

the Skeptic

Vol 24, No 3
Spring 2004

ISSN 0726-9897

Editor

Barry Williams

Contributing Editors

Tim Mendham
Steve Roberts

Technology Consultant

Richard Saunders

Chief Investigator

Ian Bryce

All correspondence to:

Australian Skeptics Inc
PO Box 268
Roseville NSW 2069
Australia
(ABN 90 613 095 379)

Contact Details

Tel: (02) 9417 2071
Fax: (02) 9417 7930

new e-mail: skeptics@bdsn.com.au

Web Pages

Australian Skeptics
www.skeptics.com.au
No Answers in Genesis

<http://home.austarnet.com.au/stear/default.htm>

the Skeptic is a journal of fact and opinion, published four times per year by Australian Skeptics Inc. Views and opinions expressed in articles and letters in *the Skeptic* are those of the authors, and are not necessarily those of Australian Skeptics Inc. Articles may be reprinted with permission and with due acknowledgement to *the Skeptic*.

Editorial consultants:

Dr Stephen Basser (medicine)
Dr Richard Gordon (medicine)
Dr William Grey (philosophy)
Prof Colin Groves (anthropology)
Mr Martin Hadley (law)
Dr Colin Keay (astronomy)
Dr Mark Newbrook (linguistics)
Dr Andrew Parle (physics)
Prof Ian Plimer (geology)
Dr Stephen Moston (psychology)
Dr Alex Ritchie (palaeontology)
Dr Steve Roberts (chemistry)
Mr Roland Seidel (mathematics)

Branch correspondents:

ACT: Mr Peter Barrett
Gold Coast: Mr John Stear
Hunter: Mr Michael Creech
Qld: Dr Linda Shields
SA: Mr Allan Lang
Tas: Mr Fred Thornett
Vic: Mr Grant Stevenson
WA: Dr John Happs

Contents

Regulars

- ◆ 3 – Editorial — Reason at Risk— *Barry Williams*
- ◆ 4 – Around the Traps — *Bunyip*
- ◆ 59 – Letters
- ◆ 63 – Convention Notices
- ◆ 65 - Notices
- ◆ 66 - Crossword

Features

- ◆ 6 - Eureka Prizes Set New Records
- ◆ 9 - Award Winning School Science Programme
- ◆ 12 - Teaching Skepticism at the University — *Martin Bridgstock*
- ◆ 15 - How to Make a Minority Look Like a Majority — *Scott Campbell*
- ◆ 20 - How Reliable is our Consciousness? — *Anthony Wheeler*
- ◆ 27 - Nutrition Myth: Tea & Coffee Bad? — *Glenn Cardwell*
- ◆ 30 - The Burden of Proof & the Burden of Solution — *Jef & Theo Clark*
- ◆ 36 - Finding an Unhappy Medium — *Karen Stollznow*
- ◆ 40 - Doubting Nigeria's Religiosity — *Leo Igwe*
- ◆ 42 - Creationism or Narcissism? — *Brian Baxter*
- ◆ 45 - Geotheology on a Sticky Wicket — *Sir Jim R Wallaby*
- ◆ 48 - Pasteur's Last Words — *Peter Bowditch*
- ◆ 51 - Puppiology — *Ian Bryce*
- ◆ 53 - Review: Pseudoscience from a French Perspective — *Rob Hardy*
- ◆ 54 - Review: Investigating a Chimera — *Richard Gordon*
- ◆ 55 - Review: News From a Nuclear-Free Neighbour — *Colin Keay*
- ◆ 56 - Forum: Economic Impact of Pseudoscience — *John August*

Cover art by Charles Rose of Cogency

Skeptics around Australia

New South Wales

Australian Skeptics Inc
PO Box 268
Roseville NSW 2069
Tel: (02) 9417 2071
Fax: (02) 9417 7930
skeptics@bdsn.com.au

Hunter Skeptics

PO Box 166
Waratah NSW 2298
Tel: (02) 4957 8666
Fax: (02) 4952 6442

Victoria

Australian Skeptics (Vic) Inc
GPO Box 5166AA
Melbourne VIC 3001
Tel: 1 800 666 996
Fax: 03 9531 6705
contact@skeptics.com.au

ACT

Canberra Skeptics
PO Box 555
Civic Square ACT 2608
act@skeptics.com.au

Queensland

Australian Skeptics (Qld)
PO Box 6454
Fairfield Gardens QLD 4103
Tel: (07) 3255 0499
qskeptic@uq.net.au
Qskeptics eGroup
(to subscribe send blank message to:
qskeptics-subscribe@yahoogroups.com)

Gold Coast Skeptics

PO Box 8348
GCMC Bundall QLD 4217
Tel: (07) 5593 1882
Fax: (07) 5593 2776
LMDERRICK@bigpond.com

South Australia

Skeptics SA
PO Box 377
Rundle Mall SA 5000
Tel: (08) 8272 5881
Fax: (08) 8272 5881
laurie_eddie@senet.com.au

Western Australia

WA Skeptics
22 Esperance Street
East Victoria Park WA 6101
Tel: (08) 9448 8458
wa.skeptics@australiainmail.com

Tasmania

Australian Skeptics in Tasmania
PO Box 582
North Hobart TAS 7000.
Tel: (03) 6234 1458
sharples@netspace.net.au

Northern Territory

Darwin Skeptics
PO Box 809
Sanderson NT 0812
Tel: (08) 8932 2194
Fax: (08) 8932 7553
dwnskeptics@ais.net.au

Borderline Skeptics

PO Box 17
Mitta Mitta VIC 3701
Tel: (02) 6072 3632
skeptics@wombatgully.com.au

Reason at Risk: Do the Media Care?

There are many issues of concern to Skeptics, some major and some comparatively trivial, and it isn't always a simple matter to decide where lies the dividing line.

Take the broad subject of alternative (or complimentary) medicine as one example. To a large degree it can be seen as "self-prescribed treatment for self-diagnosed ailments" with, in many cases, people taking pills and supplements which, if they don't actually do any good at least do little harm. But that is not always the case. Some herbal 'folk remedies' might well offer some level of benefit to overall health or wellbeing, but there have been far too many cases of herbal treatments that have been shown to contain all manner of toxic agents, or to trigger adverse effects when taken in conjunction with prescribed medication, for us to remain sanguine.

Worse still may be the belief in implausible gadgets ('zappers', 'Rife machines', 'magnetic inserts' and others that have been catalogued here many times). They not only owe little to everything we have learned about the natural world, including our own physiology, but actively deny such knowledge. Despite attempts by regulatory authorities to control such devices, they are still readily available in the community and are widely advertised and promoted in the media.

In general, alternative treatments such as these rely on nothing more than anecdote, albeit often long-standing anecdote, for their claims of effi-

cacy. That is simply not good enough and the only proper method by which such claims can be tested and verified, is to use the tools of science, such as double blind clinical trials. As we have often said in *the Skeptic*, it is an intolerable that if two different modalities make similar claims with regard to health, one should be held to a far lower standard of efficacy than the other.

Another sad example is the wide (if not deep) level of belief in assorted 'psychic' abilities abroad in the community. For someone who is troubled to receive a hearing from a good listener who exhibits empathy and gives comfort, might be no bad thing. It could be argued that such 'psychics', in providing a sympathetic ear, might be providing a worthwhile community service, even though they might be deluded about their assumed 'powers'.

A different matter entirely is the case of those who target the bereaved for reasons of personal aggrandisement or financial gain. Those who claim to be receiving messages from "beyond the grave" are simply using the perfectly natural feelings of guilt or unfinished business that we all suffer from in times of bereavement, to prey on us when we are at our most vulnerable. Just as bad are those who claim to have psychic visions about the events of a serious crime, especially if someone has been murdered or, worse still, someone who might have been murdered but whose body has not been found. These people often receive un-

critical support from a compliant (if not complicit) media. Indeed, such is the attitude of the media at large to such chicanery, that several programmes are presently being aired, devoted to touting the virtues of "psychic detectives", 'messengers from beyond' and the like.

It has been claimed that today journalists are far better educated than at any time in the past. Be that as it may, critical thinking seems to be in short supply among the current crop — perhaps it only means that they remain in educational institutions for longer. Those who are old enough might remember the 1950s, when a visiting American 'faith healer' named Oral Roberts hit our shores and local newspapers tore his snake oil operation to shreds, forcing him into a rapid retreat. When was the last time that happened?

However, a new trend in education itself might hold prospects of better things ahead. This year, the Australian Skeptics Eureka Prize for Critical Thinking was won for the first time by a teacher in the primary system — you can read all about her, and about her programme in this issue. Also you can read about an innovative University course based on skeptical analysis. Both authors will be speaking at our annual Convention in November, so come and hear what they have to say.

Maybe there is a reason for hope after all.

Barry Williams

Around the Traps

Statue 'not a miracle'

Skeptic readers will probably not be stunned to hear that a weeping statue and crucifix, recently discovered in Vietnamese Catholic Community Centre in Inala, on the outskirts of Brisbane, is not a miracle. Urged on by uncritical media reports, thousands of people visited the Centre over the past couple of months and quite a lot of money had been raised.

Brisbane's Catholic Archbishop John Bathersby said an investigation (Bob Bruce offered the services of Qld Skeptics to do the investigation, but his generous offer was not taken up) has found there was no miracle, as the substance that wept from the item is commercially available and may possibly have been applied by hand. He also said that he would investigate how much money had been raised and would then make decisions as to where the funds shall be directed, probably to charitable purposes.

Which does raise one question in the Skeptical mind. Does the Catholic Church really wish us to believe that an omnipotent deity is not equally as capable of manufacturing "commercial" chemical substances as are Messrs Unilever and Colgate?

More miracles

While we are about it, the media were recently highly exercised over a challenge by a Sydney based Marist priest,

Paul Glynn, who offered to pay \$5,000 to anyone who could "prove" that "miraculous cures" attributed to a visit to Lourdes, were not miracles at all.

For those not familiar with the claims, water flowing from a grotto at Lourdes (in S France) is popularly reputed to have healing properties, ever since a young girl had a vision of the Virgin there almost one and a half centuries ago. In the intervening period tens of millions of people have visited the town and large numbers of them have reported "miraculous" cures as a result. The Catholic Church, not noticeably the most radical of organisations, has investigated many and has labelled just 66 of them as miraculous. Even if we accept their figures, it would indicate that miracles are far from being the most reliable form of treatment for ailments of the flesh. If anyone is thinking of winning Fr Glynn's money, he demands that the claims be tested by "a recognised professor of medicine must review the case medical notes and be prepared to verify and identify an explicable reason for cure and long-term recovery". He must be an unworldly divine if he believes you can get much in the way of medical research these days for just \$5,000. It is not clear how many of the 66 people are still alive, but as the last recorded case was in the late 1980s, the numbers are probably quite low. Does anyone know the Latin for "media stunt"?

To render or not to render

This story comes from the USA, where creationists are famed for demanding equal time in public science education, insisting that their position is arrived at by rigorous application of scientific principles, and definitely not from their naive reading of scripture.

Kent Hovind, a creation 'science' evangelist, most notorious for his bogus "challenge to evolutionists" to "prove evolution" (Read all about in on John Stear's excellent No Answers in Genesis site — home.austarnet.com.au/stear/kent_hovind's_challenge.htm) also operates Dino Land, a creationist theme park in Florida. However the IRS (the US Tax Office) recently charged Hovind with trying to evade taxes on more than \$1 million in income. Hovind, who also sells creationist books, videos and the like, claims that the IRS is targeting him because of his religious beliefs. Bunyip thinks it is more likely that he overlooked that stricture in Matthew 22:2 about "rendering unto Caesar".

Nasty work afoot

Thanks To Karen Stollznow for this item.

Many anti-vaccination organisations operate behind a veneer of scientific authority, assuming official-sounding titles and professing to be

'pro-information' rather than 'anti-immunisation'. Instead of subjecting their theories to scientific investigation and obtaining facts, one uninformed group resorts to bullying tactics.

At a hospital in regional New South Wales, a local anti-vaccination group engages in the ongoing harassment of the vaccination nurse and staff, involving abusive phone calls and threats. In 2000, this group stirred up local fears by claiming the combined Measles, Mumps and Rubella (MMR) vaccine could cause autism. This led to a daily campaign over a two week period where the hospital vaccination staff were persistently harassed with serious threats. Upon learning that the vaccine does not pose a risk of autism, this group turned their focus to yet another unwarranted crusade.

Julie Leask from the Australian National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases was not aware of similar incidents but commented on the zeal of anti-immunisation organisations and their persistence in lobbying government agencies, child care centres, schools and the media.

No deal on psychic test

Richard Saunders reports on TV's latest example of dumbing down.

It was building up for weeks on the 7 Network. In ads for a game show *Deal Or No Deal: Test of the Psychics*, played throughout the Olympic Games, we constantly heard the phrase "We'll put psychics to the ultimate test!" Oh boy!

The show started with the words:

These 26 people all possess extraordinary abilities. Will those powers win one of them 2 million dollars? Twenty-six cases containing randomly placed cash amounts. Inside one of them is 2 million dollars. Every one of these clairvoyants, mediums, psychics, telepaths and astrologers believes they can sense where it is."

Without going into detail, the show is a guessing game, with contestants picking suitcases to try to win money. They are made tempting offers along the way, but usually hang on to try and

win the big bucks. This can lead to them at times walking away with next to nothing.

Some familiar faces turned up to have a go. Simon Turnbull, president of the Australian Psychics Association, Dadhichi a 'face reader' and astrologer seen on morning TV, 'Astro Girl' who is related to Athena Starwoman and various others, some of whom claimed to be able to talk with the dead.

It was difficult to judge which of the contestants might have been sincere but self-deluded, or which were outright con sharks, but judging from the comments it would surprise me if most didn't sincerely believe they had some sort of psychic powers. Regardless, each was allowed a brief time to trumpet their particular 'powers' and successes.

Whatever their beliefs, the result showed that 'psychics' could do no better than chance alone would predict. (What a shock; I wonder why none of them foresaw this?) Still, there was always a possibility, as is the case with each episode of the show, that someone would win the top prize.

The exercise demonstrated the falsity of one very important 'rule' that 'psychics' and others have used for years as an excuse to dodge taking the Skeptics' test for our \$110,000 prize:

We could never use our powers to take a test for money! It's a misuse of our abilities that are only there to help others.

(Bunyip has never been certain if this 'rule' is supposed to be a natural 'law', like that governing the conservation of energy, or merely some regulation of the Psychics' Trade Union.)

Nevertheless, we now have a clear example of just how ridiculous this 'rule' is. In *Deal Or No Deal*, each one of the 26 'psychics' was willing to use her/his 'powers' to win money, not for charity, not for a home viewer, but for themselves.

But maybe it was Jacqueline Frazer, a 'Reiki healer' who had the last laugh. She bagged \$31,150 after her Reiki powers and crystals failed to detect the case with the 2 million dollars. Still upward of \$30k, and an hour's worth of free publicity couldn't be bad for business.

Life, be in it

When discussing various topics such as the evolution of life on Earth, the plausibility of life on other planets, or similar epistemological subjects, we are often confronted with a demand to "define life". It's not all that easy, but the Bunyip has solved that for all time, to wit:

Life is that which people, who do not share your enthusiasms, always advise you to get.

Good reading

In the past we have advised readers of the delights that Skeptics can derive from reading the works of British author, Terry Pratchett. Pratchett's books, although they might be catalogued under the genre Fantasy, are far more than that, being hard-edged and always hilarious commentaries on much of the real world we inhabit.

If you a fan of Pratchett, and particularly if you are someone of a literary bent, we feel sure that another British author will appeal just as much. Jasper Fforde (yes, that is a double 'f', not a misprint) has written three novels in which the protagonist is an operative for an agency, JurisFiction, that seeks to prevent a sinister plot to subvert great works of literature, by changing the plots and characters from within. This detective, who goes under the improbable name of Thursday Next (and who keeps a pet dodo) manages to enter the plots of various works, where she meets such characters as Heathcliff, Miss Havisham and many others.

Fforde whose published books, *The Eyre Affair*, *Lost in a Good Book* and *The Well of Lost Plots* will soon be joined by a fourth, *Something Rotten*, will be visiting Australia for an author's tour in late September.

These books are great fun and exactly the sort of "fantasy" that Skeptics should enjoy.

Bunyip

Eureka Prizes Set New Records

Leading lights from the fields of government, science, industry, the media (and not a few Skeptics) were among the more than 900 people who gathered to salute the best in Australian science at a glittering, gala(h) dinner on August 10 at Sydney's Hordern Pavilion. They had come together there to celebrate as a record \$220,000 was presented to the winners of the 22 Australian Museum Eureka Prizes, the 15th such annual event.

For some inscrutable reason the media has a tendency to publicise this event as "the Oscars of Science", which seems to be something of a false analogy. As distinct from some better known showbiz ceremonies (or, as the Olympics are of such recent memory, Sarah Moanies) the Eureka Prizes are distinguished by a lack of mawkish, barely coherent speeches thanking everyone from the winner's mother to every colleague they have ever met. In fact, thanks largely to the (always) superb organisational skills of Roger Muller from the Australian Museum, speeches are confined to presenters



Skeptics Eureka winner, Cheryl Capra, receives her prize cheque from Australian Skeptics president, Richard Saunders

and are kept to a minimum. As a result, a good time is usually had by all.

The 2004 Prizes recognised scientific and industrial achievements including:

Education

Australian Skeptics Eureka Prize for Critical Thinking.

Won by *Cheryl Capra*, science coordinator at Queensland's Albany Hills State Primary School. This was the first occasion on which the criteria for the Skeptics award had been broadened to include teachers at all levels of education. They now state that the Prize "*seeks people whose work investigates claims that are popularly accepted but are unsubstantiated by evidence, or teachers, in all levels of education, who devise and use programmes that encourage critical thinking above and beyond standard curriculum requirements*".

This requirement was admirably met by the philosophy which underlies a new curriculum program called Touching the Future,

developed by Cheryl Capra. Triggered by a student survey of the school in 1999 that did not reflect a critical approach to life, Cheryl started work on the four-phase plan alongside an early childhood special-

ist, parents and staff. Her project aimed at optimising students' opportunities to partake in real science while learning to use the critical, evidence-seeking thought processes of science. (Details of her award winning and innovative programme are covered elsewhere in this issue.)

The Skeptics are delighted that someone of Cheryl's calibre, working at the very grassroots in primary education, was the first to win the Prize under its extended criteria.

Department of Environment and Conservation Allen Strom Eureka Prize for Sustainability Education. A new community education program in Western Australia called Living Smart which takes a new approach to living sustainably in the suburbs, won the Prize for *The Meeting Place Community Centre, City of Fremantle, Murdoch University and Southern Metropolitan Regional Council*.

University of Sydney Faculty of Science Eureka Prize for Biological Sciences was won by Tuncurry school student *David Llewellyn* for his work showing that introduced weeds on the banks of rivers and ponds have a detrimental effect on the waterbugs that live in the stream.

Macquarie University Eureka Schools Prize for Earth, Environmental & Planetary Sciences. Replacing herbicides with an equivalent from nature would have immediate environmental and health benefits according to *Anna Zipf*, a Year 12 student at Keebra Park State High School in Queensland.

Adam Spencer /University of Sydney Eureka Schools Prize for Lateral Thinking. A 'SafeT' car that stops you speeding and sleeping was conceptualised by a group of *Year 12 students from Murwillumbah High School in NSW*.

Holmes à Court Eureka Prize for Science Teaching. Tasmanian teacher Anne Burke, research coordi-

nator of Marist Regional College, the inaugural winner of this Prize says, "Teachers are often guilty of teaching science simply as a series of theories and laws, with little scope for negotiation."

Industry and Innovation

Australian Museum Eureka Prize for Industry. A compostable plastic that dissolves on contact with water, developed by *Plantic Technologies Limited*. The company will be immortalised by having a newly discovered species of long-legged fly species named after them — *Krakatauia planticorum*.

Australian Computer Society Eureka Prize for Information and Communication Technology. Won by *Innovation Research Optical Fibre Technology Centre at the University of Sydney* for a new kind of plastic optical fibre that will deliver practically unlimited internet bandwidth to our homes and businesses at an affordable price.

Research

The Sherman Eureka Prize for Environmental Research. A 15-year Australian campaign has resulted in a global agreement to save the world's oceans from the scourge of marine invaders carried in ship ballast water and has also won for *Gustaaf Hallegraeff, Geoff Rigby and Alan Taylor*.

Land & Water Australia Eureka Prize for Water Research. Hours of watching the Murray River gave weir keeper *Alan Williams* the inspiration for a trap that collects 90% of carp without harming native fish. The achievement won the Prize for Alan and *Ivor Stuart*, from the Victorian Department of Sustainability and Environment.

Australian Catholic University Eureka Prize for Research in Ethics. The clinical performance of individual surgeons should be made available as part of the process of giving informed consent, say *Justin*

Oakley and Steve Clarke, ethicists at Monash University and ANU.

British Council Eureka Prize for Inspiring Science. A revolutionary glove embedded with artificial muscles that can give movement back to people with paralysed hands won the prize for PhD student *Peter Abolfathi* of the Quadriplegic Hand Research Unit at Royal North Shore Hospital.

Royal Societies of Australia Eureka Prize for Interdisciplinary Scientific Research. The *Vision Cooperative Research Centre* in Sydney has taken out the \$10,000 for inventing the world's first implantable contact lens. Glued on to permanently fix poor eyesight, the revolutionary lens offers a new solution for long and short-sighted people.

GRDC Eureka Prize for Research to Improve the Environmental Sustainability of Graingrowing. A bacterial seed coating should help farmers reduce the annual \$200 million dollar cost of fungal attacks on crops. Its inventors from *CSIRO* and *Flinders University* won this year's Prize.

Botanic Gardens Trust Eureka Prize for Biodiversity Research. *The Great Barrier Reef Marine Park Authority* for one of the most exciting global advances in the systematic protection of marine biodiversity in recent decades, the Representative Areas Program.

University of New South Wales Eureka Prize for Scientific Research. *Dr Sabina Belli*, a UTS veterinary parasitologist, who found an Achilles heel in the destructive bugs that cause malaria, *cryptosporosis*, toxoplasmosis and other diseases — a discovery with the potential for development of vaccines for these deadly diseases.

Science communication

Australian Government Eureka Prize for Promoting Understanding of Science. Like the annual

invasion of Bogong moths, each year since 1999 hundreds of scientists have been drawn to the bright lights of Parliament House in Canberra. The creator of this phenomenon, *Ken Baldwin*, has received the Prize for his role in conceiving and championing Science Meets Parliament.

Reed New Holland Eureka Science Book Prize. Veteran science broadcaster and journalist, *David Ellyard*, has created a manuscript that provides an absorbing introduction to the development of scientific ideas over the last 500 years, and into the times and the people that created them.

Australian Government Eureka Prize for Science Journalism. *Sonya Pemberton*, writer/producer won for "Genius of Junk", a half-hour ABC *Catalyst* documentary, which explored the linked stories of junk DNA and Malcolm Simons.

Australian Government Peter Hunt Eureka Prize for Environmental Journalism. A team from ABC's *Four Corners* produced three thought provoking investigations into environmental issues of national significance

Pfizer Australia Eureka Prize for Health and Medical Research Journalism. The national medical reporter for ABC TV *News* for the past five years, *Sophie Scott* has brought hundreds of balanced, fair, scientifically accurate and creative medical stories to Australian viewers.

Engineers Australia Eureka Prize for Engineering Journalism. *David Salt* breathes life into materials science through *Materials Monthly*, a newsletter produced for the ANU Centre for Science and Engineering of Materials.

Full details of all Awards can be seen at:

www.austmus.gov.au/eureka



Eureka Images



Winner, Cheryl Capra, flanked by her daughter Gina and a notorious Santa impersonator



Mysterious Unidentified Floating Objects from the Planet Saundersia hover above the diners



Abstinence is one characteristic of religious orders not necessarily shared by Skeptics

Award Winning School Science Programme

An innovative programme brings rewards for an innovative teacher



Cheryl Capra, a primary school teacher and science co-ordinator, is the 2004 Australian Skeptics Eureka Prize winner.

At the 2003 Eureka Prize presentations, Skeptics were intrigued that, while many aspects of science and science communication were recognised, there was then no formal recognition of the valuable contribution made by science teachers. We therefore decided to broaden the criteria for the Skeptics Prize for Critical Thinking to invite entries from teachers who had devised programmes to encourage critical thinking at all levels of education. This thought must have occurred to others as well, because the Holmes à Court family also instituted a new Eureka Prize for Science Teaching. With the Skeptics prize covering teaching at *all* levels and with the Holmes à Court prize focusing on secondary teachers, a serious omission has been rectified.

The remainder of this article describes the work undertaken by the winner, Cheryl Capra, which led to her receiving the Prize.

Brief Description of the Project

Background and Rationale

Young children exhibit intense curiosity about their world and how it works. They ask interminable searching questions which provide significant challenge for some parents and teachers. Such natural curiosity can be harnessed to stimulate imagination, to develop observation skills and critical thinking, to foster discussion and encourage understanding of what it means to hypothesise and fairly test ideas. Effective science teaching can guide young students' minds in these first indelible steps leading to critical thinking and a rational view of their world.

In 1999, science learning at Albany Hills did not reflect this vision; a realization which led to the development of a project aimed at optimising our students' opportunities to do real science while learning to use the critical, evidence seeking thought processes of science. The pursuit of such a goal necessitated the collection of relevant baseline data from teachers and students in order to construct a frame of reference from which a goal oriented im-

Award Winning Programme

plementation plan could be devised and agreed upon.

The determination of teachers' scientific literacy levels; their regard for science as an essential learning for all citizens; and their understanding of pedagogical issues impinging on the efficacy of students' scientific education were the first baseline data sought.

Project Groundwork: Baseline Data Collection and Analysis

In September 1999, a survey sought specific data from the 43 teachers (Preschool to Year 7) at Albany Hills. Teachers rated against criteria, their scientific literacy; confidence in teaching science from Pre-school to Year 7; and their familiarity with relevant pedagogical issues. These included the use of technology in teaching science, strategies used to promote students' critical thinking abilities, as well as how and what they assessed regarding students' science learning. In 2000, a Science Scan (survey and tests) researched students' attitudes to science, their scientific interests, preferred ways of learning, their critical thinking abilities, analysis and interpretation of data, and the convergence of students' scientific concepts with those of the scientific consensus. From these data a plan was developed for a total reform of science teaching and learning at Albany Hills.

The Albany Hills' Science Project (2000 to 2004)

To attain the project's overarching goal a set of essential objectives were defined aimed at:

- raising the profile of science and its value throughout the school community;
- providing the project's leader, Cheryl Capra with non-contact time for planning, liaison, staff professional development, science program writing, monitoring;
- obtaining substantial funding from outside the school to offset costs of staff development and resource purchases;

- reviewing and significantly expanding the school's science resource base to support teachers' planning for student investigations, experimentation and use of various information/communication and science specific technologies;
- initiating science events and activities eg, Astronomy Club, competitions, seeking outside expertise eg, for Scientist in Residence, guest speakers, Science Expo, science camps and excursions, designing and facilitating teacher professional development (PD) according to identified needs;
- developing and implementing an intellectually challenging, pedagogically and scientifically sound learning Program, addressing concerns identified in the 2000 Scan;
- scheduling a follow-up Student Scan and Staff Survey in 2002 to begin comparisons with the 2000 data in order to quantify the project's effects on teaching and learning.

A four phase implementation plan, consistent with these objectives and the overall goal was developed by Science Coordinator Cheryl Capra, who gratefully acknowledges the valuable support of colleague Irene Elder (early childhood specialist) and the school's Science Reference Group of staff and parents. When the Project's goal, objectives and direction were affirmed by staff, administrators and parents, it was also agreed that the Science Project and the yet to be written school Science Program would be implemented in Preschool and across the seven primary years. The plan included monitoring processes in each phase incorporating collegial review, collaborative planning, consultation with individual teachers, accessing external expertise; personal PD planning and a follow-up *Student Science Scan* (March 2002) to obtain data for comparison with the 2000 Scan.

The Albany Hills' Science Program

Each phase of the Project's implementation plan included a staff PD component, while the second and third phases saw the writing and implementation of the school's innovative Science Program.

