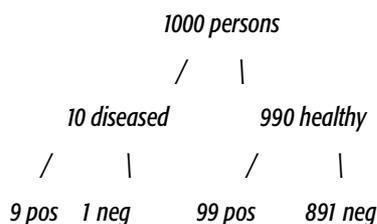
Prior and posterior probabilities

Consider a disease whose prevalence in the population is 1%, and a test for that disease which is 90% accurate. Suppose that we pick a person randomly from the population for testing and the result is positive (indicating that they have the disease). What then is the probability that they actually have the disease?

At first this may seem like a silly question. After all, didn't we just say that the test is 90% accurate? However, the answer is not 90%. To see why, suppose that we randomly se-

lect 1000 persons from the population and apply the test to all of them.

About 10 of these persons (ie, 1%) will have the disease and 990 will not have it. Of the 10 who do have it, about 9 will test positive (ie, 90%) and 1 negative. Likewise, of the 990 who do not have it, about 99 (ie, 10%) will test positive and 891 (ie, 90%) will test negative. It is useful at this point to illustrate these figures with a tree diagram:



We see that the total number of persons who will test positive is about $9 + 99 = 108$. Of these 108, about 9 will have the disease. Therefore the probability that a person who tests positive actually has the disease is $9/108 = 1/12 = 8.3\%$.

Note the distinction here between the prior probability of the person having the disease (1%) and the posterior probability of the person having the disease (8.3%). This distinc-

tion is instructive because it shows that the positive test result has (quite sensibly) increased the person's chance of having the disease (by more than 700%).

Observe now that it was a confusion between prior and posterior probabilities which led us to initially think of 90% as the answer to the question. But 90% is the prior probability of the test result being correct, whereas the question effectively asks for the posterior probability of the test result being correct, and this happens to be 8.3%.

The confusion between prior and posterior probabilities is also a major feature of the three doors problem (see 23:1, pp 54-60). It would appear from the response of certain individuals in the last issue (23:2, pp 58-60) that this confusion dies hard.

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Limericks

These were submitted by attendees at the National Convention. Others are scattered throughout the magazine. The Editor accepts no blame.

*A skeptic who sought fame too soon
Cried "Man never set foot on the moon!"
He told all of us folks
About this monstrous hoax
And ended up winning the bent spoon.
(Anon)*

*I'm doubtful about naturopathy
And sceptical about homoeopathy
Just give me some drugs
That will kill all the bugs -
I want some effective allopathy.
(Rosemary Skeats)*

*There once was a man called Pete.
When a heckler rose to his feet
Pete gave a shout
Told the heckler "Get out"
And continued his story replete.
(Anon)*

*Psychologist Montgomery (Bob)
Just remarked that he found in his job
It is not the belief
That provides the relief
But an Aspro - when clogged in the gob.
(Anon)*

*An enthusiastic chap called Bowditch
Presented some slides that were rich
But his W's and aitches
Were wrong in most places
Proving PowerPoint is such a bitch.
(Diane B)*

*There was a young woman from Dixon
Whose critical thinkin' needed fixin'
This weekend at Discovery
Will help her recovery
'Cos with oodles of skeptics she's mixin'.
(Bruce Rivendell)*

*A bearded young gent called Colin Groves
Chased creationists away in vast droves,
His favourite was Gish
Served up in a dish
Along with the fish and the loaves.
(Henry Maustrouser II)*

*With pretty pictures Colin Groves
Explained why whales had cloven hooves
His presentation so sadistic
With analyses the type cladistic
For the evolutionary theory he proves.
(Diane B)*

The Spiritually Incorrect Blues

*Woke up this mornin' I was feelin' real bad
I wasn't hungover – that ain't why I was sad
I drank me some coffee, I put on ma shoes,
And I sang those ole Spiritually Incorrect blues!*

*My little cat comes up to me and says 'miaow'!
I says to her 'Puss, are you tryin' somehow
'Cross the barrier of species with me to connect?'
Cos I want real bad to be spiritually correct.*

*Well Puss laid on her back and she showed me her tum,
She licked at her paws then, alas, at her bum.
Then she stood up and circled my legs and she mewed
In Cat, 'Forget THAT crap: gimme some food!*

*I went up the mountain and I walked round the Springs.
I got me some fresh air and exercise. Things
That my momma done tole me was real good for me
But I didn't get ENriched spiriTOOally!*

*I been to Jabiluka, and it was real nice,
But all I could think of was a drink filled with ice.
Couldn't feel no spirits – but I sure felt damn hot!
Cos spiritually correct – is one thing I'm not!*



Annie Warburton, Hobart's leading broadcaster, had the convention chuckling loudly at her topic "Spirituality is the New Motherhood", in which she challenged many popular new age notions. She summed up her feelings in this superb blues number which she recited to great applause.

However the blues really need to be sung. It was suggested to Annie that she should try to conjure up the shade of the late, great blues singer, Huddie "Leadbelly" Ledbetter to do full justice to her composition, and she really did try. Sadly, her self-confessed lack of spirituality then manifested itself, and the best she could conjure was Richard Lead.

*Woke up this mornin', wrote me a preamble
For dat ole constitution – I took me a gamble
That the guvment would like it but they said 'Gal, you is wrong.
You don't mention spirits – you don't get no Gong!*

*Well I met me a nice boy – put a bun in my oven.
Sisterhood said Annie when time comes for pushin' and shovin'
Do it the spiritual way – without anaesthesia,
But I said bugger that, DRUGS make it easier.*

*Well I read of the marvels of deep meditation
How it leads to nirvana and soul revelation
How it gets you in touch with the entire universe
And I said to myself: Annie, you could do worse!*

*So I tried to sit - in the pose of the Buddha
With eyes closed and arms spread and if I could've I woulda
Put me ankles behind my head but I couldn't
And it hurt so much trying - I decided I wouldn't.*

*So I folded them under me and sat there for hours
Thinking spiritual thoughts – rivers, trees, clouds and flowers.
I chanted 'Om mane padme Om' once and again
Tried real hard to banish all thoughts - mundane.*

*I forgot about work, I forgot about shopping
'Om', I sang, and even forgot about stopping
For lunch! I've cracked it! I said, and rejoiced!
Prematurely, it turns out.... for I hoist*

*Myself onto my feet, which alas had no feeling
I stood up, fell over – so much for spiritual healing!
I sat there massaging my feet and my ankles
And thought: I gave it my best shot and that's what still rankles!*

*Well I ain't GOT no religion, and I ain't got no sign,
Never been astral travlin', and I cain't read no minds!
Got no karma or dharma, I'm beginnin' to suspect
That I'm truly and deeply spiritually INCORRECT!*



Look For a Happy Medium

**Sometimes too little can be
just as bad as too much**



Colin Keay is a retired physicist and editor of the *Supremo of the Hunter Skeptics*.

My late father had a maxim which he followed rather well. He always urged “moderation in all things”. It was advice which got me out of trouble on numerous occasions. However, finding the medium position between too little and too much can be a challenge where human affairs are concerned. In fact too little, whether it be food, sleep or sex, can be as troublesome as too much. So always steer towards the happy medium.

Nature discovered this paradigm during the aeons-long evolution of life. In fact toxicologists quantified it through what they term a “biphasic” dose-effect response, now more commonly known as “hormesis”. Hormesis became evident quite early on when the first essential trace elements were identified. One of the first was iron. Too little leads to anaemia — too much can act as a poison. Same with many other elements like cobalt, selenium, arsenic and iodine that can lead to recognised deficiency diseases.

It turns out that not only elements themselves but a whole host of naturally occurring compounds (such as alcohol!) exhibit much the same hormetic behaviour in relation to living organisms. The same applies to such other naturally occurring agents as sunlight and nuclear radiation. A brilliant paper in the journal *Nature* (v421, p691, Feb,

2003) by Prof Calabrese and Dr Baldwin of Massachusetts identified no fewer than 5,000 such compounds, with profound implications for risk management. Their paper was titled “Toxicology rethinks its central belief” — not a good title, because the biphasic response has been known for as long as deficiency diseases were known. The sheer number of new examples they discovered is quite amazing. A good science reporter gave his story a much better heading, saying “A little poison can be good for you: scientists” (*SMH* 2003 February 15). In other words: a happy medium.

Acceptance of radiation hormesis has been, and still is, a hard-fought battle. Radiation regulators have written radiation hormesis off as a “paradox” and have stuck tenaciously to a linear rather than a hormetic relation between dose and effect, mainly because it is simpler to apply in practice, and to hell with the financial and human costs. We’ll examine this point in a moment.

(*Skeptical* subscribers with Vol 19, No 3, and readers of my small book *Nuclear Radiation Exposed - A Guide to Better Understanding* * will know what I’m on about.)

A hormetic response shows a low exposure region where the dose of an agent is deficient for an organism;

Cont p 25 ...

Holes in the Plot

Filling in holes is what we are good at, sometimes with odd results.

As far as we know, reality is continuous and flawless, even if we don't perceive it in this way. There are no holes in the plot so to speak, in real life. If somebody walks through a door wearing a red shirt they do not appear on the other side an instant later wearing a green shirt.

However, as strange as it may seem, mistakes do happen from time to time in movies and TV programs. A popular movie web site, the *Internet Movie Database*, even offers thousands of pages of what it calls *goofs*. Some people take great pleasure in watching the same movie over and over again in order to catch possible goofs. It's like an armchair sport.

For example:

Goofs spotted in the Bond movie *Diamonds Are Forever* (1971)

In the opening scene, mud splatters over Bond as he falls to the floor. When he stands up his jacket is perfectly clean.

The moon buggy loses a wheel, but is back on again later.

When Peter Franks arrives at Dover he gets a message. He parks his car outside an office and as he walks in the camera crew is reflected in the window.

When Bond is hanging from the elevator shaft, his shadow is clearly visible on the rear projection screen containing the street scene below.

The helicopter that blows up in the desert is originally green. As it turns away, it turns red.

When Bond is released from the burning coffin, Shady Tree's diatribe against him about the phoney diamonds doesn't match the movement of his mouth.

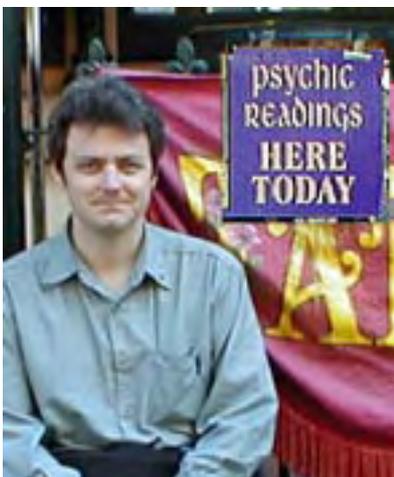
The man Bond attacks in the very first scene manages to scream "Cai-Cai-Cairo!" without moving his mouth.

At Dover, Bond arrives (and departs) in a Triumph Stag (V8 engine).

When he drives away, we hear the sound of a Triumph Spitfire (1200cc 4 cylinder). (Wow!)

During the opening scene, a string can be seen attached to the final knife that 007 throws at the guard.

As long as you don't take any particular movie too seriously, reading about these goofs can be lots of fun. For you and me holes in the plot or mistakes in continuity are quite acceptable provided they do not turn the story into a farce, but there are those for whom these sort of plot holes are too much to bear. People whose lives are entwined in their favourite fantasy. In the recent *Star Trek* movie, *Nemesis* the audience sees a photo of a young JeanLuc Picard at Star Fleet Academy, except he's bald. In one episode of TNG (TV), we went back in time to when he was at the Academy, only this



Richard Saunders, NSW Skeptics President, is responsible for the Skeptic CD and Water Divining DVD

time he had a full head of hair. OK, a bit of sloppy writing. But if your life is wrapped up in *Star Trek*, something like this has to have a reason.

Here are some explanations invented by fans:

he shaved his head for a bet;

he lost his hair for a few months due to a rare Vulcan disease;

the picture was that of his clone who shaved his head.

And to honour the 40th anniversary of my favourite show, here is a classic blunder from *Doctor Who* and a justification. In one episode, the Doctor and his friends, travelling through space in the TARDIS are hurtling back through time, trying to escape being sucked into the Big Bang. It's not looking good until the Doctor decides to convert 25% of the internal space of the TARDIS into pure power in order to give them the extra thrust they need to avoid disaster. But as we all know, the internal space of the TARDIS is infinite! How can you have 25% of infinity? Here's how. The Doctor must have meant 25% of the *known* internal space, not the entire internal space. That makes sense. Well, it did to me at the time I thought it up.

Why?

To the fans, all of these justifications are acceptable, especially to the ones who thought them up. But what is it in us that sparks the brain to come up with these justifications? Why bother when we know it's only a show? Some people are able to quite happily grab some popcorn and a coke and "suspend their disbelief" while watching the latest SF offering. I suspect that the vast majority of even the hard core fans know when to separate fiction from reality. But maybe not all.

It's only natural that when humans construct stories and even go so far as to film a story, holes in the plot will appear. There's not much

we can do about it. These are the actions and thoughts of those who know it's all make-believe. Fans and others who love to escape into their fantasy realms. Nevertheless, look at all the intellectual effort needed to maintain this 'extra' reality in their lives. The time and thought that goes into filling in the gaps that plot lines always leave in their wake. The more complex and involved the plot, the more holes and more time and effort needed to justify the apparent errors.



Many fans relish this activity and let me say right now that I am one of them. I love SF. I grew up with *Doctor Who*, *Star Trek* and many other shows. It's very easy to slip into that world. So much for the fans of this sort of fiction. We'll take another look at them soon. Now, how about fans of another kind of fiction?

Water Diviners

It might come as no surprise that I pick these people to illustrate part of my talk, since I spent over a year putting together *The Great Water Divining DVD and Video*. More importantly, diviners and divining has

been studied all over the world and in particular, in Australia. These are people who have a real, physical phenomenon, happening right before their eyes. The rods move! When these people dig, water is often found. How much clearer can it be? Why do you people even doubt it? How could you doubt it? How?? Many of these diviners are 2nd or 3rd generation. They watched as their parents and grandparents found water and they would not lie, would they!?

When, as has been the case for over 50 years, water diviners fail in demonstrating their power to find water or metal, it is, as we all know, not because they lack the magic power to do it, it's due to other reasons ... ANY other reasons. To quote from a conversation between James Randi and Dick Smith seen in the documentary *James Randi in Australia - 1980*

Dick: What do you reckon they'll say if they fail?

Randi: Oh the rationalisations, the rationalisations, you'll be amazed what they come up with as rationalisations. They'll invoke astrological signs, unfortunate aspects of the moon, all kinds of things.. also they'll say negative vibrations.

Dick: Wait a sec, how can they do that if they're going to sign with us and say they are very happy and they checked the bit of pipe....

Randi: Doesn't make much difference. They'll find a rationalisation. Now I've been 35 years in this business, you'd think that I'd be able to come up with all the rationalisations. I'm surprised. The dowsers particularly are very adept at this.

Dick Smith later told me that he was uncomfortable about doing the tests as he thought it could destroy the reputations of the diviners. Randi told him not to worry, it would not make one bit of difference to the believers, the diviners or their reputations.

Holes in the plot

What must it be like for these people when they see their powers fail? First of all, there is no doubt whatsoever that their powers are real and they work. Therefore, the power did not fail at all — it cannot ever fail. There must be another reason. (Remember, all diviners were happy with the conditions *before* the test.)

The water in the calibration bottle is not the same as the target bottles.

The underground streams are interfering.

Some of the bottles have tap water, some have rain water.

You cannot divine water on water.

Divining cannot be put to the test.

The earth spirit knows when divining is really needed and that's when it works.

You cannot divine using two rods.

You cannot divine using only one rod.

The static electricity in the bottles drained out during the day.

I was nervous.

You cannot divine still water, only running water.

This isn't the right grounds for divining.

Sun spots interfere with divining.

Some metals leave a residue in the box.

Psychics, clairvoyants and Tarot readers.

Like the diviners, these are people who have a real, physical phenomenon, happening before their eyes. Their clients respond. It's as real and obvious as any rods moving.

Again, what must it might be like for these people when they see their powers fail? First of all, there is no doubt whatsoever that their powers are real and they work. Therefore, the power did not fail at all. There must be another reason.

When NSW committee members Alynda, Ian Bryce and I have tested one psychic, she said all her information came from the 'Spooks', we

found real confusion when even she could see all did not go as she expected. Some of the justifications she and others have used include;

You are closed minded.

There was a wall coming down in your mind blocking the psychic energy.

I was reading someone else in the room.

You cannot take this sort of test seriously.

The 'spooks' tell me things. If I'm wrong, the spooks are to blame.

As with divining, you cannot put this to the test.

You are blocking me with your own psychic power or energy.

Skeptics are closed minded and just don't understand.

There is another angle to the psychic reading, this happens in the mind of the client. As our guest Ian Rowland will no doubt tell you, it is the client of the psychic who does most of the reading, even if it's in their own head. We can see that the client also engages in these justifications. If the psychic tells them something that really does not fit, say that they see a pet cat in their past when there was none, the client will almost always forget this statement, it's called forgetting the misses and remembering the hits.

But even more interesting is the way in which people make the readings fit their own lives. For example, if the client is told about "Uncle Robert" and there was no "Uncle Robert", the client will often make "Uncle Robert" — somehow — fit. The justification engine kicks in and "Uncle Robert" may well turn out to be the uncle of a spouse, friend, a TV character or anyone called Robert or Bob to whom they can find a link. Maybe it's someone they will meet in the future!

Here, the justifications are used to keep the reading real and to maintain the faith the client has in the psychic. The client has made quite an emotional, intellectual and financial investment and all these are in

need of protection, or, as our old friend John Edward would say, validation.

Is it any wonder the psychics are in no doubt whatsoever of their own powers when in almost every case, the client gives positive feedback, even when the psychic is nothing short of pathetic. This we have seen first hand when Richard Lead and I attended a performance of 'The Amazing Valda' who chatted to the dead. I'm afraid this was the best she could come up with:

I'm getting the initial 'D' with a man in his late 50s.

She kept at it until it was apparent that the man knew of no one that fit. OK, how to get out of this? Ah!

'D' stands for 'Dad'.

The initial 'H', to a lady also in her late 50s, also met with a blank.

Who is 'H'?

No response, so finally Valda said:

They're telling me that you're a Helper!

And many similar examples, yet, people in the audience were hanging on to every word and clapping each time.

Justification

The justifications and excuses are quite real and reasonable *to the believer*. Anything, no matter how far-fetched or outrageous makes more sense than the unthinkable — that they could be wrong. This thought does not even enter their heads. It flies in the face of everything they know and expect. If there are any questions, the justifications come at breakneck speed. And the true believers are **so** good at it. I've found myself using the term 'mental gymnastics' when referring to this practice. Try as I might, I just cannot come up with as many wacko justifications and in such a short time as do the believers.

So, I must put it to you that the same root process that helps the SF fan from losing the 'magic' of their favourite TV show by "filling in" any plot holes, is in full swing with the

true believer when also confronted with holes in the plot. In this case, holes in the very fabric of their reality. The difference is the SF fan will willingly and knowingly suspend disbelief in order to make the fictional world more real and more enjoyable. The believer has no need to suspend disbelief, as there is no disbelief to begin with, or if there ever was, it has gone.

The first thing we might consider here is self-preservation. The mind doing its best to keep intact the worldview of its owner. We cannot forget the role imagination plays in this. I would suspect the average psychic doing readings for paying clients, convinced of their own powers, would have a vivid imagination. It would certainly help in giving a good reading. Also, the stronger the emotional attachment the

more we see justifications playing a part. If I was not a fan of *Doctor Who*, I would not have given any thought at all as to coming up with a reason as to why the Doctor mentioned the 25% of infinity. The Doctor would not make an error... would he?

We may also consider the psychological phenomenon of “cognitive dissonance”. According to cognitive dissonance theory, there is a tendency for individuals to seek consistency among their cognitions (ie, beliefs, opinions). When there is an inconsistency between attitudes or behaviours (dissonance), something must change to eliminate the dissonance. In the case of a discrepancy between attitudes and behaviour, it is most likely that the attitude will change to accommodate the behaviour.

Conclusion

We must realise that many people, be they diviners, psychics or clients are simply following their best judgment based on what they know and expect to occur. I reject the simple notion, pushed by so-called current affairs shows on TV, (now that’s where suspension of disbelief comes in handy) that people are all either:

A. (In the case of psychics) frauds and con sharks

B. (In the case of clients) idiots

Justification of holes in the plot is a very human activity. It gives us comfort. You just gotta know where to draw the line.



... Happy Medium from p 21

then a range where good health prevails; and beyond that another harmful region where the agent is increasingly toxic, leading to death by poisoning. Nuclear radiation is such an agent. The radiation dose for good health extends from levels below natural background levels of less than two millisieverts per year right up to over 200 mSv per year. In some regions the indigenous population remains healthy at environmental levels of at least 300 mSv per year. We know that radiation sickness becomes apparent somewhere between 500 and 1,000 mSv per year, while 6,000 or more is lethal.

On the other hand there are three models which ignore hormesis. There is. The linear — no threshold (LNT) model which has unfortunately been favoured in the past by authorities; the threshold model regarded by Calabrese and Baldwin as an error of historic proportions; and the quite ludicrous model touted by many anti-nuclear activists who argue that radiation is worse at low doses. By ignoring hormesis, all three of these models make no recognition of the role of thousands of agents in promoting good health in appropriate doses. Their advocates fail to appreciate that living organisms evolved

by making use of the chemicals and other agents in their environment.

Emeritus Professor Peter Parsons of LaTrobe University spent much of his career as an environmental biologist supporting hormesis and refuting the false LNT dose model. His latest paper is “Energy, stress and the invalid LNT premise: a generalization illustrated by ionising radiation.” In other words: for nuclear radiation LNT is bulldust. Even so, it has been official dogma for decades.

A linear model says that harm from radiation doses is additive. The fact that it improves health (in moderation — remember my Dad) is ignored. This leads to the absurd regulation that members of the public must not receive more than one millisievert (mSv) per year in addition to the natural annual exposure here in much of Australia of 2 to 3 mSv, with medical radiation (“holy radiation”) excepted. It is ridiculous that a company can face huge fines for adding a few millisieverts of radiation above the natural background level when the effect of such an addition would, through beneficial hormesis, promote better health!

Furthermore, application of the LNT model led to the needless relo-

cation of 400,000 people from the Chernobyl region after the disaster. They’d have been healthier and less stressed had they stayed living at home, vacuumed their living quarters and gave the authorities the task of disposing of the radioactive dustbags!

