

# THE SKEPTIC

Vol. 33, No 4. December 2013



## Pamela Gay on Space & Faith

+ Lunarcy Cholesterol Pitcairn Villains





# Skeptical Groups in Australia

## **Australian Skeptics Inc – Richard Saunders**

www.skeptics.com.au  
PO Box 20, Beecroft, NSW 2119  
Tel: 02 8094 1894; Mob: 0432 713 195; Fax: (02) 8088 4735  
president@skeptics.com.au

Sydney Skeptics in the Pub – 6pm first Thursday of each month at the Mezz Bar, Coronation Hotel, Park St in the city (meeting upstairs)

Dinner meetings are held on a regular basis.

**2014 dinners** - March 29, May 24, July 26, September 27

**2014 convention** - November 28-30. Details and speakers tba.

## **Hunter Skeptics – John Turner**

Tel: (02) 4959 6286 johnturner@westnet.com.au

Meetings are held upstairs at The Cricketers Arms Hotel, Cooks Hill (Newcastle) on the first Monday of each month, excepting January, commencing 7.00pm, with a guest speaker or open discussion on a given topic. Visitors welcome. Further information from the secretary at: kevin.mcdonald379@bigpond.com

## **Australian Skeptics (Vic) Inc – Chris Guest**

GPO Box 5166, Melbourne VIC 3001  
Tel: 1 800 666 996 vic@skeptics.com.au

Skeptics' Café – Third Monday of every month, with guest speaker. La Notte, 140 Lygon St. Meal from 6pm, speaker at 8pm sharp.

More details on our web site [www.skeptics.com.au/vic](http://www.skeptics.com.au/vic)

## **Borderline Skeptics Inc – Russell Kelly**

PO Box 666, Mitta Mitta, Victoria 3701  
Tel: (02) 6072 3632 skeptics@wombatgully.com.au

Meetings are held quarterly on second Tuesday at Albury/Wodonga on pre-announced dates and venues.

## **Queensland Skeptics Association Inc – Bob Bruce**

PO Box 3480, Norman Park QLD 4170  
Tel: (07) 3255 0499 Mob: 0419 778 308 qskeptic@bigpond.com

Meeting with guest speaker on the last Monday of every month (except December) at the Red Brick Hotel, 81 Annerley Road, South Brisbane. Dinner from 6pm, speaker at 7.30pm.  
Qskeptics eGroup - [www.egroups.com/list/qskeptics](http://www.egroups.com/list/qskeptics)  
Hear Bob on 4BC Paranormal Panel - 9.30pm-10pm Tuesdays

## **Gold Coast Skeptics – Lilian Derrick**

PO Box 8348, GCMC Bundall, QLD 9726  
Tel: (07) 5593 1882; Fax: (07) 5593 2776  
lderrick@bigpond.net.au  
Contact Lilian to find out news of more events.

## **Canberra Skeptics – Lauren Cochrane**

PO Box 555, Civic Square ACT 2608  
<http://www.canberraskeptics.org.au> Tel: 0408 430 442  
mail@canberraskeptics.org.au (general inquiries),  
arthwollipot@gmail.com (Canberra Skeptics in the Pub).

A free monthly talk, open to the public, usually takes place on the 1st Saturday of each month at the Lecture Theatre, CSIRO Discovery Centre, Clunies Ross Rd (check website for details of the current month's talk). Skeptics in the Pub gather at 1pm on the third Sunday of each month at King O'Malleys Pub in Civic. For up-to-date details : [www.meetup.com/SocialSkepticsCanberra/](http://www.meetup.com/SocialSkepticsCanberra/)

## **Skeptics SA – Laurie Eddie**

52B Miller St Unley, SA 5061  
Tel: (08) 8272 5881 laurieeddie@adam.com.au

Thinking and Drinking - Skeptics in the Pub, on the third Friday of every month. Contact nigelddk@adam.com.au  
[www.meetup.com/Thinking-and-Drinking-Skeptics-in-the-Pub/calendar/10205558](http://www.meetup.com/Thinking-and-Drinking-Skeptics-in-the-Pub/calendar/10205558) or <http://tinyurl.com/loqdr>

## **WA Skeptics – Dr John Happs**

PO Box 466, Subiaco, WA 6904  
Tel: (08) 9448 8458 info@undeceivingourselves.org

All meetings start at 7:30 pm at Grace Vaughan House, 227 Stubbs Terrace, Shenton Park  
Further details of all our meetings and speakers are on our website at [www.undeceivingourselves.org](http://www.undeceivingourselves.org)

## **Australian Skeptics in Tasmania – Leyon Parker**

PO Box 582, North Hobart TAS 7002  
Tel: 03 6238 2834 BH, 0418 128713 parkerley@yahoo.com.au