The program's Strands sequentially develop understanding of concepts across the sciences, while Science in Society and processes such as thinking and working scientifically, are themes integrated across all Strands. It includes teaching focus ideas, extension challenges for the highly capable, indicators of students' learning, lists of resources at and beyond the school and topical background science reading for teachers. The Program's five appendices cover scientific and pedagogical discussions, suggestions for intellectually challenging investigations, ideas to develop critical thinking, and strategies to encourage children to work and think scientifically. There are also suggestions for identifying and remediating students' scientific misconceptions.

Writing of the Science Program began in March 2000, leading to consultation with staff and community on the first draft by August. The initial program was finalized for implementation in January 2001. The first draft's review brought many useful comments, as well as a request to remove all mention of evolution which, so it was noted, was too controversial for primary students. Strong defence of the program's scientific integrity ensured that this issue was logically debated and soundly put to rest. Science's underpinning models and explanations, *including evolution*, remain as the key concepts of the Albany Hills Science Program.

Outcomes

Data to assess the Project's impact and inform further planning were obtained through the 2002 *Student Science Scan* which collected data for comparison with that of the 2000 Scan. The 2002 Scan Report included 19 pages of comparative data tables and graphs as well as critical analy-

ses and recommendations across all year levels. This report depicted students with greatly increased enthusiasm for learning science, who evidenced increasing confidence in thinking and working scientifically. Results indicated that convergence of students' concepts with those of the scientific consensus had risen from a mean of 54.6% to 62.6% across the school in the two years. Analysis and interpretation of data remained strong, gaining to reach 71% mean proficiency, while results in application of critical thinking, the area of greatest concern from the 2000 *Scan*, also indicated progress was occurring.

The following extract is from page 12 of the 2002 *Comparative Scan* reporting on: Application of Critical Thinking as an Aspect of Working Scientifically (Yrs 2—7). When reading these data, compare eg, Year 2/2000 with Year 4/2002, to track the same cohort of students. Comparison of eg, Year 4/2000 with Year 4/2002 results has some validity from a teaching perspective, if staff within a year level have remained constant over those years, and provided student cohorts over the two years have been of similar abilities.

Further quantitative evidence of students' achievements in thinking scientifically has been provided by Albany Hills' students' prizes and bursaries won in the annual Queensland Science Contest, a competition which focuses on long term research projects by individuals and small groups of students. Since 2000, with only three prizes coming to Albany Hills, our students' prize share has increased until, in both 2002 and 2003, they amassed more prizes than any other school (primary, secondary, government or private) in the State. 2003 saw the 25 Albany Hills' entrants gain 22 prizes and bursaries. In addition, University of New South

Wales' Australian Schools' Science Competition results in 2002/03/04 have been above the State mean for all year levels.

2004 and Beyond

2004 has seen the induction of many new staff to the Science Project, ongoing monitoring of the implementation of recommendations from the 2002 *Science Scan Report*, as well as the introduction of astrophotography within the program's Space Sciences strand. Last year the now annual Scientist in Residence program began, financed through a grant from the Australian Skeptics' Science and Education Foundation. This annual event is now recommended by the District's Science Reference Group as a format for emulation.

staff use. A follow-up *Teacher Survey* has been completed, while planning is under way for a 2005 *Comparative Student Science Scan*, a formal Science Program review/update, and another Community Science Expo (by popular demand).

Our students are noted, commensurate with their ages of course, for the breadth and depth of their scientific conceptual understanding which lacks common misconceptions. Students from Years 4 to 7, and some younger ones, know why scientific models and theories are not blind guesswork, as they understand that scientific explanations will change should new or re-examined evidence demand it. Increasingly capable in critically questioning, students are applying their ability to reason sci-

entifically, not just to issues in science classes but across all curriculum areas, from Health to Studies of Society and Religious Education (RE). As a result, interestingly, older students have not "tuned out" of RE but have taken greater interest, asking thoughtful questions, and provoking many a discussion and debate. The local Anglican minister has assisted some of our RE instructors by the example of his own very open and honest approach to belief and non-belief discussions in Year 7.

Teachers discuss cutting edge science in the staff room and eagerly attend science discussion afternoons with guest speakers. Since 2000, staffroom reading materials include science journals and *the Skeptic*. There is both qualitative and quantitative evidence supplied by high school science teachers, secondary school Heads of Department (Science) and parents that our students are using their learning in their lives beyond Albany Hills Primary School.



	Y2 2000	Y2 2002	Y3 2000	Y3 2002	Y4 2000	Y4 2002
Employed (%)	48	66.1	45	62.5	47	61
Not employed (%)	52	33.9	55	37.5	53	39

Table 1 : Analysis of Critical Thinking Results Years 2 to 4

	Y5 2000	Y5 2002	Y6 2000	Y6 2002	Y7 2000	Y7 2002
Employed (%)	26	58.6	32	48.4	29	62.9
Not employed (%)	74	41.4	68	51.6	71	37.1

Table 2 : Analysis of Critical Thinking Results Years 5 to 7

By term two this year, the NASA supported Telescopes in Education (TIE) program will be under way, with students planning and doing research, remotely using telescopes and CCD imagers housed in California, Chile and at the TIE facility at Nanango. In July our students are scheduled for a question and answer session with astronauts on the International Space Station (ISS) through a real-time ham radio link. As well, the Astronomy Club (Years 5 to 7) is thriving and four serious telescopes have been acquired for student and

Teaching Skepticism at the University: a personal account

**A successful demonstration
of skepticism as an
educational tool.**



Martin Bridgstock, a Senior Lecturer at Griffith University, was one of the first Life Members of Australian Skeptics.

I paused outside the lecture theatre — I took a deep breath, and swept inside. “Welcome to Skepticism, Science and the Paranormal, a new course at Griffith University.” I announced. My radical experiment in education was under way. What was I doing? How did a lecturer in Science, Technology and Society come to be putting on a course like this?

The reasons were a mixture. I’d known for some time that university students — along with nearly everyone else — have a high level of belief and interest in the paranormal. I also knew that skeptical ideas are little taught in higher education, outside a few courses in philosophy. Finally, in the brutal competition for student numbers, my area was losing out. In the new, corporate universities, numbers matter as much as they do in theatres. So, I thought, I could kill several birds with one stone: boost numbers, propagate some good ideas and throw light on paranormal claims. But what would the University say?

I designed an official course outline and submitted it for approval. This is a legal document describing the content of the course, how it’s to be delivered, assessment and other

odds and ends. It wasn’t difficult to put together a passable course, though I wondered whether any of my fellow academics would hit the roof if they saw what I was proposing to teach.

In the event, the proposal for a new course was passed easily. One scientist did some muttering about why I spelt skepticism with a ‘k’ instead of a ‘c’, but didn’t think it was important enough to worry about. In fact, there are good reasons for referring to modern skepticism with a ‘k’; it distinguishes the modern movement, which focuses on the paranormal, from the ancient sceptical tradition, which has rather different concerns. The two are not completely distinct, but I find it useful to have a different term for each.

Intellectual structure of the course.

So, late in 2002, I was committed to the course. It would run in first semester of 2003. But I faced a problem: what exactly was I going to teach? It took me six months to grope my way to an understanding of exactly how I wanted to run the course. In the end, two considerations showed me the way, and any skeptic could point them out.

The first point is simply that the paranormal is a huge, diverse area and even paranormalists will often agree that large parts of it are rubbish. If I simply gave a lecture or two on each topic outlining its major features I would take up a year. So any kind of a survey, or guided tour, was simply out. It wouldn't reach an appropriate standard and it was not feasible in terms of the material.

The second point is that skepticism has something to say about every single area of the paranormal. Skeptics ask questions about the adequacy of the evidence to support the beliefs. These questions, applied in various ways, can be used to assess the adequacy of all paranormal claims.

So, because of its enormous applicability and importance, skepticism was a necessary and central part of the course. I decided to outline the major tenets of skepticism and show some of the tools skeptics use to seek natural explanations of the paranormal.

What were the main tools of skepticism? I found a useful article in the *Skeptical Inquirer* (Caso 2002) which spelled out Burden of Proof, Occam's Razor and Sagan's Balance. They were a good start. I'd look at a few paranormal areas in detail, and the students could pick out others if they chose. I got permission to copy some articles from *the Skeptic* onto the course website, and provided lots of links to other sites.

A key point was this. Skepticism would be the focus of the course, and all the students would be required to show an understanding of the skeptical approach. However, their conclusions were their own business. If they could handle the skeptical tools, they would do well in the course: they did not have to become skeptics¹.

My wife pointed out a consequence of this over breakfast. She's a much harsher skeptic than me², and put her finger on the main point quickly. "Doesn't that mean that a student could show they understand the skeptical approach completely, but come out supporting the par-

anormal? And you'd have to give them good marks!" I gulped and admitted that yes, it meant exactly that. As it turned out, this was much less of a problem than I expected.

With this philosophy in mind, I put the course together. There'd be an outline of skepticism, of course, and a discussion of the meaning of the term 'paranormal'. Before these, I'd put a couple of lectures about science, since skepticism and the paranormal are both defined partly in terms of science. Then I'd focus on some key skeptical concepts and strategies — things like the placebo effect, the importance of coincidences and the unreliability of eyewitnesses. Then I'd talk about some important cases of paranormality — parapsychology, creation science and so on.

I'd need publicity, I knew. Within the University this was no problem: I stuck up posters and distributed leaflets. Then I used our external relations people to give out a press release, and ended up talking to about a dozen radio stations, right across Australia. This was all very fine, but it had a consequence: the cranks zeroed in on me!

Cranks Incoming!

With the publicity blitz I expected some cranks and oddballs to come forward. And they did, in droves. There was a mysterious fellow on the Gold Coast who had hundreds of hours of amazing evidence on videotape, if only I wanted to see it. He was very vague about his organization: it sounded alarmingly like a cult, and I dodged. Then there was the bloke in Melbourne who waffled on for hours about his family's amazing psychic experiences. I finally discovered 'people knocking at the door' and had to terminate the conversation.

A well-known paranormalist asked to give lectures on my course. I declined until I knew exactly how it would all go, and a bloke from up North sent me a couple of CDs packed with communications from God. I looked at a few. 'God' seemed a terrible waffler without much to

say. How on earth did He manage to create such an interesting universe?

One character talked himself into the lectures. He phoned up and introduced himself as a SETI researcher from UQ³. That turned out to be wrong on several counts⁴. Still, I have a soft spot for SETI, so I invited him along. He turned up to a lecture, asked a crunchingly irrelevant question and presented me with a couple of video-tapes and some articles he'd written.

I read a couple of his papers, and my outlook was transformed. The writing was worse than the very weakest student work. Even the worst students were groping towards some idea of sorting out good from bad evidence. This writing, though, was a mish-mash of poor quality creationism, ufology and fulminations, without much in the way of coherence, logic or critical thought. We parted with a mutual lack of regard.

The experience convinced me of something important. From now on, whenever I interact with these oddballs, it's going to be on my terms. My responsibility is to my students, not to self-appointed gurus. These people seem to want your time, your respect and your support without actually meriting any of it.

Teaching the course.

The course attracted an initial enrolment of about 30: distinctly better than most other courses run in my area. The final number of active students was 25. Of course, there had been jokes about what the class would look like. Would it be full of little green aliens? Would their notepads and pens float before them in the air? Would Nessie be stretched out along the back row of seats? In fact, they were a resoundingly normal bunch of students — which is to say they looked everything from totally conventional to downright weird!

Above all, the students were active. There was a constant barrage of questions and comment. These people were interested in a way I had rarely met before. They were inter-

ested in the subject matter, and quite prepared to have a look at the skeptical position.

I leaned heavily on skeptical resources. Barry Williams's (1993) analysis of a 'filmed UFO' was a good example of skepticism in action. So was Rosemary Sceats's (2000) account of testing water diviners (To jump ahead a bit, in 2004 I used the Skeptics divining video. The students loved it, though one thought it was rather cruel.). For a more complex case I went into Marks and Kamman's debunking of remote viewing (Marks 2000), and also used their analysis of coincidences.

In week five, the students started giving seminars. I'd stressed skeptical ideas, and most of them picked up on this quite well. Occasionally someone started wandering off into the minutiae of Chinese medicine or whatever, and I could pull them back with the question "Well, what would the skeptical position be on this?" It worked every time.

I found I was learning as much from the students as they were from me. The seminar system invited them to find weird topics of their own, and then apply skeptical ideas to them. So I often found myself listening to explanations of paranormal phenomena I'd never heard of before⁵.

The seminars varied widely in quality, but were mostly reasonably good. At the end, I'd opted for a take-home exam. I slogged through the marking and added up the marks. And the astonishing fact struck me: nobody had failed: the marks ranged from bare passes to high distinctions. Later, our administrator pointed out one student in particular. "Look," she said, "He's failed everything else — got one percent here, three there — but he passed your course." Yes, because he was interested.

I made mistakes, of course. I crammed far too much into some lectures, and missed key points in

others. Still, the student evaluations were terrific. "I'm having to re-think fifty years of belief," one student told me (he was mature!). Another said, "This is the only course I've ever really learned anything from." I was shattered at the end, but resolved I'd do it again.

Of course, a silly politician had to get into the act. The Minister for Education, no less, told Alan Jones that you could do a degree in the paranormal. I wrote a restrained little article for *The Australian* (Bridgstock 2003) pointing out the mistakes⁶. He didn't apologise, but at least he shut up about it.

What next?

So 2004 rolled round. I was better prepared. Paranormalists were not going to be invited to sit in on the course (unless they enrolled). Too much content would not be packed into each lecture. The key points would be spelled out more clearly. I started to prepare reading lists and assignment forms, and my wife pulled me back from a disaster. "Check how many people are on the course," she said, "I think there may be more than you expect". I did, and nearly had a seizure. "Fifty," I gasped, "The numbers have doubled!"

Apparently word had got around that this course was 'cool'. The lively excitement of the first year was there, but with a much larger class. People queued up to ask questions in the middle of lectures, argued and joked in seminars — and produced some terrific work. The whole course went far more smoothly and, as far as I am concerned, it is here to stay.

What comes next? A book, I think, spelling out the key principles with an Aussie focus. Maybe a teaching kit, and an electronic version of the course. I am starting to think that there may be a real hunger for the intellectual tools that skepticism provides. And I want to help provide them.

Notes.

1. I am building two arguments for skepticism into the course. One argument seems to go from Socrates via Descartes to Paul Kurtz, and stresses that doubt is a necessary component of gaining knowledge. The other is W. K. Clifford's argument that it is unethical to believe on the basis of insufficient evidence.
2. My wife is a skeptic of the "Hocus-pocus? Fiddlesticks!" school.
3. Search for Extra-Terrestrial Intelligence, University of Queensland.
4. He didn't have a research position, he was not on the staff at UQ, and he wasn't a SETI researcher.
5. Roswell Rods, the Mozart Effect, cattle mutilations, therapeutic touch. How much weirdness is there in the world?
6. Sigh. It isn't a degree, it's one-twenty-fourth of a degree. It isn't in the paranormal, it's in skepticism, science and the paranormal, with the accent on the former.

References,

- Bridgstock, Martin (2003): "School for Sceptics". *The Australian Higher Education*. October 29: p28.
- Caso, Alvaro (2002): "Three skeptics' debate tools examined: Occam's razor, assigning burden of proof, and Sagan's phrase about extraordinary claims are often misunderstood. In a debate it always pays to know why these tools work", *Skeptical Inquirer* 26:1, pp 37-41.
- Marks, David (2000): *The Psychology of the Psychic*, Amherst, N.Y. : Prometheus Books.
- Sceats, Rosemary (2002) "The Benalla Dowsing Challenge". *the Skeptic* , 20: 1, pp 9-10.
- Williams, Barry (1993): "UFO was IPO". *the Skeptic*, 13:1, pp 10-11.



How to Make a Minority Look Like a Majority

Chronicling a dubious case of GM Foods and Public Attitude Research



Scott Campbell, a lecturer at the Dept of Philosophy, and Institute for the Study of Genetics, Biorisks and Society, University of Nottingham, is a former member of the NSW Skeptics committee.

The British government recently undertook a massive public consultation exercise — entitled *GM Nation?* — on public attitudes towards genetically modified food and crops, and there are rumours that elements within the Australian government, or at least within the public service, wish to do likewise. *GM Nation?* hit the headlines throughout Britain and the world late last year; most journalists took the line that this was an accurate reflection of the public's attitudes, and very few troubled themselves with any critical analysis of the exercise. (A letter to *Nature* on the topic published by myself and a colleague, Dr Ellen Townsend, from the University of Nottingham, provided one of the few critical analyses of the report.)

It might seem, then, that there could be nothing wrong with performing a similar operation in Australia. Indeed, there is much talk in Britain itself of performing similar debates in order to increase public participation in democracy, at a time when cynicism about politics is supposedly at an all-time high. In fact, though, the *GM Nation?* debate was

a travesty, and serves as a model of how **not** to use social science in the interests of democracy.

It will therefore prove instructive to look at what was wrong with it, in order that Australia might avoid making a similar mistake.

Self-selection

The *GM Nation?* report concluded that general public is overwhelmingly against GM technology, with feelings ranging from “suspicion and scepticism, to hostility and rejection”; there are, it was said, “many more people who are cautious, suspicious or outrightly hostile about GM crops than there are supportive towards them”. These conclusions were based on quantitative questionnaires answered by 36 500 people, as well as by additional comments received. (About half of the responses came by mail, and half using *GM Nation?*'s website, which can be found at <gmnation.org>). Such a large sample certainly looks impressive, considering that a lot of social science and market research draws conclusions on the basis of samples of only a few hundred people, or even fewer.

But the large size of the sample does not overcome one glaring problem with it. It is, as even its authors concede, a self-selected sample, and therefore is almost certainly not random. As a self-selected sample, it is probably comprised mostly of those with strong opinions on the subject — because people with strong opinions on a subject are the ones most strongly motivated to participate in any debate on the subject. After all, if you don't give a damn, why would you go to the trouble of writing a letter to a survey unit telling them that you don't give a damn? The fact that tens of thousands of the sort of people who get worked up about GM wrote in to say that they get worked up about it, tells us nothing much about the rest of the population, especially when one considers that none of *GM Nation?*'s considerable budget was spent on advertising, and so most of the people who knew about it (before the results hit the headlines) were the activists.

After all, 36 500 people amounts to roughly one out of every 2000 people in Britain, and you'd hardly have to ask 2000 people before you got someone who was strongly against GM. Environmental groups such as Greenpeace and Friends of the Earth mounted concerted campaigns to get their members to take part in *GM Nation?* (and newspapers reported complaints that the public meetings held as part of the process were overwhelmed by anti-GM activists). So getting 36 500 who were mostly against GM is not surprising. Consider that over a million people in Britain took to the streets against the Iraq war, but proper surveys showed us that there was not an overwhelming majority of people against the war. A survey about war attitudes that only asked people on these marches wouldn't be taken seriously — but *GM Nation?* amounted to little more than that. So we have no right to take these results to represent the general population. Despite its size, this was not a random, 'blind' sample. No

decent scientific journal would take these results seriously, and there is no reason why anyone else should either.

Yet not all the blame can be laid at the feet of the activists, because it was the very nature of the government's debate process that encouraged them to act as they did. Any debate about an issue that provokes strong feelings in a minority, while the majority is less interested, is

**36 500 people
amounts to roughly
one out of every 2000
people in Britain, and
you'd hardly have to
ask 2000 people
before you got
someone who was
strongly against GM.**

bound to attract the former group, but not the latter.

For that reason we cannot take such debates as a good indicator of the view of the rest of the population, any more than gauging attitudes amongst the audience at a meeting on 'The fascist effects of Western capitalism' gives you a picture of what the wider population thinks about Western capitalism.

Although the authors of the report were aware of this criticism, their only 'remedy' (apart from one discussed below) was to pick out a random sample of participants to see if there were any standardised

responses in the comments that were being sent in — which there weren't. But this tells us little. People who are against GM are perfectly capable of expressing their own opinions. Hence, we cannot assume the sample is representative on the basis of this check.

The hidden figures

Further strong support for this conclusion comes, astoundingly, from the report itself. The authors had acknowledged that the views of those who made the effort to take part in *GM Nation?* "might not be representative of the general population". So a 'Narrow-But-Deep' study was commissioned from another company. This consisted of asking 78 randomly chosen people thirteen of the same questions that had been asked of the larger group (the latter they labelled the 'Open Debate' group). So this Narrow-But-Deep group functioned as a 'control group' (or, more accurately, a 'measure of reliability') on the Open Debate group, to see if there was a "silent majority with different views".

According to the report, apart from some minor differences, the control group results backed up the results from the Open Debate group — the general public, they said, is not "a completely different audience with different values and attitudes from an unrepresentative activist minority". Was this true? Well, no journalist was likely to find out, as no table had been provided to present the differences, and the actual results of the two groups were buried deep within the hundreds of pages of supporting documents, far apart from each other (with some of the data missing). Suspecting that some inconvenient data had been deliberately hidden, I gathered the relevant material together myself. Once these results were compared side-by-side, stunning differences emerge.

These can be seen in Table 1. (next page)

QUESTION	Agree		Disagree	
	OD	N/D	OD	N/D
1) Cheaper food (I believe GM crops could help provide cheaper food for consumers in the UK)	14	43	70	14
2) Negative environment (I am concerned about the potential negative impact of GM crops on the environment)	91	57	7	14
3) Help British Farmers (I believe that GM crops could improve the prospects of British farmers by helping them to compete with farmers around the world)	9	40	79	23
4) Profit driven (I am worried that this new technology is being driven more by profit than by the public interest)	93	69	6	9
5) Happy eaters (I would be happy to eat GM food)	8	36	86	35
6) Lowers pesticides (I think that some GM crops could benefit the environment by using less pesticides and chemical fertilisers than traditional crops)	14	54	71	12
7) Producers benefit (I think that GM crops would mainly benefit the producers, and not ordinary people)	85	56	8	24
8) Not know enough about health (I don't think we know enough about the long term effects of GM food on our health)	93	80	5	7
9) Medical benefits (I believe that some non-food GM crops could have useful medical benefits)	23	32	41	12
10) Regulated carefully (I am confident that the development of GM crops is being carefully regulated)	7	21	87	44
11) Contamination risk (I am worried that if GM crops are introduced it will be difficult to ensure that other crops are GM free)	93	64	5	17
12) Unacceptable interfere nature (I feel that GM interferes with nature in an unacceptable way)	84	37	10	29
13) Help developing countries (I believe that GM crops could benefit people in developing countries)	13	50	75	18

Some of these questions here reveal the low quality of the survey. For example, question (2) — “I am concerned about the potential negative impact of GM crops on the environment” — is exactly the sort of question that even a high school social studies student could tell you should not be used. It is vague, and practically begs to be answered in the affirmative.

But some questions are more straightforward, and the differences between the groups on these questions are huge. For instance, on question 5 — “I would be happy to eat GM food” — 86% of the Open Debate disagreed, but this went all the way down to only 35% in the random group. Hardly anyone — only 8% — in the Open group said yes to this, but this increased to over a third of the random group — 36%.

On whether GM crops would result in less pesticides, the 71% disagreement in the Open group went down to 12% in the random group, while agreement went up from 14% to 54%. 79% of the Open group thought that GM would not help British farmers compete, but this collapsed to only 23% in the random group. Meanwhile, the people who thought GM would help them compete went up from 9% to 40%.

Would it provide cheaper food? 70% said no in the Open group, but only 14% said no in the random group. Whereas people who said yes increased from 14% to 43%. “Does GM interfere with nature in an un-

Table 1

GM Nation? data comparison of Open Debate group (N = 36,557)

vs

Narrow-But-Deep group (N = 78)
(% agreeing/disagreeing with questions)

OD = Open Debate

N/D = Narrow but Deep

acceptable way?” — the 84% yes vote collapsed to 37%. “Could it benefit people in developing countries? — 75% against became only 18% against, whereas the percentage in favour went from 13% in the Open Debate group to 50% in the random group.

So on over half the questions — specifically, the less vague and leading questions — massive differences like these resulted. One doesn’t need a PhD to see that these results completely discredit the results of the Open Debate. The randomly-selected control group did its job, meaning that the results of the larger survey should have been discarded. They cannot be said to be representative of what the public in the UK thinks about GM food. But nowhere is this admitted in the report; in fact, the opposite is claimed — it is said that the control group’s responses mostly bear out the main results. So we have a report based on a method that no decent empirical researcher would consider adequate. The survey’s own control group then comprehensively blows these results out of the water. The report should have been thrown in the dustbin, yet it gets released to the general public as holy gospel. Tactics like this do get discussed in textbooks on scientific method, but only in the chapter on ethics.

The inadequate response

Despite our letter in *Nature*, and the widespread talk about our letter that we heard was going on in government and industry circles, none of the people involved with the report have provided any sort of serious response to these discoveries. *Nature* published a reply from a member of the *GM Nation?* Steering Board, Robin Grove-White, a former *That Was the Week That Was* scriptwriter who became an environmental activist in the 1970s, and now a Professor at the notoriously social-constructivist Institute for Environment, Philosophy and Public Policy at Lancaster University. But his response merely mouthed platitudes

like “No one would claim that the GM debate was a flawless exercise, though, like others involved, I regard it as time fruitfully spent. It will be and should be evaluated rigorously, not least for lessons that can be learned for the benefit of similar exercises in the future”.

This is just civil service-style waffle. No attempt was made to address the serious points we had made. In fact, the usual response we heard at conferences and talks held in the aftermath of *GM Nation?* was that the results were supposed to be “qualitative, not quantitative”. We even heard via the relevant *Nature* editors that some members of the Steering Board were taking this line as well (although other members apparently agreed with our comments). This is a classic social science fudge.

The survey was set up to record masses of quantitative data, as well as some qualitative data in the form of written comments. The quantitative data was presented as just that, quantitative, in the form of tables and graphs, using precise numbers (and some less precise quantities as well in sentences such as “Most people are worried about GM”). One cannot then turn around and say that it is unfair to criticize the survey on quantitative grounds because it isn’t supposed to be that sort of thing.

Whatever the original intentions were, quantitative data was what was collected, analysed, reported, and commented on by the media. Take away the quantitative results, and you have very little of significance — merely a record of some views on GM which were well-known already.

Better methods of testing public attitudes

So how should governments work out what public attitudes are? The best way is to use the tried-and-tested technique of random sampling. One doesn’t need 36 500 people to determine attitudes if the sample is random.

However, problems arise even

here. One might, for example, send out questionnaires to randomly chosen members of the public, and many reputable academic studies on attitudes to GM have done this. However, in most cases the response rates are very low — in fact, response rates as low as 25% have been reported. Most of those people who responded are probably going to be those with a beef against GM. So even if one starts with a random sample, the sample can end up being greatly biased by way of the limited response.

What is needed is what I call a ‘topic blind’ recruitment strategy, where random people agree to provide their views on what they are told is a general current issue — before they know what the actual issue is. That way, much of the self-selecting is prevented. Dr Townsend and I have done a careful topic-blind study of 100 people, which will be appearing in the journal *Risk Analysis*. This presents a different picture than that presented by *GM Nation?*. In fact, its results are more like the results of the Narrow-But-Deep sample. About 50% of people intend to buy GM food, and 50% do not. Even amongst the latter group though, attitudes are not that set against GM food: 87% of that group were happy to taste what they thought was GM food.

It is also desirable if questions about GM food are embedded amongst questions about other current concerns — this is a strategy has been used in risk perception research for decades now. The use of such a strategy means that participants will be unaware that GM food is the focus of the research; consequently, their responses are more likely to be reliable and realistic. Such a study has been carried out by Dr Townsend, in research that is also to be published this year in *Risk Analysis*. The results show that worries about GM rank very low compared with other worries.

So public participation exercises such as *GM Nation?* give us inaccurate pictures of public opinion on

controversial issues. Despite this, there is considerable support for such exercises in Britain. Groups that advocate more public participation in the 'democratic process' are keen to extend their use to other issues as well, and I expect there to be support in Australia for such an idea.

But, as I have argued, such public debates inevitably attract a skewed segment of the population, and cannot be used as a gauge on public opinion. Moreover, using such exercises to decide issues of public policy is, in effect, to set up a "meddler's charter". Those who have strong views on the matter being debated (as well as the necessary energy and affluence) will attend, while most members of the general public will not. This will inevitably result in the former group imposing their views on the rest of society, whatever the actual merits of these views.