Radiation protection based on the LNT model is claimed (by Jaworowski - see my book mentioned above) to cost over two billion dollars per life saved, money that could save millions of lives through disease control programs in Third World countries. There are literally scores of examples of other unnecessary costs mandated by regulatory authorities employing false criteria, namely the LNT approach to radiation safety.

So why do authorities still cling to the invalid LNT model? Answer: they are too lazy to use a hormesis model because the maths is harder! It’s a shame they fail to heed my late father’s maxim and revise their regulations to enshrine a happy medium — nature’s own paradigm.

* Available from the Skeptics on-line shop.



Medical Devices Bill – Update

Despite serious health and safety concerns and total lack of evidence, the pseudo-medical device industry rolls on.

It is important to state at the beginning of this update that electronic devices, widely used as health/disease screening/testing/diagnostic and treatment/curing devices by the alt-therapy and integrative medicine industry, have for years been the subjects of official state and federal investigations. Since 1999 some of these have become subjects of various courts (coronial, civil and criminal) professional tribunals and trade practices /consumer protection investigations. Others will, in the future, also be the subjects of intense scrutiny by government agencies and courts.

The findings and recommendations of these Australian court cases will be of significance to future cases involving these types of devices in Australia, and of international significance to foreign governments and courts also investigating cases of harm and deaths or marketing and consumer deception involving these devices.

As more issues relating to 'alt-therapy' devices come before the courts, it is essential that the legal profession and the media, each with little previous knowledge of the alt-therapy devices industry or of assessing past and current medical devices regulations, are given precise details of how the regulations in the new Bill specifically apply to alt-therapy devices. This responsibility rests with the Therapeutic Goods

Administration (TGA) and the Minister, neither of whom, to date, have publicly answered my questions regarding these specific regulations.

Facts to consider

All those assessing issues relating to the alt-therapy devices industry must be aware that government regulations, without extensive public education, will never compete with a globally well-established growth industry, with its vast range of devices and massive amounts of promotions and propaganda;

the industry and its associations are headed by practitioners and manufacturers from the very top echelons of the industry (that is qualified therapists, holistic doctors, nurses, dentists, etc);

devices are often promoted as 'the latest scientific -medical technology in diagnosis and treatment', and often share the same or similar names with devices used in orthodox medicine, creating the potential for dangerous loopholes in regulations.

Therefore public-health consumer education is vital in order to protect consumers from abuse and exploitation.

Failures in duty of care

It should be noted that, to date, state and federal health depart-

Cheryl Freeman was Australian Skeptic of the Year in 1999. For 18 years, she has petitioned state and federal governments, regarding the dangers of the unscientific alt-therapy device industry and warned that the ARTG-AUSTL system was seriously and dangerously flawed and misleading to consumers.

ments have failed to issue any official public health warnings following evidence of dangerous devices practices, nor undertaken any public education nor required compulsory warnings on devices, in clinics or on all advertising.

In order to determine if the provisions for the future regulation of alt-therapy devices in the new Medical Devices Bill are not flawed with loopholes, and will be effective in educating and protecting health consumers, it is essential that those assessing the specific regulations applying to alt-therapy devices take account of the following facts:

(Essential review: refer report: "Bill to Provide Protection - Or Will It?" in *the Skeptic* 22:2 or at www.skeptic.com.au/features)

The Therapeutic Goods Amendment Medical Devices Bill No 24 was speedily passed by both Houses of Parliament on March 20 and 21, 2002. Public information and media releases on the TGA website- TGA News (Mar & Nov 2002) and parliamentary Bill documents, contained no specific mention of the inclusion of alt-therapy devices, except for a brief mention at the end of the Parliamentary Explanatory Memorandum as... "and some complementary therapy devices currently excluded from regulation". Therefore the Bill's specific regulations for alt-therapy devices were not subjected to any independent public, media or parliamentary consultation and scrutiny.

There was no parliamentary debate to determine if the new Bill's regulations duplicated any of the serious flaws of the previous AUSTL listing system for alt-therapy devices. This was abandoned in 1998 when it was finally acknowledged by the TGA that "Listing unscientific, unproven alt-therapy devices on the Australian Register of Therapeutic Goods (ARTG) conferred a level of endorsement from the TGA that could mislead consumers".

It is highly likely that few MPs who passed this Bill into law in March 2002, had any knowledge of the extent, power and risks to consumers posed by this industry in

Australia, its victims, or of the serious flaws in the previously abandoned ARTG-AUSTL system.

That the Minister and TGA have stated in private letters during 2002 that "there was no attempt to deny the public knowledge and details of the inclusion of alt-therapy devices in the Bill, or to mislead Parliament".

In June 2003, for the first time since the Bill was announced in September 1999, the TGA finally updated its website (www.tga.gov.au). The only details published so far on the inclusion of alt-therapy devices is "The Use of Medical Devices in Alternative Therapies". This is totally unacceptable as a public health consumer information document as it does not give a clear and concise view of the specific regulations. This 53 page screed is a technically complex document for those persons (sponsors) seeking marketing approval for their devices, who would require considerable assistance from the TGA, or a lawyer specialising in TGA regulations, such is the complexity of the details. No media releases were issued to advise the public of this website update.

In June 2003 the TGA advised, in a private letter, that the public launch and media releases on the new Bill, planned for late 2002—early 2003 have now been cancelled. This further denied the public and the media the opportunity to question the Minister and the TGA regarding the 'secret' inclusion of alt-therapy devices' in the Bill and to seek the publication by the TGA of a simplified description of how the Bill regulations will specifically apply to alt-therapy devices.

The Minister and TGA have stated publicly (and in private letters in response to my appeal for details of the alternative health groups allegedly consulted by the TGA) that "there was extensive consultation with professional groups and the medical devices industry with all groups in favour of the new internationally aligned regulations". But there were no specific details of consultation with and endorsement

from the alt-therapy associations, many of whose high-profile members are heavily involved in the alt-therapy devices industry as manufacturers or practitioners.

The Minister and TGA repeatedly stated in private letters during 2002 that "all therapeutic claims for alternative therapy devices must be validated with scientific, clinical evidence as for any medical device used in orthodox medicine." This requirement would herald an unprecedented major government crack-down on the alternative health devices industry, resulting in unprecedented outrage and protests from the industry. This is not stated in any published documents on the Bill or the latest TGA website, whose 'Use of Medical Devices in Alternative Therapies' lists examples of these devices.

Curiously, there have been no signs of public protests from the alternative devices industry, that one would expect at any attempt by governments to regulate their devices (I have seen no such protests or petitions in alt-therapy magazines). Contrast, this industry silence with the immediate flood of national outrage, protests and petitions in these magazines and elsewhere, that followed the October 2002 announcement by the NSW Health Minister, of a committee to investigate dangerous therapies and devices.

Contradictory claims:

Documents presented to Parliament contain confusing and contradictory claims:

that 'devices will be classified and assessed according to low or high risk to the user;

that each device class will have minimum requirements for safety and performance;

that all medical devices will be required to meet certain standards of safety and performance, which will be called 'essential principles' (the current draft sets the principles at a high level of generality);

that different levels of conformity

Medical Devices Bill

assessment will apply to different classifications, ranging from self assessment to full comprehensive quality assessment.

And this extraordinary claim:

that sponsors must either hold information to substantiate compliance with the essential principles or have a procedure in place to obtain this information.

All of which does not equate with an overall requirement of 'validated, scientific, clinical evidence to support all therapeutic claims for all devices' or a requirement for the TGA to have this scientific evidence assessed by independent medical and biomedical engineering experts.

Vital questions

Will the TGA be accepting as 'validated scientific, clinical evidence' research papers by holistic/integrative medicine practitioners from colleges and universities that teach alt-therapies, and who may have vested interests in alt-therapy devices?

If the scientific evidence requirement is the yardstick for assessing devices for inclusion on the ARTG (and therefore supply in Australia) why is this vital statement not included in published documents on the Bill?

Why have the Minister and the TGA not issued media releases announcing an unprecedented major government crackdown on the alternative health devices industry, when it is obvious that these devices would not pass this evidence test?"

More confusion

The Minister stated in a private letter, that "... claims of 'capable of detecting imbalances in energy fields' or 'can detect-treat diseases from a distance by photographing energy fields around the body', would not be accepted as genuine therapeutic claims as they cannot be scientifically validated, and therefore these devices would not be included on the ARTG and could not be supplied on the Australian market

with those claims." (These types of claims are standard industry practices for a wide range of devices and non-device therapies.)

Confused criteria and loopholes

The criteria for determining if a device is a medical device are confusing.

A device appears to be assessed as a medical device for the purpose of enforcement of the Act if the sponsor makes a therapeutic claim.

This does not explain what happens 'if' a sponsor does not make a therapeutic claim, but merely advertises a device by using a name, eg, magnetic pulser, electro-zapper, audio frequency generator, acupoint locator/stimulator or bio-feedback, muscle nerve stimulator, electro-thermometer. (These are all common, scientific sounding, names that have been used for dangerous alleged diagnostic and treatment devices.) Or how about brand names such as Dr Rife, Dr Beck, Dr Clark or EAV, LISTEN, VEGA, MORA or CRT devices? Will these then be exempt from the ARTG regulations, so allowing continued sales in Australia?

One trick the industry uses to circumvent local regulations is to refer potential buyers to the mass of existing and dangerous publications - promotions - propaganda on international websites. Companies prosecuted by the ACCC in 1999-2000 are now advertising their devices using names only, with no therapeutic claims, referring buyers to hundreds of websites with very explicit claims.

Regulators should explain, particularly in relation to the above 'scientific evidence' requirement, how the Bill will regulate devices that have been in common use in the alt-therapy industry for decades, eg iridology or irisscopes (the most widely practised

'diagnostic' technique), radionics, Kirlian photography, and electro-acupressure and chiropractic devices.

Also, how the Bill will regulate alt-therapy devices that share com-

mon names (but not efficacy) with standard orthodox medical/health devices, such as 'biofeedback, neuro and muscle stimulators, TENS machines and electrodermal thermometers?

Internationally harmonised?

Published information describes how the new Bill "will harmonise Australia's medical devices regulations with those of member countries of the Global Harmonisation Task Force (GHTF)" and that the "European regulatory system is considered to be world's best practice in this area". Yet the unscientific alt-therapy devices industry is flourishing in member countries of the GHTF, with many devices like those featured in my *Skeptic* reports (see www.skeptic.com.au/features) being promoted as being approved by the FDA in the USA, or in the EU, or registered as medical devices in Canada. These facts indicate seriously flawed alt-therapy device regulations in those countries, similar to our previous flawed and now abandoned ARTG-AUSTL system, rather than giving any confidence to the consumer. This sounds more like buck-passing than consumer protection.

Current industry publications state that 'electrodermal screening' or EAV (Electro Acupuncture According to Voll) devices like the MORA, and LISTEN (shown to be a fraud by the ACCC in court in 2000) are "Registered as Class 2 Medical Devices by the USA-FDA" for the purpose of 'bio-feedback.' An electronic teeth/skin-contact thermometer, the German distributed CRT (with explicit breast cancer claims) is being promoted by a Perth distributor as "approved by the USA-FDA with its FDA registration number of 510K." Electro-SARS Test

A fellow Skeptic recently found an Israeli company promoting its electro-dermal diagnostic test for SARS. This EAV device, like those above, could be registered in GHTF countries as a bio-feedback or medical device, without making any therapeutic claims for SARS, but

relying on other publications to do its advertising.

Added concerns

Alt-therapy devices sponsors, with devices still listed on the ARTG-AUSTL under the old system, have until 2007 to comply with the new regulations. Alt-therapy devices excluded under the previous Act, including non-skin contact and laboratory-type devices, and those devices exempted from assessment when the AUSTL system was abolished in 1998, have until October 2004 to comply with the new regulations. These provisions are most generous to the industry but do not serve to protect consumers and the public.

It would be a valuable exercise to request all state health departments to explain how the new federal Bill regulations will impact on their current state regulations. And if the states are intending enacting their own alt-therapy devices' regulations to regulate the existing state clinic-based devices industry, which does not come under the Jurisdiction of the TGA.

Conclusion

At this stage I find it impossible, from the information available, to determine if the new Bill will protect consumers, or if any alt-health devices will gain an Inclusion on the ARTG, affording the devices prestigious endorsement — approval from the highest health assessment body in the country. Or if there are further flaws that will allow sponsors to carefully word advertising in order to exempt their devices from the regulations, so permitting this dangerous industry to continue operating as it has for decades.

Notes

'Private letters' refers to letters from the Minister and TGA to the author but not stated in published documents on the Bill.

'Alt-therapy' in this text refers to alternative health therapy devices or industry

Naturopath Guilty

On 29 August 2003, after a nine-day trial, the NSW Supreme Court sitting in Newcastle found a naturopath, Reginald Harold Fenn, guilty of the manslaughter of an 18-day-old baby, Mitchell James Little. Sentencing has been held over until November to allow Fenn to undergo medical examination.

Mitchell Little was born on 7 September, 1999; shortly after birth he was diagnosed with "critical aortic stenosis", a serious heart abnormality. His parents were advised that surgery had a high chance of success in rectifying this abnormality and an appointment was made for the baby to undergo surgery.

The baby's father, a patient of Fenn for several years, sought his opinion. Fenn diagnosed the baby using a "Mora machine", allegedly an electro-bio-medical device and treated him with the same device, plus prescription of a herbal remedy. The court heard that Fenn had advised the parents not to let surgeons touch him as he was too young to cope. He also claimed that "pulses" sent by the Mora machine and the herbal drops would cure the child. The parents cancelled the surgery appointment and on 25 September, baby Mitchell died aged only 18 days.

In evidence from an "expert witness" the court was told that Fenn had used the Mora machine incorrectly and that it was a therapeutic, not a diagnostic device. The court apparently accepted this evidence. However, instruction manuals printed in Australia for the German-made Med-Tronic Mora machine contain explicit instructions for both their diagnostic and therapeutic use. Furthermore, it states that it is useful for all structures of the heart and is suitable for 'very new babies, pregnant women and serious medical conditions'.

In fact, there appears to be no evidence at all that the Mora machine has any benefit for either diagnosis or treatment of anything. Claims made for it, along with many other similar devices mentioned in Cheryl Freeman's preceding article, appear to have no evidentiary basis in either medicine or in electronic technology.

This is what makes it vital that the TGA and other regulatory authorities take the threat posed to health by the proliferation of unproven devices and remedies a lot more seriously than they have hitherto. As Cheryl Freeman points out, it is simply not good enough to put some bureaucratic rules into legislation, the rules have to be imposed with rigour.

In her report on the Fenn case in the *Daily Telegraph* of 30 August, Natalie Williams quoted a retired senior police prosecutor, Phil Lloyd, who had assisted the coronial inquiry into Mitchell Little's death, as saying the case highlighted a disturbing irony. "Conventional medicine has a comprehensive, regulatory, investigatory and disciplinary framework. Doctors, nurses and hospitals can be held accountable. This system has integrity." In contrast, Mr Lloyd said, "Alternative medicine is essentially a laissez-faire, do-what-you-will jungle."

The Skeptic couldn't agree with Mr Lloyd more. If these unproven devices and remedies get any more of a hold in our society while regulators (and the media) turn a blind eye to their outrageous claims, then there might well be many more cases of people dying because they believe that "smoke and mirrors" is a reliable alternative to evidence based medicine. It is about time to act before more babies die.



Is it Ethical to Prescribe a Placebo?

A question that should be answered by any medical practitioner who feels the urge to offer “alternative” therapies.



David Brookman is a lecturer in medicine at the University of Newcastle. His concern is that many medical students begin with a profound belief in AltMed and some graduate with that belief unshaken.

There is, with all therapies, a placebo effect. This is the apparent benefit from the therapy that occurs because of time improving the malady being treated (natural history of the disease), or the psychological effect of the therapy (similar to Hawthorn effect). When a therapy is scientifically evaluated, it is compared with a placebo, and the difference between the placebo effect and the effect of the therapy, is regarded as the true therapeutic efficacy of the therapy.

In drug trials there appears an adverse reaction rate to placebos, this may represent intercurrent maladies, or anxiety about the medication. Thus in most drug trials there will be a placebo headache rate of about 18%, and a placebo nausea rate of about 7%.

There are many people exploiting this placebo effect and claiming therapeutic efficacy for remedies which in up to 40% of cases produces a positive benefit for the patient, depending on the credulity of the patient and the salesmanship of the “therapist”. Thus the altmed industry exploits the medicalisation of illness by applying anatomical and diagnostic terms, and providing remedies for these claiming quite truthfully that this [magical remedy] has been found to be of benefit in [enter diagnosis here]. Recent articles have

shown the use of medical terms by the altmed “therapist” is essential to the marketing of their product. To this may be added vague terms derived from magic – Aura, vibes, positive energy etc.

That the industry is primarily exploitative was demonstrated recently by the former chair of a manufacturer of altmed remedies, that the therapeutic goods authority should not have ordered a recall on his products because they had no therapeutic benefit anyway and so could not cause any harm (*Australian Story* ABC TV). Some altmed “therapists” come to believe the flim flam and occasionally kill people (child with aortic stenosis cured with Moro machine → no surgery; child with eczema buried in manure → hyperthermia). Some even convince the legal profession and government bureaucracy that their claptrap is factual (several government departments accept illness certification from altmed practitioners, and “evidence” has been accepted in court.

The use of placebo effect has existed for centuries, it is not new. It includes the cure of somatisation disorders (hysterical paralysis, hysterical blindness etc) by the laying on of hands, and muttering magical incantations, and it is used occasionally by medical practitioners to avoid being pestered by the obsessive

somatiser by prescribing a “powerful new drug which has only just been released just for your condition.”

One must ask is it ethical for a medical practitioner to do this ?

The fee for service arrangements in Australia, and the continual denigration of general practice has been accompanied by an expansion of the altmed industry — some medical practitioners have adopted placebo remedies in order to compete in the marketplace. This has the effect of further legitimising the remedy (aka pseudotherapy). It has even come to pass that some colleges alleging professional standards are endorsing the “special skills” of medical practitioners who offer these pseudotherapies. Is it ethical for medical practitioners to offer these remedies which are proven to be ineffective?

Natural or pharmaceutical?

Advocates for remedies will seize upon the occasional benefit of remedies (cranberry preventing bladder bacterial biofilm formation, St Johns Wort containing a Monoamine oxidase type antidepressant, etc) as proof that *all* “natural” remedies are efficacious. The fact remains that herbs evolve chemical defences against predation, some of these highly toxic chemicals are useful in treating disease, they are collected, studied and purified and become part of the therapeutic armamentarium (Taxol is a prime example). Adding an aura of magic to a herbal preparation does not engender therapeutic efficacy — it may still exist but the benefit has to be proven. It may be a mix of chemicals or it may be a single chemical. Herbal preparations contain a host of different chemicals, the level of the chemical varies with season, preparation methods and cultivation methods using an unstandardised preparation is like playing Russian roulette.

The altmed defender will no doubt accuse me of being an apologist for the pharmaceutical industry. The pharmaceutical industry is like any other profit making organisation —

how a profit is achieved is irrelevant. Some pharmaceutical companies behave in a very similar fashion to the tobacco industry. Much so called pharmaceutical research is directed at copying competitor’s molecules, and once a useful copy has been made funding some pseudoresearch to collect “evidence” for the marketing department to flog the stuff off to the medical profession and unsuspecting public. One major company found that there was little additional benefit from a drug which had cost it a lot to develop. The solution — provide selective information to the journals for publication, and engage in a massive publicity campaign about the wonderful new breakthrough (using both press releases and advertorials on “current affairs” programs). The company can then break even at massive cost to the community. This behaviour by some (perhaps all) pharmaceutical companies does not mean everything they produce is an exploitative con dragging people away from the natural pathway to healing as is claimed in altmed marketing.

Our ethical question then becomes the choice by a medical practitioner between two competing groups in the marketplace. One pushing unproven, or proven useless, remedies in order to generate income, usually as a small business (cf, the corner grocer), and the other pushing purified therapies some of which are proven to be very useful, and some useless in order to generate income for large businesses (cf, the transnational supermarket).

What is the ethical path?

The first test — is it ethical to intentionally mislead a client? The principle of reciprocity if applied here suggests that is not. An example: would a medical practitioner, who knows that acupuncture is useless, yet prescribes a course of acupuncture for back pain, accept the local mechanic not servicing her expensive car but merely wiping the dust of the oil seals and grease nipples. Clearly she would not, she would feel defrauded. Some may

argue that the placebo effect of acupuncture will benefit the client. This is also a facile argument because other treatments have been proven superior to placebo — what is really being exerted is a self delusion for personal gain.

Some practitioners might say that misleading the client is for their own benefit and therefore is valid. The benefit being increased wellbeing (and hence less misery) and that the medical practitioners is keeping the client out of the hands of the ignorant charlatan.

The second test — is it ethical to unintentionally mislead a client? Absence of knowledge means the practitioner cannot make a choice, because there are no alternatives to choose between. So does this mean practitioners who maintain a blissful ignorance of the remedies they are offering their patients behaving ethically? This is the field of professional conduct. If a person is a registered practitioner, and an advertised member of a professional organisation, then they are claiming to abide by the standards proffered by the registering agency and the professional organisation.

The third test — does the principle of *caveat emptor* (let the buyer beware) apply to health care? Our society has long accepted that exploitation of ignorance is socially undesirable. We have strong legislation which prevents companies from making false claims about their products and punish those who defraud in the finance, manufacturing and retail sectors when they are caught. There is no such system applied to health related fraud. It is applied only when a credulous client and a credulous altmed practitioner (ie, a fundamentalist) applies a therapy which is seriously harmful or lethal. If we accept the principle of *caveat emptor* then there is nothing wrong with a practitioner supplying placebo remedies. If, however, we do not accept the principle of *caveat emptor* for health services then it may be wrong to prescribe placebo remedies.

The fourth test — the principle

Is it ethical

of autonomy and informed decisions. It is generally accepted that for a person to make a purchase decision they need to be fully informed as to the costs and benefits of the decision. Clearly providing a placebo remedy under these circumstances is impossible — it would remove the magic aura that generates the psychological reduction of symptoms. Thus, by definition, providing a remedy which is proven to be useless (that is, has no benefit over placebo) immediately contravenes the principle of client autonomy.