Skeptics in the Pub - 2nd Monday each month, 6.30pm, Ball & Chain restaurant, Salamanca Place

## **Darwin Skeptics – Brian de Kretser**

Tel: (08) 8927 4533 brer23@swiftdsl.com.au





# THE SKEPTIC

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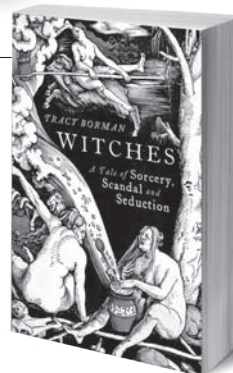
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# Without peer

One of the tenets of the skeptical approach is the need to subject any claims to serious review. This process is designed to identify claims that are unsubstantiated, unsupported and unproven, thus avoiding the need for further serious enquiry.

There are various elements to this process, including attempts to replicate the results that have been claimed. Sometimes this is difficult if not impossible to do – the claims are so specific or so complex as to make replication out of the question.

But another substantial element of this process is the peer review system. This follows the process that scientific papers are submitted to a learned journal, which then appoints a number of reviewers who can objectively and fairly assess the contents of the paper, drawing from their extensive qualifications and experience in the relevant field. Errors are pointed out and the paper sent back to the author(s) until they “get it right”. In some instances, this process can take years. But it is intended that, once published, any paper will have gone through a rigorous system of review, and will have come out the other end as a much more reliable statement of research and claim than it might have been in the first place.

That’s the theory.

The issue then is, how reliable, independent and truly rigorous is the process. Can reviewers spot an error when they see it? Is every paper submitted as rigorously reviewed as the process would suggest? Do the journals give preference to the novel and newsworthy – market over matter? And do the authors use their own authority, experience and reputation to receive preferential treatment and a smooth transition through the peer review process?

Discussion on these issues has gone on in scientific circles for some time; there are even boards set up to review the review process. But recently these issues have come out into the public arena, not least through an article in the noted magazine *The Economist* (October 19-25, 2013). With a front cover line of “How science goes wrong”, a lead editorial and the article itself (“Unreliable research - Trouble at the lab”), *The Economist* has made this a major issue.

The article begins with a description of the replication process, and a claim by an official at the US National Institutes of Health that “researchers would find it hard to reproduce at least three-quarters of all published biomedical findings”.

One reason for this is that the papers under review and published in peer review journals are faulty, have errors, or are plain crap.

“There are errors in a lot more of the scientific papers being published, written about and acted on than anyone would normally suppose, or like to think,” the article says. (In traditional *Economist* fashion, there is no author credited.)

So why is this important? Because skeptics often ask claimants whether their results have been submitted to learned journals and peer reviewed? But if the peer review process itself is questionable, and replication difficult, how do skeptics confront pseudoscientific claims? How do they even know they are pseudoscientific? Applying common sense is common, but is not evidence either way.

*The Economist* is not sure what to do, suggesting a “value system” covering public acknowledgement of mistakes. That, of course, assumes the researcher is honest and open enough to do that. And who will enforce that if there is no peer pressure? ■

- Tim Mendham, editor

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**Editorial submission deadline for the next issue:**  
January 15, 2014





# Around the traps...

## AVN told to change its name

**AUSTRALIA:** The NSW Administrative Decisions Tribunal has ordered the Australian Vaccination Network to change its name because “without any information, other than the name, an ordinary member of the public would be likely to be misled into thinking that one of AVN’s objectives is to give a pro-vaccination message or, at least, to provide comprehensive information about vaccination”.

“That is not the case,” affirmed Magistrate N Hennessy, deputy president of the Tribunal.

This means that the original decision of the Director General, Department of Finance & Services, to direct the AVN to adopt a new name has been affirmed.

The Director General had earlier found that AVN’s message is anti-vaccination and that the name does not reflect that message. Two other reasons the Director General relied on were that the name is “undesirable” and that it suggested a connection with the Commonwealth government.

In a submission to the Tribunal, former president of the AVN, Meryl Dorey had said that “she has never thought of herself as being anti-vaccination”.

This is a bold statement, considering Dorey’s consistently negative comments about vaccination. The magistrate agreed, stating that the “AVN’s main object is the dissemination of information and opinions which highlight the risks of vaccinations. It is an organisation which is sceptical about vaccinations.”

He said that any new name “should reflect AVN’s scepticism about vaccinations”.

“Although I do not have to decide this issue [the Director General’s office holds that power], and my opinion is not binding, a name that includes the word ‘risk’ or ‘sceptic’ and vaccine

or vaccination would be acceptable. Examples include Vaccination Risk Awareness Association Inc or Vaccine Sceptics Network Inc.”