A genuinely free and democratic society should simply allow people to make up their own minds as much as is practical. In the specific case of GM food, for example, as long as the relevant experts are satisfied that it is safe, people should be left to decide for themselves whether or not to purchase it. This is inherently more democratic and liberal than setting up a spurious public debate which will inevitably be hijacked by activists (and whose views are widely known and publicized anyway), on the pretext that this involves people in public policy.

Is GM food safe?

But is GM food safe? In the late 1990s one would often hear people saying that they had no fundamental objections to GM food, but they simply wanted to be cautious. Why not spend five years testing GM to make sure it's safe before introducing it? This was not an unreasonable attitude. But the fact is that GM food has now been tested for years and years, by hundreds of studies, which have reported no problems, and GM food has been eaten in the USA for years now, with no discernable effects. (The British Government's own scientific advisory panel itself concurs with this view — see <www.gmsciencedebate.org.uk>).

The only study which ever did report a possible problem with GM potatoes turned out to be junk science. Guess which study the media reported on? Yes, the junk report. No-one ever hears about the hundreds of good studies which give GM a clean bill of health.

Similarly, GM crop trials in the UK last year showed that GM crops produced less weeds, exactly as they were intended to (in order that less herbicide would be required), and this was reported by the press as 'GM crops damage wildlife', on the grounds (promoted by the Royal Society for the Protection of Birds) that the birds in the area would have less to eat!

One objection to GM food was raised by a friend of mine who suffers from food-related allergies. Isn't GM food likely to cause more such

allergies? There is no evidence that this is the case, though, and it is more likely that the research behind GM technology will lead to an increased understanding of the effects of food on the body, and this will probably lead to a reduction in food-related allergies, either with the use of treatments, or by modifying the allergy-causing food itself.

It is not very widely known that 'conventional' breeding is itself highly artificial. Since the 1960s, for example, gamma rays have been used to induce random mutations. The useful mutations are then selected for by the producers. According to Professor Conrad Lichtenstein ('GM Debate: Dispelling Myths', *Heredity* 2004, 92, pp. 135-6), about 70% of current crop varieties, including those grown by organic farmers, are produced using this method — which, it should also be noted, causes random and unknown DNA damage. GM technology simply provides a more precise and direct way of achieving the desired mutations.

Combine this with the fact that GM food has been more extensively tested for safety than any other type of food in history, and it becomes hard to see why we should fear GM food any more, let alone banning those who wish to make and purchase it from doing business with each other.

More commentary can be found on <www.nottingham.ac.uk/philosophy/staff/Campbell/Table1.htm>.



Convention 2004 Sydney

How Reliable is our Consciousness?

Are things always how they seem?

Where do ghosts and UFOs, evil spirits and guardian angels come from? Many are based on the noises of animals scurrying in our wall cavities, Venus shining brightly in the late afternoon sky, and suchlike. But some are misperceptions. Shadows half-glimpsed and misinterpreted as a human form instead of the unfamiliar dressing gown draped over the chair seen out of the corner of our eye. But these misperceptions are so real, surely they can't be mistakes?

This is the point I wish to make. Our consciousness does not know what is really real, and what is not. Our consciousness knows only our brain's interpretation of our senses. And mistaken interpretations are just as real to our consciousness as the genuine ones.

To elaborate: *our brain is isolated in its bony cranium, and knows only what the sensory nerves tell it. Our consciousness is a product of our brain. Hence it is not surprising that sometimes our consciousness is lied to by our brain, and our consciousness believes the lie as real.*



Anthony Wheeler is a biologist and science teacher located in central Queensland.

Where is the consciousness?

Two and half thousand years ago the ancient Greeks believed the consciousness to be in the stomach, or later the heart. They had confused the response of these organs ('butterflies', rapid heart beat) to our emotional state with the notion that these were the organs responsible for producing our emotional state. Nowadays we all seem to have learned that it is the brain that does our thinking, and generates our consciousness. The consciousness can be described as the product of the cerebral cortex (the outer part, the 'grey matter', of the cerebral hemispheres, the cerebrum). The enlargement of the human cerebrum, our species' defining characteristic, can be demonstrated by comparing a model human brain with sheep brains bought from a butcher's.

Can consciousness be fooled?

Interpreting ambiguous figures

Ingenious drawings that can be interpreted in two different ways can be used to show that the brain

presents the consciousness with an *interpretation* of what is seen — not what is actually seen.

Only one interpretation can be presented to the consciousness at any one time, hence the picture that sometimes looks like a bunny rabbit facing right, or a duck facing left, but never both at once (Fig 1). Or the second picture (Fig 2) with one face or two, but again, never both interpretations at once. Because it is the brain's interpretation of the picture which is presented to the consciousness, you can only see one interpretation at a time.

Is what you see coloured?

Another example of the consciousness being fooled is that you can only see colour reliably in the middle of your field of view. The outer half of your field of view on each side is coloured-in by the brain so that it can present an interpretation that is fully-coloured to the consciousness.

Look straight ahead. Is everything you can see coloured as you would expect? Of course it is, everyone thinks. But no. With very few cones (the photoreceptor cells in the retina that detect colour) in the outer half of the retina, the eye cannot reliably see colours here. Instead the brain 'colours in' this part of the view based on experience and expectation.

This is demonstrated by staring at a mark on the wall ahead while a collaborator stands slightly behind you and to one side, slowly bringing a 2 or 3 cm coloured disk on the end of a 30 cm piece of wire in from the edge of your field of view. (You might be able to do this by yourself if you have the disks on their wires behind you, out of sight.) With your collaborator using random selections from red, blue, green and yellow disks, about half the time the you will be unable

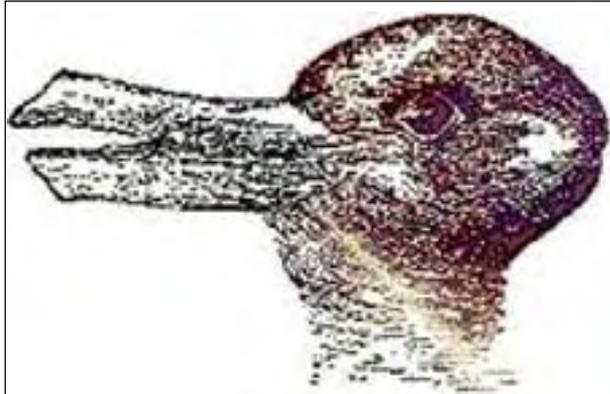


Figure 1: You can either 'see' a rabbit looking to the right, or a duck looking to the left; never both at once.

Do you know everything your senses are/are not telling you?

Can you see your blind spot?

When you look at a point on a distant wall with your right eye only, there is an area to the right of where you are focusing that is completely invisible to you. Is there a gap of invisibility to the right (looking with the right eye only) from where you are focusing? No! You cannot 'see' it; the brain doesn't tell your consciousness that this gap is there.

This 'blind spot' is readily demonstrated with a small cross on the left, and a small dot on the right, drawn in the middle of a piece of paper about 10 or 15 cm apart. With arms outstretched and the marks level with your eyes and horizontal, bring the page towards you looking at the cross with only your right eye. As you do so the dot will disappear, and reappear again, as it moves into, and out of, the blind spot.

During this activity you are keeping the image of the cross fixed on the focus in the centre of the retina (Fig 3), and the image of the dot is on the retina to the inside of the focus, and moves to the left as you bring the page towards you. When the image of the dot falls on the optic nerve, the 'blind spot', you no longer see it because the lack of photoreceptors. As the image moves further to the left it leaves the optic nerve and falls again on the retina, and becomes visible

again.

The point is that you cannot see this gap in your vision; your brain does not tell your consciousness that gap, our blind spot, is there.



Figure 2: Here you can either 'see' a single face looking straight at you, or two faces in profile looking at each other.

to identify any colour at all, or get it wrong. Where you are wrong, the brain had 'coloured-in' using the wrong colour, and has fooled your consciousness into believing you had seen that colour.

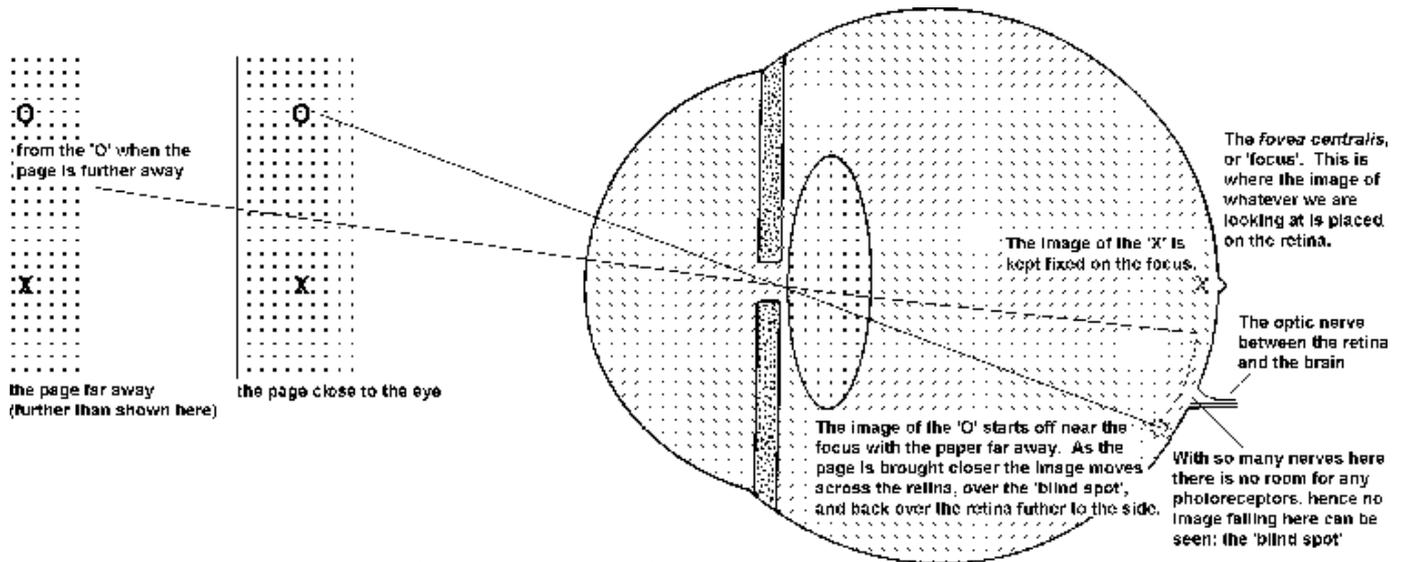


Figure 3: How the presence of the blind spot is demonstrated.

Can you see colours properly?

Another demonstration is using the Ishihara colour blindness book to test colour vision. A surprising number have a red-green deficiency that they had not suspected. (Do not let these people choose the colours of their clothes at the shops! They have had a red-green deficiency all their lives without knowing it!)

However, your brain does not tell your consciousness the trouble it is having discriminating red and green; it just presents the best interpretation possible.

Can your CNS move you without your consciousness?

How are your reflexes?

Everyone knows that when a patellar hammer, or the edge of a book, is used to tap their patellar tendon, your lower leg jerks in reflex response. Now close your eyes, and as soon as you feel the tap (given by your friendly collaborator) try to interfere with the jerk. Not before the tap; only interfere once you feel the tap.

The fact that you cannot interfere demonstrates that the spinal cord (in this case) can move the body without your consciousness' involvement. The lesser-used Achilles tendon causing the foot to jerk gives a better response in many subjects.

In everyday life the Central Nervous System, without your consciousness' involvement, controls your body very often. Stand up. It is your unconscious brain that readjusts the contraction and relaxation in the leg and back muscles to keep you standing upright. This is a very tricky task, far too complicated for your slow, thinking consciousness to perform. (Is standing on two legs that complicated? Has anyone made a robot with only two legs? Most robots have six or eight legs because standing and walking really is such a difficult thing to do.)

Does your consciousness get sick?

Depression; psychoses, schizophrenia, bipolar disorder, etc. The brain is an organ like any other, and gets 'sick' from time to time. If anyone is depressed without a reason for it (being depressed after a particularly bad day at work is quite normal), they should see their GP. They may be referred to psychiatrist or a psychologist. There is nothing wrong with this; it is most likely that the chemistry of the brain is out of balance, or our behavioural responses are insufficient, just like any other organ may malfunction.

A clinically depressed person cannot 'pull themselves together' and heal themselves, no more than a

diabetic can tell their pancreas to stop goofing off and to start making insulin again. It is not a weird or unhealthy consciousness causing a disorder of the brain; it is the disorders of the brain which causes the problems in the consciousness. Fix the chemistry of the brain and you may fix the impaired personality of the consciousness; it doesn't work the other way around. (And it doesn't always work that well at all; our understanding of mental illness has really lagged behind other areas of medicine.)

The fact that mental illnesses are not fixable by our own consciousness is not readily understood by many relatives and friends of mentally-ill people. With the best will in the world, we cannot 'just snap out of it' or 'pull ourselves together'. Which is a great shame.

'We' is our consciousness. It is not the consciousness that is sick, but our brain.

Narcotic and hallucinogenic drugs all affect our consciousness, particularly its sense of time. One of the most effective ways of telling if an adult is on drugs is to ask them to say 'when' at the end of thirty seconds. Everyone is a bit out, but if they measure less than 15 seconds, or longer than two minutes, there are problems. This is a good example of how the disordered chemistry of the brain affects the consciousness's ability.

Does our brain control all of our body?

How's your heartbeat?

A pithed toad (brain and spinal cord destroyed) dissected to show the live, beating heart demonstrates that the brain does not fully control all organs. Sure, the brain can tell the heart to speed up and slow down, to contract more or less forcefully; but it is the heart itself that generates the signal to the heart muscle telling it to contract now. A great example of how the brain does not fully control every aspect of our body.

Does the brain always tell you correctly what your eyes see?

Seeing what isn't there!

From inside a room stare at a window frame with bright daylight outside for one or two minutes. Now transfer your stare to one point on a featureless wall, and after ten seconds or so the reverse image of the window will appear. This is an 'after image.'

Staring at a blank wall we 'see' the window frame, even if it is not there. Alas, we do sometimes think we are seeing something when there is nothing there. (No wonder eyewitness testimony is one of the least reliable forms of evidence presented to a court.)

Some of my favourite illusions generate images of something that isn't there. Try these: in Figure 4 there are no black dots at the corners of the squares. And in figure 5 there is no triangle.

These activities demonstrate that sometimes our consciousness believes it is seeing something, even though that thing does not exist.

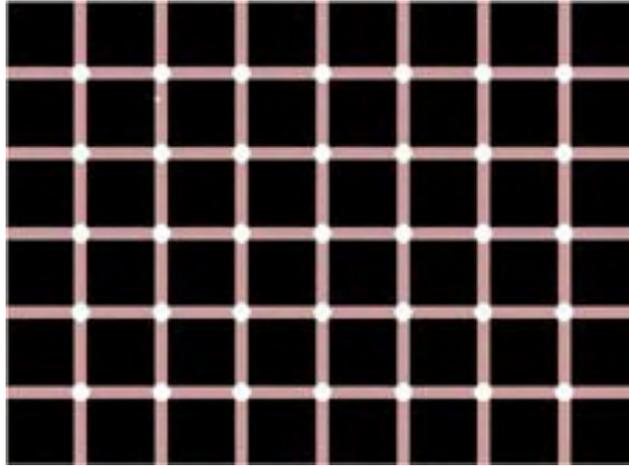


Figure 4: Try to count how many black dots there are.

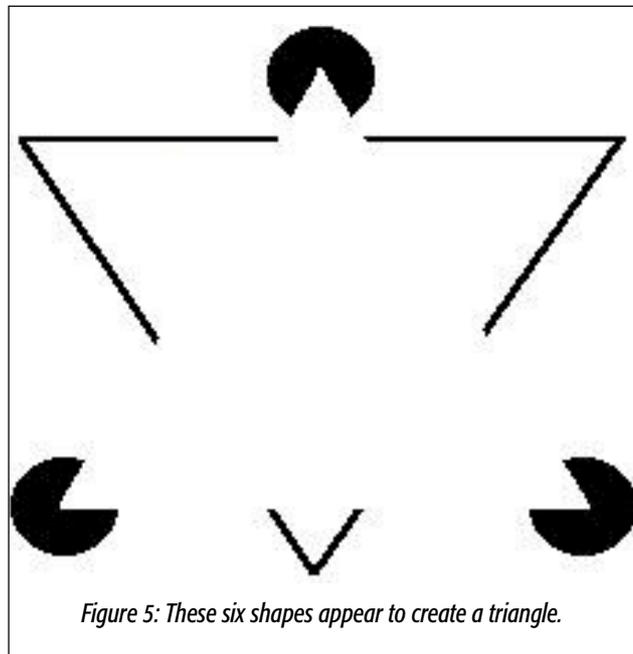


Figure 5: These six shapes appear to create a triangle.



Figure 6: This is a scene from the video showing the gorilla that half the subjects failed to see.

Does the brain always tell you correctly what your ears hear? And what your nose smells?

A common auditory illusion is hearing your name being called when you are in a really noisy environment. 'White noise', irregular, constant and loud is most effective. Like a noisy lawn mower or tractor, or an angle grinder. Even with ear defenders, over the relentless noise you suddenly hear your name called from far off, and pause to look around. Sorry — just an auditory illusion. Just your brain telling your consciousness that your ears had heard something that was not there.

Smelling a smell that isn't there, an 'uncinate fit', is no less real to us. This is most likely due to an inflammation of the olfactory nerve that generates spurious nerve action potentials. These are interpreted by the brain as a specific smell, and that interpretation is passed on to the consciousness. The consciousness experiences as real a smell as if the source was really there, and can be most upsetting.

Does the brain always tell you correctly what your eyes see? Not seeing what is there. We see what we expect to see. This is the explanation for the activity here. Count the number of 'F's in this sentence. There is no rush; take your time and count carefully. Don't read on until you have counted for yourself.

Finished files are the result of scientific study combined with the experience of many years of experts.

Funnily enough most people fail to see all six; it is the three in the 'of's that don't get counted. Why? Most explanations are based on us

noticing only what we expect to notice.

A more vivid demonstration is a two-minute video of six participants, three dressed in black shirts and three in white shirts (Simons & Chabris, 1999; Shermer, 2004). The three having white shirts are passing a basketball between themselves. All six are moving about the camera's field of view constantly. Subjects viewing the video are asked to count the number of times the ball is passed from one player to another during the video. A difficult task requiring some concentration. However, during the two-minute video, a man in a gorilla costume enters the field of view, walks to centre-stage, faces the camera and does the gorilla chest-beating thing, then walks off (Fig 6). The 'gorilla' is on screen for 13 seconds. Surprisingly 50% of subjects fail to notice the gorilla! And even get quite upset by the suggestion that they had failed to notice the gorilla, and insist that no gorilla had been present in the video they had seen.

I suspect that this is where the cyclist and motorcyclist come from when, after the collision, the car driver is adamant that they had never seen the two-wheeler. If we don't expect to see it, if it is not important to our present activity, then the brain doesn't alert the consciousness to its presence in our field of view.

And hence the significantly increased accident rates in mobile 'phone users. With the consciousness concentrating on the telephone conversation, the brain doesn't necessarily alert the consciousness to visible hazards any more than it does to a strange gorilla.

Does the brain always tell you correctly what your ears hear?

Not hearing what is there.

The auditory equivalent to the unnoticed gorilla is listening to a conversation in a noisy cocktail party or pub. It is incredibly how well we can hear the conversation we are attending to by the brain 'blocking out' the

unwanted noise from the chatter all around. It's the same phenomenon as the unseen gorilla — your brain does not pass to your consciousness sensory information it believes you are not interested in.

Are our consciousness' memories reliable?

It's easy to put stuff into your short term memory, and into your medium term memory. But how often have you remembered the rules well enough to perform maths calculations throughout the lesson, but the next day you have to be reminded of them again. This is because you had not transferred those rules to your long-term memory.

Conversion to long-term memory is significantly greater if the same material is gone over a second time the same day while it is still in medium-term memory. (This is the point of school homework. To set activities for students to perform later that same day, to re-visit the new information they learned that lesson, to enhance conversion from medium- to long-term memory.)

Remembering is not difficult. The hard part is recalling from memory. Show a five second clip from a popular movie, and anyone that has seen it is likely to be able to tell you exactly where in the movie's story that clip has been taken from. We all remember a huge, really huge, amount of information. The trick is recall.

It is recall from memory that is the stumbling block for many. But it's not that bad. If your consciousness is presented with a memory problem, the consciousness can go on with other tasks while the brain subconsciously works at finding and recalling the necessary information. An excellent example is where you are trying to remember someone's name, and you just cannot recall it. You know you know their name, you can recall their face exactly, you know where you last met and many other details, but recalling their name eludes you. So you give up and move on to other things. Half an hour later, out of nowhere, your brain presents your consciousness

with the name you wanted. Pop! — just like that. Your subconscious brain had been working on the problem all that time without your consciousness being aware. (This is the reason for perusal before an exam starts. The point of perusal is for the student to read all the questions before the exam starts, so that while answering the first questions the information necessary to answer other questions is being recalled.)

What happens if you cannot remember? Anything? (We can get very philosophical here — if we cannot remember anything, then what is the point of life?) One of the most imaginative movies made demonstrates this. It is called *Memento*, and is about solving a crime, but with the main character having no ability to form new long-term memories. And to make it more interesting, the audience is put into the same situation of having no memory of, for example, why the hero is being chased through the car lot by the movie telling the story backwards. So you find why each ten-minute section started that way by watching the next ten-minute section. (A more recent movie, *50 First Dates*, covers the similar topic in a more light-hearted manner.)

This is real disease (Korsakov's syndrome), and as time passes and the discrepancies between the patient's last memory and the present accumulates it becomes more distressing (Sacks, 1985a). This is relevant to people with Alzheimer's disease who lose the ability to form new memories; they should be moved into a nursing home for full-time care before they completely lose the ability to form new memories, otherwise they will never be able to remember why they are in the nursing home, and will consequently be far less settled and content.

Can we really recover lost memories for our consciousness?

Sure you can remember things that you haven't recalled for years, even decades. Revisiting scenes from your childhood will evoke memories thought forgotten. But beware —

your existing memories are not reliable. The most common mis-memory is the size of things: so often I have returned to areas not seen for many years to be surprised at how much smaller the reality is than the memory.

'Recovered memories' of childhood abuse have made the news, and these are, by and large, false. Instead of a therapist impartially using hypnosis and other techniques to help the patient recover 'lost' memories, the therapist has used leading questions to (inadvertently?) implant memories of abuse. The tragedy is that, for the subject, a memory is a memory. The subject cannot distinguish true memories from false 'recovered' memories. So when a therapist implants a false 'recovered' memory of childhood parental abuse, not only is the parent's life ruined by the false accusation and the need for defence, but the subject's life is ruined too by the irreversible memory of the abuse, even though it never happened.

All in all, our memories can be very unreliable. Even though very real to us, courts rightly treat remembered evidence with great scepticism (Bishop, 1988).

Can your consciousness sense without the brain interpreting?

What if our eyes see, but our brain fails to interpret the view for our consciousness. Seeing without interpretation is described by Sacks (1985b), and is due to the loss of the 'visual association area' at the rear of the occipital (rearmost) lobe of the cerebral cortex. Your eyes still work fine. The nerve pathway to the brain, and the primary visual cortex (in the centre of the visual association area) receives the input, and this un-interpreted image is passed on to the consciousness. But all the consciousness 'sees' is patterns of light and dark, colours and hues, lines and shapes. The consciousness can make nothing of this; it is as though all the world is abstract art (a nice analogy if you read the account of Sacks' patient). You recognise nothing; you are functionally

blind. You can get an idea of what life is like without the brain's interpretation from the title of Sacks' essay and book: *The Man Who Mistook His Wife for a Hat*.

What if your consciousness's body image differs from your actual body?

Our self-image is created early in life, with the adult version being set in our late teens to early twenties. And although modified as we age, the modification often lags several years, and later even decades. Which may be why many who are overweight do not act more positively to correct their weight problem: it is only their body that is overweight, not their self-image. (Personally, my self-image has no beard, even though I have been too lazy to shave for most of my adult life. I guess my self-image will catch up with my reality eventually.)

Amputees retain a sense of their lost limb for a different reason. This is because cutting off half the arm has not changed the 'map' in the brain receiving sensory input from the lost limb, and a low frequency of impulses in the cut nerves will keep that sensation real. This is known medically as 'phantom limb' (Melzack, 1992; Sacks, 1985d), and applies to any removed exterior part. An amputee will often be able to tell you where the missing limb is on their bodies, lower arms often being described as lying across their upper abdomen.

Suffering from anorexia nervosa is due to a 'fat' body image, despite the body being often excruciatingly and dangerously thin. People actually die from this (remember Karen Carpenter?) so this condition should be treated very seriously. Again, do not rely on the patient being able to 'snap out of it'; it's going to take a lot of treatment and often hospitalisation for several months. (A slight mismatch is normal, which is why photographs of ourselves often look strange to us.)

Transsexuals have a female consciousness in a male body, and feel strange and uncomfortable doing male things, wearing male clothes,

and so on. How do you feel going in to the 'wrong' toilets? That's how transsexuals feel all the time. Surgery and hormonal treatment, and the adoption of a female life style, allows transsexuals to relax and feel normal for the first time in their lives. (This is different from homosexuality, or cross-dressing for erotic stimulation.)

This is where cosmetic surgery is most useful, to change the body to match the consciousness' image of it. It is often easier to change the actual body than to change our image of what our consciousness thinks it looks like.

Does our consciousness have free will?

Not exactly. Sure, you think you can do whatever you want. I have seen bumper stickers telling me that 'Girls can do anything'. Within limits though — only when your brain allows it.

The brain inhibits our freedom of expression, our social extravagances. The part that does this is the 'social inhibitory centre', and this is the part that alcohol depresses. This is the first effect of drinking alcohol, which is why after a few cans of best beer we can now talk confidently to the attractive stranger, we can now karaoke to our audience's obvious pleasure, we can now say and do things we would normally never dare. (Continued consumption will inhibit other specific areas of the brain, leading to impaired coordination, slurred speech and inability to measure time; then general inhibition kicks in and consciousness is lost as we sink into our alcoholic coma. So I have observed in others, anyway.)

Funnily enough, we like this. We like inhibiting this socially-inhibiting part of our brain. In the same way that hyperactive children and Tourette's sufferers (Sacks, 1985c) don't like taking their medication — they like their malfunctioning brain and its extravagant behaviours. We keep drinking alcohol, and they keep avoiding their medication.

Consciousness

The fictional character Dr Jekyll totally removed all social inhibition with his mystery elixir to create his unrestrained alter ego, Mr Hyde (Stevenson, 1886).

Do animals have a consciousness like ours?

A good question. We think not. Because animals have much smaller cerebral hemispheres than we do, we think they have a much lesser consciousness. So what is it like to be an animal? My best guess is that they live their life in a bit of a daze, not being as keenly aware of everything happening around them as we are. Rather like when we are half-asleep and dreaming, half awake. And with a vaguer memory to match.

In animal experimentation ethics researchers are strongly encouraging the use of animals as low down the evolutionary scale as possible that will still give them the desired results. This concept is based on studies of the structures and functioning of brains. The idea being that fish are less aware of their own sensations (have a lesser consciousness) than amphibians, which are less aware than reptiles, which are less aware than birds and mammals, which are all less aware than humans.

What is it like when you lose consciousness?

Have you ever felt a little dizzy when you stand up quickly? Temporarily the blood flow to the brain is insufficient for its great needs, and the consciousness flickers for a second. You can get the same dizziness after hyperventilating. When seated in a chair with arms to support you, try five deep, fast breaths in ten seconds. Here the lowered level of carbon dioxide in the blood temporality triggers a reduction in the blood flow to the brain.

(Do not hyperventilate before swimming under water. The lowered CO₂ delays the urgency of breathing, and allows you to hold your breath and stay under for longer. But you

have not increased the oxygen in your blood, and the O₂ level is decreasing as long as you are holding your breath. Stay under for long enough and your decreasing O₂ may cause a loss of brain function before the rising CO₂ forces you to the surface to breathe. And if that happens, you will drown before you know what is happening.)

What are your last thoughts before falling asleep at night? Before you lose your consciousness for the day. And your first thoughts on waking in the morning. These are special periods of consciousness during which we may experience hypnagogic (between a wake and sleep) and hypnopompic imagery (between sleep and wakefulness, and less common) (Zusne & Jones, 1982). Such imagery may be visual and auditory, and is often vivid and very realistic. Points of light, geometric figures and faces coming out of the dark are common. (Frightening faces of strangers that change from second to second are most frequently seen by children; no wonder children complain of monsters in their bedroom!) Distorted, unnatural, surrealistic and colourful images in no logical sequence are typical. Hearing one's own name called and music are both common too.