Many practitioners argue against the principle of providing full information to clients of medical practitioners. They argue that they exercise clinical judgement of the patient emotional state, and intellectual capacity, to provide selected information. Is this patronising approach to provision of health care appropriate? If we apply the principle of reciprocity, I doubt that these practitioners would accept a computer technician not telling them that their practice computer backup system did not work because they felt the practitioner would not understand.

They also argue that evidence based practice is inappropriate because we cannot prove everything we do in practising medicine. This, of course, is absolutism which has been adequately dealt with by philosophers in the past 2000 years and I do not need to reproduce their arguments here.

Applying the tests

So let us apply these tests to different circumstances.

Practitioner does not believe in scientific medicine and provides unproven altmed remedies, but still collects money from government and insurers as a medical practitioner and advertises themselves as a medical practitioner. These practitioners are behaving unethically and perhaps fraudulently.

Practitioner believes in scientific medicine but does not have the training or capacity to judge the efficacy of treatments — they accept what the drug detailers tell them, and believe the altmed claptrap in the women's magazines. These practitioners are behaving unethically because they are not applying the principles they profess.

Practitioner believes in scientific medicine, uses the evidence published in Cochrane, Clinical Evidence and similar, but when faced with a choice of therapy may choose an unproven therapy because of the clients wishes:

Without explanation of risks and unproven benefit — unethical

With explanation of unproven benefit — ethical

Practitioner believes in scientific medicine but provides referral to altmed practitioner because of patients wishes:

Without explanation of risks and unproven benefit — unethical

With explanation of unproven benefit — ethical

Conclusion

Huge amounts of health money are wasted on ineffective treatments

throughout Australia. Some of this waste is generated through the altmed industry and some is generated by the false claims of the pharmaceutical industry, who coerce government compliance with publicity campaigns and other methods honed by the US lobby industry. Medical practitioners are continually bombarded with false information, disinformation, advertising through their practice software, advertising in "journals", and personal inducements delivered by drug detailers. Medical practitioners would be more able to practice ethically if these activities did not occur, but it is unacceptable to argue that delivering folk remedies and other placebos as an alternative to proven therapy is a valid and appropriate path for primary health care.

Notes

Remedy – an intervention applied to a malady – efficacy not required.

Therapy – an intervention applied to a malady – efficacy proven

Altmed – an industry which provides remedies (and a few therapies), based on a mix of theoretical belief systems, which may be religious, and which have not been subject to adequate scientific evaluation (control group, "blinded" observers and participants, random allocation of therapy, statistical proof).

Magic – what James Randi does so well, convincing people that something exists or has occurred when it has not, illusionism, exploiting credulity.



Moving?

Don't forget to tell us.

Darwin Made Me Do It:

Creationism and the Religious Right

Further illumination of the dark countenance of fundamentalism

Until recently I did not regard Answers in Genesis (AiG) and other Australian creationist bodies as being fully-fledged members of Australia's Religious Right. While they share some interests with the Festival of Light, the Australian Family Association and similar groups — for example, opposition to abortion — AiG is overwhelmingly focused on the creation issue.

However, I now feel that AiG is in fact an integral part of our Religious Right and that creationism itself is a significant component of the Religious Right's world-view. In this article I will try to explain why I changed my mind.

Who are we talking about here?

'Religious Right' is a general term borrowed from studies of a similar but much more influential American phenomenon. Broadly we are looking at a set of political pressure groups operated mainly by evangelical and fundamentalist Protestants (but including some conservative Catholics) who seek, among other things, to reintroduce strict censorship regimes, outlaw abortion and gay rights, and oppose feminism and

school sex education. To these concerns I would now add another, namely, to promote creationism against evolution.

Like all shorthand terms, 'Religious Right' has its faults, but in Rob Boston's words:

... I think we are stuck with the term 'Religious Right'. I find the most commonly used substitute, 'religio-political extremists', to be a bit of a mouthful. Like it or not, 'Religious Right' is the term in common parlance in the media and the larger culture.

As in the United States, there is only a handful of sizeable Religious Right organisations in this country. Boston lists the most prominent American ones as the Christian Coalition, Focus on the Family and the Family Research Council. For Australia I would currently nominate the Australian Festival of Light/Christian Democratic Party, the Australian Family Association and Salt Shakers, although there is also a large number of smaller groups and one-man bands. Australia is a much less religious country than America (Doyle, 2002) and our Religious

Brian Baxter is a Melbourne writer whose image does not appear on photographic film.

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Right is correspondingly less powerful, though by no means ineffectual.

How does creationism fit in here?

At first sight creationism does not seem directly related to the major 'sexuality-linked' preoccupations of the Religious Right, but there is an intuitive connection hinted at by evolutionary theorist Niles Eldredge:

Are there creationists who are religiously motivated but are not at the same time social and political conservatives? There must be, but in twenty years I have yet to encounter a single such person.

Creationist writers often make the link considerably more explicit:

The danger of teaching the Theory of Evolution is that it will deprive children of a sense of responsibility to and a relationship with a Creator God. A child taught that he has evolved from an animal may well grow up to behave like one! Hence the decline in moral standards, escalating divorce rate, etc. (Garrett, 1989)

Because [American] culture has changed its foundation to 'man's opinions determine truth' (evolution), then when [someone says], 'abortion is wrong', the answer is ... like this: 'What are you talking about? I have a right to do what I want with my body. We're just animals anyway. No one has a right to tell me what to do. (Ham, 1999)

In short, for the conservative Christians who make up the Religious Right, creationism provides a coherent rationale for society's recent descent into a cesspit of immorality, the baleful effects of which are apparent on all sides. Drugs, nude beaches, *Queer as Folk* — what can you expect from people who have been taught to believe that they are descended from apes?

AiG's social views

As Australia's most prominent creationist group, AiG spends the vast majority of its time directly defend-

ing creationism and attacking evolution. However, its attitude towards social issues, particularly sex-related ones, is pure Religious Right.

AiG writers are especially vehement about abortion. I have referred elsewhere to Jonathan Sarfati's apparent inference from Genesis that the penalty for abortion should be death (Baxter, 2002), but he is by no means alone in his condemnation. Ken Ham has a great deal to say about the matter too:

... '[P]ro-choice' people are without excuse when they choose to believe there is no Creator who owns them ... 'Pro-choice' also means that these people choose to make their own rules and choose not to abide by the absolutes of God's Word ... [I]t is obvious that human life begins at conception. Thus, abortion is killing ... Those demanding freedom to abort babies have chosen not to serve God. They serve Satan ... (Ham, 1989)

Gay rights are regularly given short shrift in AiG publications. It all seems so simple once Ham and his colleagues have explained it to you:

Of course, in regard to homosexuality we know that this is anti-God, so we can say that it is wrong. Why? Not because it is our opinion, but because God the absolute authority says so — end of argument! (Creation Science Prayer News, 1984)

Further comment seems superfluous. As for pornography and censorship issues, get ready:

But how did [pre-Babel] linguistic unity provide the possibility and potential for immense iniquity? Perhaps we can find the answer by looking at the vast English-speaking world today. Almost instantly, demonic perversions and poisons can penetrate and permeate the minds of millions through the Internet, as well as via avalanches of morally hideous films, videos, books and magazines. Now, what would happen to this Satanic sewage if [English speakers] suddenly discovered that their linguistic unity was shattered? The blow

to Satan and sinful men would be staggering ... (Whitcomb, 2002)

We could go on in this vein for some time, but do you really want to? All right, just one more, this time Ken Ham's commentary on Michael Crichton's book *The Lost World* (the follow-up to *Jurassic Park*):

Throughout the book, God's name is taken in vain over and over again. It made me sick to the stomach to have to read such language ... And then there were the vulgar swear words. To be honest, I felt 'dirty' after reading page after page with the disgusting language ... I don't know how much of the evolutionary philosophy will be in the movie, but no doubt it WILL be there ... And I'm sure our children have [already] watched cartoons and nature programs that are pervaded by evolutionary philosophy, witchcraft and other anti-God material. (Ham, 1997)

Incidentally, when it comes to the active promotion of a Religious Right agenda and its integration with creationism, AiG is left in the shade by John Mackay's rival 'Creation Research' organisation. Mackay is so reactionary about these matters that he remains virulently opposed to the practice of cremation, an issue which was settled for most people a very long time ago. Not for John, however:

If the ancient Jews had regularly practised cremation Christ wouldn't have risen bodily from the dead ... The coming of the Creator-Christ (Christianity) to the UK put an end to cremation. The rebirth of paganism (evolutionism — nature worship) has brought it back. (Creation News, 2002)

Where this leaves the doctrine of God's omnipotence I'm not entirely sure.

Religious Right groups and creationism

I recently decided to search my holdings of 'mainstream' Religious Right literature for references to creationism. While I vaguely recalled seeing

it discussed from time to time I was quite unprepared for the mass of material I found. Here I will look briefly at three of the larger organisations, namely the previously-mentioned Festival of Light, Salt Shakers and the Australian Family Association. However, I discovered creationist links and references in most other like-minded groups; and it is worth noting that the national evangelical weekly *New Life*, which often prints Religious Right media releases, has a strongly pro-creationist editorial bias.

The Festival of Light has various 'arms' including the Christian Democratic Party, represented in the NSW Legislative Council by Fred Nile and Gordon Moyes, and a monthly tabloid called *Family World News* (FWN). 'No to Evolution!' blared the front-page headline in FWN's issue of August 1995, following up with an article heaping praise on the now-discredited creationist Prof 'Dmitry Kuznetsov' (correctly: Dmitri Kouznetsov) and advising readers that:

For information on Professor Kuznetsov and on other world-class scientists, apply to the Creation Science Foundation, ... Acacia Ridge, Qld. ...

Most readers will be aware that the Creation Science Foundation is one of AiG's former titles.

In 1996, leading Religious Right personality Bruce Coleman wrote in FWN:

It is difficult for Christian students in the USA to find a Christian tertiary college that believes in 'a literal Genesis as foundational to the rest of the Bible', ... comments the Creation Science Foundation. It also appears that 'many seemingly conservative theological schools and Bible Colleges in Australia ...' are similarly compromised. Pray that the message of the literal truth of Genesis will be clearly established in our Christian Schools, Churches, Bible and Theological Colleges as the basis of Christian theology, Biblical under-

standing and as a solution to the issues of life.

Regular FWN columnist Cameron Horn has published an entire 454-page book attacking anti-creationist authors such as Ian Plimer; while Fred Nile himself has slated the 'permissive media' for being:

... particularly venomous in their attacks on spokesmen for 'Right to Life', Festival of Light, Salt Shakers, Creation Science etc. (FWN, 2002)

A recent issue of *New Life* tells the story of Eleanor and Beville Varidel who enjoyed:

... a 7-year close association with the Hon Rev Fred Nile MLC. We served as personal assistants to [Fred and Elaine Nile], and national field officers of [the Christian Democratic Party]. During our years of Christian service we have seen growing evidence for the need for God's people to recognise the authority and accuracy of the whole written Word of God from Genesis to Revelation. We have observed that disbelieving any part of the Word of God is the beginning of a downward spiral ... [W]e came to appreciate the growing body of creationist material available through AiG.

The Varidels, having decided that 'the basic cause of [social] problems has been the increasing acceptance of the anti-God theory of evolution', now travel around rural areas in NSW and Queensland hawking AiG literature and other materials.

I think enough has been said now to establish that the Festival of Light and Fred Nile's other enterprises can fairly be regarded as active supporters of creationism.

Salt Shakers

This group was formed in Melbourne in 1994 by Peter and Jenny Stokes and now has a national outreach. Like the Festival of Light, Salt Shakers focuses mainly on themes such as opposition to abortion, gay rights and pornography. The author David Marr gave this group a terrific serve in his recent book *The High*

Price of Heaven and noted in passing their anti-evolutionary views.

One does not have to search very far to locate creationist material in Salt Shakers' monthly newsletter. They quote directly from the AiG's *Creation Science Prayer News* and reprint articles by major American creationists such as John D. Morris. Peter Stokes himself is a confirmed creationist:

[Having listened to a description of aspects of human development on the ABC] they suggested that it all happened about 2 million years ago!! ... [W]e realised that this was a story with no God, no purpose and no hope, typical of what we hear from humanistic, long-age evolutionists. It is the cause of despair for many in our society. (Salt Shakers Newsletter [SSN], May 1999)

Like AiG, the 'conservative evangelical' Salt Shakers doesn't mind using material from the cultic Seventh Day Adventists when it suits their purposes:

Speculation that the Biblical account of Noah's flood describes a localised, Black Sea-area flood is flawed, says Dr James Gibson ..., a Seventh Day Adventist scholar ... (SSN, February 2000)

And I can't resist including their publication of this stupendously ignorant letter by Murray Graham, a gentleman with other strong Religious Right connections:

Sumner Berg ... decries the Biblical concept of the Great Flood. How then, may I ask, were fossils produced? Obviously, without total sudden entombment in liquid mud, they wouldn't be preserved ... Marine-life fossils also are found at high mountain elevations - another biblical confirmation factor. (SSN, Aug. 2001)

Salt Shakers also directly sells American creationist literature (eg by televangelist John Ankerberg). It is therefore fair to describe this group not merely as a supporter of creationism, but as a creationist organisation. Even more enthusiasti-

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cally than Fred Nile's groupings, Salt Shakers is an active propagandist for this cause.

Australian Family Association

I knew this one was going to be a tougher nut to crack, as the Australian Family Association (AFA) is an offshoot of the National Civic Council (Santamaria, 1990). These bodies are dominated by conservative Catholics and are generally loath to directly contradict the Pope, who takes a fairly liberal line on the question of evolution. Catholics are permitted to accept the theory of evolution regarding the origin of the human body, though not of the soul.

Having looked unsuccessfully through a number of AFA publications, it suddenly occurred to me that the current National Vice-President (and former National Secretary) of the AFA is a man named Bill Muehlenberg. Muehlenberg is not a Catholic, but rather an evangelical Protestant who arrived in Australia from the US several years ago, intent on helping us to improve our deplorable moral standards. He has since flitted from AFA to Focus on the Family to Salt Shakers and back to the AFA again. (Focus on the Family is a smaller Australian Religious Right group which has also sold creationist literature in the past.)

My suspicions about Bill had been aroused by a *New Life* article in which he referred to the creation/evolution debate as one of the 'tough issues' of the Christian faith. And these suspicions were amply confirmed when I found an article he had written for the *Salt Shakers Newsletter*, entitled 'Darwinism Under Fire':

Darwinistic evolution is a competing worldview to the Biblical Christian worldview. One may hold to one or the other, but they cannot be held ... simultaneously.

Muehlenberg proceeded to slam 'the church' for its 'uncritical' acceptance of Darwinism and then quoted modern critics of evolution such as

Michael Denton, Phillip Johnson and Michael Behe:

These three authors have collectively undermined many of the faulty towers of Darwinism. A few more well-aimed hits and the whole edifice could collapse. Darwinism has been one of the great intellectual superstitions of modern times. Every Christian should get and master [these] books ... ,and help put to rest the pseudo-religion of Darwinism. (SSN, May 1998)

I doubt whether Muehlenberg speaks for the AFA membership as a whole, but he has been a very senior official for some time and his views raise questions about the organisation's objectivity in this matter.

Conclusion

I believed until the last few months that AiG occupied a sort of *cul-de-sac* in terms of its relationship with the 'mainstream' Religious Right in Australia. I now feel that this is incorrect. There are ideological, personal and organisational links between AiG and the other bodies mentioned here which make it clear that they all form part of a recognisable Australian Religious Right.

Going a little further, there is an argument that Religious Right organisations must take creationism's part against evolution or at the very least observe the strictest neutrality. To do otherwise would be to jeopardise relationships with a substantial section of their support base, both actual and potential.

People attracted to Religious Right groups usually begin by asking the question: 'How can we fight declining moral standards, abortions, homosexuals, pornography, de facto relationships etc.?' But creationism goes one step further, offering a superficially coherent answer to the question: 'Why has all this happened in the first place?' Of course, this query has given rise to a wealth of outlandish conspiracy theories. But the specific creationist response — 'The Devil and Darwin made 'em do

it' — is very appealing to the conservative Christian cast of mind.

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A Psychic Challenge

Testing a claimant can be a friendly affair

A team from Australian Skeptics (Alynda, Richard Saunders, Ian Bryce) recently participated in a demonstration and preliminary test for the Challenge. The claim was made by Ms Maree Teychenne of Vincentia, NSW — a professional clairvoyant. Readers may recall a previous test of a claimed psychic, Mr Sen, as reported in *the Skeptic*, Summer 2002 [22:4]. This second test provided some interesting comparisons.

Introductory Communications

Maree's approach to the Skeptics was certainly refreshing. She sounded very pleasant and has a sense of humor which is uncommon among psychics **and** she thinks that there are more frauds in her profession than **real** psychics.

Maree emailed :

I TRIED... TO SEND THE INFORMATION TO YOU PSYCHICALLY THROUGH THE AIRWAVES BUT I DON'T THINK YOU WERE RECEIVING AT THE TIME... AS YOU KNOW, I AM NEW TO THIS SPOOKY SCIENTIFIC WORLD OF E-MAILS AND EPs (ELECTRONIC PIGEONS)... MUCH LOVE AND GOOD SPIRITS, MAREE, (SCEPTICAL PSYCHIC).

Being new to emails, evidently she hasn't learnt how to use lower case yet. Maree's claimed ability was not easy to nail down. Firstly she

wanted the Skeptics to do a reading on **her** and her friend:

*SO WHAT IS THIS CHALLENGE THAT THIS ALLEGED PROFESSIONAL CLAIRVOYANT WANTS TO SET UP?? WELL, I'VE LISTENED TO YOU GUYS SHOUT OFF YOUR MOUTHS IN THE MEDIA FOR YEARS AND SO FOR 30 MINUTES YOU CAN **SHOW ME** HOW I DO THE READING.*

We replied that **we** wanted to test **her**, so it became a sort of Dueling Banjos, to see whether her spirits or the Skeptics "cold reading" techniques were more accurate. Counter-measures were called for:

STEVE AND I ARE PRACTISING SITTING IN ABSOLUTE SILENCE USING MINIMAL-TO-ZERO BODY-LANGUAGE SO THAT WE DON'T GIVE YOUR THREE SKEPTICS AN UNFAIR ADVANTAGE OVER US!

We replied that we would need her to make some sort of prediction, which could be tested for accuracy.

She responded with two:

PREDICTION:
*I PREDICT, WITHOUT A SHADOW OF A DOUBT, THAT THIS EP (electronic pigeon) SHALL FIND REST AND COMFORT INSIDE YOUR INTERNET INCOMING TRAY. HOW DO I KNOW - APART FROM **AMAZING DREAMS, S E N S A T I O N A L GOOSE-BUMPS ALL UP***



Ian Bryce, engineer, scientist, investigator, was recently made an Honorary Life member of Australian Skeptics.

A psychic challenge

*MY ARMS AND THIS **OVERPOWERING SENSE OF THINGS RETURNING TO THEIR PSYCHIC HOME-ZONE AS WELL AS A DIRECT ONE-ON-ONE CONVERSATION WITH AN ALIEN...***

Well there is a safe prediction!
And:

I DID, OF COURSE, AS YOU WOULD HAVE SUSPECTED BY NOW, KNOW THE ENTIRE CONTENTS OF YOUR EMAIL EVEN BEFORE I OPENED IT. CERTAINLY I DID AFTER I OPENED IT.

Well one or the other must come true! And lower case may be hard to find on Maree's keyboard, but not bold, italics, underline, or double letter spacing. The details of the test developed:

THE CHALLENGE:

TO TEST THE CLAIM THAT I CAN "READ" PEOPLE'S ENERGY AND THAT I CAN TELL THEM THINGS ABOUT THEIR PAST, PRESENT AND FUTURE. I WOULD VERY MUCH LIKE TO BE TESTED UNDER MY NORMAL WORKING CONDITIONS WITH MY CLIENT SITTING FACING ME IN THE SAME ROOM WHILE I HOLD A PIECE OF THEIR JEWELLERYI DO NOT "READ" THE PIECE OF JEWELLERY — THAT IS I DO NOT CLAIM TO BE ABLE TO GIVE ANY INFORMATION ON THE JEWELLERY ITSELF SUCH AS WHEN IT WAS BOUGHT OR WHO GAVE IT TO MY CLIENT, ETC... HOWEVER, THE JEWELLERY SEEMS TO PSYCHICALLY LINK ME TO THAT PERSON. HOW THIS IS DONE, I HAVE NO IDEA. YOU GUYS ARE MUCH MORE INTELLIGENT THAN I AM SO YOU CAN TELL ME HOW THIS IS DONE!

And she is fairly discerning about who is to judge her:

THE JUDGES:

I WANT ONLY DECENT, SENSIBLE, INTELLIGENT & BRILLIANTLY WITTY SKEPTICS FROM AUSSIE SKEPTICS TO SIT IN JUDGEMENT OF ME.

That should go without saying, but some of her desired conditions were obviously made tongue-in-cheek:

A COMPLETE RESUME OF MY JUDGES WOULD BE A GREAT



Maree Teychenne

HELP FOR WHEN I DO THEIR READING. IT DOESN'T HAVE TO BE TOO DETAILED — JUST THE BASICS SUCH AS A GRAPH WITH THEIR COMPLETE EMOTIONAL & FINANCIAL BACKGROUNDS, WHETHER THEY ARE UP-TO-DATE WITH THEIR TAXES, A MEDICAL HISTORY OF THEIR ILLNESSES — BOTH PHYSICAL & MENTAL (EG, A SUPERVISING SHRINK'S REPORT WOULD BE OF ENORMOUS HELP TO ME AS WOULD A TRANSCRIPT OF THEIR CONFESSIONS TO THEIR LOCAL PRIESTS) WITH A FULL RUN-DOWN OF THEIR FAMILY LIVES THROWN IN IF I RUN OUT OF THINGS TO SAY. NAMES OF THEIR PETS SHOULD THROW THEM FOR A SIX IF YOU CAN MANAGE TO GET THEM! IF NOT, I'LL STICK WITH ROVER AND FLUFF. SOMEONE'S ALWAYS GOT A PUSSY NAMED FLUFF. EVEN JOHN EDWARDS KNOWS THAT ONE.

Now wouldn't that make her reading easy? Denied such resume s, what sources of data would Maree call up? Her various signature lines give some clues:

...I REMAIN, EVER HOPEFULLY

*YOURS,
ONE WHITE CROW xxxxxxxx*

...ANYWAY, MUCH LOVE & GENERAL EXCITEMENT FROM MYSELF AND, OF COURSE, MY BELOVED SPOOKS!