Australian Skeptics suggests that the magistrate has misused the expression “sceptical about” as if it means “negative about” or “firmly opposed to”. Scepticism involves fair analysis and frank disclosure. The AVN’s approach to vaccination has been unashamedly one-sided, not sceptical.

We also fear that allowing a renamed AVN to use the term

“sceptic” could be confusing, and perhaps suggest to some people that the Australian Skeptics organisations are negative about vaccination, which is obviously not the case.

The AVN can elect to make a further appeal against the ruling but, according to a report by the ABC, Fair Trading Minister Anthony Roberts has warned the organisation risks a hefty legal bill because the department will seek legal costs.

“The AVN must change its name now,” Roberts said. “We reserve the right to reject any names we consider inappropriate, but again my clear message to the Australian Vaccination Network is be open and up-front about what you stand for.”

## Sydney to host 30th Skeptics convention in 2014

**AUSTRALIA:** Following a highly successful convention in Canberra last month, it has been announced that next year’s convention will be held in Sydney on the weekend on November 28-30. This will be an historic event, as it will be the 30th Australian national convention, all of which have been held in sequential years. This is an achievement not equalled by any other Skeptics group anywhere in the world.

To be held at the multi-million dollar Concourse Centre in the northern Sydney suburb of Chatswood, the convention already has lined up the entire SGU crew (Steve, Bob and Jay Novella, Evan Bernstein and Rebecca Watson) and skeptical musician George Hrab.

Other speakers and details will be announced as soon as possible.

It is hoped that tickets will be available in the first quarter of 2014.



## Changes to Victorian Skeptics committee

**AUSTRALIA:** There have been a few changes in the make-up of the committee of Victorian Skeptics.

Chris Guest is the newly-appointed president, replacing Terry Kelly who has moved into the vice-presidential spot.

He, in turn, replaces Peter Hogan, who has relinquished the VP role but is still on the committee as an ordinary member. All other positions are unchanged.

See more at [skeptics.com.au/vic](http://skeptics.com.au/vic)

## Chiropractors win joint Bent Spoon

**AUSTRALIA:** The Chiropractors' Association of Australia AND the Chiropractic Board of Australia are the joint winners of the 2013 Australian Skeptics' Bent Spoon award.

Three Australian Skeptics' awards – the Bent Spoon and the much more sought-after Skeptic-of-the-Year and Thornett awards – were announced at a dinner on Saturday, November 23, as part of the Skeptics convention, which this year was held in Canberra.

"The Bent Spoon is the least sought-after award in Australia", says Richard Saunders, president of Australian Skeptics Inc. "It's issued each year at the Skeptics annual convention to the 'perpetrator of the most preposterous piece of paranormal or pseudo-scientific piffle'."

The CAA is the largest body of professional chiropractors in Australia, and the CBA is the body that regulates the industry by developing standards, codes and guidelines. But while both bodies make statements that discourage or prohibit certain

unfounded claims about efficacy, particularly on the wide range of health conditions that chiropractors can supposedly treat, many practitioners still continue to state that they can treat such conditions as asthma, ADHD, even bed wetting and ear infections. Some also continue to use the debunked theory that all diseases stem from a 'misaligned' nervous system, something which the president of the CAA has said was dropped a hundred years ago.

"We are therefore giving the Bent Spoon to both the CBA and the CAA which have largely been ineffective in the face of unacceptable conduct by some of their members ... even members who are on the Board of the CAA itself!

"While the number of members behaving unacceptably might be a minority of the total membership, there has been enough unacceptable conduct to warrant firm and definitive corrective action by both organisations, but that has not been done," Saunders says.

## Psychic scams in VIC

**AUSTRALIA:** Consumer Affairs Victoria (CAV) has issued a warning for people to be wary of scammers posing as psychics, clairvoyants and fortune-tellers, after a consumer lost almost \$90,000 to a scam.

The consumer recently contacted CAV after making several payments of thousands of dollars at a time for 'spiritual purposes'.

"Scammers prey on people's vulnerabilities, insecurities and unhappiness," said Claire Noone, the Director of CAV. "They go to great lengths to make themselves seem legitimate."

Consumer Affairs Victoria received 13 reports of psychic, clairvoyant and fortune-telling scams in 2012-13. At the same time, the Australian Competition & Consumer Commission (ACCC) reported it had received 125 reports of phony fortune tellers. Of these, 41 people were duped out of almost \$445,000.

However, as many scams go unreported, real figures are likely to be higher, the CAV says.

## Skeptic of the Year

**AUSTRALIA:** On a more positive note, the Skeptics issued their Skeptic of the Year award to Professor Simon Chapman.

The Skeptic of the Year goes to the individual or group that has done the most for skepticism in Australia during the last year.