You may have experienced the deep, dreamless 'sleep' of anaesthesia during a surgical procedure.

And what happens to your consciousness after death?

You may conclude from my argument that our perception of reality is tenuous. Mostly it's right; sometimes it's wrong. That doubt should be enough to treat the indignant claim "I know it was there — I saw it!" with the skepticism any eyewitness deserves.

References:

Bishop, Jerry E, (1988), "Memory on trial: Witnesses of crimes are being challenged as frequently fallible; Courts allow defense to give psychologists' testimony about unreliable recall; The effect of personal biases", *Wall Street Journal*, 2 March, vol 111, no 42, pp 1 & 18.

Melzack, Ronald (1992), "Phantom limbs", *Scientific American*, April, vol 266, no 4, pp 90-96.

Sacks, Oliver (1985a), *The Man Who Mistook His Wife for a Hat*, 1985 Gerald Duckworth; 1986 Picador (London), ISBN 0 330 29491 1, chapter 2, The Lost Mariner, pages 22-41.

Sacks, Oliver (1985b), *ibid*, chapter 1, The Man Who Mistook his Wife for a Hat, pages 7-21.

Sacks, Oliver (1985c), *ibid*, chapter 10, Witty Ticky Ray, pages 87-96.

Sacks, Oliver (1985d), *ibid*, chapter 6, Phantoms, pages 63-67.

Shermer, Michael (2004), "None so blind", *Scientific American*, March, vol 290, no 3, p 21.

Simons, Daniel J. & Chabris, Christopher F. (1999), "Gorillas in our midst: sustained inattention blindness for dynamic events", *Perception*, vol 28, pp 1059-1074.

Stevenson, Robert Louis (1886), *The Strange Case of Dr. Jekyll and Mr. Hyde*, many editions by various publishers.

Zusne, Leonard & Jones, Warren H. (1982), *Anomalous Psychology: A Study of Extraordinary Phenomena of Behavior and Experience*, Lawrence Erlbaum Associates (New Jersey, USA), ISBN 0 89859 509 6.

Note

For a demonstration of the "Gorilla in the picture" and many other misperceptions see:

http://viscog.beckman.uiuc.edu/djs_lab/demos.html



Tea and Coffee are Bad For You

Calm down and have a cuppa; the news is good.



Glenn Cardwell, a sports dietitian, is a regular columnist for the Skeptic.

The medicinal properties of these two beverages are considerable. Both tea and coffee counteract the effects of opium and intoxicating liquors; though, when taken in excess, and without nourishing food, they themselves produce, temporarily at least, some of the more disagreeable consequences incident to the use of ardent spirits. In general, however, none but persons possessing great mobility of the nervous system, or enfeebled or effeminate constitutions, are injuriously affected by the moderate use of tea and coffee in connection with food. The Original White House Cookbook by Hugo Ziemann & Mrs FL Gillette (1887)

If you drink tea or coffee, you probably have been doing so since your youth. If you are a baby boomer or beyond, that's quite a few litres that have gone through your body. There's a good chance that you went through a period when you questioned the effect of such relaxing drinks on your body. You might even have gone herbal or caffeine-free, before asserting that life was too short for such compensations.

There is a huge amount of research on tea and coffee, and most of it is good news. We don't know what

special features of the coffee bean or the tea leaf are influencing our health — yet. Over the last decade it has become clear that a totally negative view of tea or coffee is devoid of substance, providing you drink it in sensible amounts. I won't cover all the research; there's too much. Rather, I'll look at sips of information.

Coffee

Coffee should be black as Hell, strong as death, and sweet as love — Turkish proverb.

Recently, coffee has been in the news. As it is a favourite drink of journalists, they become immediately attracted to any justification for their penchant. A large study of 120 000 adults, published earlier this year, reported that coffee drinkers have less risk of Type 2 diabetes (50% less in men and 30% less in women). Drinking about 5-6 cups daily had the best effect. Good news if you are a coffee drinker but, as expected, it is not as simple as it seems. The more serious coffee drinkers also chuffed down more alcohol, and alcohol has been linked to a lower risk of diabetes.

Nutrition Myth

Another study of 14 000 adults published this year showed that coffee drinkers had over 50% less chance of Type 2 diabetes (Tuomilehto 2004). There is research suggestive that compounds in coffee (and tea) make your insulin more sensitive. Insulin is the hormone that allows glucose to move from the blood into body cells for energy. Other research (Johnston 2003) suggests that chlorogenic acids, a group of bio-active phenols, delay the absorption of glucose in the gut, thereby giving a flatter blood glucose profile after each meal and placing less stress on insulin production.

We must note that not all research has shown protection against diabetes for coffee drinkers. Furthermore, there is evidence that plenty of strong coffee will raise your blood homocysteine levels (Urgert 2000). High levels of homocysteine are linked to a faster rate of atherosclerosis, a route you really don't want to take. Many years ago coffee was linked to an increased risk of heart disease, possibly beginning the concern with coffee. Fortunately soon after that, it was noted that heavy coffee drinkers were more likely to smoke, and tobacco was far more likely the heart disease culprit.

Confused? I am. The question to ask: Is it the coffee or is it the lifestyle of the coffee drinker that has the greatest effect on health? If it is the coffee, then how much is ideal? And it may not have anything to do with caffeine; antioxidants from the coffee bean could be playing their part. What can easily get lost in the fog of information is that if you want to seriously lower your risk of diabetes, be fit. So, walk to the coffee shop.

Tea

Tea, though ridiculed by those who are naturally coarse in their nervous sensibilities ... will always be the favourite beverage of the intellectual
—Thomas De Quincy 1785-1859

Tea has for some time been linked to protection against heart disease, but we are not sure why that happens. One study in 2003 showed that five cups of tea lowered blood cholesterol by 6.5% in adults with slightly raised blood cholesterol, provided they were on a moderately low fat diet (Davies 2003). Tea also contains folate and antioxidants, which are linked to less heart disease. The antioxidant levels in blood rise and peak around 1-2 hours after drinking (Rietveld 2003) either green or black tea. There was early concern that when you add milk to your cuppa, the antioxidants from tea could not be absorbed from the small intestine. This has been proven not to be the



case (Leenen 2000, van het Hof 1998).

All teas come from the same plant *Camellia sinensis*. Green tea leaves have not been fermented; oolong tea is semi-fermented; and black tea is fully fermented. All the teas have a range of antioxidant flavonoids that protect your DNA and blood cholesterol. The antioxidant levels peak in your blood about one hour after a cuppa and certainly inhibit the oxidation of LDL cholesterol in blood and reduce the amount of DNA damage. (Note: When DNA is oxidised, cancer cells may form; although LDL-cholesterol is considered dangerous, it is only when it is oxidised that it really turns nasty. Hence the

great interest in antioxidants, especially from cocoa, tea, coffee, fruits and vegetables).

Other research shows that tea can help lower blood pressure, possibly by relaxing the blood vessel wall (Hodgson 2003). The magic chemical might be 4-O-methylgallic acid which is found in higher levels in tea drinkers. The average blood pressure was 2 mm Hg lower in those drinking 4 cups a day. The researchers from Perth, WA say that this drop could result in a 17% decrease in high blood pressure, 6% decrease in coronary heart disease and a 15% decrease risk of stroke. The research was done in ladies over 70 years, so we can't say that this might happen for everyone.

One surprise was that tea might be looking after your teeth (Matsumoto 1999). Japanese researchers found that Oolong tea seems to stop the bacteria *Streptococcus mutans* from adhering to the tooth surface. This is significant because *S. mutans* converts dietary carbohydrates (both starch and sugars) remaining in the mouth to lactic acid, which in turn erodes tooth enamel causing decay. Others have found a similar effect with black tea.

Women are frequently told not to drink tea with meals, especially if they are prone to iron deficiency. The tannic acid in tea binds to iron in food, giving you ferrous tannate, which is difficult to absorb from the gut. Delaying a cup of tea until an hour or so after a meal avoids the problem of reduced iron absorption. This is normally not a problem for men, who get more than their daily iron needs from breakfast alone. For the same reason, people with a condition called *haemochromatosis* (excessive absorption of iron) are told to drink tea with meals and snacks. In this condition, which affects one in 300 people, the excess iron is deposited in body organs leading to problems like heart disease and diabetes.

A lousy cuppa

Where might you get the worst cup of tea? On an aircraft? Well, you are heading in the right direction. Quite possibly the worst cuppa you could experience is on top of Mount Everest. You have been taught that water boils at 100°C, but this is correct only if you are cooking at sea level. As your elevation increases, the atmospheric pressure falls, causing the boiling point to fall too. The summit of Mt Everest is nearly 9000m high and the atmospheric pressure is less than one third of that found at sea level. Here water boils at 70°C. This temperature is not high enough to extract the best flavour from tea leaves, leaving you with a lousy tasting cuppa. Then again, why would you make a cuppa on the summit — you should be enjoying the view and catching your breath.

My tip

The research on the effects of coffee and tea on your long term health is generally very positive, but a lot is by association, rather than cause and effect. If you are a regular consumer then up to five cups a day are probably doing you no harm and quite possibly a lot of good. Precisely how much and what type of drink is best we may never know. The good

news for most of us is that there is no evidence for the blanket statement that coffee and tea are unhealthy. The bad news is that we can't give you a tea /coffee prescription. You might say that our recommendation for tea and coffee is no better defined than the advice given 117 years ago in the opening quote. I guess you will just have to settle for the pleasure a cuppa brings.

References & Bibliography:

- Arnlov J, Vessby B, Riserus U. "Coffee consumption and insulin sensitivity". *JAMA* 2004; 291: 1199-1201
- Davies MJ, Judd JT, Baer DJ, Clevidence BA, Paul DR, Edwards AJ, Wiseman SA, Muesing RA, Chen SC. "Black tea consumption reduces total and LDL cholesterol in mildly hypercholesterolemic adults". *J Nutr* 2003; 133: 3298S-3302S
- Food for thought*. Mackay I (ed) Bay Publishing 1995
- Hodgson JM, Devine A, Puddey IB, Chan SY, Beilin LJ, Prince RL. "Tea intake is inversely related to blood pressure in older women". *J Nutr* 2003; 133: 2883-2886
- Johnston KL, Clifford MN, Morgan LM. "Coffee acutely modifies gastrointestinal hormone secretion and glucose tolerance in humans: glycemic effects of chlorogenic acid and caffeine". *Am J Clin Nutr* 2003; 78: 728-733
- Leenen R, Roodenburg AJC, Tijburg LBM, Wiseman SA. "A single dose of tea with or without milk increases plasma antioxidant activity in humans". *European J Clin Nutr* 2000; 54: 87-92
- Matsumoto M, Minami T, Sasaki H, Sobue S, Hamada S, Ooshima T. "Inhibitory effects of Oolong tea extract on caries-inducing properties of *mutans Streptococci*". *Caries Research* 199; 33: 441-445
- Nelson M, Poulter J. "Impact of tea drinking on iron status in the UK: a review". *J Hum Nutr Dietet* 2004; 17: 43-54
- Rietveld A, Wiseman S. "Antioxidant effects of tea: evidence from human clinical trials". *J Nutr* 2003; 133: 3285S-3292S
- Tuomilehto J, Hu G, Bidel S, Lindstrom J, Jousilahti P. "Coffee consumption and risk of type 2 diabetes mellitus among middle-aged Finnish men and women". *JAMA* 2004; 291: 1213-1219
- Urgert R, van Vliet T, Zock PL, Katan MB. "Heavy coffee consumption and plasma homocysteine: a randomised control trial in healthy volunteers". *Am J Clin Nutr* 2000; 72: 1107-1110
- van het Hof KH, Kivits GAA, Weststrate JA, Tijburg LBM. "Bioavailability of catechins from tea: the effect of milk". *European J Clin Nutr* 1998; 52: 356-359
- Verhoef P, Katan MB. "A healthy lifestyle lowers homocysteine, but should we care?" (Editorial) *Am J Clin Nutr* 2004; 79: 713-714



www.skeptics.com.au

Change is in the air

Very soon our web site will be undergoing some needed changes. For many years, Victorian Skeptic Greg Keogh has voluntarily maintained the site in his spare time, and has done an outstanding job, winning a number of commendations along the way. Greg has earned our undying gratitude for his dedication and enthusiasm.

However, job commitments have

reduced the amount of time Greg has been able to spend maintaining the site, and as new technologies have emerged, this will allow us to update it and to make it more 'user-friendly'. It will now contain many more items from the Skeptic than hitherto, and so it will become even more valuable as a research tool for Skeptics everywhere.

We expect it to be on air by the

end of September or early October and urge our readers to sample its wares and to let us know what they think and to suggest any improvements. The new Webmeister in charge of the technology will be Peter Bowditch, well-known as a Vice President of Australian Skeptics, indefatigable crusader against quackery, and a computer consultant in his spare time.

The Burden of Proof and the Burden of Solution

Further explorations in the field of dodgy arguments.

This article is the third in an occasional series on logical fallacies written for *the Skeptic*. Like the other articles, it is based on our book *Humbug!* (see footnote re availability at the end of the article). The first two articles in the series were written by Jef Clark, the principal author of *Humbug!* This article is co-authored by Jef and his son Theo. Both Theo and Jef contributed to the original *Humbug!*, and to the various revisions to date. Our present article will make unattributed use of some of our original writing in *Humbug!*, as we are the authors of both the book and this article. We could formally cite ourselves, but to do so would be awkward and tedious (a multitude of inverted commas, indented text and page references).

As joint authors, and for convenience we will refer to ourselves in the first person plural (we/us) when appropriate, or as Jef or Theo or third person singular (he/him/his) when appropriate. For convenience and brevity, we use the masculine pronoun for the indeterminant singular case (rather than “he or she” or “she/he” etc).

We hope two’s little digression has helped to clarify this matter.

Humbug! - The Context and Source

The primary source for this article is our book *Humbug!*, itself the product of an evolutionary development. Its genesis was several years ago, when Jef recognised an emergent problem with student assessment. He found a great variability within student cohorts which was not explained by crude notions of inherent ability. In particular, students varied greatly in their capacity to use analytical skills, and in their ability to formulate a sound argument. It was clear to him that this variability could be attributed primarily to experience. He couldn’t assume that students brought generic skills in analysis and argument with them in equal measure when they came to his courses.

However the available books on critical thinking, informal logic and related topics were unsuitable for use at this level. Some were textbooks intended to support specialized courses in informal logic and critical thinking. Some books assumed prior knowledge. Others treated “fallacies in thinking” within an esoteric context such as epistemology, formal logic or argument analysis. There was also a lack of consistency across publications — in



Jef Clark is a lecturer in education at Griffith University. Co-author, Theo Clark, is a science teacher and Jef’s son, but they are otherwise unrelated.

particular, the labels given to fallacies, their classification and typology.

Jef therefore decided to write a book on fallacies in thinking, in a “commonsense” style which would be intelligible to non-specialist undergraduate students.

The writing style adopted for *Humbug!* was not disinterested and scholarly, it was deliberately assertive and declamatory. Some content was mock-serious and “tongue in cheek”. The book is firmly located in the mainstream of the body of writing about fallacies in informal logic. However the labelling of many of the less established flaws is largely a matter of taste. We have opted for vivid and memorable terms over less emphatic alternatives.

The current version of *Humbug!* is deliberately styled a “field guide”.

Field guide signifies our intention that it be used as a “ready reference” — a tool to be consulted as the occasion demands, rather than a book to be read in a linear fashion, from beginning to end. Users may find it to be a useful resource for those occasions when they read or hear a suspect statement or claim, and they want to identify the flawed reasoning in the assertion — and perhaps respond to the claim with informed skepticism.

The goal of the critical thinker ought not to be to “win” an argument at all costs, but to “seek the truth”. In *Humbug!*, the skeptic or critical thinker is described variously as a detached enquirer, a doubter, a reasonable person, a dedicated debunker. All these labels are appropriate in the specific context described. However the commonest alternate label for critical thinker or skeptic used throughout the book is “seeker after truth”. This seemingly “long-winded” usage is quite deliberate. A person claiming to “know the Truth” about any issue invites endless and unresolved controversy when engaged in argument or debate. A “seeker after truth” on the other hand, is one who believes that reasoned enquiry can move a debate forward towards a better understanding of an issue. While “Ulti-

mate Truth” on many issues may be unknowable, we can at least move forward from egregious ignorance and error by using skilled, dispassionate, disinterested reasoning.

The Burden of Proof Fallacy

The Burden of Proof Fallacy is a favourite rhetorical trick employed in debates, public forums and everyday conversations. Whenever an advocate argues that the opponent must prove his case there is a good chance that the burden of proof fallacy is about to rear its ugly head. While it is perfectly reasonable for an advocate to expect the opponent to justify his position, it is usually fallacious to argue as follows:

My opponent can't prove his case, therefore my case is proven.

This is almost always a *non sequitur* of the following general form: if “x” cannot be proved then “y” must be true. Even if it is the case that there are only two possible positions to hold, namely “x” or “not-x”; if x cannot be demonstrated, it does not follow that not-x must be true. In this case, not-x would only be true if x was shown to be false.

The classic example of the burden of proof fallacy revolves around the perennial question of the existence or non-existence of God. When an atheist advocate makes the claim that the “absence of proof” for the existence of God is the same as “proof of absence” his reasoning is fallacious. When a believer in God asserts that God must exist as the non-existence of God has not been proved, he is also employing fallacious reasoning.

An Example of the Burden of Proof Fallacy: Intercessory Prayer

Peter Fantickler is the official spokesman for the Provisional Wing of the Skeptics Society (Hyper-Rationalist Faction). In an effort to provide compelling evidence that God doesn't exist, he sets up an experiment to test intercessory prayer. He has agreement from several local churches to have their

congregations pray for the recovery of half the heart patients scheduled for bypass surgery in the local teaching hospital. He ensures that patients are randomly selected for treatment and control groups, and that they do not have any knowledge of which group they are allocated to. When the results are in, he writes a first draft of a media release which states, inter alia: “*the outcomes for patients in the two groups was comparable... this demonstrates that there is no God*”. After some critical feedback on his draft from more moderate skeptics, he changes the wording of the claim to: “*...this demonstrates that if there is a God, he has no interest in humanity, and does not answer prayer*”.

Unlike most atheists, Peter has taken up the burden of proof (of the non-existence of God). It is usually the other way around — atheists tend to put the burden of proof on believers, viz: “*You can't prove that God exists, therefore he doesn't exist*”. However Peter has come up against the usual problem when the burden of proof is accepted — he can't prove a negative — there is simply no way the design of the prayer study could prove the non-existence of God. The failure of intercessory prayer could be due to the non-existence of God, or it could be because God doesn't answer prayer, or it could be because God is the one who decides whether or not he answers prayer (it is axiomatic that if there is an all-powerful, omniscient being, he has free will, and an agenda of his own). To the dedicated debunker, Peter's study has only shown that if there is a God who does answer prayer (working premise) he is not a compliant automaton who slavishly follows orders from human beings.

When any proposition (eg, aliens visit the Earth to observe us; indigenous people are more spiritual; problems in this life are due to events in past lives; dreams are a form of astral travel) can't be disproved, it doesn't mean that the proposition is therefore proved. To claim that it does, is to employ the burden of proof fallacy.

Burden of Proof

An Example of the Burden of Proof Fallacy: Ghosts

Both authors would characterize themselves as open-minded skeptics. Our life experiences to date mean that neither of us choose to believe in ghosts — yet. The following conversation about ghosts will ring many bells for other non-believers. It is given as an illustrative example of the burden of proof fallacy and is a reasonably accurate account of a conversation Theo had with a friend a few years ago.

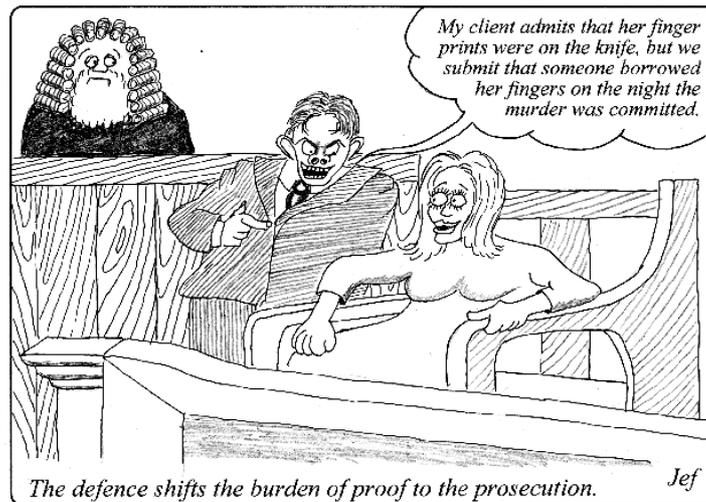
Bernice Kidneywater (name changed to protect Bernice Yurin's dignity) was talking to Theo about a spooky experience her mother had. Bernice's father had recently passed away. Not long after this, her mother was doing a long overnight drive interstate in the rain. After a few hours the rain got very heavy and she started to get tired. She was in a very dangerous situation. Instead of pulling over for a nap while waiting for the rain to die down, she kept driving. She owed her survival, she claimed, to the spirit of her dead husband. She felt his presence next to her in the car during the trip home. His hand was on her hand, his voice in her ear, guiding her and encouraging her. He saved her.

This experience was so convincing to Bernice's mother that she convinced Bernice as well. The following is an attempt to capture the essence of the discussion Theo had with Bernice after she told him her anecdote:

Theo: So, like your mother, you believe in ghosts now do you?

Bernice: Yes. She was overwhelmingly convinced. You've got to admit; it's a fairly convincing story.

Theo: Yes, it sounds like she had quite an experience.



Bernice: I mean, what's the chance?

Theo: Yes indeed, what is the chance? This happened how long after your father died?

Bernice: About three months.

Theo: So it's reasonable to conclude that you mother was still mourning him?

Bernice: Of course.

Theo: Given that, don't you think that in her situation, she would have been thinking about him, wishing he was there?

Bernice: Well, I suppose so.

Theo: She was fatigued, in a state of high anxiety, with thoughts of her husband constantly on her mind. Given what we know about hallucination — I'd be surprised if she didn't "see" him. I'd say the chance was pretty high.

Bernice: So you think she hallucinated?

Theo: It's certainly a possibility, and I would say a far more reasonable one, given that we know for sure that people do hallucinate. Ghosts are certainly not "for sure".

Bernice: Well, maybe. But you can't prove to me that ghosts don't exist, can you? They must exist... My father's spirit saved my mother — I still believe in ghosts.

Belief in the Unprovable — the Reasonable Option

If it is not possible to conclusively prove a position, then how can any kind of justifiable belief be formed? In searching for the truth we can at least identify and rule out clear untruths. We can also examine and evaluate reasons for holding one particular unprovable view over another unprovable view.

In the dialogue above, Theo employed a useful tool for the seeker after

truth — "spinning another hypothesis". Theo's position was to freely acknowledge that he could not disprove the existence of ghosts, but he could offer an alternative explanation. Bernice offered one hypothesis (a ghost) and Theo offered another (an hallucination). In any kind of debate, in any kind of "search for the truth", spinning another hypothesis opens up alternative areas for exploration. Given this, how are we to come to a position once it is realised there could be more than one explanation, but neither explanation can be ruled completely in or out?

Logically, empirically and even in theory, we cannot rule out the possibility of ghosts. They are incorporeal and are therefore immune to physical testing. We can however, look at such phenomena rationally. There is a clear difference between logical and rational even though these two words are often used interchangeably. Logical reasoning, in its strictest sense, is valid because of the tautological nature of the logical statement. If you are introduced to a bachelor, it follows that he is an unmarried man. This is a logical deduction from the premise. Asserting that red is not a colour is logically false, because by definition red is a colour. Logical statements are absolute truths or falsehoods if the premises for the statement are accepted. A rational explanation on the other hand, is one that is justified by a reasoned and plausible argument

that is not logically false (self-contradictory).

In the present instance, and without mounting a detailed argument, given what is known about the ability of the human mind to play tricks on itself, a rational argument can be built for the non-existence of ghosts — they are figments of people's imagination. In principle (as with all science) this can never be proved, but it can be rationally believed.

The burden of proof fallacy survives and prospers because there is a widespread lack of understanding about the difference between logical and rational arguments. "If x cannot be proved then $not-x$ (or even y) must be true" is the "logic" of the burden of proof fallacy. As we have seen, this type of statement is a classic *non sequitur*.

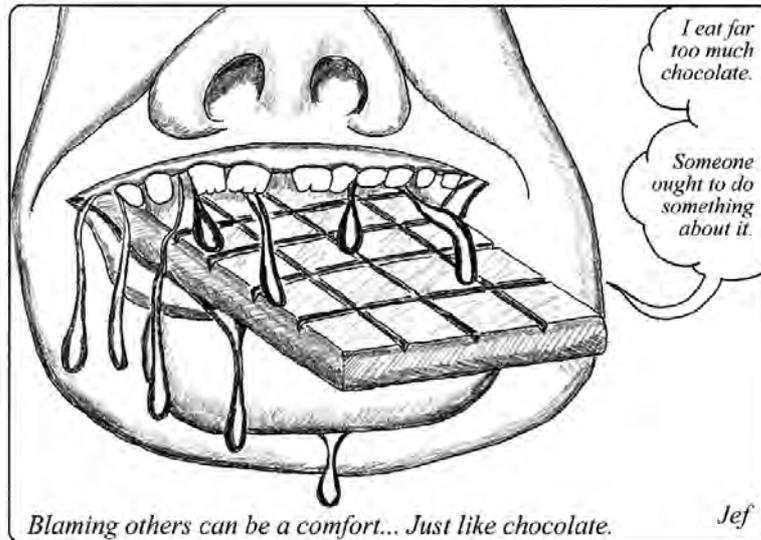
If the protagonists in a discussion become sensitised to the burden of proof fallacy, and reject the burden of proof, they are more likely to construct a reasoned and plausible argument. Instead of burdening the opponent with the task of proving the unprovable, they should provide whatever evidence can be mustered, and link such evidence with plausible reasoning in order to support their own position.

The burden of proof fallacy is intellectually lazy. The indolent advocate seeks to burden his opponent with all the work. This aspect of the burden of proof fallacy has an exact parallel in another common fallacy — the Burden of Solution.

The Burden of Solution Fallacy

The Burden of Solution Fallacy is a coinage by Jef which appears in the latest version of *Humbug!* It is a common fallacy and has clear similarities with Burden of Proof. Burden of solution takes place when an advocate denigrates a plausible course of action that an organisation, a government, or an opponent

wishes to take to address an acknowledged problem. At the same time, the advocate doesn't attempt to provide a feasible alternative solution of his own. The advocate characterises any deficiencies or limitations in the opponent's proposed solution as morally reprehensible or fatally flawed.



A hypothetical example may throw some light on the general features of the burden of solution fallacy.

It's morning tea in the Faculty of Applied Sociology at the University of Wolloomooloo. Dr Roni Tunnell, a lecturer in holistic cultural autoeroticism is railing against a request from the Faculty Board. The board has asked him to "show cause" why his elective on Gendered Psychic Self-Pleasuring should not be cancelled. The board has pointed out that his average enrolment of three students over the last six semesters is not really viable in times of financial stringency. "It's not my job to justify my course, or to find ways of increasing enrolments, or to find external sources of funding, that's their job ... that's what those stupid lazy bastards are paid for".

While we can understand the vehemence of Roni's response to a possible threat to his sinecure, he is not doing himself any favours with his intransigence. The Board has put forward the obvious solution to this

type of financial crisis — cancel non-viable electives to increase efficiencies in staffing. Roni is refusing even "part-ownership" of the problem. He is rejecting the Board's solution. At the same time he is refusing to provide any viable suggestions of his own. He is avoiding the burden of solution by attempting to

place the responsibility for finding a solution on the Board. Further, any solution coming from the Board must meet with his approval.

The burden of solution fallacy is commonly encountered in contributions to public debate on sensitive and difficult issues. Individuals who are fond of displaying ethical sensibilities in public forums are sometimes so self-indulgent that they condemn

possible solutions of others and yet offer none of their own. They perceive mere opposition as a "principled stance". They presume to tell others what not to do; but offer no solutions of their own, or they offer "solutions" which are mere wishful thinking. If (for example) an advocate doesn't agree with economic sanctions to enforce compliance with human rights in a dictatorship, then he should offer a better alternative and argue its merits. If he is unable or unwilling to do so, then he must make the case that "leaving things as they are" is better than attempting the economic sanctions solution.