...I REMEMBER THE GOOD OLE DAYS WHEN ANGELS HAD A PROPER GENDER AND KNEW THEIR PLACE IF THEY WERE FEMALE!

...AND MAY YOU ALL HAVE A LAUGH WHILE HOLDING VINTAGE SPIRITS — IN AN APPROPRIATE WAY, OF COURSE.

...THE LITTLE ALIENS... CAN FLY AROUND IN MAGNIFICENT PETROL-FREE UFOs...

Thus all the players were cast and the stage was set.

The Meeting

And so the day of the test dawned. The moment we entered, Maree said: "I see a young person about 34-35", clearly hoping for the response: "Yes, I am 35, how did you know"? She is quick off the mark. But we gave no response.

After introductions, we confirmed that she would give readings on the three of us, while holding a piece of our metal jewellery. We had organised to bring some jewellery from third parties not present, which had been placed by their owners directly into a brown paper bag as per her emailed instructions, but she then declined that option.

Maree assessed how easy each subject would be for her: Richard would be OK, Ian would be very tricky, and Alynda would be hard until she relaxed.

We asked how Maree normally operates. She charges \$30-40 for a consultation, which lasts 1-3 hours; this is quite modest when compared with many other 'psychics'. Her clients are uncritical — they never ask questions to which they know the answer (unlike Skeptics); they come in and straight away ask what is going to happen in their lives and

what advice she can give them. She pointed out that by way of comparison that John Edward charges \$600 for an audience.

Richard's reading

Her first subject was to be Richard, who she mistakenly called Ray (despite being given our names by email, and then being introduced). Score: Spirits nil, Skeptics 1. He passed her his wedding ring to hold, and she asked his age: 37.

Richard (she said, somewhat paraphrased here) is at cross purposes, he loses direction, he wants to help people, but he has to learn how to say no. He needs time out from people, thus likes to be near water, to use water to relax, such as to sit on the beach. Smell the roses to coin a phrase.

He needs to love himself as he is, yet he feels complete if he has a title [What – our Prez?]

I said that such descriptions of personality traits could apply to anyone, and Richard said the water claim applied no more to him than anyone else. Predictions specific to the person would be more helpful.

Richard has a drink problem — pause, no reaction, so she quickly added “almost”. His bottom teeth are a serious problem. He has a loud, strong voice when he wants to ‘get going’ or is angry (well, don’t well all?). Perhaps he is a teacher or a coach for a rugby team.

Throughout the course of this reading, Richard’s (described) personality underwent a change. At no point did Richard respond to any of her statements/veiled questions. Notice now how Richard goes from being agreeable and good natured to almost the opposite.

Titles and his university degrees are important. He is efficient at hiring people. He feels great responsibility because the buck stops here. Maree said Richard’s ring (which she was holding) was getting warm, and telling her Russia, and she sees submarines.

Then Richard asked some questions of his own. “Where did I meet my wife?” Maree was unable to say,

but asked for her name and age, and armed with this data was able to say she is cluey, is good at managing your mood swings, and there have been problems in the kitchen area such as renovations. She understands him better than he knows himself. He gives her a hard time occasionally but she knows how to handle him. Richard can be scary in the proper situations. People respect him because they are scared of him. One of the things that attracted him to her was that she saw right through him.

Very different from the original assessment of being too agreeable and finding it hard to say no, isn’t it? He was also attracted to her because she had a youthfulness and maturity.

Maree said there was a joke about slippers, maybe she bought you a daggy pair. And one final question from Richard: “Where was I living in 1980?” Haven’t a clue.

Scores for Richard:

At the end of the reading, we listed the more testable predictions, and checked off their accuracy:

- Drink problem? No.
- Bottom teeth problem? None.
- Opera singer? No.
- Titles are important? Well he is President of the Skeptics.
- Degrees? He has none.
- Hiring people? Never done it.
- Russia? No.

• Submarines? It transpired that Richard did once visit the Russian submarine at Darling Harbour, where he (being taller than most Russian sailors) hit his head. But then so have many people.

- Where met wife? Can’t say.
- Kitchen renovations? None.
- Slipper joke? Yes, Richard’s wife jokes about buying him ‘steel-capped’ slippers so he won’t stub his toes. That deserves a hit!

- Where living in 1980? Haven’t a clue.

That makes about 1 hit out of 10. As if to explain the poor result, Maree said “You’ve never had a reading, have you?” In fact we have all had quite a few, for curiosity, research or as part of investigations.

Alynda's Reading

Next it was Alynda’s turn. Maree asked for Alynda’s age, but Alynda declined to give it. More than for men, a woman’s age gives so many clues to milestones in her life. Maree replied that without it, she might mistake the past for the future. Alynda replied that she would let her know if that were the case.

Maree is now facing a woman whom she believes to be in her early thirties, dressed head to toe in black leather, a low cut top, long dangly earrings and wearing no wedding ring. Add bright red lipstick and nail polish and let’s see how the reading turns out.

Maree said Alynda has been a naughty girl with men, has led them astray, likes sexy gear, and is a flirt. “And I hope you get a really good guy, it will bring you a radiance, you need a home base. You have a lot of love inside and need to find someone to give it to”.

Then, perhaps picking up a negative reaction, Maree suddenly backed down: “For all I know, you might be married with 6 kids”. When there was no reply she let that one slide.

She has a soft and tender heart, but doesn’t let people know. Has seen maybe a hurt animal in the past and been affected by that. She has been betrayed; someone has blown her trust out of the water.

Alynda is concerned about her weight, and has a skirt that she has noticed lately is too tight. Later: “Are you pregnant? (short pause to look for reaction) It’s a joke.

She has a logical mind, is intelligent. “I don’t know if you did debating at school?” She has good writing skills, perhaps creative, poetry or technical. She has not got as far as

A psychic challenge

she could have with her education, and puts herself down.

In a corporate meeting, Alynda would prepare well, and be all fire, I would hate to be opposite her.

Alynda then asked some questions: What education did I have? I can't tell, is it law? (pause) Or should have been.

Scores for Alynda:

- Likes sexy gear? That was simply the impression created by the clothing.
- Is a flirt? Maybe, but opinion only.
- Seen a hurt animal and been affected by that? No.
- She has good writing skills, perhaps creative, poetry or technical? No for the first two; Yes on the technical — that's part of her job.
- She has been seriously betrayed? No.
- Concerned about weight? This is but apparent enough.
- Has a skirt that is too tight? No — she has lost weight recently and doesn't wear skirts very often anyway.
- Is pregnant? No.
- And perhaps the clanger: Maree said Alynda "has been a naughty girl with men, and I hope you get a really good guy, it will bring you a radiance, you need a home base." No! [Alynda replied that she could not have been naughty for very long, as she was married at 22, has been married for 17 years and has 3 kids!]
- Has a lot of love inside and needs to find someone? — No, with a husband and 3 kids there are plenty to give the love to.
- Her education was in law? No, never even liked it.

Discounting those predictions which were obvious or vague, that makes (generously) 1 out of 10.

Ian's reading

Maree wanted to know Ian's age. Ian declined to tell her. She guessed '40s'. He has 'time out' sometimes.

Ian is an observer of people and life. He doesn't think on the run but makes quiet time. He chooses his words carefully to keep the fire out of a conversation. He's the thinker. His mind is free but the rest of his life isn't. This is due to responsibilities at work.



The Skeptics team

Ian would do well in a hostage situation where he was kept in a prison for a couple of years. This is because he is able to switch off from his surroundings. People don't realise how intelligent he is. He's very shy, but he's not in situations he is comfortable in, but he's different at work than when at home with the kids.

Ian has a solid family base. Maree went on at some length about Ian's kids, particularly "your boys". He is very thorough with their education. He loves to read them bedside stories, or perhaps they are at university already.

He loves to play the piano. He carefully minimizes risks. He doesn't like failure. He puts his heart and soul into a project but the risk needs to be less than 5%.

Ian gets on with people but they don't necessarily get on with him. He needs to socialise more with his work colleagues. He has a heart murmur, should get a check up?

For his questions, Ian had listed a number, a color, a city, and a season on a piece of paper in his pocket.

Maree attempted all but got none right.

Scores for Ian:

Specific claims could be scored as follows:

- You have children – boys? He has no children.
 - Ian is in his 40s? No.
 - You play the piano? No.
 - People don't realise how intelligent you are? No, as a rocket scientist, he hopes they do...
 - You have a heart murmur? No, it has been checked recently.
 - You carefully minimize risks to no more than 5%? No.
 - Ian would do well in a hostage situation where he was kept in a prison for a couple of years, this is because he is able to switch off from his surroundings. Could be some truth in this, or it is an observation of Ian's poker-faced lack of response to the reading.
 - The Number written down is 17? No its 78.
 - The Color written down is red? No its beige.
 - The City written down is Rome? No its Capetown.
 - The Season written down is what? Starts with an S! No its Winter.
- Score for Ian's reading: 0 in 10.

Results

The specific predictions we were able to score were (somewhat generously) as follows:

- For Richard – 1 out of 10
- For Alynda – 1 out of 10
- For Ian – 0 out of 10
- Total – 2 hits in 30 predictions.

It seems neither the white crows, spooks, angels, spirits and aliens, nor the witches adorning our coffee cups, were any help!

We noted that quite a few predictions would have been remarkable, had they been made to different subjects:

- Richard was linked to Russia, whereas Ian has been there 8 times.
- Richard was associated with submarines, whereas Ian went to Russia to buy rockets — there are similarities, they are just pointed in different directions when you start the motor!!
- Richard likes to be near water, to use water to relax, whereas Alynda is an avid scuba diver.
- Ian was claimed to play the piano, whereas Alynda has that skill.
- Ian wondered whether the prediction about being very thorough with his children's education, could also be a transferal. He has two little dogs on which he showers attention. He tried to remember how much money he spent on their puppy classes and obedience training...

This happened with just 3 subjects present; imagine how easy it is with 600 in John Edward's audience! How is it that he misses so often? His cold reading skills must be must be really bad.

The rationalisations started when Maree tried to imply that she was getting the information about other people in the room, but we would not accept that. After all she was holding a piece of jewelry from each person in order to "connect" to or "tune in" to that subject. Most psychics and water diviners etc we have tested, offer a variety of excuses or explanations.

Maree offered the following: "Barry never sent me your CVs as I asked" and "I can only say what the spooks tell me".

Standard cold reading techniques used

Maree noted that her usual readings to commercial clients, although conducted in a similar way, seem to have such good results. We pointed

out some standard techniques which she apparently used:

- Traits which almost anyone would agree to — "you like to be near water to take time out".
- Generalities which would apply to gender, age and appearance (although in this case a sure thing) To any woman over the age of 11 — you are concerned about your weight, and have a skirt that is too tight.
- Characteristics which appeal to everyone's vanity (Fine Flattery) She has a soft and tender heart, but doesn't let people know; Has a logical mind, is intelligent; You have not got as far as you could have.
- Observing very quickly and using it immediately — she claimed to already know the age of someone, just after we all entered the room.
- Using observations to the maximum effect "Alynda likes sexy gear" — she was merely wearing black leathers from head to toe!
- Pausing for a response — "you have a drink problem?" followed by a pause.
- Backing off when no response — saying "almost" when no acknowledgement.
- Using "should" to convert a miss to a hit — You were educated in law? (pause) Or should have been.
- Rainbow Ruse (per Ian Rowland) — a statement that credits someone with both one characteristic and it's opposite — Your wife is youthful but also mature. He's very shy, but he's not shy in situations he is comfortable in.
- Knowing maximum-likelihood answers: for a color, Red; for a city, Rome; for a season, "starts with s".
- The Vanishing Negative. "I don't know if you did debating at school". "Yes" Response — "I thought you did" "No" Response — "I didn't think you did".

This is not to say it is deliberate, in fact we believe Maree is sincere in what she does. Nevertheless her claimed success with her usual subjects can be entirely explained by: firstly her skilful use of common cold reading techniques, particularly her use of discardable suggestions, close scrutiny of the subject's reactions, and rapid backpedaling when necessary; and secondly the uncritical attitude and over-helpful responses of the average client.

We can conclude:

- This score certainly shows a failure to make specific predictions as claimed.
- From the entire event, it was apparent to all present that Maree failed to demonstrate any psychic powers in this test.
- Maree's claimed usual success can be entirely explained by her cold-reading techniques and the clients' accepting approach, without the need to invoke clairvoyant ability.

On a lighter note, Richard and Alynda entertained Maree and her two friends with a demonstration of spoon bending, which was very well received. Also it must be said that between the 'readings' many jokes and laughs were flying around the room. Maree thought it would be a good idea to have a 'Skeptic's Show Bag'! We were in hysterics as we came up with ideas for the contents such as good luck charms, guaranteed not to work!

Maree was friendly and funny. To thank her for her time and being open minded enough to have us test her, we gave her a year's subscription to *the Skeptic*, a *Great Skeptic CD* and a copy of the *Great Water Divining Video*.

Finally, we wonder about the slipper joke hit. How many readers have had some sort of slipper joke with a spouse? Write in and tell us if you have. Maybe Maree has found an original technique here.



A Night with the Cultists

**A new look at health or
another assault on
sensible healthcare?**



Richard Lead is the Treasurer of the NSW Skeptics and spirituous leader to devout drinkers everywhere.

Your correspondent has enjoyed hundreds of blissful evenings at the Sydney Opera House. But whether the evening comprised a world-class performance of ballet, opera, or symphony, I have never observed a standing ovation from a Sydney audience. Until July 22 that is, when I watched with amused disbelief two standing ovations. One before the act, and one afterwards.

The venue for this event gives the reader the first clue that something was not quite right. Sydney residents will recognise the name of the Hillsong Church, a 3,500 seat tribute to the power of mammon. On the same tax-exempt property sits the multi-million dollar Hillsong Convention Centre, and this location for the event was not a coincidence.

Readers may have spotted advertisements in the press for the Paul Zane Pilzer seminar. They were hard to miss: “World-renowned US economist, multi-millionaire entrepreneur and best-selling author explains how you can catch the wave of THE NEXT TRILLION DOLLAR INDUSTRY.” (Don’t feel bad — I had never heard of this world-renowned turkey either. Nor had I heard of the ‘wellness industry’.)

The bait was too tasty to resist, so Peter Bowdich and I made the su-

preme sacrifice and attended. Even before the act started I remember looking around at the 500 or so attendees and turning to Peter with the comment, ‘This has an Amway feel about it.’ And sure enough, the first thing we were instructed to do was to turn to the person sitting next to us and say ‘I think I am going to like you.’ (Peter turned to me, and was instantly struck dumb.)

The warm-up act was a Dr John Tickell, who claimed to be a nonconformist medical practitioner and a specialist in ‘wellness medicine.’ We were instructed in the ACE Program (activity, coping, eating) and soundly hustled to buy his books. His boast that “I know I can’t prove it, but I am right” brought loud cheers from all except two in the audience.

A standing ovation from all except two greeted the entry of Pilzer. Of all the American motor-mouths I have heard, he is definitely one of them. His opening statements welcomed his audience, which he acknowledged comprised multi-level marketers. He urged us to buy his book *Unlimited Wealth*. He preached to the choir that ‘network marketing’ is the only way to go, as ‘80% of the cost of items in shops is distribution costs’ (rubbish!). Did the reader know that ‘direct selling is the only

way to advise people of new products? That's right, and it even has a name — intellectual distribution. He urged us to buy his book. Pilzer told the faithful many things, and they lapped it up with loud agreement (but to their credit, nobody actually said Amen or Praise Jesus.) Readers of *the Skeptic* will be startled to discover they have lived their lives without realising:

- Food companies are evil. They deliberately aim to make us fat so we will buy even more of their products.
- The medical industry is even worse. It is, in fact, the sickness industry, earning \$75 billion per year. It is only interested in treating symptoms, not causes.
- 95% of prescription drugs are taken for life. Just 5% are taken for ten days until the disease is cured.

- There is a conspiracy between the food industry and the medical industry. The food industry deliberately makes us sick so that the medical industry can then treat us. (I am NOT making this up!)

- Pan Pharmaceuticals was nothing more than a media beat up. The complementary-health industry is as white as snow.

He urged us to buy his book.

And what exactly is the wellness industry, this next trillion dollar industry? I doubt if even one reader hasn't already worked out it involves the multi-level marketing of little bottles containing vitamins and other unnecessary food supplements. As Pilzer said many times, wellness consumers keep re-buying.

And to a thundering standing ovation, he was gone.

Under the windscreen wipers of every car appeared the following

cheap, hand-cut notice. All capitalisation and punctuation are verbatim:

The "WELLNESS REVOLUTION"
An "AWESOME OPPORTUNITY"
We have the REVOLUTIONARY"
Tools & Vehicle to grow your future

I obviously have far too much idle time, so I e-mailed for more information, and specifically, for the name of the company. There has to be a reason why companies such as Coca Cola and McDonalds spend billions marketing their corporate names, yet others move mountains to hide their identities. Eventually, and very reluctantly, having given me names such as Dreamchaser, I was advised that it is Amway. The money I save on unnecessary food supplements I spend on overseas holidays.

More Limericks

*A keen young chap called Puza
Shot birds with a bloody big how'tzer
His statistics were fun
From the end of a gun
Like a March from the Yankee, Souza.
(Henry Maustrouser II)*

*A conspiracy woven by Peter
With UFOs, radars and E-meters
His reasoning clear
He isn't a seer
But his theories couldn't be neater.
(Henry Maustrouser II)*

*Wily Prof Brendan McKay
While perusing the Bible one day
War and Peace, Moby Dick
Found a metal ice pick
And with this scared M'sieur Drosman away.
(Henry Maustrouser II)*

*Mumbo jumbo by Borek in Canberra
Statistics and sampling bias error
Using flocks of birds
To illustrate his words -
Exposing false statistics he's a terror.
(John Harries)*

*An Australian Trekkie called Saunders
Has a brain that continually wanders
Across Doctor Who
Diviners or two
All weirdos he carefully launders.
(Henry Maustrouser II)*

*Professor Brendan McKay
Spoilt the Bible Coders' day
By using the tale
Of a legend'ry whale
To find meanings the Ishmael way.
(Baker family)*

*A Bowditch whose first name was Peter
On conspiracies there was none neater
Way up in the Snowies
He found where no flow is
And has evidence now by the litre.
(Steve Walker)*

*Poor Dicky's got some holes in the plot
Let's fill them while we're able
The Tardis plot
Started the rot
By diddling the infinity table.
(Diane B)*

*A Bowditch whose first name was Peter
On conspiracies there was none neater
Way up in the Snowies
He found where no flow is
And has evidence now by the litre.
(Steve Walker)*

As Above, So Below?

A geologists view on the rarity of underground streams



Paul Blake is a geologist from Queensland with a particular interest in the rise of pseudoscience afflicting his profession.

Introduction

Everybody knows that the bulk of the surface of the earth is covered by oceans. However, this article is about the water that is usable by humans for drinking and agriculture, therefore, from now on the oceans will mostly be ignored.

We are all familiar with how water behaves on the surface of the earth. Except when it is falling from the sky it is concentrated into narrow zones such as creeks or rivers. Sometimes it pools into larger bodies such as lakes. It is obvious to everybody that water is fairly rare, with lots of land between the small areas of water. This is even more obvious in dry continents such as Australia. Given how rare water is at the surface and the effort and expense needed to dig through rock to reach groundwater, it is not surprising that many people consult dowzers to help find groundwater. But how rare is groundwater and how hard is it to find?

It may surprise people just how common it really is. 97.2% of the earth's water is in the oceans; 2.14% is locked up in ice caps and glaciers; 0.61% is in groundwater; 0.009% is in surface waters; 0.005% is in soil

moisture; and 0.001% is in the atmosphere.

0.61% does not seem like a large number, but this figure for groundwater is about 68 times larger than the amount that flows over the surface. If you restrict the figures to fresh water, then groundwater is responsible for over 98% of the water available to humans, eclipsing the amount accessed at the surface.

Properties of underground water.

For the water to move underground it is obvious that it must move through the rocks. This movement is controlled by "Porosity" and "Permeability". Porosity tells you how common cavities are in rocks and permeability tells you how easy it is for the water to move through a rock and is dependant on the cavities being linked together. The porosity and permeability of a rock are often related, but not always eg lava flows can have abundant gas bubbles near their tops giving a high porosity, but the cavities are not linked, resulting in a low permeability. To be good for ground water the rocks in an area needs both high porosity and permeability.

Groundwater in sedimentary rocks

The examples of groundwater that are most familiar to people are those extracted from coarse-grained sedimentary rocks such as sandstones. These have the advantage that there are abundant cavities between the grains of sand and the sandstones can form thick sheets throughout a basin. The Great Artesian Basin is famous for its ability to transport groundwater through sandstones over large distances.

Fine-grained rocks such as siltstone and limestone generally have low porosity. However, rocks at shallow depths (<1km) are often fractured by sets of joints that allow the passage of water. Also, limestone is famous for its ability to be redissolved along joints producing secondary porosity.

There are numerous geological processes that can affect the porosity of sedimentary rocks and porosities usually range from 1 to 30%.

Groundwater in other types of rocks

The other types of rocks that make up the crust of our earth are classified as volcanic, plutonic (granitic) and metamorphic (affected by high temperature and pressure). All of these are composed of interlocking crystals and are generally thought to have low porosity. However, once again fracturing plays a major role in these rocks at shallow depths.

As granites and lavas cool they shrink and crack producing intersecting joint fractures that are conducive to groundwater flow. Weathered plutonic and metamorphic rocks can have porosities in the range of 30 to 60%.

So even areas that you would logically think of as being unprospective for groundwater often carry large volumes of easily found water.

Where to find it

If you want to find groundwater there are some easy ways to maximise your chances. Fracturing and weathering can substantially increase the porosity of a rock. Even in a sedimentary basin with good

sandstones it would be best to pick fracture zones so that you maximum porosity. Fractured and weathered rock usually produces a recessive topography, so low areas and valley are good sites to drill. Studying creeks in an area is also a good idea since they more easily erode fractured rocks. A creek making a sudden change of direction (dog leg) has often started to follow a fracture zone. Drilling near dog legs is often successful.

The nature of groundwater

Many dowsers refer to underground streams and this seems to reflect the idea that water below ground behaves like water above ground and is concentrated in narrow zones, but this is not the case. In sedimentary basins the water flows through sheets of sandstone and the water is spread throughout the sandstone body. It is not concentrated in thin zones that may resemble streams. In granitic and volcanic environments, the joints that form during cooling are interconnected in all three dimensions and once again, the groundwater travels through an area as a sheet.

About the only groundwater situation that resembles the dowser's ideas of underground streams would be fracture zones in metamorphic rocks. However, even in these areas it does not really match since fracture zones are rarely perfectly vertical and you can drill into the same fracture zone from a variety of locations at different depths.

Another difference between groundwater and water at the surface is the rate that it moves. Ground water as it moves through rock experiences a high amount of resistance and it moves only very slowly. In the Great Artesian Basin the water is travelling at slightly less than 0.05m/year. In *The Great Water Divining DVD* produced by Australian Skeptics, one of the dowsers who failed the test complained that the water had lost "energy" by standing still during the day. It is hard to imagine that water moving about 1 mm a day adds "energy" to

the water that is detectable by dowsers.

Conclusion

Ground water is common, and you don't need any magic sticks to find it if you follow the simple rules mentioned above.

The term "underground streams" does not reflect the way that groundwater behaves in almost all environments. Most groundwater occurs as a horizon, which is why hydrogeologists talk about "watertables" and not "water-ribbons" or "water-stringers". It also moves much more slowly than water at the surface.

The Department of Natural Resources and Mines in Queensland has a long history of drilling bores and monitoring watertables. One of their fact sheets has this to say about divining:

There is no scientific evidence to support the claims of diviners that their methods work. In fact many 'divined' sites have proven to be failures, although it is fair to say that others have produced quite good results. This is a risky way to proceed, and you are far better to rely on factual data and scientific knowledge. However, if you still wish to use divining, back it up with scientific information.

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Fact sheets from the Queensland Department of Natural Resources and Mines website at <http://www.nrm.qld.gov.au/factsheets/groups.php?group=Groundwater&>



Graphology: Write or Wrong?

Our roving investigator seeks out another dubious practice.



Karen Stollznow is completing a PhD in linguistics at the University of New England and is a member of the NSW Committee.

Linguistically, graphology is a rarely applied term for written language. Typically, the technical term has been usurped by fringe dwellers to give credence to pseudoscience. In this latter usage, graphology is the study of the style, speed, size, spacing, slant, signature and more of cursive handwriting to determine character traits. The practice was developed by Italian physician Camillo Baldi in the 17th Century. In that age of bloodletting, leeches and humors, Baldi wrote the text, *Treatise on a method to recognise the nature and quality of a writer from his letters*.

Today there are 20 000 graphologists in the US alone. Much like the proponents of Reverse Speech, graphologists claim that handwriting reveals personality and represents the unconscious mind.

Scientific analysis

This is not to be confused with the more orthodox study of handwriting which forms a branch of forensic science, forensic document examination where consultants examine handwriting, predominately for legal

purposes that require the analysis of writing examples to detect authenticity or forgery. These specialists usually hold scientific qualifications and undergo training and study with government agencies such as the police. Forensic document examiners do not rely on visual inspection of handwriting but use scientific equipment such as the Video Spectral Comparator, Electrostatic Detection Apparatus, Stereomicroscope and computer based image enhancement programs. Moreover, they avoid the title 'graphologist' and the unscientific connotations of graphology.

Non-scientific analysis

But can a graphologist interpret the unconscious mind underlying a subject's handwriting or does their analysis merely reflect content?

Let us begin with a brief anecdote. Lynn attended a luncheon with some friends and colleagues in Indiana, US. Arriving late, she was informed that a graphologist was about to analyse the handwriting of the guests. Told to provide a quick sample of her handwriting, Lynn hastily scribbled two sentences onto a scrap

of paper and added it to a pile of other samples. The graphologist soon selected Lynn's example and read it aloud. "It is July. It is a hot day outside. This indicates that the writer is a very boring person with no imagination" came the curt interpretation. Lynn was insulted at the graphologist's rude assumption. She had not been advised that the graphologist had requested a sample of writing revealing the author's personality and interests — that is the very claim of graphology, to identify this information! Lynn had written the first thing that came to mind, two factual statements. The graphologist had clearly based the superficial 'analysis' on the content of the writing rather than the style and nuances of the individual's handwriting.

Ignoring a legitimate need for the scientific analysis of handwriting in forensic areas, graphologists focus on more challenging spheres such as the romantic compatibility of a couple or 'reading' personality, yet another technique of character analysis to add to the realm of palmistry, phrenology, psychometry and the latest absurd practices of reading toes or even bottoms (see *the Skeptic* 22:3). This would be harmless enough, were it confined to party tricks and 'for entertainment purposes only' columns in tacky women's magazines. However, Australian graphologists such as Ron Sutton, Saroya West, Meryl Bollin, Marcia Murray, Angela King, Marcus Beer and Malcolm McLeod claim that handwriting yields more information than merely personality traits or a person's future. They also assert that graphology reveals drug addiction, health complaints or impending illness and can be used as a tool for human resources, in pre-employment screening and for career guidance, business development and counselling!

Personnel recruitment

A recent article in the *Sydney Morning Herald* (05/04/03) suggests that graphology may be used by some

human resources departments and by recruitment agencies in the selection process for job applicants. Various graphological websites (including www.handwriting.com) claim that 80% of large corporations and employment agencies in Europe use graphology in their hiring processes. Surely applicants are assessed according to relevant criteria such as experience and qualifications? In this age of computers very few people hand write their applications. The electronic submission of applications has even seen the growing obsolescence of physically signed cover letters.

Graphological analysis of prospective employees seems a most bizarre form of discrimination and can only reveal the neatness of an applicant's handwriting. Why give authority to an unqualified, irrelevant outsider? I contacted a media representative of DARE Personnel for their comment. Robyn Hall from their Sydney office stated that: "*We don't use this practice at DARE. We have more formal methods of screening applicants and have never used graphology as part of this. I hope that other agencies don't use this practice either.*"

But who would really want to work for an employer that condones the use of such a silly method of recruitment?

On the fringe

My search for a graphologist unearthed self-professed 'master analyst', Jasmin Martin, owner of Alitta Consulting — Handwriting Analysis, Graphology Training, Design Consultation and Intuition Coaching, of Noosa in the Sunshine Coast, Queensland. Jasmin's website (www.masteranalyst.com.au) gives the veneer of being professional ...until you read it. The marvellously ironic homepage reads:

It is common nowadays to hear of dishonest operators and entrepreneurial con artists; of innocent people losing money on deals turned sour or through fraud. While the law may not always be able to help you after the fact, you can protect your-

self before stepping into any verbal or written agreement. A graphology analysis will provide you with the facts on the trustworthiness of any persons you are dealing with.

Alitta Consulting does not merely offer graphological services. Ever considered a career in graphology? "*For people who love solving crimes and watching a thriller unravel on the big screen, they will love the allure and promise of a career as a graphologist.*" Alitta Consulting can help you there, offering the following subjects towards the 'Foundation Course in Theoretical Graphology', a 'Diploma of Graphology': Graphology Chart Systems, Graphology Chart Software, ABC's of Handwriting Analysis, Analysed Samples, Psychology of Graphology, Graphology and the Law, Pressure, Shape, Style, Movement, Writing Zones, Single Signs, Artistic Lettering, Spacing, Borders, Size, Alignment, Slant Direction, Connections, Corrections, Speed, Punctuation, Signatures, Paragraphs, General Overview, Numbers and Doodles.

Subject costs vary depending upon the mode of study, from \$310 for online study through to \$360 for study by correspondence. Mind you, this is per subject, making the total cost of the diploma \$8370 at the minimum rate! Note also that these are the compulsory 'core modules' and other elective module subjects may be undertaken, at additional costs, of course. Furthermore, the Diploma course requires the purchase of specialised software, Alitta Consulting's own products. For the enthusiastic there is the 'Masters Course in Practical Graphology' that requires a gruelling 100 to 365 handwriting analyses dependant upon whether the student will be "*using graphology as a professional skill or personal tool*".

'Masters' students are expected to purchase the Alitta Consulting 'Graphology Kit' of 'essential tools' for the bargain price of \$55, containing otherwise unobtainable, covert equipment for the discerning graphologist:

Graphology

- Magnifying glass
- Clear plastic ruler
- Clear plastic protractor
- Fountain pen
- Fluorescent highlighter
- Red and blue pens
- A4 foolscap folder
- Rubber seal

Both the Diploma and Masters courses entail assessment although neither course is accredited. Jasmin insinuates that this is an oversight of the education system, rather than indicative that graphology is a dubious practice.

Regarding accreditation: there is no governing association or industry body in Australia specifically catering to Graphology.

Amusingly, Alitta Consulting's courses aren't even recognised by her own 'colleagues'!

There is an International Graphology Association, but to gain accreditation through them would mean changing my entire course structure, method and so on — and what sets me aside from others is my particular style.

So! Graphological analysis is in the eye of the beholder? There is no standardised technique of analysis in graphology and a reading by Jasmin is merely her personal interpretation!

Workshops

Alitta Consulting also offers a mish-mash of workshops and unrelated services such as graphic design, business consultation and the bizarre 'intuition coaching' where Jasmin claims to be able to develop intuitive and empathetic mastery, professing to have relevant background experience as a holistic counsellor and parapsychologist. And what exactly are Jasmin's qualifications? The graphologist claims to hold a BA (no majors specified), a

'Diploma in Practical Psychology' and a 'Diploma in Graphology'. Her practical experience?

I underwent an apprenticeship here in Australia at a private psychology practice. Before I could attain my title, I was required to complete 365 practical analyses in a professional working environment.

Intense stuff! But Jasmin has an altruistic side and performs a great deal of 'charity' work, only recently she analysed the handwriting samples of 100 students from a school in Jena, Germany... free of charge!

The master analyst's service fees are truly exorbitant. Maintaining a facade of professionalism Jasmin calls her 'fee' an 'investment', a standard consultation costing \$60 through to \$240 for a comprehensive analysis. Jasmin halves her charge "for handwriting analyses made on public and spiritually significant holidays such as Australia Day, Easter, Summer Solstice, Christmas and New Year's Day".

I chose the 'romantic analysis' to assess the compatibility of a couple, "when choosing a partner for life, make sure your relationship has all the signs of lasting long after the passion and enthusiasm die down." For this analysis, Jasmin examines a sample of writing from each partner in a relationship. Besides assessing Jasmin's analysis how would I test her alleged skill? I decided to submit to Jasmin two examples of handwriting... both my own. Jasmin quoted my 'investment' at \$110 for what she called a '10 minute analysis'! At \$11 a minute Jasmin has a better rort going than the infamous telepsychics!

Requirements

What does Jasmin request for an analysis?

I require a half-page sample of cursive handwriting and a signature — no printing or capitals please. The sample should be written without the aid of lined paper. Use only pen; no marker, calligraphic pen or pencil.

Although I was taught cursive handwriting in primary school it is not my preferred or most competent style. I argued that using a style that isn't representative of my typical handwriting would result in an inaccurate analysis. Jasmin responded that graphology is the study of cursive writing only and that no matter how appalling my cursive may be it would still afford a precise indication of my personality type. I decided to submit my best cursive style as my own sample and submitted scribbled shorthand under the name and profile of a friend, Todd. I posed the queries, 'are we compatible romantically? Should I marry this person?' To try and throw Jasmin, for each example I used different paper, two pens of different colour and nib thickness and applied different degrees of pressure when using each pen.

I assumed that Jasmin would develop her analysis on the basis of writing content. I was also sure she would consider other factors, including the formality/informality of the content, grammar, use or non-use of punctuation and spelling accuracy to gauge a level of education. I knew there was no way around a graphologist's emphasis on content. Should I copy a passage from the Bible, Jasmin would assume that I was a deeply religious and spiritual person; a copied recipe might suggest creativity, love of food or culinary talent; should I copy a paragraph from my favourite journal, Jasmin would know I am a Skeptic! I didn't want to give the game away so I chose two pieces of text, my example was random lines from a website about fishing, a pastime I neither love nor loath, while 'Todd's' example was a brainteaser taken from a book of puzzles.

I was most curious to see if Jasmin would detect that the two examples were written by the same person. Alitta Consulting tackles this quandary in their website FAQ's.

What if someone writes on behalf of another and tries to pass it off as

their own? Through thorough examination, forgeries can be detected. I have encountered cases of 'ghost writing', and they were resolved simply from the fact that the handwriting sample and the personality of the subject did not match. Further investigation revealed that indeed someone else had written the sample.

In stating this, Alitta Consulting claims that substituting an authentic example with falsified writing 'can' be detected. Always a caveat. And would Jasmin rationalise any failure by asserting that comprehensive analysis, a 'thorough examination', would detect a forgery while the '10 minute analysis' might overlook such a Machiavellian trick? (Although I doubt many people would try to hoodwink her at these prices). Or would Jasmin smell a rat?

The test

No. Graphology isn't going to change the world much less identify your personality traits, diagnose your illnesses or select a suitable employee from a short list better than a careful interviewing process. Jasmin did not detect that both handwriting examples were written by the same person. Although the examples revealed that I am very compatible with myself, with the exception of a few small, surmountable hurdles!

There is a potential area for conflict, and that is your individual competitiveness. You both set high standards for yourselves. Your ambitious spirits are above average and when two people of this nature come together there can be a power struggle.

Only paragraphs away Jasmin contradicts herself.

As you are both not highly outgoing, ambitious or expressive by nature, consider creating a natural channel of communication that cannot be affected no matter how stressful or busy your lives become.

Then Jasmin assuaged any fears that I might develop some sort of

Sybil-esque Disassociative Identity Disorder.

You are both very similar in your mentalities, the way you view the world and how you process information and experiences. You may differ when it comes to personal preferences and the tools or activities you use to demonstrate and enhance your mental and emotional characteristics, but in essence you are on the same wavelength.

But is Jasmin sensing that there is some correlation between the two samples of handwriting? Has she cottoned on to the ploy? No. Throughout the analysis Jasmin makes reference to two distinct characters and before too long she wraps herself up in her security blanket, content.

Your boyfriend is a methodical and strategic thinker. He is intellectually-oriented, forward-thinking and moving in his life outlook. He will put a lot of energy into planning and reaching his goals. Sometimes he can become too self-controlled and lack in spontaneity and flexibility; on the other hand he possesses a sharp ability to judge, plan and theorise situations and has the potential to develop into successful problem-solver. His nature is to be exact, accurate and analytical. He is an observer of situations and the insight he gains from this inherent skill is particularly useful and powerful if he were to use it as a strategist and adviser in his profession.

An apt assumption of a person who chooses to copy a brainteaser from a book of puzzles for their handwriting sample! However, I think I threw Jasmin with my text about fishing. Upon meeting up with her in a café in Noosa she learned that I was a PhD student of linguistics and she used this inside information to her advantage.

You are someone who is balanced, organised, reliable and disciplined. You are calm and level-headed. You are a straight talker but are also diplomatic and with the social sense

to know how to get your direct message across without offending or stepping on other people's toes. Your social awareness and etiquette enables you to be responsive to and perceptive of people.

Who would ever refute such a positive, complimentary analysis?!? Discipline and organisation are traits expected of higher-degree students and the other skills mentioned are predictable qualities in a student of a social science.

Finally, Jasmin puts on her doctor's cap.

Regarding health issues, for you, please keep an eye on your blood pressure as this is showing up in your writing as slightly irregular. The only health concern for your boyfriend is connected with any stress that he may feel, which will affect his stomach and blood pressure as well as his natural tendency is to keep issues within rather than express them.

Nothing more than general, throwaway advice. Perhaps fishing is a nice, gentle sport for a stressed-out student but after all, I am "calm and level-headed"!

Having established both of my personalities, if a person has knowledge of graphology and alters their writing style, can they alter their personality? Does graphology hold important implications for psychology and psychiatry? Jasmin claims that a person's handwriting 'style' is static.

Static style

Certain signs can change due to stress, removal of psychological barriers, maturity, etc, but the style or 'personality' of the handwriting will always remain the same - unless the person undergoes a dramatic shift in personality.

Graphology appears to divulge no more information that any average person could elicit from a sample of writing. We can decipher information about a person's handwriting from their handwriting. We can tell

whether a person has legible or illegible handwriting (and is therefore a doctor!), whether they are scribbling hastily or writing carefully. We might even be able to make assumptions about a person's interests by their chosen content, although this is independent of the handwriting and should be irrelevant to a graphological analysis. As for anything deeper or revealing of the 'unconscious mind', there is no evidence that a graphologist can...

... divulge information regarding a person's inner motivations and drives; their emotional stability; creative direction; mental flexibility; materialistic and intellectual leanings; any psychological neuroses and strengths; as well as the status of their personal biorhythm.

Jasmin did not recognise that the two writing samples were penned by the same hand. Despite my attempts to differentiate the styles I could still identify similarities between the way I formed the letters 'a', 'c', 'l' and 's'. Several other 'lay people' also picked up on the resemblance between the two examples. Although Jasmin claims that the 'style' of a person is invariable, she did not detect that these two styles were from the same person. Her analyses reflected two distinctive personalities. Furthermore, her analysis was ambiguous and general and as we have seen, there is no standardised method of analysis. Graphology is yet another cold reading technique. Perhaps Jasmin has watched one too many crime shows on television. The writing is on the wall for Alitta Consulting, Jasmin just needs to analyse the content.



Oh, Auntie, How Could You?

We can all remember what we were doing on August 27 when Mars made its closest approach to Earth for 60,000 years, can't we? I certainly can — I was fuming away in my bunker after hearing the ABC News and AM programmes state at least four times that "today Mars, at 55 million km, will be four times closer to Earth than its normal 220 million km". Now if Mars really had been four times closer to us than normal, anyone passing Skeptics Central would have seen the Editor rushing out to join the nearest apocalyptic cult, wearing an aluminium pyramid on his head. But such was not the case.

How the national broadcaster, which employs any number of good science communicators (and Paul Willis) could have made such an appalling goof beggars the imagination. In the public interest we will now make this information available to all ABC presenters, entirely free of charge (not to mention *gratis*). So please stop pushing pins into your Senator Alston dolls and pay attention.

Both the Earth and Mars are planets which orbit the Sun in elliptical orbits and each of these orbits is pretty close to the plane of the ecliptic*. (No, I'm not going to explain the difference between elliptic and ecliptic — ask Robyn Williams.)

For the purpose of this explanation, lets us first suppose that both planets have perfectly circular orbits. The radius of each orbit (in round numbers, just like the ABC budget) is 150 million km (Earth) and 230 million km (Mars). Mars trundles around this orbit about the Sun once every 686.98 days, while Earth takes 365.256 days, ie one Earth year (Earth days in both cases — a Mars day is about 40 minutes longer).

* Earth's orbit is right on it, but that's only because the ecliptic is defined by that orbit.

It should be obvious that in this system, twice every year and a half (or thereabouts), a line drawn through the centres of Earth, Mars and Sun will be a straight one. In one case, M—S—E ("superior conjunction") the two planets are furthest from each other, on opposite sides of the Sun, and hypothetically 380 Mkm apart (add the two orbital radii). Some months later they will line up again in the configuration S—E—M when the planets are at their closest ("opposition") notionally 80 Mkm apart (subtract E radius from M radius).

If the orbits were circular, these figures would always apply, but the fact is that they are elliptical, though they are not equally so. Earth's orbit is very close to circular, having an "eccentricity" of only 0.016, but Mars is far more eccentric, clocking in at 0.093. (Of all the planets, Mars has the third most eccentric orbit, after Mercury at 0.2 and Pluto at 0.25, but then there is some debate about whether Pluto really is a planet.)

Because of this, in each of their orbits both Earth and Mars will always be at, or approaching, its aphelion (farthest distance from the Sun) or at, or approaching, perihelion (closest approach to the Sun). Superior conjunction and opposition can occur when each planet is anywhere in its elliptical path, but when opposition occurs with Earth at aphelion and Mars at perihelion, Bingo! On August 27, 2003 we are a mere 55 Mkm removed from our Martian cousins, the first time we have been so close since (presumably) August 27, 57,007 BCE. As it happens this is only 1% closer than we were in 1971, the most recent "close approach". Where the "four times closer" comes in is a mystery, but I suspect one refers to the Earth-Mars distance and the other refers to the *average* Mars-Sun distance. Which is comparing apples with monstera deliciosa.



Of Time and Place

Creationist Interpretation of Placer Gold Deposits

Giving the lie to misrepresentation



Paul Blake (below) is a geologist and Roger Scott (above) is a science teacher.

This review will be discussing an attempt by creationists to interpret placers within the geological record. It will cover both Lalomov & Tabolitch's 1997 paper in *Creation Ex Nihilo Technical Journal* as well as Lalomov's attempted response (hosted at http://www.creation.webzone.ru/Eng/response_scott.htm) to the Article "Creation Science in Russia" (hosted on *No Answers in Genesis* at http://home.austarnet.com.au/stear/creation_geology_russia_scott.htm). When both Lalomov & Tabolitch are mentioned below the reference is to the original paper. When only Lalomov is mentioned, the reference is to the supposed rebuttal of the article on the *No Answers in Genesis* website.

This critique will also be using data from Bache (1987) and Patik-Kara (2002) since these were two of the mainstream scientific sources that Lalomov & Tabolitch acquired much of the scientific data that supposedly demonstrated how well placer deposits fitted their model of Noah's Flood. Also, data will be taken from Boyle (1987) since Bache mentions that Boyle is a comprehensive authority on gold mineralisation.

What are placers?

Ore bodies that are formed by the process of flowing water are known to geologists as "placers". The valuable minerals get weathered out of their host rocks and washed into streams. Since these minerals are usually heavier than other types of grains they often get concentrated in the bottom of the streams while the lighter non-ore grains get washed away. Eventually you end up with a concentration of the ore that is large enough, and rich enough, to mine.

Virtually all historic gold rushes have been to areas where gold was concentrated into placers by the actions of rivers. Other valuable minerals get concentrated in placers too, eg, cassiterite (tin), gemstones, rutile (titanium) etc.

Through most of geological time there have not been any humans around to exploit these placer deposits, and in the past these placers would be re-eroded and become part of newer placers, or they would be progressively buried and be preserved in the geological record.