If the advocate does attempt to make the claim that the *status quo* is better than the proposed intervention, the skeptical opponent should be alert to the possibility of wishful thinking — the advocate may claim for example that "left to themselves" dictatorships will evolve into pluralist democracies without the application of significant external pressures or interventions — that terror and oppression will eventually fade away in the police state if the leaders of

Burden of Proof

liberal democratic nations engage with, and sweet-talk the dictator. This argument is easily countered by the opponent — he can simply ask for examples of dictatorships which have become liberal democracies over a reasonable time-frame without the application of external pressures. In burdening the opponent with the solution, the advocate is a mere naysayer, and his opinions have little merit. Further discussion is likely to be fruitless.

Three Disparate Responses to a Recognised Social Problem:

Alcohol and Violence in Indigenous Communities

a. Noel Pearson

The following extract is from the web-based *ATSIC NEWS*, Summer 2002. The article comments on a report by Tony Fitzgerald, on “the causes, nature and extent both of breaches of the law and of alcohol and substance abuse... in Cape York Indigenous Communities”. Fitzgerald’s brief was also to suggest approaches and to recommend strategies to address the problem.

In March, Noel Pearson, whose advocacy can be said to have initiated the current focus on the Cape, was named Social Entrepreneur of the Year by the Australia/New Zealand Social Entrepreneurs Network for his work on Cape York Partnerships. Pearson’s speech on that occasion welcomed the Fitzgerald report for focusing attention on the ‘grog problem’, but criticised its author for reflecting ‘traditional thinking about substance abuse strategies’. Fitzgerald emphasises four action areas: controlling supply; prevention; harm reduction; and treatment and rehabilitation. Pearson said his own analysis of

substance abuse as a self-sustaining epidemic, suggests six areas of action, based on building an active intolerance of abuse, and including assistance to communities in managing time and money. In many other areas, however, Fitzgerald’s thinking overlaps with Pearson’s — or perhaps reflects the influence of people like Pearson.

Pearson also underlined the need for social entrepreneurs, not welfare bureaucrats; was dismissive of what was implied in the government language of ‘consultation’, and criticised the approach of State Government agencies to Cape York Partnerships. According to Pearson, they interpret partnerships as ‘a continuation of existing government programs and service delivery with an emphasis on ‘whole of government’ ‘coordination’. Social entrepreneurship meant seizing opportunities, energising individuals, not providing welfare. Prevailing Indigenous policies are, Pearson said, based on needs and deficiencies, not assets and opportunities. Policies catering to material needs have crushed Indigenous social strengths and are premised ‘upon a

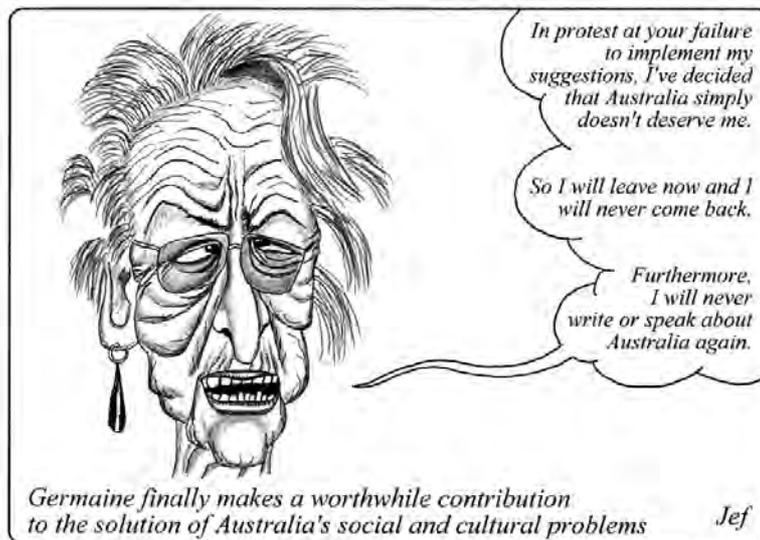
and has made significant contributions to the development of social policy and programs. He has had a long-standing commitment to addressing the problem of alcohol-related violence in indigenous communities. He analyses the problem, embraces reality, and while at times he may be very critical of others, he suggests possible solutions. His suggestions are ambitious, but they are concrete and reasonable. They could be implemented and trialled, and subjected to evaluation and refinement. He is active, involved and engages in extensive consultation. He is focused on the problem, and he has taken upon himself the burden of solution. So his public statements are credible, and he is worth listening to.

b. Germaine Greer

Germaine Greer is also a contributor to public life in Australia. She also comments on the issue of alcohol abuse in indigenous communities. She is also critical of others, and proposes her own solutions. However her commentaries on the issue of alcohol and violence in indigenous communities are LAME. LAME is an acronym coined by Jef to characterise the variant of the burden of solution fallacy exhibited

by needy exhibitionists like Greer. The letters in the acronym correspond to the phrase Look At Me Everybody — a phrase which seems to capture her primary motive for writing about and speaking on contentious social issues in her declining years. Here is an extract from the transcript of an interview of Greer by way of illustration (*Sunday Interview: Germaine Greer* September 7, 2003 Reporter: Jana Wendt).

Voice over: *Australia’s most famous feminist and activist for a myriad of causes, Germaine Greer has taken up*



conscious or unconscious lack of belief in our capacity as a people’.

It is our view that Noel Pearson is an impressive and positive contributor to public debate on this issue,

the cudgels for Aboriginal Australians in an essay to be published tomorrow. It's called Whitefella Jump Up: the Shortest Way to Nationhood, and makes the controversial suggestion that we become an Aboriginal republic, perhaps known as the Aboriginal Republic of Australia, so that we will all become Aborigines. And living up to her outrageous reputation in this exclusive interview, Germaine Greer also talks to Jana Wendt about her love of good-looking young boys.

Greer: *I live in an Aboriginal country, I was born in an Aboriginal country, I'm third generation born in an Aboriginal country. If I was saying that about France, it would be understood that I was French. If I say it about Australia, could it be understood that I'm Aboriginal? That Australian means something like Aboriginal. It doesn't mean European, certainly doesn't mean white Anglo-Saxon Protestant anymore. Perhaps it means that and if it meant that, what would that mean? What can I do with that idea?*

Wendt: *OK, but in clear terms, to get a grip on what you're proposing, you are proposing that we consider ourselves to be part of an Aboriginal country, declare ourselves an Aboriginal Republic?*

Greer: *It would be ridiculous in one sense because Aboriginal is a funny word. It means "there from the beginning". And so it's not like saying you're French or Indian or something. But it seems to me the best word. I mean, there is no reason why you shouldn't reinvent a word. We could see ourselves as identifying with hunter-gatherer peoples. It would be an amazing thing to do.*

Wendt: *It's an amazing proposition, and you know as well as I do, that people listening to you now saying that will say 'she's bonkers'.*

Perhaps not bonkers, but certainly risible. Some might argue that the articulation of such a bizarre stance is a calculated strategy to garner publicity — the long-standing *modus operandi* of a LAME commen-

tator seeking to boost sales of her latest book. Whether Greer is bonkers or not, or self-serving or not; she is certainly indulging in a particular variant of the burden of solution fallacy. While she might appear to be "offering a solution" of her own to alcohol and violence, her suggestion is self-evidently irrational and impractical. In our view she is burdening others with the genuine solution — those people who are actually prepared to get involved and to expend real time and energy in taking productive action.

c. Bill Bryson

Many people of compassion and goodwill are deeply concerned about alcohol and violence in indigenous communities, but the vast majority of concerned people do not have the time, ability or opportunity to take concrete steps to address the problem. It is not unreasonable when such people express the view that more needs to be done to address the problem. Nor is it unreasonable when such people admit that they do not themselves have a solution for the problem. Consider the following comment on the issue of alcohol and violence in indigenous communities offered by Bill Bryson, in his book *Down Under*.

As I sat now on the Todd Street Mall with my coffee and watched the mixed crowds — happy white shoppers with Saturday smiles and a spring in their step, shadowy aborigines with their curious bandages and slow, swaying, knocked-about gait — I realized that I didn't have the faintest idea what the solution to all this was, what was required to spread the fruits of general Australian prosperity to those who seemed so signally unable to find their way to it. If I were contracted to the Commonwealth of Australia to advise on Aboriginal issues all I could write would be: 'Do more. Try harder. Start Now.'

So without an original or helpful thought in my head, I just sat for some minutes and watched these poor disconnected people shuffle past. Then I did what most white Australians do. I read my newspaper and

drank my coffee and didn't see them any more. Pp 283,284

Bryson's frank bewilderment and *mea culpa* is a refreshing contrast with the shallow posturing of Greer. His statement is sincere and it represents a respectable position to take on such matters. While he is 'technically' burdening Australia and Australians as a whole with the solution to this problem, he is not sanctimonious. He does not engage in pretense or make light of the complexity of the issue. On the evidence of this statement, and the weight of such statements in the rest of his book, we would claim that he is not employing the burden of solution fallacy. The burden of solution fallacy requires the sanctimonious criticism of the actions of others, along with an express statement (or an implication) that the critic knows what the solution is.

In the face of any complex social issue, few of us can aspire to the level of contribution made by a Pearson. But at least we can all strive to be a Bryson. At all costs, we should avoid descent into the deluded fantasy-world of a LAME Greer.

Footnote on *Humbug!* - availability.

A reprint of *Humbug!* with some minor revisions was planned for June of this year. However, in May the Office of Commercialisation at Griffith University sought to assert University copyright over 85% of the manuscript (in the event that the book was "commercialised"). This 85% was that proportion created by the Principal Author, Jef Clark, during his period of long service leave from the University. Naturally the authors dispute Griffith's claim to their intellectual property. The future of the printed version of *Humbug!* is therefore for the time being uncertain. However this fluid situation does not mean that *Humbug!* cannot be made available to interested readers. The good news is that the Australian Skeptics have agreed to post an electronic version of *Humbug!* on the Skeptics website. Shortly after publication of the Spring 2004 journal, a visit to the newly updated website should enable a free download of the book as a PDF document. Feedback and comments welcome — contact jef.clark@griffith.edu.au.



Finding an Unhappy Medium

**Investigator finds the psychic
to be dead boring**



Karen Stollznow, linguist and inveterate investigator of the implausible idiosyncrasies of psychic pretenders, is shortly to try her hand on the wider stage of the USA.

Slow on the trail of the John Edward craze, psychic medium Luke Patrick launched a media campaign to announce his impending visit to Armidale. For one night only, Luke would appear at the Armidale Ex-Services Club, to present his show *From the Other Side*. “I cannot wait and you will not be able to wait either”, promised Luke.

Luke claimed to have first become aware of his amazing powers of mediumship at the tender age of nine. Ever since, he has received “messages and guidance from friends and relatives who have passed over, and can convey these messages with extraordinary accuracy”. Also gifted as a psychic, Luke assists people with “their queries on such matters as relationships, career, health and other such matters”. Things haven’t always been so smooth for Luke’s career though. Only a few years ago, Luke contemplated ending his career as a psychic medium (odd — most claim this as an inherent ability). Frustrated and confused, Luke went driving and in his distraction his car careered from the road and over a cliff. The car was held precariously in place by a shopping trolley lodged into the side of the cliff-face. So Luke survived, and this dramatic incident convinced him that he was meant to continue his good work, “a sign that I had to keep sharing my gift”. He

decided to take his gift “into the public arena in order to create a much larger knowledge of spiritual awareness to individuals who have been unable to find genuine and professional psychics for support and guidance. Today, Luke has embarked upon an Australia-wide tour, starting in his home district, the Hunter Region.”

Back in Armidale, the local newspapers were in a frenzy over Luke’s upcoming visit. They all ran page-sized advertisements for Luke’s show, which were mostly cobbled from the press releases on his web site, www.lukepatrick.org. These articles listed the “rules of the show”, a strict inventory of “do’s and don’ts” for those attending his performance. “By entering the stage area, you are agreeing to be read by Luke. If you feel embarrassed or flustered or not open to receive messages or guidance, then it is better for you to vacate your seat for someone who is anxious for a reading.” As we will see, Luke makes no guarantee that even the anxious will get a reading.

No one is immune from Luke’s unpredictable readings; he claims that he has read a barman, a doorman and even someone in an adjacent room! I would note that Luke sat at the entrance to the auditorium as the audience arrived, chatting

with them as they queued. There's no limit to the information he can garner this way, both elicited and overheard. Famously, both Joe Nickell (*Skeptical Inquirer* Vol. 25, No 6, 2001) and Michael Shermer (*How We Believe: The Search for God in an Age of Science*) have reported cases of mediums, John Edward and James Van Praagh respectively, who have been caught red-handed, using methods of 'hot reading', that is, cheating by using prior-gained information, to give a startlingly 'accurate' and intimate reading.

More get-outs than a mass jail-break

The \$27 entry fee does not ensure a reading: "you are encouraged not to put physical thought projection on a divine non-physical energy". And if you do actually get a reading, Luke may try to blame you for his misses. Is Luke's reading wrong or have you forgotten the person he has contacted? Does Luke possess covert information? "Do not get psychic amnesia," he warns. Don't expect Luke to contact someone once close to you, he may only contact your great-grandfather's aunt's second cousin's adopted son's illegitimate daughter. "Luke doesn't want you to forget your family tree so he encourages you to bring some of your own information". Documents listing numerous names of little known, distant family members increases his potential for a 'hit'. Then the old 'later on it will all make sense to you' trick. "Write down what you are told in case you find that the reading does not make sense immediately, as later you may connect". If not, he, and your money, will be long gone by then anyway! Finally, be grateful that you have basked in the glory that is Luke, "appreciate the messages, even if you are not the person being read".

On with the show

Well, Luke was wrong, I was able to wait until the big night. The room was filled to half-capacity with about 100 people, mostly groups of women. My nemesis, ghostbuster Ama Nazra (see "Who You Gonna Call", *the*

Skeptic 22:4 pp53-57) sat at the next table.

Luke was a pudgy-faced fellow with a physique fit for a skeptic. He started the show by comparing *From the Other Side* with *Crossing Over*. "They are loosely related. For that I must thank John Edward and James Van Praagh." Luke explained the proceedings, a reading, followed by an intermission and lastly, a question and answer session.



Before the reading, Luke needed to focus and wanted the audience to engage in a sort of psychic joint attention with him, "we'll start with a five minute meditation". Before we could do so, a female member of the audience cried out "is this room protected?" Luke snapped, "I am, I don't know about this room. Now, let's close our eyes and have silence." Feeling like I was back in the classroom, I duly closed my eyes and focused on a number of people with whom I would like to make contact. Asking the audience to open their eyes, Luke began with a caveat. "If I don't make contact with your loved one, it is not my fault, it is yours. Don't expect anything". Such candour would have gone down well in his advertisements. Luke's interaction with the audience was already attesting to his pledge, "know that

you are in good hands, with lots of love and support."

Luke paused for dramatic effect then cried, "anyone here had a cot death?" One hand raised hesitantly. "Was it your child?" Luke asked. "No." "Then it's not you. Anyone else? No? Okay." Who was the message intended for then? Had Luke tuned into the bistro or pokie rooms instead? No, Luke needed a more common cause of death with a greater margin of error. "Anyone here had a death from suicide?" At least twenty hands went up and I could literally see Luke's expression relax with surprise or relief. "The suicides are very aggressive. They always push their way through," he observed.

Mining the alphabet for fun and profit

Pause. "Who has the letter D? No? S?" Like a chubby cheerleader, Luke proceeded to run through the alphabet, "who has an N? Can anyone give me a P?" An 'E' didn't mean the person's first name or even surname necessarily began with that letter. It could simply mean that the deceased person had an 'E' somewhere in their name!

Then there was the time that he received the letters "Bo or Br" for a man in the audience. This brought an unimpressive silence until another audience member muttered "maybe it's 'Br', as in 'brother'". Luke overheard and latched onto this, concluding that 'Br' referred to 'brother'. This reminded me of Richard Saunders' encounter with The Amazing Valda who 'received' the letter 'D' and in the absence of a hit, saved face by declaring that 'D' stood for 'Dad'. By this process, most of the letters of the alphabet can be instilled with meaning, 'F' for 'friend', 'U' for 'uncle', 'C' for 'colleague' (or even 'cat') etc.

These letters could refer to family, friends or acquaintances, distant or familiar, dead or alive. Even place names. Often, Luke would coax names and information from the audience. In their eagerness to make contact, people will provide all the fodder a 'medium' can need for a cold

Unhappy Medium

reading. “I see a ‘B’. Does that mean anything?” “Yes, ‘B’ was Bill. Short for William. That was my father. He died in England recently”. Gaining courage, Luke started ‘hearing’ names. The performance became a veritable episode of *Romper Room* for all of the names he ran through. Like a biblical Who’s Who, Luke contacted Matthew, Mark, John and Joseph. There weren’t any Dylans, Britneys or ethnic names, the more complex or unusual names could only be provided by the audience. His website states, “it is very important to get feedback, a simple yes or no, as this goes a long way in a reading. We encourage you to not give more information than Luke asks for”. And he asked for a lot of information from his audience. Occasionally, he received responses such as “I can’t say” or “I’d rather not say that”. Hitting a stalemate, Luke would simply move on.

The technique

And just what information would Luke ‘receive’? His advertisements boast, “Luke likes to validate past and present events, he names the departed loved ones to the appropriate individuals as well as confirming how their passing occurred.” He often named departed loved ones to inappropriate individuals too. So, what was Luke’s technique? Initially he would name a cause of death. He covered all of the statistically high causes, heart disease, cancer and lung disease, still without being specific. He would then narrow the field by running through a few initials and names until an audience member ‘validated’ the reading. In an audience of 100 people, Luke had a nice cross-section of society. Several people related to each reading he did. They would then provide further information, names, places and their personal relationship to the deceased. The readings wouldn’t venture much further. The power of belief and the desire for belief are strong. In this hope, the audience overlooked glaring errors. “He died suddenly”, Luke guessed during one reading. The lady he addressed

shook her head slightly so Luke quickly changed tactic. “But you knew he was going to be ill for a long time”. This adjustment received a fervent nod. Once, Luke caused offence by incorrectly stating that a mother’s living son had a problem with alcohol and drug abuse. At another point, he asked his audience of rural folk, “who lost a relative that liked animals? I think they lived on a farm.”

Much of the show was consumed by Luke adopting a pensive look while indulging in a lengthy pause. To justify the large gaps, Luke explained, “this is tough work. The TV shows are edited so you don’t get to see these boring bits where I receive messages”. The readings completely lacked convincing elements and detail. There were only two ‘personal’ messages that Luke was capable of receiving and he ended each reading with these. The suicide cases all sent their “apologies” to their grieving families. Every other spirit sent “their love”. Then would come Luke’s admission of failure, “I’m sorry. That’s all I have. I’ll leave that with you”.

After six superficial, uninformative readings, Luke announced a fifteen-minute interval after which he would resume with a question and answer session. “Is that all?” shouted a lady at the next table. “That was crap! So general!” This was out of Luke’s earshot but a number of people at surrounding tables laughed in agreement. Although the critic was clearly fortified with alcohol, I was heartened to hear these nuggets of skepticism.

Close up and personal

When the show recommenced, the herd had thinned substantially. The remainder probably stayed to try and get value for their money. For the final part of the show, Luke said he would visit each table to ask if anyone had any questions about his abilities or any other supernatural topic. Luke is “dedicated to achieve total divine awareness, not only in Australia, but internationally also”. The questions that followed betrayed

the crowd’s implicit belief in the paranormal, in angels, *déjà vu*, reincarnation, earthbound spirits and spiritualism. The audience clearly accepted Luke as an absolute authority on all matters spiritual and psychic.

“Luke, how do you receive the messages?” He responded that the messages arrive in many different forms. They might be visions of faces or names that appear like text on a computer screen. Thoughts, like memories of the deceased. Sounds such as voices or music. The smell of perfume or the ocean. If only his readings were this vivid and detailed. Luke’s website states that “whoever had a dominant presence in this physical plane will also have one in the after life”. In my observations, Luke was limited in his ‘communication’, guessing a common possible cause of death, guessing an initial somewhere in their name and producing a stock ‘message from the afterlife’. Hardly the “life changing” experience promised in his advertisements.

The questions and wisdom continued. “When people die, are they healed of any sickness they had in life?” someone asked earnestly. “When people die, they go to what I like to call the ‘heaven hospital’” Luke proclaimed. “This is where they are healed of their earthly afflictions.” Organs are repaired, sight and hearing are restored. People even “de-age” when they “cross over”, appearing younger and healthy. Short of being issued with wings and a halo at the Pearly Gates, Luke told us “we are made whole again”.

So that’s what happened to Hitler

“What happens to someone evil like Hitler when they die?” asked another member of the audience. I once read in a New Age magazine that Hitler was a sort of “Team Leader” in Hell, so I wondered what he was up to these days. Perhaps he would take over as CEO when Satan retires. It seemed that Hitler had dropped Totalitarianism for Reincarnation. “Hitler needs to pay his karmic debt”, Luke stated. He then went on

to explain that Hitler had life lessons to learn. He would need to learn submission and obedience. He would be reborn as a person who had no power or control and was probably living under one of today's oppressive regimes.

Luke launched into a tirade about reincarnation, "it's like people are recycled" he noted sagely. Apparently, the meaning of life is wisdom. Whatever knowledge we are lacking in will be granted us in the next life. We are born, live, die and are reborn, again and again, until we have learned all life's lessons. So what happens when we know everything? Do we then become teenagers? Or gurus? Or mediums? Luke even had solid proof of his theory. "Joan Collins lived in the slums of Calcutta in a previous life. This life is her reward for suffering that."

One nervous lady asked several questions about communicating with deceased children and babies. It was clear that she had lost a child herself. How could a child, so young that it hadn't yet learned speech, communicate with a medium? Luke explained that babies and toddlers could communicate using symbols or feelings instead of words. The lady wasn't satisfied with this and asked for more detail, often interrupting Luke as she was so jittery. Luke reacted cruelly and unprofessionally, rolling his eyes at her when she refused to accept his initial explanation, defensively insisting that he was "the expert" and has "first hand" knowledge of these matters.

Finally, Luke approached my table and I asked the first subversive question of the evening. "Why are the messages you receive so vague?" Luke handled the dissidence with all the seasoned charm and grace of a paranormal salesperson, even sneaking in a plug. "Many spirits don't like to share private messages in public. A lot of people have more success in a private session. You can speak with my agent at the front door for that." And with that he moved quickly from my table, saying he would attempt to see "if any last spirits" were about, before he would "close the

session". This final reading would offer the greatest insight into his *modus operandi*.

Luke adopted his pensive look. "I have an 'M'. Anyone lose a loved one with an 'M' in their name?" "I lost a 'Max'" whispered a distressed lady sitting next to me. The lady, crying softly, proceeded to reveal all the details that Luke needed, that Max was her husband and had committed suicide in his forties. Her son sat beside her and they held hands tightly. Luke made a few failed guesses and decided to cut his losses. Shockingly, he then claimed the lady's admissions as his own! "Okay. I have that your husband Max died of suicide in his forties. He sends his apologies. That's all I have. I'm sorry. I'll leave that with you." I noted that the lady spoke softly and Luke loudly repeated all she said to the audience. This gave the effect of him 'receiving' the information rather than eliciting it. Luke 'receives' more messages from the living than the dead.

Luke ended the session to a reluctant trickle of applause. While the audience appeared to respect his 'authority' as an expert on the paranormal, no one appeared to be overly impressed with his powers of mediumship. Luke's website asserts that there are "no passive audience members" at his shows. In contrast to this, Luke initiated no more than six readings. This would leave about 95% of the audience to be disappointed spectators for their \$27 entry fee.

The pitch

So how can one be assured of a reading? Why, book a private reading! At the close of the show, Luke mentioned that he would be in Tamworth in a few weeks and could see private clients then. I hated to think of the grieving people who would pay a hefty fee and travel three hours there and back, all for nothing. His web site brags that he "has been inundated with private bookings since he commenced his Australia wide tour". No surprise, his show is nothing but a poor advertisement for

his private gigs, where the real money is. Ironically, the website proclaims "No product sell. No courses. Just participation!" But there was 'product sell'. Luke conducts motivational seminars, "Positive Achieve. Dealing with self sabotage, addictions, and negative energies." He may not have sold books, CDs or tapes but the show was still a big push for his private sessions and seminars. The rest will probably follow anyway.

That's all I have. I'm sorry. I'll leave that with you.



Stop Press

As a result of Karen's investigation, the Editor recently underwent a revelation. It came to him that the ability to debate with the defunct was not so much a psychic gift, as a function of using two given names and no surname (cf John Edward, Luke Patrick) and all that stood between him and fame and fortune was a simple terminal 's'.

However, he mused, to be a really successful (hence, rich) in this game, there is a requirement for more than a simple letterectomy; you also need a catchy title for your act.

It was while contemplating this conundrum that the veil was lifted from his vision for a second time. *Crossing Over* and *From The Other Side* were clearly out of contention for copyright reasons, but those names suggested the obvious title.

So, Dear Reader, start saving your pennies now so you will be ready for:

Barry William

talking to the terminated in his smash hit new show:

Why Did The Chicken?

Coming Soon to a Club near You!



Doubting Nigeria's Religiosity

Fraud and religiosity are not mutually exclusive

The aim of this article is not to cast aspersion on any religion or on being religious, but to put into perspective what is now globally acclaimed as Nigeria's superlative piety and godliness. Some months ago, the British Broadcasting Corporation (BBC) voted Nigeria the most religious country in the world. According to a research survey conducted by the BBC, Nigeria emerged as the least skeptical country ahead of nations like the UK, South Korea, Russia, Israel, Mexico, India, USA, Lebanon.

The strength of Nigeria's piety is evidenced on the God-compliant responses of those interviewed in the course of the research. Most (and in some cases all) respondents from Nigeria said they believed in God or a higher power and prayed and attended a religious service regularly. They agreed that God or a higher power judged their actions and the way they lived their lives and that belief in God or a higher power made for a better human being. It was in Nigeria that the researchers found the highest percentage of people who said that their God (beliefs) was (were) the only true God (beliefs). And those who disagreed with the 'fact' that the world would be a more peaceful place if people didn't believe in God or a higher power.

No doubt, there's a high level of religiosity-including religious hypocrisy and ostentatiousness in Nigeria. But the question is, what

has Nigeria to show the world for its purportedly superlative piety and godliness? Religious fanaticism and fraud.

Religious fanaticism

This year alone, more than two thousand people have been killed in religious clashes and sectarian violence in different parts of the country. In February, Muslim militants massacred over 50 Christians in the central Nigerian town of Yelwa; most of the victims were slain while seeking refuge in a church! And in May, Christian ethnic militias launched reprisal attacks and killed over 600 people in a mainly Muslim town.

In an apparent revenge of the killing of Muslims by a Christian group in Plateau, Islamic militants in the northern city of Kano, traditionally a hotbed of religious violence, attacked and killed hundreds of nonbelievers in the city. These death merchants have also been at work in Borno, Yobe Kaduna and Jigawa.

As I was writing this piece, reports came in of another outbreak of violence in Adamawa. Adamawa is one of the states in Northern Nigeria where Sharia is not being implemented, but religious tension remains high. The latest outbreak of violence was said to have been sparked off by sharp disagreements over the rebuilding of a minaret in the riverside town of Numan, a year after the mosque was razed in a simi-



Leo Igwe heads the Nigerian Skeptics and writes a regular column for the Skeptic.

lar sectarian violence. About 37 people have been confirmed dead while thousands have been displaced from their homes.

Four years ago religious riots over the implementation of Sharia law in Northern Nigeria left over 2000 people dead. Nigeria's religions have therefore been a national burden and an international embarrassment, a source of hatred, intolerance, conflict and mutual destruction instead of a resource for peace, unity, stability and progress.

Fraud

Nigeria ranks among the most corrupt country in the world. But, can one entity combine being very fraudulent and still being very religious? Your guess is as good as mine. One of the pointers to Nigeria's high-level corruption is the email money scam. As Keith Porteous of National Secular Society (UK) noted in his article in the *Freethinker* (May 2004), it is from Nigeria, the least skeptical country, that the vast majority of the email money scams emanate. And that is the truth.