Introduction

Lalomov & Tabolitch's paper, when distilled, says that there are two

Of time and place

concentrations of gold placers in Earth's geological history, in the Precambrian and in the Cainozoic. In standard geological models the Precambrian runs from about 570 to 4550 million years ago and the Cainozoic runs from the Present to 65 million years ago. In their model they interpret the Precambrian placer deposits to have formed between the creation of the world 4004 BCE and the Flood (2300 BCE) (known amongst some creationists as the New World Era) and the Cainozoic placer gold deposits were formed during the waning phase of Noah's Flood. The absence of gold placers between these two times is taken to indicate that the conditions were not conducive for placers. They believe that any placers that may have formed early in Noah's Flood would have been re-eroded and redeposited later in the Flood.

In Lalomov's own words:

Roger Scott chose to ignore (or simply did not notice) our main argument for a worldwide catastrophe — the absence of gold placers in the Paleozoic and Mesozoic sediments that occupy about 60% of the Earth's surface...

Inconsistent use of data

First thing that is noticed about Lalomov and Tabolitch's paper is that they attempt to exaggerate the number of Precambrian gold placers. In their paper they list five deposits, the Witwatersrand Supergroup in South Africa, Tarkwa in Ghana, Jacobina in Brazil and Elliot Lake and Blind River in Canada.

Reading Bache (1987) it was found that the Witwatersrand was indeed a very large gold deposit and is responsible for a large proportion of the world's gold (about 50%) and it will be discussed more below. However, for the rest the following was noted:

a) The Tarkwa is economical for gold but is much smaller than the Witwatersrand (less than 1% its size).

b) The Jacobina is considered to be of little economic significance.

c) The Elliot Lake & Blind River possess only low, variable gold content.

Therefore, Lalomov & Tabolitch think that it is acceptable to mention Precambrian placers that are not worth mining for gold when they want to inflate how common placers are in the Precambrian, but when it comes to the Palaeozoic and Mesozoic they restrict the discussion to the amounts of gold extracted and point out that they produce only 1% of placer gold.

By mentioning every significant, thought not necessarily economical, placer deposit in the Precambrian while focusing only on the amount of placer gold extracted from the Palaeozoic and Mesozoic sedimentary rocks, Lalomov & Tabolitch are deceptively stacking the results in their favour.

In an attempt to make himself appear more respectable Lalomov quotes the paper on placers by Patik-Kara (2002). Lalomov quotes this paper to claim that:

The Paleozoic and Mesozoic eras, for example, should contain two (at least) epochs of generation of gold placers...

We assume that Lalomov gets this from the following passage in Patik-Kara:

One can recognize at least five placer-forming megaepochs that incorporate all currently known economic placers and significant perspective objects — Lower Proterozoic, Upper Proterozoic, second half of the Paleozoic, second half of the Cretaceous, and the entire Cenozoic (incomplete megaepoch).

However, notice that Lalomov has inserted the word "gold" into the above statement. The statement by Patik-Kara was on all kinds of placer deposits. Lalomov has deceptively changed what Patik-Kara was talking about. This is known as misrepresentation and is considered ex-

tremely unprofessional amongst real scientists, but is the bread and butter of Creation "scientists".

Since Lalomov is misrepresenting Patik-Kara's work, let us see what was actually written about placer deposits:

The second half of the Palaeozoic includes significant objects such as the Lower Carboniferous Tomtor (rare metals), Devonian Timan (gold, titanium, diamond, and others), Dveik Group of the Karru association (Ti-Zr assemblages), and many other placers."

We also find:

Many placer deposits (except amber and mammoth tusks) are found at all stages of Earth's Evolution and are typical of megaepochs.

Patik-Kara indicates that Palaeozoic placers and placers in all time periods are common. They are not absent in the Paleozoic and Mesozoic as Lalomov asserts. The Devonian placer mentioned above even contains gold but Lalomov & Tabolitch ignore this in their attempt to push their Creation "science".

This is not a trivial observation since Lalomov focuses on the distribution of placers in his response to the original criticism written by Scott. Lalomov writes:

The other model (modern evolutionary geology) proposes that all sedimentary strata were formed slowly during billions of years, many being deposited during numerous local and moderate catastrophes. This model postulates five or six main megaepochs of placer formation that roughly correspond to periods of tectonic and magmatic activity with mountain-building processes (orogenic cycles). Thus, placers might be expected to occur frequently and uniformly within the lithostratigraphic column....

As we can see from Patik-Kara above, placers are found at all stages of Earth's evolution. Therefore, the modern evolutionary geological

model fits the evidence much better than that proposed by the Creationists Lalomov and Tabolitch.

Inconsistent even within their own "Model"

In Lalomov & Tabolitch's paper they initially state:

According to the Bible's record of Earth's history and there were two periods most suitable for placer generation. Both periods were characterised by a stage of steady decreasing of hydrodynamic energy. The first one followed the third day of creation, and the second one was in the waning stage of the Genesis Flood...

So, in one part of their paper they claim that the second period of placer development (the Cainozoic ones) was formed during the waning stages of the Flood.

Later they say:

We also propose that the younger period of placer concentration in the Cainozoic is related to decreasing hydrodynamic activity after the Flood. Our mathematical modelling of placer generation shows that the process could have begun about 4,000 years ago. Hence, it is proposed that the Flood/ Post-Flood boundary is located between the uniformitarian Upper Cretaceous to Paleocene strata.

So, in the second passage they want the Cainozoic deposits to be after the flood. They even want to put the boundary between the Flood and Post-Flood at the end of the Mesozoic since the Paleocene occurs directly after the Mesozoic, thus ensuring that the Cainozoic placer deposits must be considered Post-Flood.

So, what do Lalomov and Tabolitch want them to be? The waning phase of the Flood, or Post-Flood?

Witwatersrand

As mentioned above, the Witwatersrand Supergroup is a Precambrian gold deposit of immense proportions. It is responsible

for about 50% of all gold mined on Earth, and is responsible for over 99% of all the Precambrian placer gold that has ever been extracted. It is very important to Lalomov & Tabolitch's model. If it was to be removed from the discussion, the peak in Precambrian placer gold illustrated in Lalomov & Tabolitch would disappear. However, when we read Bache (1987) we found the following:

The gold occurs in irregular particles varying from 0.005 to 0.5 mm in size. There are various shapes: compact grains with the remains of crystals, irregular flat grains and porous grains. These shapes are not characteristic of detrital particles, and the close relationship between gold and uraninite in the fine beds of the reefs leads to the conclusion that the gold has moved somewhat during the slight metamorphism.

Lalomov & Tabolitch must have read this since they quote Bache.

The fact that the gold values in the Witwatersrand are not primary placer deposits has been known since the start of the 20th Century as shown by the literature in Boyle (1987). Evidence proving that the gold is not primary placer included such elementary observations as:

1) The gold as it is now found is not in the form of nuggets or dust; on the contrary, it is similar in its various forms and aspects to epigenetic gold. The silver content is also high, a feature that is not generally found in placer deposits.*

2) Much of the gold is not at the base of the conglomerate beds as is normal in placers; rather, the gold is commonly scattered throughout the blankets; some is even at the top of the blankets.

* The word epigenetic is used by geologists to indicate that a mineral deposit formed more recently than the enclosing rocks. In the case of placers this means that the gold is not present as detrital grains, the gold crystallised within the conglomerates from a mineralising fluid.

Also in Boyle, we find a reproduction of a paper that says:

... the gold went again into solution; and, finally, the mineralizing fluids were actively circulated and the gold was redistributed, concentrated, and reprecipitated in such a way as to produce a field containing the precious metal distributed in a workable form to the extent known today on the Rand.

The Witwatersrand deposits have been metamorphosed (put under elevated levels of temperature and pressure) and this has made the gold redissolve. It has then been reprecipitated and concentrated in the conglomerates of the Witwatersrand Basin.

Given the obviously non-detrital nature of the gold in the Witwatersrand there is an argument amongst geologists on how it got there. Some insist that all the gold came from mineralising fluids that were sourced from volcanics and that none of the gold was ever placer in origin. Most insist that the gold was originally placer in origin and that metamorphism has redissolved and reprecipitated the gold into economic deposits.

The only other economically interesting Precambrian gold placer, the Tarkwa, has also been metamorphosed.

It appears that the only economic Precambrian gold placers are those which have been remobilised and concentrated by metamorphism.

What makes an economic placer deposit?

Despite Lalomov's smokescreen about 19th Century gold prospectors and having to drill 100 m to find early Cainozoic placers, the original criticism of Lalomov & Tabolitch's abstract by Scott is still correct. Cainozoic sediments are usually associated with the modern river systems and prospective areas are easily located by studying the geography of an area. The reason that Cainozoic placers are such lucrative targets for gold extraction is that they are relatively easy to locate and

Of time and place

cheap to mine since they are usually unconsolidated or poorly consolidated. They are usually too young to have been lithified or deformed to any great extent. You may have to drill to find the channels with the payable gold in them, but it is relatively easy to trace an old channel across a flat plain.

The Palaeozoic and Mesozoic placers on the other hand have been around long enough for the sediments to be lithified into solid rock and they have usually been folded to some degree. The solid rock makes extraction difficult, and as Scott mentioned in the original critique of Lalomov & Tabolitch's abstract, it would be difficult to follow a gold-bearing channel through a mountain, particularly when the strike of the beds are continually changing due to folding. Also, drilling through solid rock is much more expensive than it would be to drill on poorly consolidated Cainozoic sediments. It is more difficult to find placers in Palaeozoic and Mesozoic rocks that are rich enough in gold to make the mining worthwhile. However, many have been mined in the past, examples from Queensland include Miclere mine near Clermont which worked a Permian placer (Withnall & others, 1995), the Mount Victoria mine which worked a Jurassic placer near Mount Morgan (Morwood, 2002), and many of the mines in Jurassic placers around the famous Palmer River Goldfield, eg, the Star of the East, Independent and Grun's mines (Denaro & others, 1994).

It is interesting that some of the Cainozoic placer deposits that were mined in the Palmer River area were formed by eroding the gold out of the Mesozoic placers (Lam & others, 1991). It also should be noted that, like the Witwatersrand, there is scientific debate about the Miclere gold mineralisation. Some claim that it is a placer whereas others interpret it as epigenetic or a remobilised placer.

The Precambrian rocks have the same problems as the Palaeozoic rocks when it comes to tracing the placer deposits. You have to trace

them through solid, folded rocks. However, the Precambrian placers that are economical for mining have been metamorphosed, and it appears that the gold has been remobilised and concentrated in such a way to make it worth the effort. Therefore, it seems that it is their long history and reconcentration that have made these deposits economical.

Convergence of knowledge

Scientists often quote each other since they find that their work corroborates or adds to the work of another. One of the main strengths of science is that separate workers can often find different evidence that supports one another. Therefore, it is not too surprising that creationists imitate this and quote each other to make it appear that their individual works are somehow starting to make a unifying whole. However, it seems that they do not read each other's work or do not understand it.

For example, Lalomov & Tabolitch quote Dr Tasman Walker's Flood model to get some criteria for the Lost World Era (between the Creation and Flood events) and Noah's Flood. They then write the following:

Therefore, we think it likely that the gold mentioned in Genesis 2:10-12 represents the Precambrian gold placers, and that there are pre-Flood deposits.

However, they have not applied Dr Walker's criteria accurately or consistently. When you look at information on the Witwatersrand Basin you find that it contains approximately 600,000 km³ of rock. This means that the basin, and the placers contained in it fit into Dr Walker's "continental scale features", not the "local scale geological features" (<10 km²) that Lalomov & Tabolitch want it to be. Since the Witwatersrand Basin is a continental feature it can only have formed during the Creation or Flood Event according to Dr Walker's model. The Witwatersrand Basin also contains large volumes of lavas and tuffs (explosive volcanics), which exclude the

Creation Event according to Dr Walker's model, leaving the Flood by default. Therefore, using Dr Walker's model the Witwatersrand Basin cannot be considered Old World Era rocks despite how Lalomov & Tabolitch would like to interpret them. If they want to label them as Old World Era rocks then they need to discard Dr Walker's model and create their own. This model would of course disagree with Dr Walker's model. It is revealing that creationist geologists cannot agree on the location within the geological column of such a recent, world-altering event as the Noachian Flood is claimed to be. If the Flood occurred, the evidence should be unambiguous, clear and compelling.

It appears that the Creation "scientists" of today still have a long way to go before they ever come up with a comprehensive theory that explains the world around us. One doubts that they ever will. They only exist to oppose science that contradicts their religious beliefs. This contrasts mightily with the genuine scientists of the 19th Century, many of them creationists. They brooded over just such issues as we have considered above. These deliberations caused their contemporaries to reject the arguments of modern day creationists such as Lalomov & Tabolitch. In the 19th Century, hypotheses changed as the evidence was gathered. Their science was characterised with an integrity not noticeable in modern creationism.

If you want to see Dr Tasman Walker's Flood model and it's criteria then you can find them on his webpage at <http://www.uq.net.au/~zztbwalk/>

A critique written on Dr Walker's model and why it does not work can be found in Blake (2000) and at http://home.austarnet.com.au/stear/critique_of_tas_walker's_flood_geology.htm

Conclusion

The claims by Lalomov & Tabolitch that gold placers are confined to just two intervals within earth history, in the Precambrian and in the Cainozoic, are invalid. We have

shown that Palaeozoic and Mesozoic placers are known. We have shown that Lalomov & Tabolitch are very selective in their use of data. Their conclusion that the temporal distribution of placers fits their Bible-based hypothesis and not a Uniformitarian or Actualism model collapses as a result.

Lalomov finishes his reply to Scott with the usual creationist whine about how they can not get published in mainstream peer-reviewed scientific journals because their conclusions would undermine the foundations of the prevailing evolutionary doctrine. However, as we can see above, Lalomov & Tabolitch seriously misrepresent the mainstream publications that they quote from. Such misrepresentation of printed material alone would be enough to have their paper rejected by peer-review. Of course, such misrepresentation does not matter to creationists who will publish any paper disguised as science that appears to support their religious dogma.

Their work is essentially unscientific. They are striving to fit evidence to a preconceived hypothesis which lacks scientific credibility. Without the misrepresentation of published data it quickly becomes obvious that the evidence does not support Lalomov & Tabolitch's model, but does support the Uniformitarian and Actualism models of the Earth's geology. Therefore, Lalomov & Tabolitch's paper would never be published in a scientific journal since it does not fit the evidence.

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Ritual Killing and Pseudoscience

A chilling report about the very real dangers of pseudoscience and irrationalism.



Leo Igwe is the head of the Nigerian Skeptics Society. Email: nskepticleo@yahoo.com

The murder in London of a Nigerian boy, simply named Adam by the British, might have brought to international focus and attention one of the most dreadful and horrifying practices in Nigeria — ritual killing. In September 2001, the mutilated body of “Boy Adam” was found by the British Police floating in the Thames, near Tower Bridge. A police source suspected that the late Adam might have been a victim of a style of ritual killing practised in west and southern Africa. Forensic examination revealed that Adam had lived in south-western Nigeria.

Early this year British detectives arrived in Nigeria in search of Adam’s killers. Both the former president of South Africa, Nelson Mandela, and Nigerian ace [soccer] striker, Nwankwo Kanu, made passionate appeals for clues and information that could lead to the arrest of Adam’s killers. In July, police arrested a 37-year-old Nigerian, Sam Onogigovie, in Dublin and 21 other Nigerians in Britain in connection with the murder.

Ritual killing

Ritual killing is not an uncommon practice in Nigeria. Every year, hun-

dreds of Nigerians lose their lives to ritual murderers, also known as head-hunters. These head hunters go in search of human parts — head, breast, tongue, sexual organs — at the behest of witchdoctors, juju priests and traditional medicine men, who require them for sacrifices or for the preparation of assorted magical portions. Recently there have been several reported cases of individuals who were kidnapped, killed or had their bodies mutilated by ritualists in Nigeria. The most notorious of them was one associated with one Chief Vincent Duru, popularly known as Otokoto. It happened this way.

In 1996 the Police in the southern Nigerian city of Owerri arrested a man, Innocent Ekeanyanwu, with the head of a young boy, Ikechukwu Okonkwo in his possession. In the course of their investigation, police discovered the torso of Ikechukwu, buried in the premises of Otokoto Hotel, owned by Chief Duru. They also uncovered a syndicate that specialized in ritual killing and the sale and procurement of human parts. The horrifying discoveries sparked off violent protests in the city of Owerri which led to the burning and

looting of properties belonging to suspected ritualists. Otokoto and his ritualist syndicate were arrested and put on trial, and in February 2003, they were sentenced to death by hanging.

Mutilation

Apart from the Otokoto incident, there have been other instances of ritual murder and mutilation in other parts of the country. For instance, in Calabar, two men plucked the eyes of a young lady for a money-making ritual. In Ifo, Ogun state, a business man inflicted the same harm on his younger sister. In Ibadan the police in December arrested a taxi driver, Abbas, who used his 14-month-old baby for rituals. Abbas killed his child in order to produce a human head, which was one of the materials listed for him by a local witchdoctor for a moneymaking ritual. And in another act of ritual horror in Onitsha, Anambra State, two young men, Tobechukwu Okorie and Peter Obasi, seized a boy and cut off his sexual organ with the intention of delivering it to a man, who allegedly offered to pay a sum of 1.5 million naira (\$11,000) for it. In Kaduna, a man, Danladi Damina, was arrested after he exhumed the corpse of a 9-year-old boy, plucked his eyes and cut off his lips which he intended to use for charms. And just a couple of weeks ago, a woman was caught in a bush in Warri, Delta State decapitating a four-year old boy for ritual purposes. While writing this piece, I read in *The Guardian* (Nigeria) a report of the murder of an 18-year-old girl by suspected ritualists in Mbaise, Imo state.

The question is: why do Nigerians still engage in such bloody, brutal and barbaric acts and atrocities even in this 21st Century? For me, there are three reasons for that.

1. Religion: Nigeria is a deeply religious society. Most Nigerians believe in the existence of supernatural beings, and that these transcendental entities can be influenced through ritual acts and sacrifices. Ritual making constitutes

part of the people's traditional religious practice and observance. Nigerians engage in ritual acts to appease the gods, seek supernatural favours or to ward off misfortune. Many do so out of fear of unpleasant spiritual consequences if they default. So at the root of ritual killing in Nigeria is religion, theism, supernaturalism and occultism.

2. Superstition: Nigeria is a society where most beliefs are still informed by unreason, dogmas, myth making and magical thinking. In Nigeria, belief in ghost, juju, charms and witchcraft is prevalent and widespread. Nigerians believe that magical portions prepared with human heads, breasts, tongues, eyes, and sexual organs can enhance one's political and financial fortunes; that juju, charms and amulets can protect individuals against business failures, sickness and diseases, accidents and spiritual attacks. In fact, ritual-making is perceived as an act of spiritual fortification.

3. Poverty: Most often, Nigerians engage ritual killing for moneymaking purposes. Among Nigerians, there is a popular belief in a special kind of ritual, performed with human blood or body parts, that can bring money or wealth, even though such a belief lacks any basis in reason, science or common sense. For example, there has never been a single proven instance of any Nigerian who became rich through a money making ritual. And still the belief in "ritual wealth" or "blood money" remain strong among the people, and features prominently in the nation's media and film industry.

Most times, what we hear are stories and speculations founded on ignorance and hearsay. For instance Nigerians who enrich themselves through dubious and questionable means, like the scammers who swindle foreigners, are said to have indulged in moneymaking rituals, using the blood or body parts of their parents, wives, children or other close relations. So driven by igno-

rance, poverty, desperation, gullibility and irrationalism, Nigerians murder fellow Nigerians for rituals.

But ritual killing is not a practice that obtains exclusively in Nigeria. Ritual sacrifices also occur in other parts of Sub-Saharan Africa; Ghana, Congo (DRC), Liberia, Uganda etc. In fact in some parts of Uganda, a child is sacrificed before a major building is erected. There is therefore an urgent need for an international campaign to end this murderous practice and other horrifying traditions and superstitions in Africa.

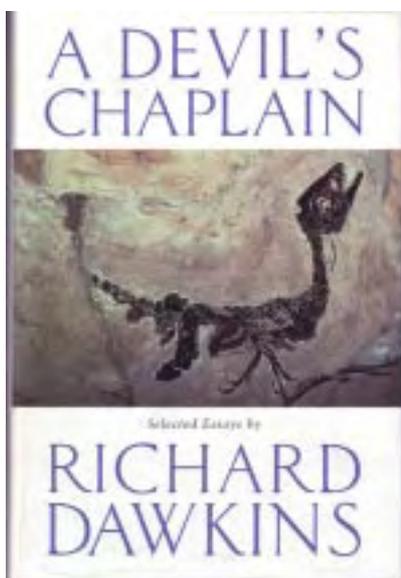
International action

Personally, I am recommending that the United Nations' Inter-Africa Committee includes ritual killing in its programmes and campaigns, as a harmful traditional practice. Also, Skeptic groups should strive to expose the ignorance, superstition and unreason that underlie the belief in and practice of ritual killing by organizing public education, awareness and enlightenment campaigns on science education, critical thinking and rational inquiry.

The case of Boy Adam underscores the need to internationally confront and combat religious obscurantism, dogmatism and occultism, in Africa and the world at large. Finally I would like to end this way. In 2001 there were so many cases of ritual killing in the Lagos metropolis that one of the nation's major newspapers, *The Punch*, published a scary headline: "Ritualists Lay Siege to Lagos". Personally, I think that caption would have better read: "Pseudoscience Lays Siege to Nigeria". Because that was the case. And that is still the case.



Selections From a Master



A Devil's Chaplain: Selected Essays by Richard Dawkins, Latha Menon (Ed); Weidenfeld & Nicholson, London 2003. \$59.95 ISBN 0 297 82973 4

The arrival of any new book from Richard Dawkins is the sort of event guaranteed to send the science enthusiast, or just about anyone who appreciates fine writing, dancing in the streets with loud huzzahs and hats tossed high. This book, though somewhat different from the usual Dawkins opus, is no exception.

Comprising a collection of his key writings in articles, letters, lectures, reviews, book forewords (and one piece that first appeared in *the Skeptic*), the topics reflect the breadth and depth of Dawkins' restless intellect, while the writing reveals his innate mastery of style and passion for truth.

The pieces are grouped together by topic, with a new introduction by Dawkins to explain the context. The first section, "Science and Sensibility", ranges across a variety of topics that make more sense if looked at with a scientific eye. In "Postmodernism Disrobed", a review of the Sokal and Bricmont book *Intellectual Impostures*, that takes on the blight of postmodernism that has infected so many academic disciplines in recent years, he gleefully postulates Dawkins' Law of the Conservation of Difficulty: "that obscurantism in an academic subject expands to fill the vacuum of its intrinsic simplicity". He further observes that, outside

the limited realm of architecture where it originated, the word "post-modern" has no meaning whatsoever. He suggests that anyone confronted with the word in conversation should ask, in an enquiring and friendly spirit, just what the other person means by it. He asserts that he has never once heard anything approaching a useable, or even a faintly coherent, definition. Nor have I.

In "Crystalline Truth and Crystal Balls", he inspects the rampant irrationalism of new age trends and finds them wanting; elsewhere he casts his eye over the many irrational fears associated with the ethics of genetic research and manipulation. There is much more, including a criticism of jury trials, with thoughtful suggestions as to how they might be improved.

The second section, "Light Will be Thrown" covers the present dominant status of Darwinism in genetics and in biology generally. It contains one piece, "The Information Challenge" which Richard wrote specifically for *the Skeptic* (18:4) in response to a creationist attempt to set him up during an interview. (This reviewer's "Creationist Deception Exposed", [*the Skeptic* 18:3], which champions Richard's case, is mentioned in a footnote to the piece, which pleased this reviewer no end.)

In the third section, "The Infected Mind", he revisits the concept of the "meme" as a sort of mental virus, and specifically as it applies to religion. It is hardly a secret that Richard Dawkins does not hold religion in



Barry Williams edits this journal when he is not complaining about his knees.

high regard and he pulls no punches in these articles, categorically refuting the recent popular claim that religion and science are on converging courses.

One piece, “Dolly and the Cloth Heads”, had this reviewer’s head nodding in firm agreement. Discussing the controversy that erupted over the eponymous ewe, he wondered why, while scientific commentators were expected to have relevant skills to discuss the issue, other contributors ie, representatives of religions, “traditions” and “communities”, had a privileged access to such discussions without the necessity of having any knowledge to contribute at all. “Why”, he asks “has our society so meekly acquiesced in the convenient fiction that religious views have some sort of right to be respected automatically and without question?” Why indeed? Certainly it is reasonable to respect people’s rights to *hold* opinions, but there is no reason why we should respect those opinions, nor should the fact that they are labelled “religious” be a reason to confer any special rights.

Elsewhere he refers to the media habit of labelling certain scientific research, particularly in genetics, as scientists “playing God”. By this the media seem to imply that they have posed a profound question, but I would suggest it is simply stating the bleeding obvious. Why specify scientists when in truth our entire species has been “playing god” ever since we evolved? And not simply playing god, but creating god, defining god, doing those things we attribute to god.

In fact, it is hard to dispute that the entire god business is purely an invention of *homo sapiens*. Would it be going too far to suggest that this is the one unique and elusive characteristic that makes us different from every other species? Certainly, as far as we can tell, no other species invents gods.

Is this a controversial position? Hardly, it simply states a non-controversial, historical fact. Early in the last century, H L Mencken, in *Selected Prejudices*, listed 180 gods, describing them thus:

They were gods of the highest standing and dignity; gods of civilised peoples — worshipped and believed in by millions. All were theoretically omnipotent, omniscient and immortal. And all are dead.

Here are just a few of names he mentioned, some familiar, some obscure: Adsalluta, Amon-Re, Baal, Dea Dia, Gunfled, Jupiter, Ma-banbanna, Odin, Pwyll, Venus, Yau. Who worships Yau now?

Mencken’s list is by no means a comprehensive catalogue of all the gods invented by human beings throughout our history; many more of them would have flourished long before written language gave them any chance at immortality.

The next section sees Dawkins in a far more emotional mood than we are accustomed to. It begins with a lament written on the day he heard of the unexpected death of his great friend, the author Douglas Adams. I challenge the hardest Skeptic to read this and remain dry-eyed throughout. It is followed by eulogies he read at memorial services for Adams and for his Oxford colleague and fellow biologist, W D Hamilton. The section concludes with a foreword he wrote to a remarkable, posthumously published, book, *Snake Oil and Other Preoccupations*, by John Diamond (reviewed elsewhere in this issue).

The “feud” between Richard Dawkins and the late Stephen Jay Gould holds a well-established place in the folklore of science. While their professional differences were very real and pronounced, there was much more that bound them together than divided them. The section “Even the Ranks of Tuscany” covering Dawkins’ correspondence with and reviews of the works of Gould, helps put this into a clearer perspective.

The penultimate selection concerns Africa, the continent of his birth (in Kenya), and its place as the cradle of humanity. As with everything else in the book, this topic is illuminated by the shining prose of a master of the art. The book ends with an open letter he wrote to his daughter, Juliet, on her tenth birthday (the book itself

was dedicated to her on her recent eighteenth). Titled “Good and Bad Reasons for Believing”, its sage advice could profitably be followed by any parent concerned at the plethora of unsubstantiated beliefs abounding in the modern environment.

I conclude this review on a note of personal satisfaction. In 1996 I had the great pleasure of escorting Richard Dawkins and his wife Lalla Ward around Sydney during their visit to Australia for a Skeptics convention. We have continued a correspondence since then and I dined with them at their Oxford home in 1999.

My one disappointment was that Richard did not share my well-known passion for cricket, but in this book he makes a couple of telling points using cricket as a metaphor. In one, he equates seeing science as a collection of facts and ignoring its cultural and aesthetic values, with having a conversation with Don Bradman and talking only about the best box protector to stuff down one’s trousers.

In the other example he chides Gould for including a 55 page-long, jargon ridden, section on baseball (Gould’s passion) in one of his books, as being incomprehensible to non-American readers. Richard counters by writing a brief cricket report in jargon that would utterly baffle Americans. I’d love to believe that it was my influence that alerted Richard to this one minor flaw in his impressive intellectual armoury, but I fear the answer lies closer to home; the lovely and talented Lalla is every bit as much a ‘cricket tragic’ as I am.

Most of us would be aware that Richard Dawkins, as an outstanding biological scientist, is a Fellow of the Royal Society, but it came as something of a surprise to this reviewer to learn that he is also a Fellow of the Royal Society of Literature. In reflection, however, it shouldn’t have — Richard Dawkins is an acknowledged master of words and style, and it shows in this book. This is the way books about science should be written, but all too rarely are.



Wise and Witty Words

Recalling the words of a
great and amusing Skeptic

***H. L. Mencken on Religion*, S.T. Joshi (ed.) Prometheus Books 2002**

H. L. Mencken was not on a campaign against religion: “I have never consciously tried to convert anyone to anything,” he wrote. Perhaps not, but conversions must have happened as readers sought his columns in the *Baltimore Evening Sun*, the *Smart Set*, and the *American Mercury*. He didn’t write mostly on religion, of course, excoriating Americans for their general stupidity in many spheres. But his critiques of religion have been collected in *H. L. Mencken on Religion*, and they are a stimulating, wide-ranging attack on various aspects of a particular foe. Fundamentalist Christians especially will find much offensive here, for they are Mencken’s particular game, although Catholics, Methodists, Christian Scientists, spiritualists, and other more moderate sects come into scorn in their turn. If Mencken were alive today, how he would spring into attacks upon the Raelians, the TV spiritualists, the New Agers, and of course the fundamentalist Christians who are still thriving. To read these essays is to be reminded of how relatively mild such criticism has now become.

Of course Mencken was misanthropic, and of course he was bigoted. He was careful to express disdain of his own character, often saying that in studying religious ideas, he found “soothing proof that there are men left who are even worse asses than I am.” One of his essays is even called “Confessions of a Theological Moron,” in which he admits that unlike most of the people on the planet, he has no religious feeling whatsoever and that no sense of any divine personality enters into his thinking. “As for the impulse to worship, it is as foreign to my nature as the impulse to run for Congress.” But he also made clear, “I am anything but a militant atheist and haven’t the slightest objection to church-going, so long as it is honest.”

He thought power grabs by religion dishonest; in his own time, he lambasted religious support of prohibition, the Ku Klux Klan, Sunday marketing laws, and divorce restrictions. “The whole history of the church, as everyone knows, is a history of schemes to put down heresy by force.” It made him furious that evangelicals showed more interest in getting bodies into jail rather than souls into heaven. And he certainly regarded a world view reject-



Rob Hardy is a psychiatrist in the USA and a regular reviewer for the Skeptic

ing science as much less than honest. He knew that science did not just increase the store of dependable facts, but "... in even larger part it is a machine for upsetting undependable facts." He repeatedly remarks on the Copernican revolution (and compares it to the Darwinian one) against Biblical views "... that had been choking the intelligence and retarding the progress of humanity for a millennium and a half."

Mencken was present for much of the Scopes trial in Dayton, Tennessee, or the trial of (as he repeatedly names him) "the infidel Scopes." He referred to it as a "trial of a man by his sworn enemies," and specified such outrages as judge instructing the jury "to protect the schools against subversive ideas." He made fun of the community that had brought this trial to fruition (in hopes of gaining fame and fortune thereby): "Its people are simply unable to imagine a man who rejects the literal authority of the Bible." He explains that he has listened to many, and talked with a dozen, and had "...yet to find one who doubted so much as the typographical errors in Holy Writ." He did research in going to a local tent revival only to find "such heights of barbaric grotesquerie that it was hard to believe it real." After Darrow's "great speech," he noted that "the morons in the audience, when it was over, simply hissed it." He found a police captain who insisted "that speaking in the streets was not disturbing the peace so long as the speaker stuck to orthodox Christian doctrine as it is understood by the local exegetes." William Jennings Bryan comes into particular scorn; Mencken thought that Bryan, having failed as a politician who had once had a leg in the White House, had fallen upon the last refuge of religion and was leading the yokels in rebellion against the men of the cities that had destroyed him. Mencken's prose is a joy to read (and ought to be, even for believers); he says Bryan is now "... a tin-pot pope in the coca-cola belt."

Mencken had serious outrage, but

it is clear from the comic tone of many of these essays that he savored the follies of his fellows and relished the daily entertainment they gave him. For instance, in a hilarious attack on spiritualism, he instead criticizes skeptics who insist that the summoned spirit of Napoleon ought to say something other than "I lost at Waterloo." It was unfair of skeptics to expect that death intrinsically would change the nature of a man. If he himself "should die to-morrow from an overdose of wood alcohol" and be turned up by a spiritualist, of course his store of "spurious dignity, of hypocrisy, and of talent for posturing" would still survive. It would prevent him from betraying, for instance, "... that I have gone to Hell, that there are enough pretty girls down there to give me a very jolly time, and that if I had to live my life over again I should doubtless be just as great a jackass as I had ever been." Instead, he would enjoy himself by talking bosh about the spirit of Julius Caesar "... and should enjoy myself further by tipping the table, striking a tambourine, ringing a bell, and — this most certainly — pinching the leg of the medium... why shouldn't I continue to have the same good time now that I was a ghost? Damned if I know." He allowed no desire of actual immortality: "Life is pleasant, and I have enjoyed it, but I have no yearning to clutter up the Universe, a shape without a habitation or a name, after it is over."

It is clear Mencken loved getting his ideas into words with the prospect of bothering others. The right to speak freely he cherished, but it is plain that he cherished the right extended to others as well. He knew, for instance, that "Christian Science is a dangerous folly! Its practice by numskulls promotes the spread of infectious diseases!" He rejected it because it "... is not merely erroneous; it is imbecile." But he also knew that it was intrinsically wrong to try to guard against such risks by law, wrong to try legally to protect the gullible (and even their children) from the bad effects of bogus heal-

ing. He was as adamantly against the attempts to make Christian Science healing illegal as he was against prohibition. He does not come out and say it, but he favored the wall between church and state as a means of not just separating but of protecting each side from the other.

The wit and erudition displayed in these essays is a real treasure, and ought to be for believers and infidels alike. Get out your dictionary; you will read here of the roar of the catamount, the boons and usufructs of modern medicine, the potholes of the newspapers, and the head wiskinski of the wowsers. As an epilogue, here is the famous, funny, and oddly moving "Memorial Service" seeking the gravesite of the thousands of gods people have believed in, "... many of them mentioned with fear and trembling in the Old Testament." The long list, including Baal, Pluto, Odin, and Huitzilopochtli, is "...composed of gods of the highest standing and dignity - gods of civilized peoples - worshipped and believed in by millions. All were theoretically omnipotent, omniscient, and immortal. And all are dead." Mencken is dead, too, but his thoughts as retained in this invigorating collection ought to last far longer than Huitzilopochtli himself managed.



Exposing the Past

A cogent refutation of a different form of creationism

***The Antiquity Of Man: Artifactual, Fossil and Gene Records Explored,* Michael Brass, AmERICA House, Baltimore 2002**

In this book, Brass has nobly taken upon himself the 'skeptical' role of refuting ideas which are so far from the palaeontological and archaeological mainstream, that most suitably qualified academics would ignore them, but which nevertheless are not without influence and do need to be countered. This case involves the claims made by Vedantic creationists Cremo & Thompson (1999, etc). Their thesis is that (as would be suggested by a literal reading of Hindu scriptures, treated as authoritative) humanity has existed in much its modern manifestation for many millions of years. Of course, this is quite contrary to mainstream scientific findings.

Brass' strongly worded negative views on Cremo & Thompson's methods and findings have already been criticised on the web by their followers and others who share their disdain of evolution and in particular of human evolution. But he has issued effective rejoinders (see www.antiquityofman.com), and most if not all of his points appear very robust indeed.

To summarise at the outset: Cremo & Thompson's commitment to scientific methodology must be seen as suspect (their views are in fact rooted in large part in their religious commitment) and their specific claims are much less coherent and much more weakly supported than they suggest.

In Brass' book there is a somewhat

uneasy relationship between (a) the exposition of current views on early human evolution (especially in Africa, for obvious reasons) and their development over the decades, and (b) direct rebuttal of Cremo & Thompson's position. The former looms very large; for quite long stretches the latter is not mentioned at all but then suddenly surfaces as Brass reaches a crucial point. For this reason, the Vedantic creationist position is not given a summary exposition in an early chapter, as is done in many such books for the non-standard views under criticism (eg in Bauer's book on Velikovsky). Therefore the reader will probably want to have Cremo & Thompson (1999) to hand, even though Brass does provide extensive quotations (from this work and from mainstream challengers and commentators) at the most crucial points.

In addition, there is no mention of other associated aspects of the Vedantic challenge to science, such as Thompson's own works endorsing Vedic astronomy or Oak's re-writing of world history and historical linguistics. This might have helped by locating Cremo & Thompson in their broader 'intellectual' context. And there might have been a case for more extended comparison of Vedantic creationism and the more familiar Christian-Muslim-Jewish creationism — although this does receive some mention. (Amusingly, creationists of the two kinds necessarily interpret the data in utterly contradictory ways, eg the Christians take the discredited Paluxy River data to mean that dinosaurs were recent, whereas the Vedantists cite



Mark Newbrook is a linguist, formerly of Monash University, but now domiciled on his ancestral turf in the wilds of Northern England.

them as evidence that humans were around in Mesozoic times!)

Despite these gaps, the information in the book will be found very useful, both for rebutting creationists and more generally. Brass writes authoritatively and in considerable detail about matters of palaeoanthropological fact and theory, and he explains the various issues and arguments clearly and cogently. Naturally the reader with little advance knowledge of the subject will have to make an effort to deal with large amounts of new information, but anyone undertaking to read such a book must expect this. Among the many more specific strengths of the book, one can list:

Brass' willingness to criticise mainstream errors (eg anti-creationists who overstate the scope and force of their case — although elsewhere he himself arguably dismisses too readily the possibility of testing claims about the supernatural)

His honesty about disputes and changes of view within the mainstream (often misconstrued or misrepresented by creationists unfamiliar with the scientific method as evidence of inherent theoretical weakness; as he points out, the Piltdown hoax is a favoured case for the creationists, but more recent disputes — some not yet settled — include Johanson vs the Leakeys, single vs multiple origins for *homo sapiens*, Wilcox vs Lewis-Williams on motivations for the production of rock art, the current controversy over very early human settlement in Flores, etc.)

His attack on creationists for their crude conceptualising of the notion of 'evolution' and their exaggerated view of the upshots of 'evolutionism' as a belief system

His exposure of the patterns by which creationists (of all kinds but especially of this kind) (1) fail to offer worthwhile explanations for the observed data (at times even denying its existence, as with intermediate evolutionary forms), (2) misrepresent data (artefactual/quasi-artefactual or biological), mainstream academic interpretations of data or the upshots of

these interpretations (eg by too readily identifying objects as of human manufacture, or presenting human anatomy as quasi-teleologically ideal rather than the outcome of short-term selectional pressures) and (3) make either no testable predictions at all or predictions which are readily shown to be false

His identification of other issues for creationism, including unsatisfactory publishing strategies (no proper peer-review, etc), use of old data collected and analysed by means now superseded as if they were equivalent to the most recent finds, prominent displays of support from influential but unqualified commentators, inadequately supported accusations about mainstream conspiracies to suppress 'ideologically unwelcome' data, poor logic/argumentation, etc

The section of most interest to this reviewer comes quite late in the piece, where Brass discusses proposals by Deacon and others on the origins of human symbolic behaviour including written symbols and (inevitably more speculatively) spoken (or signed) language. In this context it is important to note that — despite the relevance to both phenomena of general issues in the development of human cognition — written non-linguistic symbols (pictographic ideograms and such) are one thing, structured languages another. There is of course no evidence of written language (in any kind of script) until very recent times; there is frequently no observed continuity between pre-/non-linguistic symbolisation and the scripts that do emerge (often much later) in the same areas.

On the other hand, it should be noted that some of the claims in this area made by non-linguists would now appear less dramatic that they once did. Brass understandably says little about these, but he does mention in passing Marshack's 1978 proposal that language existed in essentially its modern form as early as 40,000 BP. This particular proposal would not now be considered at all dramatic. The dates given as plausible TAQs for this stage to be reached

have fluctuated a great deal over the last 25 years as the topic has moved out of a period in which it was neglected for want of useful evidence. But, given that Australian languages are similar in general terms to other human languages and that contact between the Aborigines and neighbouring non-Australian populations was apparently very limited after human arrival in Australia around 60,000 BP, it does now seem likely that language as a faculty was well established by that time at the latest. (I say nothing here about the possible linguistic implications of the much older Flores material, which cannot involve *sapiens* — although any actual demonstration that *erectus* had linguistic capabilities would obviously wipe out the idea that language became cognitively feasible only in recent times.) On the date of the origin of language, see also below.

Some criticisms of the book do suggest themselves. The main ones involve organisational issues. At times, especially in the first few pages, the pace is too 'breathless': new points follow each other in rapid succession, not always overtly linked or (for this reader at least) in an entirely obvious order. Shorter paragraphs and more explicit signposting of argument structure would have helped. Elsewhere there are larger-scale sequencing worries, as where a lengthy discussion of factual issues and specific points of theory (Chapter 2) is rather abruptly transformed (on p 36) into a summary account of broad-brush 'paradigms' of archaeological practice and theorising, as these have developed in recent decades. The end of the text proper (before the short conclusion) is somewhat abrupt; a final reference to Cremona & Thompson, at least, would have helped. Again, more overt signalling, and perhaps also some reordering, would improve the book.

Furthermore, the book has not (as it seems) been adequately proofread at some key stage prior to publication. It is marred by a large number of typos and by some non-standard and/or clumsy/unidiomatic English. There are also a few cases where a

term is used oddly; the most obvious involves scientism. Occasionally there are apparent problems with the logic of an argument, and some technical notions are introduced rather abruptly and are really explained only later. In addition, the lack of an index is a hindrance to the serious user (notably in dealing with this last issue). And although the bibliography is extensive there are some omissions, notably Cremo & Thompson's large volume of comment on reactions to Cremo & Thompson (1999). These issues should be addressed in any subsequent edition.

Of course, Cremo & Thompson represent a rather extreme and in some respects an unusual component of what is in fact a very large body of fringe and near-fringe palaeontology and archaeology, with its more respectable manifestations shading into the merely controversial. As Brass points out, even one of the Leakeys has been associated with claims about humans in the Americas hundreds of thousands of years ago, notably at the very dubious Calico site in California. (Note also the quixotic career of Steen-McIntyre.) And some highly respected figures have made rather odd proposals outside their own main areas of expertise. For instance, Klein — whose views on some of the main matters at issue here are themselves highly controversial — endorses a late date for the emergence of human language which is generally regarded by historical linguists as seriously implausible. Although this is associated with his views on issues within his own field, it must also be observed that (like many non-linguists) he has embraced Ruhlen's near-fringe approach to deep-time linguistic reconstruction and cladistics. The lesson to be learned here is that — whatever one's ultimate view of each controversy — one always has to be alert to the possibility of idiosyncratic or ill-founded ideas in domains of such complexity and continuing uncertainty. Brass has done us a very good service — but it is not only cases as extreme as that of Cremo & Thompson which require caution.



Help! Just When You Need It

***Releasing the Imbecile Within: An Incomplete Idiot's Guide*; Paul Livingston, Allen & Unwin, Sydney 2003 ISBN 1 74114 069 2**

When the Editor asked me to review this book, my first thought was that he had taken leave of whatever senses he lays claim to. But as I read on, I realised that he had preceded me and had taken the lessons of the book to heart.

Initially I was non-plussed to note that this is a book for which the author has a Foreword written by a character of his own devising. What sort of literary conceit is this, I asked myself; I would have liked to ask the Editor the same question, but he had absented himself by then. Still, we

Wallabys did not reach our position of eminence by shirking in the face of adversity, so undaunted by this display of eccentricity, I resolved forthwith to adhere to my duty and read on. I am so glad that I did.

This is undoubtedly the one 'self-help' book designed for the discerning Skeptic, especially for the disgruntled discerning Skeptic, who, unhappy with his lot, has decided to throw in his lot (there seems to be a lot of lots in this sentence — and not a wife nor a pillar of salt among them) with the merry majority of the manifestly mad.

The thesis is a simple one. This 21st Century world is full of intelligent, skeptical people, but not half as full as it is of desperately deluded dills. And to which group do those who sit so happily in the positions of power, influence and celebrity overwhelmingly belong? Need I ask? Take a look around — does this look like a world that is run by intelli-

gent, critical thinking skeptics? Have you watched TV lately?