Interestingly some of the Nigerian money scammers invoke the name of God in their mails in their desperate attempt to rope in and dupe gullible folks. Here is a copy of an email money scam supposedly sent by a Nigerian (edited for space reasons)

From: "Mrs Florence Johnson"
<florence_johnsonb@yahoo.com>

Subject: WHEN JESUES SAY YES..... WHO WILL SAY NO?

Beloved in Christ!, Calvary greetings in the name of our Lord Jesus Christ, I am MRS FLORENCE JOHNSON I am 65years old, I am now a new Christian convert, suffering from long time cancer of the breast. ... I may not live more than six months, because the cancer stage has gotten to a very severe stage.

My late husband was killed during the Gulf war, and during the period of our marriage we had a son who was also killed in a cold blood during the Gulf war. My late husband was very wealthy and after his death, I inherited all her business and wealth. ...

So, I now decided to divide part of this wealth, by contributing to the development of evangelism in Africa, America, Europe and Asian Countries. This mission which will no doubt be tasking had made me to recently relocated to togo, Africa where I live presently.

I selected your church after visiting the website for this purpose and prayed over it, I am willing to donate the sum of \$2.500,000.00 Million US Dollars to your Church / Ministry for the development of evangelism and also as aids for the less privileged around you.

Please note that, this fund is lying in a bank (ECOBANK TOGO) in LOME therefore I want you to contact the bank through this contact information:

Eco Bank International Lome Togo B. P. 359 Lome Tel / Fax 00228 250 7436. Email: eco.togo@financier.com WEBSITE:www.ecobank.comso

that they will file an immediate application for the transfer of the money in the name of your ministry and they will tell you the steps to take next.

Please, do not reply if you have the intention of using this fund for personal use other than enhancement of evangelism.

Lastly, I want your ministry to be praying for me as regards my entire life and my health because I have come to find out since my spiritual birth lately that wealth acquisition without Jesus Christ in one's life is vanity upon vanity. "Our lord Jesus says what shall it profit a man to gain the hole world and looses his own life".

May the Grace of our Lord Jesus Christ, the love of God, and the sweet fellowship of the Holy Spirit be with you. please reply me through [my]e mail address.

Some years ago, CNN showed a video clipping of some Nigerian fraudsters praying with their victims at the Lagos airport. These money scammers are also among the Nigerians who would say they believe in God or a higher power (and, of course, they do) and that belief in God makes for a better person. It is quite evident that Nigeria's religiosity has absolutely nothing to do with moral rectitude

and ethical excellence. Instead Nigeria's much vaunted piety and godliness has everything to do with moral bankruptcy, depravity, hypocrisy and fraud.

The fact is that a lot of Nigerians pay lip service to religion. They do not take belief in God seriously, and so their acclaimed religiosity should not be taken seriously except as a moral disease that needs to be cured. Nigerians swear by the Bible or Quran and say 'By the grace of God' or 'Insha Allah', even when they are lying, cheating, stealing or deceiving the next person(s). Nigeria is therefore an eloquent testimony of the fact that belief in God or religious piety is no guarantee of moral virtue.

Again I noticed that of all the countries covered by the survey, Nigeria was the least developed. At least one expects that a very godly country should be rich and prosperous (after all as they say in Nigeria our God is not a poor God — AMEN to that) But this is not the case. In Nigeria, poverty, hunger, starvation, ignorance, diseases, frustration and general disillusionment are paramount. Incidentally, it is Nigeria's godly leaders, who have been running the nation's affairs since independence, who have reduced the country and its economy to rags and ruins. Just as the Afrobeat musician, Fela Anikulakpo Kuti used to say "Nigerians are suffering and smiling".

I think Nigerians are suffering and believing God. While nations like the UK and South Korea, judged the most skeptical countries in the world, are often found in the high echelons of the Human Development Index, Nigeria always comes out down the ladder as one of the poorest countries in the world. It therefore logically follows that while skepticism and religious unbelief are (or could be) indices of development and progress, religious piety and godliness are symptoms of national disease, underdevelopment and general lack of progress. Even at that are Nigerians really religious?



Creationism or Narcissism?

Answers in Genesis admires itself

Cataloguing cases of self-congratulation in creationist tracts

An old friend of mine, who happens to be a practising Christian, once told me that the worst kind of sin is spiritual pride. If this is true, Messrs Ken Ham, Carl Wieland and the rest of the crew at Answers in Genesis (AiG) should start taking their vacations in the Sahara Desert or inside a volcano, as a bit of prior acclimatisation never goes astray.

Of all the Religious Right literature that lands on my desk, whether from Australia or overseas, AiG publications are by far the most boastful and self-congratulatory. Their writers and lecturers are presented as peerless masters of their respective arts, the organisation itself has succeeded beyond the wildest dreams of its founders, and its opponents, whether 'evolutionists' or 'liberal' Christians are stumbling around in disarray.

Creation magazine

To show you what I mean, let's have a look through the latest issue (June-August 2004) of AiG's flagship *Creation* magazine. The Focus pages, providing 'news of interest about creation and evolution', appear to have been written directly by God. Problems such as the age of human fossils in the Kow Swamp are dealt with summarily:

Palaeontologists have argued about the age of human remains from Australia for more than 20 years without any agreement ... The ages quoted by the scientists depend on technique used, the assumptions applied and the evolutionary model they prefer. However, all such remains are post-Babel and so less than 4,000 years old. (p.9)

So, all you squabbling palaeontologists out there, just give AiG a buzz about anything that's been troubling you and they'll sort you out in a trice. Just think of the time you'll save on all that boring old research! Kow Swamp problem solved.

No doubt geologists will have converted to fundamentalist Christianity en masse after reading about the magnitude 6.5 earthquake near San Simeon, California in late 2003, which pushed up some local mountains by about 30 cm. As AiG points out:

Such rapid uplift — yet geologists say that millions of years are necessary. This was really only a minor quake compared to geological activity during the Genesis Flood; thus, further evidence of how rapidly the mountains around the earth could have formed at that time. (p.7)



Brian Baxter, whose image defies capture, is a Melbourne-based writer and investigator of fringe religious sects.

Foolish geologists, if only you'd asked AiG in the first place you'd instantly have seen the error of your ways. Same goes for you, foolish biologists:

[A recently-discovered Indian frog] is described as a 'living fossil' – a representative of 'an ancient lineage that dates back to the dinosaurs' ... 'Living fossils' surprise evolutionists, who think the fossil record reflects the order of evolution, over billions of years, rather than the order of burial since the start of the Flood, only around 4,500 years ago. (p.8)

Kids' Corner

This sort of pontificating by AiG is par for the course in any issue of *Creation*, leaving aside the fact that the errors in their thinking have been pointed out to them by highly qualified scientists, theologians and others on numerous occasions. AiG simply ignores such criticism on the grounds that it is not 'biblically based'. Unfortunately they feed this stuff to their child readers in the same way:

One hundred and sixty years seems like a long time. Was that the time when dinosaurs lived? 'Of course not', you may be thinking. 'Dinosaurs died out 65 million years ago, long before people lived on the earth.' Ah, but how do you know?

... Let's use our 'time machine', the Bible, which is a record of true history, to travel into the past ... Dinosaurs could not have died out 65 million years ago because God only made the earth about six thousand years ago! (p.34)

If you think that's bad enough, don't worry, it gets worse:

... Most people believe from evolution that dinosaurs and people didn't live together. That's why they haven't been looking for the evidence.

Palaeontologists, shame on you!

... When we do look, we discover fascinating evidence that indicates people possibly saw dinosaurs. Let's go back 160 years. In 1845, people in

the south of Australia discovered a large, odd bone. [A local aboriginal drew a picture of the animal to which he claimed the bone belonged.] ... It's amazing, but the animal looks ... like a duck-billed dinosaur!... This is only one of many [such] stories from all over the world ... (p.35)

So what should we do now, children?

Next time someone tells you about the time of the dinosaurs, remember our 'time machine', the Bible. Then explain that God made dinosaurs on the same day He made Adam and Eve and every other land animal.

It's disturbing to think that, throughout Australia, tens of thousands of children are now being taught this way in fundamentalist Christian schools and by homeschooling parents. AiG resources are regularly used in these places.

Ken Ham and Carl Wieland

The remainder of this particular issue of *Creation* follows a familiar format. There are a few articles on unusual animals such as the kangaroo rat and the kinkajou. The accompanying photos increase the appeal of the magazine to children, while the text hammers away at the argument from design and other creationist furbies. Counter-arguments evidently don't exist, or if they do, you're certainly not going to find them here.

Ken Ham, Australian-born President of AiG(USA), talks down to us about 'the problem of evil', quoting liberally from Reconstructionist author Greg Bahnsen. Another major article, by CEO Carl Wieland, shows that he is still smarting over Ian Plimer's *Telling Lies for God* (1994), a book which even some creationists now recommend as an authority against AiG. (p.14, n.8) Wieland's piece takes the form of an interview with former NSW Chief Magistrate Clarrie Briese. After Plimer's book appeared, Wieland put together a 'Christian committee' headed by Briese to investigate Plimer's charges. Why Briese? Because of his former judicial office, or his reputa-

tion for scrupulous impartiality? Well, perhaps, but it didn't hurt that:

... We knew that Clarrie Briese was sympathetic to AiG and subscribed to 'Creation' magazine. (p.13)

No prizes for guessing the outcome of the committee's investigations.

Jonathan Sarfati

But the article which I feel best demonstrates AiG's patrician outlook is a piece of 'living hagiography' entitled 'An awesome mind' and subtitled 'Gary Bates talks to one of Christianity's foremost defenders, Jonathan Sarfati'. At six pages, this piece constitutes over one-tenth of the entire magazine and is a true monument to narcissism. It may be objected that the subject of an interview often has little influence over what is said about him or her, but in this case Sarfati is one of *Creation's* editors and so is quite without excuse.¹

Gary Bates, the 'Head of Ministry Development' at AiG, begins the saga by telling us that Sarfati's books 'have become best-sellers', which probably isn't saying a lot given the dimensions of the activist Young Earth Creationist (YEC) demographic. At least Bates doesn't say that they 'distribute' a lot of Sarfati's books ie, dispose of them *gratis* to captive church audiences, which seems to be the fate of much AiG literature.

Bates continues:

One of the reasons [Sarfati's publications] have become such a powerful tool for Christianity [read: YEC] is the amazing flow of his clear, crisp, trademark logic, which has 'skewered' and silenced many an evolutionary detractor. (p.37)

Name one such evolutionary scientist, Gary; name just one!

This 'cult of the personality' nonsense goes on for page after page:

[Sarfati is] one of the world's most powerful defenders of the authority of the Bible ... Here [is] someone the Lord [has] blessed with a brilliant mind like a steel trap ... Amazing abilities [far above and beyond those

of mortal men? Oops, sorry, that's Superman!] ... *Jonathan definitely fits the description of a real scientist, and a brilliant one at that ... A formidable talent ... A formidable mind ... For most 'mere mortals' like me [G. Bates], this kind of 'brain power' is an almost unimaginable gift ... Personally, I'm in awe of Jonathan's abilities ... (pp.36-41)*

In fact, precious few people outside YEC circles have ever heard of Sarfati, and his books are unimaginative potboilers. His speciality appears to be attacking slightly less extreme creationists such as Hugh Ross of the 'Reasons to Believe' ministry:

*His ministry very much tries to reconcile the incorrect [ie, 'Old Earth'] interpretations of many evolutionary scientists with the Bible, and it is leading many Christians astray from the original meaning of the Scriptures [as determined by God's voice on earth, viz. AiG]. For example, Ross believes in the big bang and its timeframe of billions of years ... Such views completely undermine the gospel of Christ ... **I believe such views are, in fact, one of the greatest dangers to Christianity.** (his emphasis - p.41)*

We should never forget that Sarfati is one of the chief popularisers of the 'biblically impossible' category, previously unknown to science. According to this principle, if a scientific finding contradicts what Jonathan thinks is in the Bible, the finding must be false and can be safely ignored. He could set up a lucrative consultancy advising the scientific community on what questions aren't even worth asking, such as 'How do evolutionary mechanisms operate?' (Answer: 'They don't.');

and 'What is the relationship between humans and chimpanzees?' (Answer: 'They are essentially unrelated species apart from the fact that both were directly created by God.')

Creationist's readers

Let us close with a look at some of the letters appearing in the magazine's 'feedback' column. Many of

them are as hubristic in character as the articles on which they comment:

Re [article] 'Can't define life' [in a recent issue of Creation] ... I found NASA's definition for life really humorous - 'A self-sustained chemical system capable of undergoing Darwinian evolution'. I was also surprised to find that apparently none of us are alive. I know that I am definitely not 'self-sustained', but am sustained by Christ. And though the Lord equips us for many tasks, it's obvious He hasn't equipped any of His creation to be 'capable of undergoing Darwinian evolution'! - Margaret Adamson, Texas USA (p.4)

Re [article] 'Designed by Aliens?' ... Are they serious? ... I can't stop laughing! The learned Dr Crick and other supporters of the hilarious 'panspermia' idea have actually come full circle. They are right back there with the 'primitives', spinning myths to try to explain the origin of things they don't want to understand, yet DO understand in their hearts, but are too afraid and too arrogant to admit. What a tragic waste. May God reveal Himself to them ... [1 Cor. 1:20]: 'Has not God made foolish the wisdom of this world?' - Norma Sandham, South Africa (p.4)

While it is tempting to dismiss such letters as the products of ignorance, they help show why creationism can be very appealing to religious fundamentalists. At a stroke, you can promote yourself above the world's foremost scientists, teachers and other leaders, and consign them to the category of 'fools'. You understand the message of *1 Corinthians* and will reign with God in heaven forever. The 'fools' don't understand, and won't reign. Under the circumstances, surely the creationists can be forgiven a bit of oneupmanship.

And remember to keep passing the message on to the kids:

My son (15) REALLY likes the Creation magazine ... My husband (not a Christian), got my son a New Scientist subscription, but my son is firmly on the side of the creationists ... - English reader (p.4)

Conclusion

From virtually any standpoint, creationism appears to be one of the more ghastly caricatures of what most people take to be Christianity. Precepts such as 'love thy neighbour', though neither original nor unique to this religion, are conspicuous by their absence from AiG diatribes. *1 Peter* adjures Christians, when defending their faith, to 'do this with gentleness and respect, keeping a clear conscience', but creationists have a way of evading the clear intent of this text.

It has been remarked that Protestantism is so voluntaristic that it is precarious, ie that it leaves so many areas open to individual interpretation that the entire enterprise becomes prone to regular schism. I recently saw it estimated that there are currently over 15,000 identifiably different forms of 'Christianity' in the world and that this number continues to grow apace. The latest issue of *Creation* magazine gives us a good working example of this situation, as AiG turns ever more ferociously and dismissively on Hugh Ross's 'Old Earth' creationists.

But whether Ham, Wieland and Sarfati are attacking Hugh Ross, theological liberals, evolutionary scientists or anyone else, they do so with bullet-proof confidence. If this seems like arrogance, just remember that for AiG, doubts are biblically impossible.

1. Not to be outdone, *the Skeptic* will soon be publishing an appreciation of the editor of this superb journal, written by the world-renowned biographer, Mr Barry J Williams. This work, which will comprise the totality of *the Skeptic* until December 2010, could not have been written without the recent publication of *Wallaby's Thesaurus of Synonyms for the Word Wonderful* (Sir Jim R Wallaby, General Editor, University of Gullargambone Press, 2004, 1000pp, \$19.95)



Geotheology

on a

Sticky Wicket

Our Baronet discovers that all is not as it seems in the intoxicating world of moral theology



Sir Jim R Wallaby, who once won an Olympic Gold Medal in Underarm Newt Throttling, claims to be the direct descendant of his ancestors.

As I have vouchsafed to the humble readers of these pages on many a previous occasion, life at Wallaby Manor is not all *droit de seigneur*, supping stirrup cups and riding to hounds. Oh, dear me no; one has to uphold the privileges and responsibilities of one's ancient lineage by keeping the serfs (not to mention the churls and villeins) firmly in their place by the judicious application of the lash (or knout). It's cruel work, but someone has to do it.

That being so, it will come as no great revelation to our readers to learn that the study of theology, or indeed science, is not the sort of occupation that takes up a great deal of one's valuable time. However, there are occasions on which one is forced to do one's duty and delve into the arcana so beloved of academicians, men of the cloth and others of like kidney, to set the records straight.

Just such an occasion presented itself recently, when one of our humble correspondents brought to my attention the following missive from a curious body which styles itself "Answers in Genesis" (AiG). This appears to be some sort of funda-

mentalist sect that advances its 'ministry' by posing itself asinine questions, to which it responds with no less fatuous answers.

To quote them verbatim:

Weekly News

Q: If mountain climbers need oxygen tanks to climb Mt Everest, how was Noah able to breathe if his Ark floated above the highest mountains?

A: There are a number of aspects that need to be considered. First, mountains like Mt Everest were not necessarily the height they were during the time of the Flood.

Pardon? From this, I'm not at all sure *when* the mountains "were" not the same height as they "were" during the Flood. A confusion of the tenses here, it would seem, and not at all uncommon among the unlettered Bible thumpers who infest such sects. But this is a mere quibble, so read on.

In fact, the earth's highest mountains have fossils of sea creatures at their tops, showing they were once under the sea. Either the sea rose to

cover the mountains, or the mountains were once under the sea and have risen out of the sea — or both things occurred.

Well that all seems fairly logical, and would appear to cover the likely contingencies, albeit it leaves out the options of an alien entity spraying fossils onto the tops of mountains from some sort of giant ‘fossil dusting’ spacecraft, or that mountains are the adult stage of the creatures of which the fossils were once the larval stage. The latter are not very likely I’ll concur, but they do represent the sort of speculation that should not be ruled out by those who regard Answers in Genesis as an authority on anything.

Second, measurements indicate that Mt Everest is currently rising at six inches per year. This movement was probably much greater in the past — particularly at the end of the Flood — so its formation can easily be explained from the time of the Flood.

Third, as the water rose during the Flood, the atmosphere would have risen as well. The difference in pressure for Noah’s family would have been equivalent to standing on top of a 100 foot-high building.

The third point seems fairly straightforward, so let us briefly consider it first. If the atmosphere rose at the same time as the sea, it is difficult to see why there would have been much of a pressure differential at all. What a hypothetical “100 foot-high building” has to do with it, and why the Noah clan would have been standing around on it, is not at all clear, so perhaps it will be safer if we put this down as a case of hyperbolic hogwash.

The second point does make some claims that certainly do reward a modicum of sciento-theological investigation.

Numbers

Where should we start? How about with some facts, a concept with which the perpetrators of AiG seem less than comfortable. The claim that Everest is rising by six inches

per year seems to be the appropriate spot to begin, so here goes.

Those clever johnnies at NASA¹ tell us that the pinnacle of Everest was accurately measured in 1999 at 29,035 ft above sea level, by two American mountaineers using sophisticated GPS instruments. The previous commonly accepted height (29,028 ft) was determined by an Indian surveyor in 1954, using surveying instruments at 12 different sites. Prior to that the height had been held for a century to be 29,002 ft, which was based on an 1852 survey. Incidentally, the same NASA site also tells us that Everest is moving northeastwards at approximately 2.4 inches per year, so watch out Beijing. Another site² asserts that the present annual increase in height is “a few millimetres per year”, due to ongoing geological forces applying for 40--50 million years.

Let us assume, purely for sake of argument, that those three measurements were accurate at the time they were postulated. Under this assumption, we can see that between 1852 and 1999, Everest “grew” by 396 inches (2.7in/y) or between 1954 and 1999 it “grew” 84 inches (1.9in/y). Of course, that is the *very best* case that can be put for AiG’s claim. A simpler and much more Occam-friendly explanation is that the use of increasingly sophisticated metrology tools over the past one and a half centuries has allowed us to make the measurements with a far higher degree of accuracy, and that those height increases existed only in our “error bars” and not in the real world at all. So where does AiG’s “six inches per year” come from? Pure invention. Some years back, fellow travellers of AiG used similar specious ‘logic’ to show that the speed of light was slowing down.

Guessing as gospel

But, just for fun, let us indulge ourselves in the sort of fantasy that ‘informs’ the pronouncements AiG makes to its faithful. Everest “is currently rising at six inches per year” and we know that it is 29,035

ft high. Which means that 58,070 years ago it was a flat plane. We must now add a few years to get back to when it was below sea level (otherwise how did those marine fossils get there? Walking oysters might work for Lewis Carroll, but not for the Bible.) So let’s settle for a nice round number and call it 60,000 years.

But hang on a minute — according to other AiG fairy tales, we don’t have 60,000 years, we have an order of magnitude less than that, ie, only 6,000 years to play with. Furthermore, there remains a problem; while it has been 6,000 years since “the Creation”, it’s been something less than 5,000 since “the Flood”.

So what, you might ask, what’s a millennium or so when the history of the world is under question? Well, if you subscribe to the scientific theory (the one that requires evidence) of the age of the Universe, a millennium is a mere bagatelle — a barely measureable blink of the cosmic eyelid. But if you believe AiG’s numbers, it comes out to damn near 17% of the total available time-frame, which is hardly to be sneezed at. However, for our purposes here let’s stick with their story and see where it leads.

If the height increase of Everest is now going on at 6 inches per year (which it isn’t) and if “[t]his movement was probably much greater in the past”, to get to its current 29 kilofeet, you must assume that shortly after the deluge it would have been shooting upwards like an express lift in a high-rise. (If Everest had been consistently rising at six inches per year for 5,000 years, it would now be 2,500 ft high, which wouldn’t even make a respectable foot hill.)

If we accept this premise, then it does seem odd that none of the Indian histories or legends mention this rocketing range, but as few Indians subscribe to the literalist Christian fantasy, what would they know? To be fair, the AiGites only assert that it “probably” happened, so we’ll take them at their word. (More sophisticated theologians among the readers might care to point out how

amazing it is that *Genesis* is not exactly overflowing with “probables”, but since God hadn’t yet invented the word processor or the pencil, and as it took a fair amount of time to carve the stories in stone, and as “probably” is quite a long word, His biblical stenographers probably left them out.)



The former Patna North Cricket Ground (photo taken from behind deep mid-wicket).

ancient religious texts) as allegory — stories devised by ancient peoples to reinforce *their* perception of *their* relationship with *their* deity. Discredit comes from modern people pretending that these stories can be forced to fit in with modern scientific understandings of nature that were not available to the ancients. (I suspect the average AiGite believes that allegories

A bumping pitch and a blinding light

Anyway, those Indians were probably (what a useful word this is turning out to be in the context of inventing history — it’s a wonder God didn’t make it a sacred text) so busy playing cricket that they wouldn’t have noticed a vast mountain range shooting up on the northern horizon.

That piece of geological instantaneity could easily explain the yeti, by the way. The original was probably (Aha!) a chap fielding at “deep third man” (Deep =under water — with the oysters; Third man = something to do with the Trinity, I’ll be bound) who suddenly found himself stranded on a rapidly soaring peak, where his descendants wander to this day, scaring the tripes out of unwary mountaineers. (Of course, biological necessity demands that there must also have been a “deep third woman”, but, as this is a family publication, we’ll let that side of it lie for the moment. In any case, if there’s one subject that creation ‘scientists’ know absolutely nothing about, it is biology.) This scenario would also account for ‘gully’, formed, no doubt, by all the surplus water running down the flanks of the mountain and eroding the pitch; not to mention, ‘slips’, which recall the land slips that such a violent upthrust would have caused. This still leaves ‘square leg’ unaccounted for, but if there were “giants in the Earth in those days” (*Genesis* 6:4, as it happens) I can’t see chaps with

square legs being all that implausible.

So let’s put it all into context. In our mind’s eye, we can see the Patna North CC batting in its first innings against a Chittagong touring side at their home ground. The home team’s 12th Man, Mr D K Gupta, tells the team that he’s just nipping across to China to get in some nice *yum cha* for the luncheon adjournment; shortly thereafter he is back, empty handed. The cause: a bloody great (and previously unnoticed) massif had blocked his way. Obviously it hadn’t been there the previous day, otherwise how can we explain the tea break? (As every botanist knows³, and as the estimable Glenn Cardwell confirms in his Food Myth column in this very issue, tea (*camellia sinensis*) is a native of China, not India.)

(I’m not too sure how this explains the Andes and the Rockies, but as they don’t play a lot of cricket in the Americas, it hardly matters.)

Stumps

Skeptics try to discredit Noah’s Flood, so it’s so important to know how to defend its record in Genesis.

Patent poppycock. Far from “discrediting” Noah’s Flood, Skeptics, along with the majority of thinking members of the Judeo-Christian faiths, regard the Flood (and much else in *Genesis*, or indeed any other

series are nasty snapping reptiles that live in swamps. Come to think of it, that’s not a bad description of the average AiGite — in a purely allegorical way, of course.)

My researches have led me to the inevitable conclusion that, far from being the Deity’s loyal messengers on Earth, the empty vessels of Answers in *Genesis* have fallen into gross heresy. They have fatally restricted their options by seeking to explain the ways of the world purely from scratching through the words of a minor work, *Genesis*. They would have done themselves a favour had they paid much more attention to the most important of God’s works, to wit, *The Laws of Cricket*. It might have saved their souls from spending all of eternity sitting through a rain affected match at Old Trafford — a truly Timeless Test, one might be tempted to say.

As I have always maintained, and as my recent research proves, as long as you keep *Genesis* and *Wisden* by your side, theology is a doddle.

Amen.

Sixinchnotes

1. observe.arc.nasa.gov/nasa/ootw/1999/ootw_991208/ob991208.html
2. www.mnteverest.com/history.html
3. Except those who work for AiG, of course.



Pasteur's Last Words

Certain issues gravely irritate our correspondent; here are a couple of them

Pseudoscience has few heroes. There's Immanuel Velikovsky and Nicola Tesla, of course, and perpetual motion frauds like John Keeley, but nothing like the pantheon of genius that real science can point to. One way of redressing this imbalance is to adopt real heroes and show how they were right when others around them were wrong (Galileo and Semmelweiss, for example), as if all it takes to be right is to have people say you are wrong. They also like to point to failed predictions by famous people, apparently to convince us that because, for example, Bill Gates was wrong in 1981 about how powerful personal computers would become, that scientists could be wrong when they say that homeopathy, mind reading or faster-than-light travel are not possible. Another tactic is to discredit real heroes by suggesting that the heroes themselves have recanted and admitted that their work was a fraud. One target of this kind of attack is Louis Pasteur.

It might surprise you to find that there are people who deny that infectious diseases are caused by infectious agents like bacteria and viruses. By doing this, they are able to support other mad ideas such as the "myth" of AIDS, and also to generally attack most of conventional medicine. (I am always amused when these people forget and offer Ingaz Semmelweiss as an example of a person persecuted by conventional medicine. If there are no germs, why would hand washing matter?). As Pasteur was such a seminal and

important figure in the history of microbiology and medicine he and his works had to be discredited, so a story was fabricated that he had renounced all his works on his death bed. There are various versions of the story, but they usually look something like this example:

Pasteur had the gold. He forced other competing theories to his germ theory to be ignored. I do believe that his biographer was correct when he reported that Pasteur said: "Bernard is correct. The bacteria are nothing. The soil is everything." Pasteur was revealing to the world that his germ theory of disease was concocted and false. Sad, isn't it, that modern docs still believe his lie.

Well, I obtained a copy of Pasteur's biography, and to nobody's surprise, he said no such thing. Of course, if Pasteur had really been demented and announced on his death bed that germs were little coloured flashing lights attached to tangles of green wires and you could see them on Christmas trees this would not have altered the facts. For some reason, however, the story of how he had renounced the germ theory of disease gives comfort to those with minds so decayed that they believe that all medical knowledge was complete at the end of the American Civil War.

Thanks to a second-hand and rare bookshop found through Amazon.com. I was able to obtain a 1926 English translation of *The Life of Pasteur* by Rene Vallery-Radot, first published in 1900. (I hope that I



Peter Bowditch, Vice President of Australian Skeptics, convener of Aust Council Against Health Fraud, and operator of ratbags.com, lists as chief among his hobbies "being threatened".

am in this good a condition when I'm 78 years old.) Vallery-Radot was Pasteur's son-in-law, and therefore much more likely to have been there during Pasteur's final hours than some other anonymous biographer or someone who waited until 44 years after Pasteur's death to write a book about one of his rivals (now forgotten except by quackery supporters). I will quote the last four paragraphs, and I invite people to save these words and fling them back the next time some liar says that Louis Pasteur supported their delusions.