Livingston's remedy is equally simple. It is futile trying to smarten up those to whom ignorance is indeed blissful and you will make yourself miserable in the attempt. The only smart thing to do is to revert to that state in which we all arrived in the world, the wide-eyed innocence of babyhood, and to resist

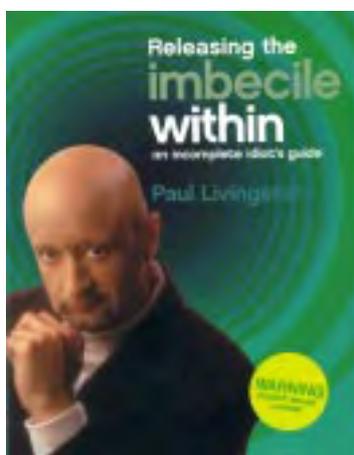
most strenuously any infusion of intelligence, knowledge and above all any trace of curiosity. Furthermore, he lays out for you in 15 easy steps (or is it 19? or perhaps 7?) precisely (or approximately) how to go about doing it.

When I first beheld this book, I was struck by the

strange familiarity of the author's face staring back at me. It was then that I recalled that I had once dined with this very person. At first meeting, he clapped me on the shoulder, greeted me with "How are you, you old bastard?" and proceeded to pour my soup into his hat. You can't get much more familiar or strange than that.

Finally, I must tell you (because I am a pretentious bore) that with this book, P J Livingston has captured the zeitgeist (which he is keeping in a small shed in his back yard — the RSPCZ has been informed). You would have to be a complete idiot not to buy this book, but if you were, then you wouldn't need to, but then again if you do buy it you'll soon be a complete ...

Oh, bugger it. Go out and buy this book immediately. You know it does/doesn't make sense.



Sir Jim R Wallaby

Telling It as It Was (or Might have Been)

***Making Friends with Fossils*, Helen Lawrence; Maygog Publishing, Sorrel TAS, 2003. ISBN 0-9750548-0-5; (pb, 72pp, \$15)**

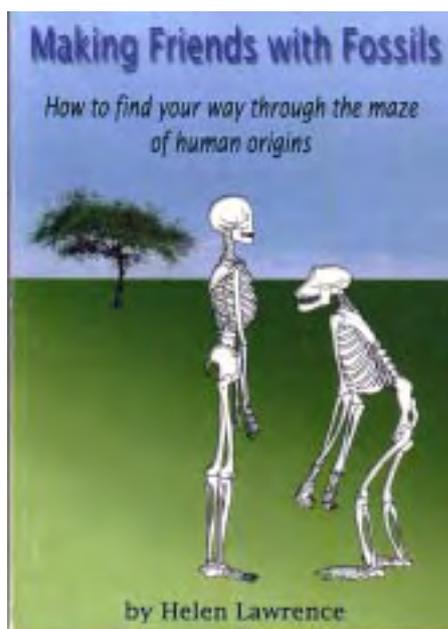
***Evolution*, Stephen Baxter; Gollancx, London, 2003, ISBN 0-575 07342X; (tpb, 585pp, \$29.95)**

The old saying, “it’s a wise child who knows his father” may or may not be true, but it is certainly the case that getting to know one’s ancestors from thousands (or tens-of-thousands) of generations ago, requires not simply wisdom, but wide ranging knowledge, enthusiasm for hard work (and not a little Latin). Here are two very different books that tackle the task from totally different perspectives; one as a textbook, the other as a novel and each succeeds in making our task both simpler and more enjoyable.

Helen Lawrence, a Skeptic from Tasmania, spent her working life as a physiotherapist, later completing a degree in archaeology and paleoanthropology. This unusual combination of skills gives her a very good insight into how fossilised ancestral bones must have combined and worked, within the context of the living bodies she encountered in her profession. She has used this knowledge to produce a more than useful guide to all those species that preceded us in the line of human evolution and also those on side-branches that went their own way.

In his introduction, ANU anthropology professor (and Skeptic), Colin Groves, describes Helen’s work as “... a beautifully written little booklet that carefully retells the story of human evolution. She simplifies but does not oversimplify. She is succinct, but not dry — and never boring”. High praise from one of the leading thinkers in the field and absolutely spot on.

Helen looks at all the specimens recovered from the fossil record, gives a potted history of their discovery and covers the debates that have occurred as to where each of them fits into the jigsaw of primate history. She is careful not to claim that the current state of knowledge is the end-point, but part of the continually unfolding story of the group primates that just happens to include us. It is a complex and not too well-understood story that holds an obvious fascination for the author and she communicates her enthusiasm through her writing.



An ideal introductory text for students starting out to learn about the history of our species, it also has much to offer those of us who have difficulty in telling our *ardipithecus* from our *ergaster*. Why not buy one for yourself and one as a gift to the local school library?

Available from the publisher, Maygog Publishing, PO Box 452, Sorrell TAS, 7172 and also through the Skeptics on-line shop at www.skeptics.com.au

Stephen Baxter, a British science fiction writer, has looked at the same (albeit extended) primate history in the form of a novel. His story begins with proto-primates scurrying around the feet of giant dinosaurs just before the great extinction of 65 Mya (or last Thursday week if you happen to be a creationist). It then goes forward in leaps of millions (later thousands) of years, following the one strand in the stream of DNA that leads to us.

As events, major and minor, happen to change the environment or circumstances of the then current line of pre-humans, it purports to show how particular individuals adapt to those changes and how our ancestry was changed in the process. We can see how climatic changes, the slow dance of the continents around the planet and assorted catastrophic events, have their effects on our distant ancestors. It includes “cliffhanger” moments, where a slightly different result could easily have seen the line wiped out, giving it something of the flavour of a thriller, and keeping the interest level high. As well, the author is skilful enough at his trade to make some of our ancestors into sympathetic characters who we really care about.

Of course, given the lack of hard evidence, many of the particulars of this story must necessarily be pure conjecture, but this is an entirely acceptable conceit in a speculative novel. Moreover, it is informed speculation and the concept has sufficient plausibility to suggest that the real story must have been something like the one proposed here. A highly entertaining yarn and well worth the reading.

Barry Williams

Let Me Explain Why

***Snake Oil And Other Preoccupations*, John Diamond, 2001 Vintage, UK Random House**

This is not a book to read in public unless the reader has a heart of flint. John Diamond is dead, and he knew he was dying when he wrote *Snake Oil*. The book is unfinished, with just six chapters completed. Diamond succumbed to a ghastly form of throat cancer in March 2001. He was working on his home computer when he collapsed and was rushed to hospital for the last time. His brother-in-law, Dominic Lawson, writes in his introduction to the book:

John's study on the day after his death presented an almost unbearably poignant sight: his computer screen still switched on, and there, flickering, as if with an extinguished intelligence, the last completed words of his book before he was rushed to hospital...

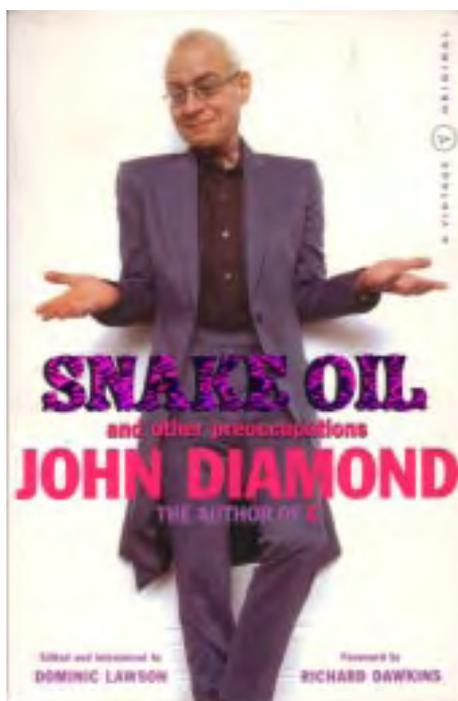
I would like to share those words with you:

I know, as if I'm doing that which I promised I wouldn't do, and using an attack on alternativism to defend the orthodoxy. In fact, I'm pretty sure that many more people die of their treatment in hospital than is necessary and that all over the developed world doctors are happily doling out prescriptions for pharmaceutical drugs which are useless or next to it. But that isn't my point, which is that in order to make their case, the alternativists feel the need to use this sort of propaganda. If homeopathy worked, then it would be worth using regardless of whether hospital doctors are knowingly killing off their patients: it is patently safer, cheaper and has fewer side-effects than orthodox medicine.

Let me explain why.

Diamond was a prolific British journalist, columnist and broad-

caster. He was married to, and had two children by, Nigella Lawson, a fellow journalist and popular cooking show hostess. He had a weekly column in *The Times*, and from the time of his diagnosis with cancer, he shared the disease's progress with his readers.



Many of his readers were involved in the snake-oil industry (or involved in complementary medicine, according to your viewpoint) and they contacted Diamond with advice on their cures. Diamond investigated many of these claims, and showed them to be without merit.

And yet, he opens Chapter Three with:

I'll come clean. I am an alternative practitioner myself, after a fashion. There: I've said it.

He explains that when his young son hurts himself, he:

[applies] strictly alternative remedies. I don't give him strong drugs to kill the pain or staunch the flow of

blood but I clean the tiny wound, ask him what happened, sympathise with him about the fickleness of gravity and the harshness of brick, sit him on my lap with a glass of water, kiss him and rub the hurt better. And it works, every time

Diamond can't decide whether to call this remedy Fatheratherapy or Dynamic parentesiology.

He highlights the tactics frequently used by the supporters of alternative therapies — attacking mainstream medicine. The false syllogism is along the following lines:

Western medicine is very bad, this is alternative medicine, therefore this is good.

And how often we sceptics are confronted with such false logic. Try:

Western medicine is very bad, this is alternative medicine, therefore this is even worse.

Both syllogisms are equally false.

Dozens of Diamond's columns from *The Times* are published in *Snake Oil*, and some of his earlier columns predating his cancer are a delight; crisp, incisive, and witty.

He bravely shared with his readers his fight against his smoking-induced throat cancer — the various surgeries, the removal of much of his tongue, his speech loss, his inability to eat. And incredibly, his continued smoking right up to the end, and how foolish he regarded the habit.

Richard Dawkins' perceptive and strongly supportive Foreword to *Snake Oil* is reproduced in his own new offering, *A Devil's Chaplain*, reviewed elsewhere in this issue.

Snake Oil is one for every sceptic's library, a powerful tool to help wean the victims away from their expensive and evidence-free alternative therapies.

Richard Lead

Letters

Prayer study defects

Ken Gillman
James Cook University
Mount Pleasant QLD

Your correspondent, Alan Moskwa (*Letters* 23:2 p65), demonstrates more of the errors that may be introduced through retrospection. I suspect he is mis-recalling the study below. My brief criticism was prepared for educative purposes for my website www.psychotropical.com to help doctors be more critical and sceptical.

Harris *et al Arch Intern Med* 1999;159(19):2273-8. "A randomized, controlled trial of the effects of remote, intercessory prayer on outcomes in patients admitted to the coronary care unit".

This is an object lesson in how to learn the critical skills needed to assess the 'unwashed mass' of published papers, a very substantial proportion of which are of poor quality and draw unwarranted conclusions. Such conclusions sometimes tell one more about what the investigators want to believe than what the evidence in the paper really supports.

Is it really properly randomised; big question mark here since randomisation is not properly described. See Liberati 1986, who found only 27 of the 63 'RCTs' adopted a truly blinded randomisation procedure. The medical course rated in 'CCU' score (it was from retrospective chart review). Prayer group (n = 466) had lower CCU scores. Lengths of CCU and hospital stays were not different. They illogically 'conclude' that prayer was associated (a euphemism for 'caused') with lower CCU scores and then betray

themselves by saying that prayer 'may be an effective adjunct to standard medical care' (ie, an utterly unjustified and illogical jump from a weak association to assuming a causal relationship).

One should note that their main predefined objective measurement of 'length of stay' was not any different; but they do not discuss that. Patients in ICU for less than 24 hrs were randomised to be prayed for, but were not prayed for because it took 24 hours to 'organise' the praying; and by then they were already out of ICU. Of these 18 / 484 (who were going to be prayed for) got better within 24 hours whereas only 5 / 529 who weren't going to be prayed for did. That is significant at $p = 0.001$. So the most convincing evidence here is for a notion that parapsychologists refer to as 'backward causation'; ie the intent to pray in the future was sufficient to bring about improvement.

a) There is no *a priori* evidence to justify even a hypothesis of a cause/effect link (except a pre-existing religious belief)

b) Faulty methodology, eg as the above, figures suggest the randomisation was faulty and unblinded and no proper details of method of randomisation are given.

c) Their statistics are misleading; out of three outcome measures two show no significant effect and one shows a small effect of questionable meaning. There is no justification for a positive conclusion when two of three measures are negative. The measures are not independent of one another, so one should revise the P value to take this into account (having three ratings that really measure the same thing is like

giving yourself three guesses for the price of one).

It is astounding that a prestigious medical journal has such poor refereeing that it publishes such flawed papers and allows such unwarranted conclusions to be legitimised in its pages. But remember, this standard applies equally to papers about drugs, so be equally sceptical about those too.

1. Roberts L, Ahmed I, Hall S, Sargent C, Adams C. Intercessory Prayer for ill Health: A Systematic Review. *Forsch Komplementarmed* 1998;5(Suppl S1):82-86.

2. Ai AL, Dunkle RE, Peterson C, Bolling SF. The role of private prayer in psychological recovery among midlife and aged patients following cardiac surgery. *Gerontologist* 1998;38(5):591-601.

3. Harris WS, Gowda M, Kolb JW, Strychacz CP, Vacek JL, Jones PG, *et al*. A randomized, controlled trial of the effects of remote, intercessory prayer on outcomes in patients admitted to the coronary care unit. *Arch Intern Med* 1999;159(19):2273-8.

4. Liberati A, Himel HN, Chalmers TC. A quality assessment of randomized control trials of primary treatment of breast cancer. *J Clin Oncol* 1986;4(6):942-51.

5. Humphrey N. Prayer power. *New Scientist* 1999;2218:86.

Wrong target

Peter Miller
Redfern NSW

It was interesting to read Borek Puza's piece giving the inside dope from Martin Bland (23:2) on the statistical results in the *Horizon* experiment in ultra-dilution. It comes as no surprise that Madeleine Ennis's results are open to interpretation. I have to say

though, the *Horizon* show, the statistical scrutiny of these results and the recent coverage in mainstream science magazines of the efforts to prove 'the memory of water' in my opinion raise concerns of a much deeper and more fundamental kind.

It's the classic magician's trick of misdirection, and we should not fall for it. The *Horizon* experiment puts forward a sound scientific hypothesis: After a physiologically active substance is diluted in water to such an extent that not a single molecule of the original active ingredient remains, is it possible that the solution has a measurable effect when administered to a human recipient?

As a scientific experiment goes, that's perfectly reasonable. The sleight-of-hand comes here: even if the results of double blind experiments, impartial investigators and meticulous statisticians should indicate that the original ingredients are somehow 'imprinted' into a watery memory, this is not a validation of homeopathy.

Why? Well for one reason because homeopathy does not work on the principles of active ingredients having measured effects. Homeopathic raw materials are chosen via hocus-pocus, a variation of old alchemist principles of "like influencing like" (or in some cases the opposite, depending on how you want to interpret it). Some homeopathic raw ingredients if administered in minimum physiologically active doses would cause illness or even death to a patient, and most would have no discernable effects at all.

Homeopathy also advances the curious proposition that the more dilute an ingredient is, the more effective it becomes. This is completely counter to everything we know about physiological activity and dose. It's an extraordinary claim, and as such demands convincing evidence.

I worry that the scientific scrutiny being given to one facet of homeopathy, that of 'water memory,' has eclipsed some of these much more irrational and baseless claims. In addition, the fact that mainstream science has chosen to examine an isolated part of the 'homeopathic process' unfortunately casts an aura of worthi-

ness over the entire field. This was very evident in the *Horizon* programme. The promise implicit in the show was that the results would prove or disprove the claims of homeopathy. This is bad science, or at least bad science PR. Bundling so many hidden variables up together gives a kind of scientific endorsement to the whole lot, not just to the experiment at hand.

The outcome of the *Horizon* show had exactly that effect. Skeptics and believers alike were taken in by the scientific framework; the skeptics felt that the numbers rang the death knell for homeopathy, and the believers felt that there was still room for doubt about the result. The science was taken as a given. Nobody asked the question of whether the experiment was relevant.

It's as if we've all started spending time and money on developing the best method to catch a unicorn without considering whether there even are any unicorns.

And a thought: If tiny amounts of nothingness can influence your physical condition, then you'd better stop drinking anything except distilled water immediately. By the logic of ultra-dilution, every litre of water you drink has probably had everything that ever existed diluted in it at some stage or other. Every mouthful you swallow contains the ultra-diluted cures and causes of every disease ever known to humankind.

Your health!

Random granny

*Peter Arnold
Warrnambool VIC*

Far be it from me to take issue with a Doctor of Mathematics, but in *Forum* (23:2) Dr Robert Peard quotes from *Ripley's Believe It or Not*, where a child born on Dec 7th shares a birthday with her Mother and Grandmother. The odds against this event, according to Ripley (and confirmed by Dr Peard) are less than 1 in 48 million.

If one selects a random Grandma, then (randomly) one of her children, and then again randomly one of his/

her children, then the odds against these three people, (or indeed any three people chosen at random) sharing a specific birthday (such as Dec 7th) is one in 365^3 , or 1/48,627,125.

However the odds against Mother and Daughter sharing Grandma's birthday (whatever date Grandma's birthday happens to be) is only one in 365^2 , or 1/133,225. And don't count Grandma out yet.

If she had N children, (and she probably did) and each of these had N children of their own then there is an $N^2/133,225$ chance that she will share a birthday with a child and a grandchild. So if N=4 the odds fall to a mere 1/8330 or so; hardly an earth-shattering occurrence.

Put another way, the odds against anyone sharing a birthday with a parent is 2/365, and then a parent with a grandparent a further 2/365. Thus the chances of anyone having the same birthday as both a parent and a grandparent is $2^2/365^2$ or about 1/33,000. So 600 or so Australians should qualify, almost enough for two triple birthday celebrations every day of the year.

Scamming the scammers

*Coleby Nicholson
Mont Albert North VIC*

I note the article "Nigerian Letters: Don't get scammed" (23:2), and would like pass-on some of my own experiences.

Unfortunately I was suddenly deluged with these emails when a company that I deal with in the US incorrectly placed my personal email address on its website as the Australian contact, rather than the company email address. It took me a month or two to realise why they suddenly started, and I soon found out that often, ignoring them meant more arrived.

I figured that the shysters would have seen every sort of abusive reply known to man so there was no sense in going down that track. They would,

no doubt, return the abuse, thereby wasting more of my time.

On further analysis I noted that almost every letter was about the suffering of the writer and his sister, so I decided to adopt a rather unusual approach to stop the barrage of emails. I replied to the writer that, because I found black women very attractive, could he send a picture of his sister to me before I would provide the necessary bank details?

As you could imagine, my email was a little more descriptive than I can be here (!), and it usually stopped the correspondence dead in its tracks. However, let me be honest in saying that I now have a number of pictures of Nigerian women that were sent in reply!!!

So... that meant I had to develop another strategy and to-date this one has proved to be foolproof. This is the tactic I have now adopted. I quickly cut & paste this pre-prepared reply:

Dear Sir,

I am in receipt of your email and I cannot believe the unfortunate circumstances you find yourself in. I feel so terribly sorry for you. If I had a rasp and some vaseline I would use it on the people who have victimised you. I would like to help and I think your business proposal is a sound one. I am keen and very anxious to begin proceedings. However, you have emailed my work address and company policy states that I cannot use work email for private purposes, so would you be kind enough to email my private email account: bbetong22@hotmail.com.

Sincerely,

Your friend

The email address I use is always the email address of the previous Nigerian-scammer!

I have this vision of all these Nigerian's emailing business proposals to other scammers down the road in Abuja. Before too long the whole of Nigeria is emailing the rest of Nigeria! Anyway, it's a nice thought, but at least I don't hear from them again.

Because it's wrong

*Andrew Conomy
Redfern NSW*

I hate to be the pedantic *Skeptic*, but it was George Mallory, not Sir Edmund Hillary who famously declared "Because it's there" when asked why he climbed Everest. (Peter Bowditch, Winter 2003)

OK, OK, I concede that Sir Edmund may have muttered the same phrase on occasion, but so probably have Barry Williams and Tweety-bird, neither of whom were cited by Mr Bowditch.

Natural

*Gary Goldberg
Silver Spring, MD USA*

Skeptics discussing alternative and complementary medicine with others on the basis of Stephen Colgan's article [23:2] might simplify the argument by citing Socrates. More than 2400 years ago he knew that hemlock was "unsafe and natural", which is why he chose it to end his life.

Those of us born in the Northern Hemisphere more recently, but before the alternative and complementary medicine fad took off, were told by our parents in childhood not to eat just any old mushroom because some are poisonous.

Get your sects right

*Tony Blake
Bomadery NSW*

Karen Stollznow's articles are always worth reading, and 'Hair Today' (*Skeptic*, 23:2, p 38) was a corker. Unfortunately it was marred by a couple of rather blatant errors: Latter Day Saints and Mormons aren't two religious denominations, just two alternative names for one; and 'speaking in tongues' is, I think, the very last thing you'd hear in a Quaker meeting. But keep up the good work, Karen.

Hidden Messages in Pop Music

*Robert A. Backhouse
Closeburn, Qld.*

Some topics hardly warrant a sceptic's consideration as the claims are so trivially preposterous as to be unworthy of refutation. However the pursuit by deluded people of enigmatic messages in the reverse playing of popular songs has goaded me into this rebuttal.

In all language speech has direction. When a song tape is played backwards the unusual squawks and odd inflections are almost impossible to emulate. To imitate the reversed tape requires not just the reverse of the word order but the reversal of the sounds making up the words. Try playing a clarinet by sucking instead of blowing. How can this total reversing produce something intelligible or meaningful.

No doubt these are paranoiac people who believe that there are dark forces using this technique to pervert the minds of the young. I feel sorrow for these people but there is now an industry arising around this belief happy to exploit the deluded. For sizable fees tuition is offered to assist the detection of these messages. These tutors, if not in the running for a bent spoon, must be in the running for the Australia Medal for unscrupulous exploitation.

Even more Limericks

*Steve Symond's a lover of rain
Precipitation he has on his brain
Cyclones and seasons
All have their reasons
If not, science goes down the drain.
(Henry Maustrouser II)*

*Oh, statistic, statistic, statistic,
You make most of us scream "Ballistic"
But with randomised sample
And analyses proof ample
You're the bane of the poor bloody mystic.
(Diane B)*

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