Please note that the quackery supporters' derogation of Pasteur's memory also implies an attack on the countless millions of people, both children and adults, who lived (and continue to live) longer and happier lives because of what this man did. Part of the reason that they need to damage his epitaph is that they realise that the witchcraft and pretend medicine which they espouse will never throw up a person with a millionth of Pasteur's qualities, even if given a million years to do it. They resent goodness and genius because the presence of these shines a searchlight on the mediocrity and duplicity which are all they can offer.

Here is what Pasteur's biographer, one with a real name, had to say:



Louis Pasteur 1822-95

Pasteur's strength diminished day by day, he now could hardly walk. When he was seated in the Park, his grandchildren around him suggested young rose trees climbing around the trunk of a dying oak. The paralysis was increasing, and speech was becoming more and more difficult. The eyes alone remained bright and clear; Pasteur was witnessing the ruin of what in him was perishable.

How willingly they would have given a moment of their lives to prolong his, those thousands of human beings whose existence had been saved by his methods; sick children, women in

lying-in hospitals, patients operated on in surgical wards, victims of rabid dogs saved from hydrophobia, and so many others protected against the infinitesimally small! But, whilst visions of those living beings passed through the minds of his family, it seemed as if Pasteur already saw those dead ones who, like him, had preserved absolute faith in the Future Life.

The last week in September he was no longer strong enough to leave his bed, his weakness was extreme. On September 27, as he was offered a cup of milk: "I cannot," he murmured; his eyes looked around him with an unspeakable expression of resignation, love and farewell. His head fell back on the pillows and he slept; but, after this delusive rest, suddenly came the gaspings of agony. For twenty-four hours he remained motionless, his eyes closed, his body almost entirely paralyzed; one of his hands rested in that of Mme. Pasteur, the other held a crucifix.

This, surrounded by his family and disciples, in this room of almost monastic simplicity, on Saturday, September 28, 1895, at 4:40 in the afternoon, very peacefully, he passed away.

'Blasphemy' Precedes 'Science' in the Dictionary

Some years ago geologist Professor Ian Plimer wrote a book about creationism called *Telling Lies for God*. On a rainy Sunday night I went to a meeting in a school hall where someone from the Answers in Genesis Ministry did just that thing. The speaker started out by saying that he wasn't there to rubbish "evolutionists" and atheists because everyone was entitled to an opinion. He went on to, among other things, ac-

cuse the theory of evolution of being responsible for abortion, homosexuality, divorce, war and most of the other "ills" of the world. We were told that we would be shown scientific evidence that would completely refute and rout evolution and the false science on which it was based, and that this evidence would lead ineluctably to the conclusion that the Earth and the universe in which it sits are only about 6,000 years old.

The quality of this "scientific evidence" was embarrassing to look at, and the only charitable position to take was that the speaker was abysmally ignorant of even the most basic science. The alternatives were that he was either extremely stupid (which did not appear to be the case) or that he was prepared to deliberately deceive people who were somewhat illiterate in science. Just about everything except the Paluxy foot-

prints was produced as evidence, but one particular piece of sophistry is a good example of how obfuscation can be used to the advantage of someone who doesn't know or care about the truth.

One of the ways that creationists attack evolution is to try to prove that the tools used to show that the Earth is very old are faulty. The example used in this case was a test on sediments laid down in or near Spirit Lake by the 1980 eruption of Mount St Helen's. These were dated using potassium-argon dating, and the result indicated that they were millions of years old; therefore radioactive dating is faulty, as the real age of these deposits is known. It was pointed out by a skeptic in the audience that this was a totally inappropriate use of that technique as the half-lives of the elements in the decay chain are so long that it is only useful for dating rocks which are at least tens of millions of years old. The comparison was made with using a ruler a kilometre long to measure a baby. The speaker talked around the point for some time, and finally issued a challenge for proof that the rates of radioactive decay have not changed over time. It has been truly said that creationism is not just an attack on biology but on all science and all knowledge.

Another example of the dishonest approach of creationists could be found on the table of books and other merchandise at the back of the room. There was the usual array of books containing "facts" which have been refuted many times (and even some "facts" which the creationists say on their web sites should not be exploited any more). Prominent amongst all this was a stack of video tapes titled *From a Frog to a Prince*. It has been an open secret for several years that this tape contains a deliberate deception, but it is still on sale.

Briefly, biologist Prof Richard Dawkins was deceived into being interviewed for the tape (he has a policy of never giving interviews to creationists). He was asked a question which revealed the true purpose

of the interview, so he stopped speaking for a while to recover his temper. When the tape was finally released for sale, it had been edited to make it appear as if Professor Dawkins could not answer the question (despite it being the topic of a chapter in a book he had just written) and that he had gone on to give a completely irrelevant answer. (You can read a complete account of this disgraceful deception, as well as Professor Dawkins' comments and real answer to the question in *The Great Skeptic CD2* and back issues of *the Skeptic*.¹)

Could there be a greater abuse of both science and religion than creationism? The first eleven chapters of *Genesis* comprise a collection of inspirational allegories, written to illustrate the principles that there is one God for the all people on Earth, that mankind is fallible with free will to choose between good and evil, that the wrong choice has consequences, that salvation and atonement are possible, and that not everyone will be saved. It is true to state that these chapters of *Genesis* are fundamental to the understanding of the significance of Christ's crucifixion. What is not true is to say that the words in these chapters (or more accurately, the words in these chapters in the 1611 King James Version of the Bible) are literally true.

Claiming the literal truth of these writings places believers inside an insoluble paradox — either everything in the Bible is literally true, including all the contradictions and matters which are demonstrably untrue (a good example being that the first two chapters of *Genesis* disagree on the sequence of creation), or that believers are at liberty to pick and choose which parts of the Bible to believe. Saying that chapters 1 to 11 of *Genesis* make up a science text book is not only an affront to scientists, atheists, non-Christians and non-believers, but is deeply insulting to the intellect of the many theologians and believers who see the Bible as an inspired work of literature that explains the relationship between God and Man.

I am an atheist, but if I ever felt the need for a god I would want him, her or it to be the sort of being who could use a tool like evolution to carry on the process of creation. There is much to wonder at and be in awe of in the universe, but creationists deny this wonder and they belittle and ridicule the achievements of both man and their own creator God. I cannot put this more eloquently than Charles Darwin did in the final sentence of *On The Origin of Species*, when he wrote:

There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.

References

1. Dawkins, Richard "The Information Challenge", *the Skeptic* 18:4, pp 21-25
 - Williams, Barry "Creationist Deception Exposed", *the Skeptic* 18:3 pp 7-10
 - Williams, Barry "Creationist Deception: A Response", *the Skeptic* 18:4 pp 60-64
- All articles are contained in *The Great Skeptic CD2*.



Puppiology:

a New New Age Modality?

Remember all the methods of finding things out, often investigated in this magazine?

- Graphology: finding a person's character and future through studying their handwriting;
- Palmistry: through the creases on the palm of the hand;
- Phrenology: through the detailed shape of the skull;
- Dowsing: swinging a rod or pendulum;
- Astrology: through the apparent motions of planets and stars;
- Tea leaf reading: through the dregs in your teacup;
- Iridology: through the patterns in the eye;
- Sphincterology: best left unexplained.

Let me introduce a new one —

Puppiology, the New Age modality of puppy pattern reading.

In raising litters of puppies recently, I noticed that puppies sleeping in their box often form distinct shapes, and that the pattern changes every hour or so.

Now the sceptics among you

may think that the patterns are merely a random combination of the behaviour of individual pups. And that each individual seeks to maximize his/her personal comfort. Which includes factors such as:

I am too hot, so I will wriggle off the heating pad;

I am too cold, so I will wriggle onto the heating pad;

I like to cuddle up close to my siblings;

But that gets too stifling, so I will touch at one end only;

I need to practice how grown ups greet each other...

And the scientifically-interested among you may have read about cellular automata theory — which shows how many simple, random events can self-organize into large-scale patterns, even approximating letters of alphabets. (And violating the Second Law of Thermodynamics, if you believe the creationists.)

But I know better! Here we have all the ingredients of a new New Age science. A new art of divination — cuddlier than tea leaves (but sadly no drier).



Ian Bryce proves that to raise a litter of pups you don't need to be a rocket scientist, which is a pity, because that is what he is. No dogs were harmed in making Ian's hat.

Puppiology

We hear of scientists decoding the squeaks of dolphins, and parrots learning a large vocabulary. Dogs must be feeling left out of the action.

Lyall Watson showed the way with his *Hundredth Monkey* idea, claiming that new skills are learned with increasing ease as greater quantities of a population acquire them.

Rupert Sheldrake explained this with his *Theory of Morphic Resonance*, claiming it to be “the basis of memory in nature ... the idea of mysterious telepathy-type interconnections between organisms and of collective memories within species.”

What I have discovered is not so much the Hundredth Monkey but the Thousandth Dog. I can now reveal that, once the concentration of canine consciousness reaches a critical threshold, the collective IQ's and tribal memories fuse together into a *Resonant Morph*. Thus secret knowledge can be revealed in mysterious ways. Like the Ouija Board, the puppy patterns are simply a medium for materialising messages (one letter at a time), without violating any laws of physics. The Bubblejet of the Ectoplasm.

Some typical shots are shown here, and I leave it to readers to decipher their message. Remember, they may use letters and characters from any language used where dogs have been raised. Are there any linguists out there, cunning enough to decode it?

What messages for mankind from collective dogkind will be revealed? Over the course of two evenings, my puppies spelt out letter-by-letter “BONE PLEASE”. But you'll have to take my word for it, because my camera's memory was full.



Sample Puppy Patterns



- A mug shot of the culprits.

Pseudoscience from a French Perspective

Debunked! ESP, Telekinesis, and Other Pseudoscience, George Charpak and Henri Broch (translated by Bart K. Holland,); Johns Hopkins University Press

Does the paranormal exist? Is there some basis for ESP, telekinesis, astrology, and the other beliefs to which many so tightly cling? We cannot prove that they are nonsense, but we can show evidence at least that they are highly questionable and that they are used by hoaxers for fame and profit, especially when those hoaxers pretend to be taking a scientific stance. A wonderful lesson that The Amazing Randi and Penn and Teller have taught us is that magicians can make almost anything happen, or *appear* to happen, and that scientists can get fooled watching these tricks just as well as Las Vegas audiences can.

A happy, short, and informative book, by Nobel prizewinner George Charpak and his colleague in scientific investigation of the paranormal,



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

Henri Broch, it is a plea for intelligent avoidance of deception. It is translated from the French, but don't worry; Bart K. Holland, has himself written about the probability errors that people are prone to, and has an interesting preface to tell how he faithfully worked on the translation.

Much of the book is devoted to magic tricks. It is all very well for a magician to go on stage and pull a rabbit out of a hat. We know, in our hearts, that no matter how clever and convincing the trick is, molecules did not fly from nowhere in order to make up a rabbit at the magician's command. The magician has hidden the rabbit beforehand, and that is all there is to it. He has tricked us, but honestly tricked us; it isn't anything but a trick, and we know it and he knows it. But then there is the problem of the magician who can do a good trick, and claim it is no such thing; it is a miracle, the suspension of the laws of physics at his command.

The authors want readers to know some of these tricks; if they can show you how keys can be magically bent (like rabbits can be magically produced), it makes no sense to assume that the bending is a miracle. Uri Geller is terrific at key bending, but so is author Henri Broch. And he gives away the secret here; it is a physical process no more supernatural than using a lever, but done in a hidden manner, the way all magicians do things. Geller claims a miracle; Broch claims a trick. Quite simply, if both performers produce bent keys in some covert way, whose claim is more credible?

There is a wonderful ESP trick given here, illustrating the principle of surreptitiously conveying informa-

tion so that it looks as if you have telepathically sent it. You can learn to stop your heart just like the yogis do, or at least you can make it seem so. There is a reproduction of a delightful woodcut from 1584, showing the venerable "arrow-through-the-head" gadget; the depicted performer also has a knife through his hand and a sword through his gut.

The book was written by Reginald Scot, a man the authors obviously admire as a predecessor:

The Discoverie of Witchcraft is a particularly courageous work because it is a rationalist treatment with the aim of demystifying the superstitions of its day, witchcraft in particular.

Scot also showed how to move coins or balls mysteriously around a table or make coins disappear, or a severed head talk. But not everybody wanted the public's eyes opened; King James I, a fan of the persecution of witches, declared the book anathema, and would have destroyed every copy if he could have.

Modern media have a similar interest in keeping people fooled. It is a paradoxical comfort to know that in France, not just the US or Australia, there are television shows that exploit people's gullibility in the guise of documentary programming. There is a sarcophagus in the ancient town of Arles-sur-Tech which "miraculously" accumulates a quart of water a day. It became particularly famous when it was the subject of a television show called *Mysteries*, which showed just how completely inexplicable the manifestation of the water was; it did not come from a spring, nor rain, nor dew, but was a mystery that had baffled science.

Investigating a Chimera

Journalists picked up on the story, increasing the wonder at the mystery. The appearance of the water indeed was a puzzle, but “was” is the operative word. Hydrologists had investigated the interesting phenomenon and in 1961 had given a published, thoroughly natural explanation of the manifestation of the water by rainfall and condensation; the report is summarized here.

The producers of *Mysteries* favored mystery, even at the cost of lying to the public about the phenomenon. A producer asked one of the authors to be a scientific consultant for the program on the sarcophagus, and was simply referred to the non-supernatural research that had been done. The show went on, with no mention of the real science done, as have shows about how pyramid power can be used to mummify meats or sharpen razor blades or how ghosts and poltergeists are being found by means of new technologies.

The book is packed with many other examples: the satanic face that appeared in the smoke from the World Trade Center, firewalking, divining rods, amazing coincidences, and more. The authors are amused by these follies, they are happy to demonstrate physical explanations for them, but they are also indignant. They are convinced that minds poisoned by pseudoscience are more tractable by those in power:

Thus we are witnessing a mystification of knowledge, which results in a concept of the world in which many things are forever outside the understanding — and the control — of most people.

Clear thinking by the public, they remind us, is vital for the action of democracy. Choices must be guided by rational thought, as much as possible.

The book wonderfully proselytizes for the power of rational, scientific investigation. “Rationality, too, can lead to error,” the authors remind us, “but a lot less often than ignorance and superstition will.”



Homeopathy: How It Really Works, Jay W Shelton. Prometheus Books 2004.

Jay Shelton, PhD, is a Harvard — and UC Berkely — educated physicist and has enjoyed careers as a college professor, director of a research firm, writer, and consultant. He currently spends most of his time “encouraging students and adults to question, research, and evaluate all sources of information, including their teacher.”

I have read many books and articles about homeopathy; this is the best so far.

For anyone who wants to know the history, the remedies, the research evidence and the logical structure of homeopathy, this is the book. It is easy to read and understand.

Shelton has carefully researched the subject and I cannot imagine a more comprehensive and scholarly discussion of homeopathy. This scholarly approach outlines the evidence for and against homeopathy, allowing the reader to form his own conclusions.

The chapters are:

Introduction to Classical Homeopathy.

Types of Homeopathy: Commonalities and Contradictions.

Remedy Potency

Proving

Selecting the Remedy

Administering the Remedy

Following the Patient's Progress

Nonremedy Healing Mechanisms

The Essentials of Good Theories

Cured Cases: Reliable Data?

Clinical Effectiveness Testing: The Bottom Line

Animals, Babies, Epidemics, and Vaccinations

The Homeopathic Fringe or the Leading Edge?

The Mechanisms of Misperception.

Further details such as remedy preparation, properties of water (according to homeopaths), remedy selection procedures and clinical trial preparations are discussed in the six appendices.

Each chapter begins by defining its subject, goes on to describe how this is used by homeopaths in their diagnosis and treatment, and then carefully examines the rationale, the science and the evidence. Shelton has read a large number of articles and papers by practising homeopaths and quotes them liberally in the text and in his end of chapter notes. These endnotes are extremely useful as guidance for further reading.

Anyone reading this book will not only learn a tremendous amount about homeopathy but an even greater amount about the process of critical evaluation. So if you are interested in critical evaluation in general and/or homeopathy in particular, I cannot recommend this book too highly.

Buy it!

Richard Gordon

News From a Nuclear-Free Neighbour

***Nuclear New Zealand: Sorting Fact from Fiction.* Andrew McEwan. Hazard Press, PO Box 2151, Christchurch, NZ 2004. ISBN 1-877270-58-X.**

It is good to see a little sanity emerging at last from a nation gone nuts on nuclear issues. Dr Andrew McEwan, the recently retired head of New Zealand's National Radiation Laboratory, has at last spoken out publicly now that he is free of civil service constraints. Not that he was ever shy bringing out the facts on contentious matters of nuclear science. However, for the everlasting benefit of his fellow Kiwis, he has now gone all the way in exposing the moral and intellectual bankruptcy of the noisy anti-nuclear agitators and their smug fellow travellers. Not to mention a fearless appraisal of the absurdities of New Zealand Government policy on nuclear affairs.

What better testimonial could he earn for his frankness than to have Greenpeace write to the Prime Minister demanding "...that Dr McEwan needs to be hauled over the coals and replaced." Well, of course. The topic in question was the emotive issue of French nuclear testing in the South Pacific, and Greenpeace had many supporters on that front. But Dr McEwan had gone to Mururoa, and had measured the radiation levels at first hand, and had returned home to fearlessly tell the truth. He did not massage his

readings to curry favour with his political masters or the anti-nukes baying at his heels. He simply delivered the scientific facts, regardless, and thereby preserved his integrity. Here he presents a valuable report for every seeker after truth. In a couple of chapters he details in understandable prose practically all you'd ever want to know about the French nuclear tests.

Dr McEwan is just as informative about the British nuclear tests in Australia and to some extent the American tests in the Pacific. As an internationally recognised expert on the measurement of nuclear radiation he has been granted privileged access to many testing grounds — after the events to be sure! He candidly tells us his findings and unfortunately they give no comfort to those seeking compensation for allegedly harmful radiation exposures.

The remainder of *Nuclear New Zealand* is just as informative about other nuclear issues. Dr McEwan draws upon the latest official reports on the Chernobyl disaster, for example, comparing it and a few other nuclear incidents with much worse non-nuclear disasters. The shipments of nuclear materials and wastes through the Tasman Sea evokes a thorough discussion of every aspect from the practically indestructible canisters employed to the special ship design preventing any feasible possibility of environmental harm. There is scarcely any aspect of radioactivity that does not gain a mention in this comprehensive treatment.

There is amusement too in the book. A naturopath conned a client into believing that his TV and stereo emitted dangerous neutron radiation, and he, the naturopath, claimed to have stopped it by installing a metal grille over the loudspeakers and a coil in front of the TV. The client was satisfied the supposed radiation had been stopped (there could not have been any!) but wanted Dr McEwan to tell

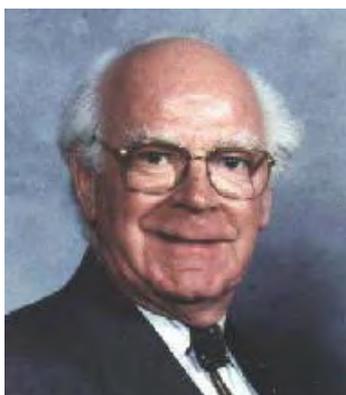
him what sort of hazard he had been exposed to beforehand!

There is a chapter near the end of the book which discusses non-ionising radiations such as those from VDUs, computers, microwave ovens, mobile phones (and their towers) and high-voltage transmission lines. Because alleged effects are so hard to quantify, and often cannot be reproduced in laboratory tests, any conclusions are full of doubt. Dr McEwan has named, and chastised, some of the most vocal self-appointed experts who are keeping the public pot boiling on supposedly harmful radiations. He tells of a woman who took her son (previously diagnosed with a viral infection by a GP) to an acupuncturist who "put him on a machine and said that he had a lot of radiation in him — about 85%." The woman had been listening to scaremongering and was concerned about radiation from electrical distribution transformers.

Dr McEwan concludes with a few terse reflections on foolish, if not to say ridiculous, attitudes about anything nuclear or radiation related. In this part of the world the Kiwis are not alone in their muddled thinking. I found no errors in *Nuclear New Zealand* and the only quibble is that I'd have liked the print to be a point larger (with perhaps a darker type-face). But then the book would have run to more than its 275 fact-packed pages.

Here is a very readable presentation of valuable resource material, well-indexed and perfect for anyone wanting to know more about a controversial subject, or be better armed against the dubious arguments presented by well-meaning, but scientifically challenged, partisans of an anti-nuclear persuasion.

For that and other good reasons this book should be available in every major public, parliamentary and university library in Australia. Good, reliable nuclear information is hard to come by



Colin Keay is a physicist.



The Economic Impacts of Pseudoscience

Skeptics have criticised government policy in an *ad-hoc* fashion, complained about the way the media operates, and made various other judgements about the world. There's been criticism of one Government scheme (The New Enterprise Incentive Scheme, or NEIS), which promotes people entering small business, when this has promoted businesses based on fortune telling. It is easy to make these *ad hoc* criticisms, but if you're going to criticise government policy, you need a much broader appreciation. We know there's bad stuff going on. But how much? Are things getting better or worse? How do we measure the impact of pseudoscience?

The NEIS program

First, consider the NEIS program. If someone is no longer on unemployment benefits, we all benefit from the lower tax burden. Would we rather pay additional tax and not have the govern-

ment sponsor astrology? Or, if we're willing to pay extra tax, how much?

Here is where ideas about skepticism and astrology collide with the nature of government, and the relationship between government and society. It's too easy to ignore the bigger picture. What is not important (from the government perspective) is how useful the work of that individual is. All that is important is that there is a market for it which can sustain the business and keeps that person out of unemployment. In a sense, that's what the economy is about. While it's good to keep someone out of unemployment, it's even better if that person is employed doing something useful. But that's the result of a broader, more elaborate analysis.

Just what do we mean by 'useful', and how is it different from merely feeding a market? A compromise may be: seek close-to-full employment first, then worry about what people are employed *in*. A bias against employment in 'non productive' fields, which Skeptics would presumably rally behind, could be seen as uncaring in the face of chronic unemployment. The economy should allocate resources in the most efficient fashion. Of course, this varies depending on your political biases.

Perfect information

Here, I'll focus on the notion of perfect information — we know exactly what we are buying and what its value is. In reality, information is limited, and advertising is used to generate a false impression of just how valuable something is. We pur-

chase based on perceived value, not objective value. If the economy allocates resources, it will efficiently seek *perceived* value, not *objective* value. And perceived value is itself open to manipulation — that has been cited as the paradox of advertising.

Many Skeptics' issues have their origin in imperfect information. People think, incorrectly, that astrology predicts something worthwhile, quite apart from being mere entertainment. They also think, incorrectly, that gambling will provide us with benefits. Astrology is promoted as providing *information*, not just *entertainment*. Their promotion has been underlined — there is an "intended for entertainment only" disclaimer in associated advertisements, but at all times astrology is promoted as providing *accurate* information.

Is astrology a 'con'? How does it differ from drugs, gambling and financial scams? Speaking economically, we can look at an individual's behaviour as 'maximising satisfaction', derived from what they spend. In deciding to consume astrology, a consumer has decided to forego something else which could have provided the benefit promised, in the mistaken belief that astrology provides information, not just entertainment. That person is not, in fact, acting to maximise their satisfaction, though they maybe maximising their perceived satisfaction. But, real satisfaction and perceived satisfaction can coincide. It is an analogy to the placebo effect. Sure, they may be deluded, but what is happiness worth? How can we trade it off against deceit?



John August

There's the view that deceit is always bad, with no other consideration. There's also the short term and long term. In the short term, we may *feel* better, because we *think* we are better off, but we may find in the long-term that we're not better off after all. But do we learn from this? Maybe we will, or perhaps we will stay in a rut. In the extreme, charlatans may sell cures to a terminally ill patient. They die, and do not have the opportunity to learn from their mistakes.

Rough world

Here I will make a diversion into how rough the world is, and how reassuring a belief in astrology, spiritualism and similar ideas can be. The world *is* a rough old place, dominated by the manipulators. Knowledge, especially scientific knowledge, is used by the manipulators, but it can give knowledge a bad name. Spiritualism and other ideas are a wonderful escape in comparison. An atheistic, evolutionary view of the world *can* be empowering and uplifting, but you can't get much from a little bit of the evolutionary world. You need a lot, you need to let it sink in. By comparison, a little bit of spiritualism yields a ready, albeit small return.

With the world the way it is, I'm not surprised so many people turn to pseudoscience. Lets compare gambling as possible self-delusion. In gambling, some people may be aware that the odds are against them, but still gamble for entertainment or because they are addicted. Some might be genuinely deluded about their chance and not understand how the odds work. It is a difficult judgement. Is a gambler operating to maximise satisfaction? If astrology is bad because of the difference between what is promised and what is delivered, well, there is a lot of this going on.

Setting the target

The question is why it should be targeted in preference to, say, manipulative advertising. Or we could admit that astrology is one of a

range of problems in the economy, and while there are others, it is an area where we can make a difference. We have broader issue than Skepticism. It goes to the nature of society, the laws of government and their relationship to the people. How far should we go in protecting people from themselves?

Skeptics do make a distinction: they do not interfere in people's sovereignty to consume, but they do interfere in people's ability to sell something based on falsehood; that is, fraud. However, I see *Skeptical fraud* as something at one end of a continuum — one which starts with manipulative advertising. Skeptics may see a distinction between the two, but it seems an arbitrary distinction to me. We can distinguish between 'productive economic activity' and 'unproductive economic activity'. There is a clear and obvious distinction at law. Economic activity which is criminal, and involves the use of someone else's money or resources without a fairly negotiated sale — it may be economic activity, but it is clearly unproductive. What we're trying to do is broaden the definition of unproductive activity.

Consider three different cases:

watching a movie;

gambling;

getting an astrological forecast.

In all cases, the consumer is occupied for sometime and there are jobs in the provision of the service. The difference is in just what is delivered for what is paid. Astrology does not deliver information; gambling delivers odds which one can be easily deluded about; the movie gives you time for your money, and if you like the film, it will have delivered on its promise.

Consumption and investment

We can look at investment as well as consumption. Investment generates 'a produced means of production'. Its sometimes suggested that 'we need more investment'. If people are exercising their free will, they consume and that's it. But, we can rationalise

that *consumption* of pseudoscience reduces the total societal investment as well — that's separately to whether someone has maximised their satisfaction.

Education is considered 'an investment'. Of course, that's the ideal. Higher education can provide a work-force with people more qualified than they need to be in a given job. But qualifications have the potential to be used. Some forms of consumption have an investment component.

Reading science, in principle, means we invest in ourselves as informed participants in society, and can make better decisions. We see the link that Skeptics will read science, and promote it. Reading science increases the 'intellectual capital' of society. This is looking at investment as something broader than 'a produced means of production', though you could say that knowledge is a means of production, or at least an element of it. Consuming science information is a better form of consumption, because of the related investment — a society which consumes science information rather than pseudoscience will be making a greater ongoing investment; this is an economic justification of Skepticism as compared to pseudoscience.

There's some debate about the 'productiveness' or 'efficiency' of the economy; it is something we should now consider. I can see economic arguments about efficiency which focus on pseudoscience. But, equally, its possible to see systematic inefficiency in the economic system around us. Advertisements persuade you to throw away something old before it is worn out, and replace it with something new (which will probably wear out quicker so you do not need to be persuaded next time). According to the Galbraithian view, we produce goods not because they are in any sense *necessary*, but rather because we need to produce them to keep people employed.

Rather than seeing the consumption of astrology as meaning the consumer is not seeking maximum

satisfaction, we could see an economy where there is less astrology consumed as a more efficient one. An economy making less use of astrology is still more efficient, but the argument loses some of its strength when you compare it to the inefficient morass that is the economy around us. If you assume we *need* a healthy economy, then you can justify a lot of things.

A healthy economy has growth, and growth means greater prosperity for all. I feel that the benefits of economic growth are captured by those who place themselves strategically, not by all. OK, perhaps my political biases are showing there, but it's difficult to prove wrong. And if people consuming astrology means a healthy economy — with more buoyant employment, is it worth it? Skeptical changes means that they would reduce employment in some areas and put people out of jobs. But, on the other hand, you hear phrases like 'labour market reform' used to justify changes which reduce employment ... so perhaps it just depends on what your currency in ideas is.

There is a range of policies, from differential taxing to prohibition. The GST on books illuminates this range, even though it's no longer a contemporary issue. There has been no discussion on this in *the Skeptic*, while there was discussion on whether religious services should attract GST. Saving books from GST might have been an effective subsidy in favour of increasing our intellectual capital. At least, that's the idea. Go into a bookstore, and you will find books with titles like *The Secret Language of Birthdays*. Publishers and book sellers like to give us the impression that books are noble things, an expression of highest potential of mankind. This is a

distortion. Books *can* be this, but they do not *have* to be. Booksellers and publishers are primarily in business to make money, not to participate in a noble undertaking. Saving books from GST is too blunt an instrument. It encourages book sales — but not just the good ones.

We must face some realities about policy making. Ministers respond to the balance sheet of different departments, and worry about aggregate figures like unemployment. What we lose by embracing pseudoscience does not make itself known in these figures.

Influencing policy

Just how should Skeptics try to influence Government policy? Skeptics have initiated court cases. It may be possible to change Government policy, but we would have to become a lot more politically astute, and become aware of the big picture which lies outside of Skepticism. We must be more than Skeptics; we must develop an awareness and appreciation for other political influences — have something to say which is greater than our own set of concerns, and is important to the overall economy. From a pure economic viewpoint, there's just consumption. We add this up to get the Gross Domestic Production (GDP). But this measure has been criticised for including spending on unproductive activities (eg, accidents). Another measure, which distinguishes between productive and non productive economic activity, Measure of Economic Welfare (MEW) corrects for such effects. From this point of departure, we can correct MEW for further effects we see as unproductive.

What about gambling? Cynically, you can view this as 'statistical ignorance tax'. It provides for some peo-

ple to be employed (and even some Government revenue) based on the willing expenditure of others. But, gambling has social impacts. It can prod people into a downward slide ending in poverty.

Spending on unemployment benefits should count as negative. But, how should spending on astrology be counted? As more or less negative than unemployment? How about alternative health care? Unemployed people may steal, kill themselves through drug addiction, or many other behaviour patterns. If they are employed there will be less of this, which is a benefit. While you hear stories about people doing in their life savings through gambling, the same cannot be said about astrology. But the mind-set which embraces astrology might be thought to be more susceptible to cons. Then there are addictive drugs, both legal and illegal. Tobacco, alcohol and caffeine.

We'd count criminal economic activity as negative, as would expenditure on 'scams', something covered in *the Skeptic* in several issues. So, with our 'Skeptics MEW', we can assess just how far-gone the economy is, and better articulate the impact of pseudoscience. It would not be a substitute for argument, but it would help to illuminate the issues and get a handle on just how much pseudoscience is impacting the world. In any case, this is the world I see. A much more complex one, and one where a superficial Skeptical view does not get you far. But, of course, it's possible to improve that view.



National Convention Sydney, November 12-14.

Letters

Radiation

Ken Brownlie
Woodlands WA

I recently reread Colin Keay's article "Arsenic and radiation" (*the Skeptic* 19:3 pp 14 - 17) with a sense of satisfaction that probably resulted mostly from finding he agreed with my personal suspicion; that low levels of radiation are not harmful.

For much of the 1990s I was the diagnostic radiologist member of the radiation safety authority in Western Australia. Although the ALARA (As Low As Reasonably Achievable) principle for medical diagnostic radiation and a degree of anxiety about the effects of radiation on humans, effectively discourage profligate irradiation of the community, I was concerned that the international standards we felt obliged to follow were based on dubious extrapolations from higher doses, and seemed more speculative than the result of hard evidence.

I have never heard of any proven long term health damage resulting from valid use of radiation for medical diagnosis, some bizarre court decisions excepted, although I have not searched for such effects. Nevertheless, for many years I have supported the official line, and taught that radiation for diagnosis should be avoided where reasonably possible, mainly as a way of trying to protect innocent patients from unnecessary tests that were likely to make only their doctor feel better.

Incidentally, if radiation felt like iced water when it hit someone, I reckon it would be used rather less often than it is.

Anyway, after several years' exposure to skeptical thinking in our fine journal, I now want to present a more balanced attitude to the few students I may be able to influence and intend to recommend Colin's article to them.

I expect they will only bother to read it if it is easily accessible. Although I could arrange photocopies, with your permission please, it would be better if it were available through the Skeptic web site. Is it possible that may occur, or if it already has, could you please tell me the pathway to it?

It will soon be available on our web site. See announcement on p 29 this issue. **Ed**

Correction

Paul Blake
Forest Lake QLD

I thank Colin Bembrick (*Letters* 24:2) for correcting the error in my article on the Three Sisters (24:1). I realised I was in error in saying that the Three Sisters were formed by the Hawkesbury Sandstone instead of the Banks Wall Sandstone shortly after publication of the Autumn Edition of *the Skeptic* 2004. I sent a corrected version to the *No Answers in Genesis* website on April 2, 2004 (http://home.austarnet.com.au/stear/walker_three_sisters_blake.htm). Since then, work commitments have kept me from thinking about it. Fortunately, this error does not affect any of my conclusions regarding Dr Walker's creationist writings on the Sydney Basin.

Also, since the publication of the article on the Three Sisters in *the Skeptic*, I have been given a copy of the newspaper article referred to by Dr Walker. It seems that Dr Walker has not bothered to read it, since it states that Dr Conaghan came to his idea about large floods from the massive, almost featureless sandstones within the Hawkesbury Sandstone, and not from the size of the cross-bedded sandstones. However, the large floods, interpreted by Dr Conaghan to have occurred, do not provide any support for a global flood, since Dr Conaghan interprets them to have been caused by glacial lakes bursting through ice dams. These sorts of floods are known as *jökulhlaups*. So, once again there is a modern day environment capable of producing the features seen in the Hawkesbury Sandstone and there is no need to invoke Noah's Flood to explain the geology of the area.

Ethical?

Michael Lucht
Burnie TAS

Australian Ethical Investment Ltd, one of the largest ethical investment companies in Australia, has recently branched out into overseas investments — and alternative medicine! They invested in Boiron (of France), "the largest manufacturer of homeopathic remedies in the world." According to the *Australian Ethical Newsletter* (June 2004):

Homeopathic remedies are considered to be innocuous and free of the unin-

tended side effects that many 'conventional' drugs possess.

If homeopathy is humbug, as the weight of evidence suggests, then this investment directly contradicts the company's Ethical Charter:

The Trusts shall avoid any investment, which is considered to unnecessarily:

(iv) market, promote or advertise, products or services in a misleading or deceitful manner."

Any investors with Australian Ethical are urged to write in to highlight this sad state of affairs. Alternatively, one could take the money out and make a more honest investment — tobacco stock, say.

I've already e-mailed them 2 week ago — no reply yet. I'll keep chasing them.

Anthropological controversy

Mark Newbrook
The Wirral UK

Not for the first time, *the Skeptic* has carried an account of the Mead-Freeman anthropological controversy which reads as rather one-sided (Clark, 24:2, pp 14-19). For the benefit of those who have not followed this case, it must be pointed out that Shankman is by no means alone among academic anthropologists in dissenting from many aspects of Freeman's position on Mead. Furthermore, many skeptics, in the USA and elsewhere, hold that Shankman and other scholarly critics of Freeman make out arguable cases, at least in part. In fact, while I myself accept part of Freeman's case, I also believe that he seriously — and perhaps tendentiously — overstated the implications of remarks in Mead's correspondence which he cited as decisive evidence shortly before his death.

And, while some of the attacks on Freeman were indeed intemperate, his own responses to scholarly critics were often no better. Indeed, he seemed unwilling to accept that anyone (however well versed in the discipline) might rationally disagree with

him. This view stands at the top of a slippery slope into dangerous depths.

Since Freeman was made Skeptic of the Year in 1996, and indeed for longer, skeptics in Australia who would defend Mead against some of his attacks have had to do so in a climate of opinion which might suggest that their skepticism is thereby being compromised — when their own position often includes the view that Freeman himself did not behave in a genuinely skeptical manner. In 1999, when I organised a debate in Melbourne between one such prominent skeptic (Rubinstein) and a fervent supporter of Freeman (Gerrand), it became clear than many local skeptics were not even aware that there was an 'anti-Freeman' case which warranted attention.

In this context, I note that critics of Lomborg have met with similar dismissal (see, eg, Jurgensen's letter, 24:2, p 68). There is also a risk here involving scholarly critics of postmodernism, such as Windschuttle, who can easily become skeptical heroes. We skeptics are rightly quick to criticise many of our opponents for their tendentious acceptance of weak evidence or argumentation that would support their ideas; but we ourselves (especially where we are not expert in the relevant discipline) must be careful not to endorse certain viewpoints over others, merely because those propounding the former are our allies, or because their positions would suit our wider agenda. As empiricists, we have to face the possibility that Freeman, Lomborg etc might be mistaken, very largely or at least in important respects; and in the meantime we have to take seriously scholarly opinions on these thinkers which differ from our own.

Lay off the SF fans

Garry 'Shocked and Appalled' Dalrymple
Earlwood NSW

At the bottom of page 37 of the Winter 2004 edition (24:2), an otherwise satisfying article on spirit writing/luke-

warm reading is marred by Karen Stollznow's statement that the cause of her spirit writer's choice of names for her three guiding 'spirits' was: 'Lisa is obviously a Science Fiction fan'.

I must protest at this misrepresentation of 'Science Fiction' and SF Fandom!

Lets get it straight, although all Fiction is 'Fantasy', there aren't many spirits and ghosties to be found in real 'Science Fiction' (SF). Spirits and all manner of psychic thingies are more frequently found in those appallingly thick and derivative ten part "Trilogy Fantasy" genre books, along with Wizards, Runes, Rightful Princes, Unicorns, Crystals, Dragons, Charms, Quests and all manner of 'magics'.

Karen should feel free to criticise some sorts of 'Fantasy' for creating minds predisposed to irrational beliefs — If she has some evidence that this is the case. But lay off the SF fans; us geeks have secret super powers you know! Attitudes like this can get you 'ansibled'.

Elsewhere, on p 27 of this issue of *the Skeptic* there is a description of two SF fans that is more recognizable to my experience of such fans. Bad Astronomer, Phil Plait, describes his development as a Skeptic about UFOs as being a consequence of his being a SF fan. This interpretation of the effect of reading SF is of course diametrically opposed to the spirit of Karen's comment.

I would not be surprised to find out that prior SF readership was as common among Australian Skeptics as well ... Beards?

Good SF is a form of writing where Science fact and speculation interplay. In my experience, youthful SF readership, and its exposure to a torrent of alternative fictional ideas is a very effective (non-homeopathic) immunisation against most forms of credulity and irrational beliefs in later life.

Too often I hear news presenters introduce a damn weird story with "it may sound like Science Fiction but ..." when what they should have said was "it is beyond my competence to explain". To allow any word associated with a warm feeling towards science to be redefined as 'beyond normal human understanding' is to give

up ground to the peddlers of irrational beliefs.

C.S. Lewis and J.R.R. Tolkien were both strongly Christian writers who defended their fantasy works against other Christian detractors by saying that reading their works of the imagination served to open and prepare readers' minds to breadth of the gift of God's grace and forgiveness.

In a similar way, I believe that youthful readership of good SF warms the seat that Science will later fill. Good SF can be like Skepticism, in that it is well thought out and capable of expanding human understanding.

Wishing you well in all things. (Ask me about a Freecon SF event in August)

Confession of a geekish editor

I'll endorse your sentiments. SF is among my favourite reading matter and I hate having to wade through drifts of "Fantasy" detritus to get to it. I like my SF to have at least a nodding acquaintance with science, just as I prefer my crime fiction to have solutions deduced by professionals, rather than by cats and clergy of various stripes (and I'm a cat fancier). **Ed**

Newspaper matters

John Johansen
Noranda WA

I have just completed reading Guy Curtis paper on Newspaper Horoscopes (*the Skeptic* 24:2). It was very interesting and you got quite a lot of information out of your little survey.

Yes indeed, who in their right mind read them (Horoscopes)? I fully agree with you on most of your conclusions; however there are a few facts you may not be aware of. So the following should not be seen as criticism, rather as supplementary information.

I worked for the *West Australian* newspaper over a period of 18 years and have recently retired. The "West" is a tabloid paper, not broadsheet as your example; however the principles are basically the same.

First, you cannot just drop a third of a page. A tabloid newspaper is built four pages at a time, ie, a 68 page newspaper have pages 1 and 2 on one side and pages 67 and 68 on the other. You can only drop or add four pages at a time. The other thing is, it is a misconception that the readers are the newspaper's "customers". No, the real customers are the advertisers, though circulation (number of readers) determines the price of column space.

Why is this so? Because a full page ad in Saturday's *West* is about \$16,312 and during the week it is \$10,322. This is big money, so imagine dropping four pages.

Why would you drop four pages? On average there are 3—4 pages of ads for alternative medicine, then more classified pages with massage, holistic therapy, looking good, weight loss, not to mention psychics and clairvoyants. If these advertisers started looking for alternative ways to advertise their trade, the paper could easily drop four pages losing up to \$65,248 in turnover per week, just on Saturdays.

The horoscopes go hand-in-hand with all alternative services; dropping one could easily cause the others to drop their ads too, making it less attractive for the readers. This is the reason Cars and Houses have their own "lift out" pages. Keep it all together and make it attractive to the consumers.

By the way, *The Saturday West* sells for \$2. This is less than the cost of the paper without print on it! The paper cost alone is around \$4, then it still has to be printed. Who pays for that? The advertisers of course, so the advertisers are the newspaper's real customers, and they actually subsidise the cost to the consumer. Hence if they want the horoscope to stay, then you would be a brave editor to drop it, and if you did, the CEO would soon, via shareholders' wishes, bring them back in.

Another by-the-way. Many years ago we also printed a tabloid called *The Daily News*, usually 16 to 48 pages, and that paper also had horoscopes every day, until one day something happened, no horoscope had been delivered. What to do? Some

smart-aleck suggested that they put old ones in the paper, and so, for two years the horoscopes used were many years old, but no one complained. They must have been so well written that they fitted everyone's profile

No I am not a journalist, I only fixed the paper's electronics, computers, controllers and the like, and in general kept a low profile. I can, however, do high voltage switching and so can incinerate anyone criticising me.

Coeliac's and dogma

Ken Newton
Nunawading Vic

In 2003 the Vatican decreed that only wheat-based flour could be used for the bread (the wafer) in the Eucharist. Thus the wafer would contain gluten and trigger an allergic reaction for those with coeliac disease who ate it. In the past decade a wafer made from maize flour, with no gluten, has been used. Now this wafer is to be replaced with a low gluten one made from wheat flour. Even a low 200 ppm of gluten could produce a reaction in sufferers.

In Melbourne's *The Age* Professor James Goding, an immunologist, wrote that because the wafer is converted into the body of Christ — the dogma of transubstantiation — an allergic reaction should not occur. If it did happen then the dogma cannot be correct. Justin Ford then wrote a letter (28/8/04) explaining that transubstantiation has the inner nature of the bread changing, whilst the verifiable properties such as nutritional or chemical effects remain unchanged; so a reaction would still occur. He added that the Catholic tradition gives the power to change only wheaten bread into Christ's body and to use a maize-flour wafer would mislead people.

All of this was thrashed out at the Council of Trent in 1551. Later, in Lutheranism, came the doctrine of "consubstantiation". Also of interest is the question of leavening the bread; not possible without gluten. The Eastern Orthodoxy use leavened bread which is dipped into the wine.

Decidedly negative

Belinda Bowditch
Northmead NSW

At the risk of losing my “reputation”, I have to admit that not long ago I flicked through *Girlfriend*, a magazine aimed at young teenage girls. In between articles on being yourself no matter what, and the compulsory misinformed pieces on mental illness (but that is another rant in itself), I found a quiz entitled “Do You Have a Positive Outlook on Life?”

As the title suggests, it was a quiz that would supposedly be able to inform you as to whether you’re a positive or negative person. Personally, I think anyone who needs a quiz in a magazine to tell them this must have negative IQ points, but each to their own. I had no particular problem with this quiz at first — it seemed like harmless fun for bored young women — until I came across the question, “How do you think the Universe was created?”

One of the options was, “God created it and the Garden of Eden,” and the other was “I believe in the big bang theory.” I hoped against hope that what I thought I was seeing was some sort of illusion — a vision sent from God, even. But no, as you may have guessed; If you chose the first option, you are a positive person, and if you chose the second, you were negative.

I was shocked and disgusted to know that this was published in such a well-known magazine — a magazine that claims to “encourage girls to be who they want to be no matter what”, and to think for themselves. I don’t like to think that girls my age are being taught that believing science over a book of fables is to be considered negative.

Do I have a positive outlook on life? I couldn’t bring myself to finish the quiz. But after reading it, I’m probably more pessimistic now about life — where magazines meant to provide light entertainment instead try to tell me what I should and should not believe.

I’ve had it

Alan Moskwa
Kensington Park SA

Mark Newbrook in *Word Play* (24:2) plays with words well. But I think he misinterpreted the sentence (his example) “Where John had had ‘had’, Had had had ‘had had’” as a ‘spoof’. It has eight ‘hads’ in it, but it does have a dodge, in artificially using one of them — Had — as a proper name.

However, it is possible to string 11 ‘hads’ together, without artificially using one of them as a name, and the sequence will be completely grammatical and perfectly comprehensible. It is simply a matter of correct punctuation and demonstrates the point (although not used by her) of the panda in Lynn Truss’ book *Eats Shoots and Leaves* (which does **not** refer to the crude Australian wombat joke).

This is an example:

Smith, where Jones had had ‘had’, had had ‘had had’: ‘had had’ had had the teacher’s approval.

It makes sense, it is meaningful, and it is grammatically correct. It is certainly not at all like redefining grammar and meaning in order to make a sequence like “General it consists stringing” work. It is purely and simply correct use of punctuation.

Psychic boob

Vivienne Miller
North Balgowlah NSW

In the interests of lightening the *Letters* pages, I thought I would share this one with you.

I was listening to *Shirena’s Psychic Encounters* on the radio one recent night, during a short car trip. I know from the past it is pretty good for psychoanalysis of participants and occasionally will give you a laugh, but I wasn’t prepared for that night! She had this boring guest astrologer from the USA, the home of all good marketing gimmicks. A man rang in for a

reading, especially in regards to money.

Ah yeah, y’ave 4 moons in Taurus rising and ... WOW ... with that Sagitarian background ... oh, success, now or very shortly ... y’gonna’ to SHINE let me tell ya, in the public eye ... entertainment, music, public speaking at a major conference ... y’ gonna be a STAR!!!

“Really???” The reply was somewhat strained.

YEAH!!! Ya just gotta get out there and SHINE!!!

Silence.

So, what kinna work d’ya do?

I’m a case worker with the mentally disabled.

The sad part was she didn’t back down, but persisted with various ideas too pathetic to go into. It had to be the biggest blunder I had heard from an astrologer in years!



Stop Press

Sortly before going to press, we were saddened to learn of the passing, at the age of 94, of one of our longest term subscribers, Hans Weiler.

Hans was a mathematician who had worked at the CSIRO and UNSW until his retirement. He had contributed articles and advice to the *Skeptic* over many years, and he and Daphne were stalwart supporters of every *Skeptical* function until ill health curtailed his travel a couple of years ago.

Our sincere sympathies go to Daphne.

AUSTRALIAN SKEPTICS NATIONAL CONVENTION 2004

November 12th - 14th : UTS Broadway, Sydney

Phil Plait
The Bad Astronomer

Sen. Kerry Nettle
The Greens

Danny Kennedy
Greenpeace

Prof. Ian Plimer

Lynne Kelly

Barry Williams

Dr. Martin Bridgstock

Dr. David Brookman

Mark Mayer

Flacco

Dr. Steve Roberts

Steve Walker

Dr. Paul Willis

Cheryl Capra

Peter Bowditch
Ratbags

Ian Bryce

Prof. Colin Keay

Alynda & Richard
Mystery Investigators

PLUS

The Bent Spoon Award
Skeptic of the Year
and much more!



BEYOND A JOKE

Information and Bookings

www.skeptics.com.au

MOON HOAX?



Australian Skeptics National Convention

Sydney 12 - 14 November 2004

Gus Guthrie Theatre

University of Technology, Broadway

Convention Programme

(Subject to amendment and updates - see our site for latest details)

Time	Topic	Speaker
Friday 12th		
6:00pm	Registration	
6.15 - 7.00pm	Energy Mysteries and Scams	Ian Bryce
7.00 - 8.15pm	Creationism Panel Discussion	Led by Dr Paul Willis
Saturday 13th		
8:30-9.00am	Registration	
9:00-9:15am	Welcome & Introduction	Richard Saunders Barry Williams
Alt Med		
9:15-10:00am	Falling off the Deep End- the Extremes of AltMed	Peter 'Bowditch
10:00-10:40am	Scientific and Antiscientific Health Interventions	Dr David Brookman
10:40-11:10	<i>Morning Tea</i>	
11:10-11:20	Homeopathy - "Mass Suicide"	
11:20-12:00pm	Homeopathy - Dilution or Delusion?	Dr Steve Roberts
12:00-1:00pm	Keynote: The Moon Landing Hoax, with 'The Bad Astronomer'	Dr Phil Plait -
1:00-2:30	<i>Lunch Enjoy one of the many local restaurants</i>	
Science & Politics		
2:30-4:00pm	Panel Discussion Greenhouse and Climate Change	Prof Ian Plimer Senator Kerry Nettle
4:00-4:30	<i>Afternoon Tea</i>	
Humour		
4:30-5:15pm	Speaking to the dead or tricking the living?	Mark Mayer

Convention Dinner— The Bowlers' Club, 95 York Street, Sydney

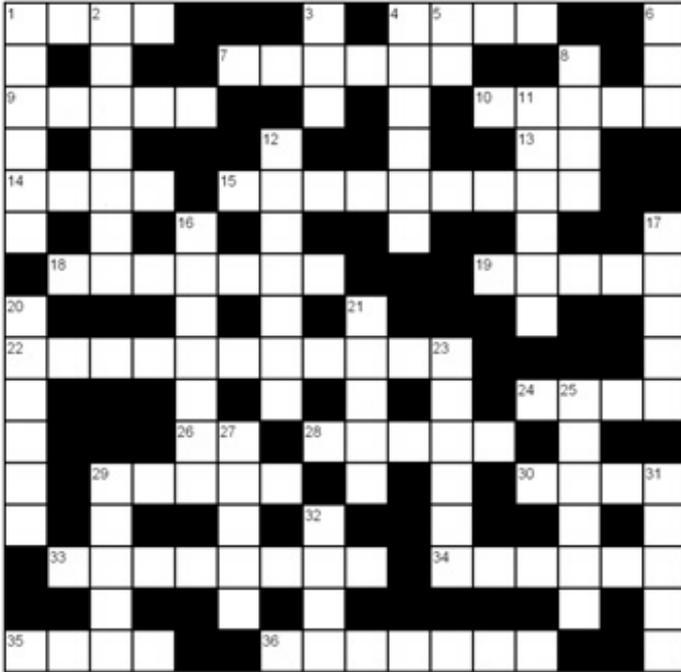
6:30-7:00pm	Registration	
7:00-late	Skeptic of the Year and Bent Spoon Award Laughs and magic with our comic line up	Paul Livingston, aka 'Flacco' Steve Walker

Sunday 14th

8:30-9.00am	Registration	
9.00-10:30am	Debate: Is Nuclear Energy the clean, green power of the future?	Prof Colin Keay Danny Kennedy/Greenpeace
10:30-11:00	<i>Morning Tea</i>	
Education		
11:00-11:45	Taking Reason to Schools	Alynda & Richard Cheryl Capra
11:45-12:30pm	Teaching children healthy scepticism	(2004 AS Eureka Prize Winner)
12:30-2:00	<i>Lunch Enjoy one of the many local restaurants</i>	
2:00-2:45pm	Preaching to the Un-converted	Lynne Kelly
2:45-3:30pm	Teaching with a Skeptical Approach in the University	Dr Martin Bridgestock
3:30-4:15pm	Finale and Thanks	

Skeptic Crossword No 16

Devised by Richard Saunders



Return to: Skeptic Xword
PO Box 268, Roseville 2069

Name: _____

Address: _____

Entries will not be opened until November 1 and the first correct entry opened will be the winner. The prize will be a book by from our library.

Moving?

**Don't forget to tell us
your new address**

Across.

1. The Don's examination? (4)
2. You think it's warm? You must be loco. (4)
7. Popular warbler sinks into sullen nonsense. (6)
9. The G-man leader invites a spook to dinner. (5)
10. Homely orbiter with a scrambled heart. (5)
13. Negative number. (2)
14. Pore over thick cord. (4)
15. Seeking astral truth in a story log. (9)
18. Stir copy ten times as a measure of effectiveness. (7)
19. Assertion that a prospector staked. (5)
22. Probe the decision to besiege a field closure. (11)
24. Drop the 3rd but don't stray. (4)
26. Tango Charlie in an MG marque. (2)
28. My crow sounds tiny. (5)
29. Rest, or I'll put a hex on you. (5)
30. French restaurant beverage. (4)
33. New office equipment for a trump CEO. (8)
34. Saline drips from exotic beings. (6)
35. Tell 'er about his magic partner. (4)
36. I'm clear, it was an act of God. (7)

Down.

1. Is the rig set? We have cats to trap. (6)
2. My Stars! There is a sting in the coop, sir. (7)
- 3 Hard working headless gnat to get a tan. (3)
4. Universally bright flowers. (6)
5. Switch 13 across. (2)
6. A shame it burnt, but we do have a residue. (3)
7. Weighty spot for topless towers. (4)
11. Celestials play the angles. (6)
12. Sigh? Kick? Sounds like we need a Skeptic. (7)
16. Scratch the bites we download from it. (7)
17. I am way too wary to climb this pyramid. (5)
20. Celestial fish stewed in an endless cesspit. (6)
21. This mag I see is full of tricks. (5)
23. "You stink", cried the bathing Greek. (6)
25. This crazy varlet will go places. (6)
27. Fast and noisy nebulousity? (5)
29. Canoodle with a Geller target. (5)
31. Write about it I sayes.(5)
32. Yet I am abominable. (4)

Are you a Skeptic?

Subscribe or buy merchandise at our secure online store at www.skeptics.com.au

Australian Skeptics appeals to rational individuals of common sense, intelligence and with a social conscience, who are interested in actively pursuing the truth about claims of paranormal or pseudo-scientific phenomena and other irrational popular beliefs, from a responsible and scientific perspective. For more than twenty years it has established a national network of like-minded groups which, by investigation and the application of critical thinking, aims to help free our society of the results of fear bred by irrational thinking.

We seek the evidence.

We challenge the claims.

We don't believe everything we hear .

We encourage the public to adopt a critical attitude towards these claims.

Our quarterly journal, *the Skeptic* is the voice by which we have offered the public and the news media the opportunity to find out what science and reason have to say about paranormal and other irrational claims.

It conducts investigations and publicises the results.

It opposes the generally uncritical sensationalism presented by the popular media.

It draws attention to the possibility of natural and ordinary explanations of such phenomena.

Its findings are sometimes humorous, often sobering and always fascinating.

You can join our growing list of subscribers by subscribing to *the Skeptic*, using the form below.-

To: **Australian Skeptics Inc; PO Box 268 Roseville NSW 2069**

ABN 90 613 095 379

Ph: 02 9417 2071, Fax: 02 9417 7930, email: skeptics@bdsn.com.au

Tax Invoice This document will be a Tax Invoice for GST when you make payment.

Please send me four issues of *the Skeptic* for 2004

or a 3 year subscription

All back issues *the Skeptic*, 1981-2003, now available on *The Great Skeptic CD*²

(Upgrade)

\$44.00

\$120.00

\$55.00

\$25.00

Total enclosed:

NAME: _____

ADDRESS: _____

POST CODE: _____

OCCUPATION: _____ QUALIFICATIONS: _____

BACKGROUND/INTERESTS: _____

PHONE: (H) _____ (W) _____ E-mail: _____

Bank Card, Master Card and Visa Card accepted

Name: _____ Card No: _____/_____/_____/_____

Expiry Date: ____/____/____ Amount: \$ _____ Signature: _____

Overseas subscribers please add \$A15 per annum for surface mail, \$A25 for Airmail