Prof Chapman, who is Professor of Public Health, Associate Dean Communications, Public Health, School of Public Health at the University of Sydney, has undertaken extensive research into the media's communication of public health issues and demonstrated great concern through his efforts to improve the public understanding of important public health issues, including tobacco control, alcohol, swine flu, anti-vaccination beliefs and more.

In particular for 2013, he was nominated for his recent research investigating the claims of so-called 'wind-turbine syndrome' and his activities to educate the public about the psychogenic aspects of this syndrome, which have been clearly discounted.

His activities include strong countering of spurious claims made by the Waubra Foundation, an organisation that uses unsupported claims that wind farms are damaging local residents' health. The fact that citizens of the town of Waubra, after which the Foundation is named, have asked for the Foundation to change its name, is further indication of a lack of support for the organisation.

Saunders says that "The Waubra Foundation itself was another close contender for the Bent Spoon."

A third award, the Thornett Award for the Promotion of Reason, goes to an individual, outside of the



Simon Chapman  
with his award  
(Photo by Mal Vickers)

formal skeptical community, who has contributed in a meaningful way to the encouragement of rationality and critical thinking among the wider population.

This year the award went to film producer Sonya Pemberton for her documentary *Jabbed*, a dramatic presentation on the impact of delaying or refusing immunisation. ■

# Science Kids

Richard Saunders and Terry Kelly report on how Australian Skeptics are sponsoring excellence in junior science.

For around ten years, Australian Skeptics in NSW and Victoria have been supporters for students' science project competitions. In NSW, the Young Scientist Awards is an initiative of the Science Teachers' Association of NSW, and in Victoria the Science Talent Search (STS) is run by the Science Teachers Association of Victoria (STAV). The Australian Skeptics Science & Education Foundation has been a major sponsor of both activities.

## NSW STUDENTS

Richard Saunders, president of Australian Skeptics Inc, says the NSW Young Scientist encourages students from kindergarten to Year 12 carry out scientific investigations or inventions as part of their school's science program in line with the NSW Board of Studies K-12 science syllabuses, and the Young Scientist categories and judging rules are designed to support the inquiry elements of these syllabuses and the Science Inquiry Skills strand of the Australian science curriculum.

"I attended the awards night in October, which this year was held at the University of Wollongong. My role was to fly the flag for the Skeptics and also to give a short presentation, hand out special recognition awards for the Scientific Investigation category."

"Being the good skeptic and ham that I am, I gave a spoon-bending demonstration as part of my short talk. I'm sure the older mums and dads in the audience felt some nostalgia for the days of Uri Geller, but for the rest spoon-bending is more or a less a strange looking magic trick. Nonetheless, I was pleased to get 'oohs' and 'ahhs' and a round of applause."

The award for Young Scientist of the Year went to Ethan Butson of the



Illawarra Grammar School. The strength of his research was in the development of a prototype device to improve the vision of people who had suffered visual impairments due to a stroke.

The Primary Young Scientist was Juliette Napton of Abbotsleigh Junior School, and the Budding Young Scientist was Cameron Farrugia of Glenhaven Public School.

STANSW will forward the major winning entries of the Young Scientist Awards to the BHP Billiton Science and Engineering Awards.

## VICTORIAN STUDENTS

Terry Kelly, the recently-retired president of the Victorian Skeptics, says this is the 11th year that the Skeptics have been a sponsor for the Science Talent Search. The awards themselves have been going for 62 years, and many prominent scientists have benefited from the encouragement these awards gave them when they were at school - Tim Flannery being one.

"This year there were almost 2000 entries and 584 bursaries were awarded. Australian Skeptics sponsored 65 of these bursaries, making us one of the

major sponsors, alongside the CSIRO, BHP Billiton, The Royal Society, Swinburne University of Technology, Victoria University and the University of Melbourne.

The awards ceremonies and displays of the entries were held at La Trobe University in November. Categories were creative writing, experimental research, inventions, working models, science photograph, video productions, games, computer programs, and posters & scientific wallcharts.

"Attending the ceremonies gave us a wonderful opportunity to meet many of the kids we sponsored and their families," says Guest. "They seemed to get as much of a kick out of meeting us as we did from meeting them. It's one of the best things the Australian Skeptics do. It's a great boost for the students and priceless publicity for us."

Some of the bursary winners included eight-year-old Olivia from Flemington Primary School, who invented a 'high grabber' which is like a long pick-up stick originally inspired by a need to reach lollies hidden high up on the shelves at home. Mitchell of Essendon North PS made a working model of a Coolgardie safe. Karli, a student at Macedon Grammar, created a board game called "IndigenousInventOz" (see photo), highlighting the scientific validity of many indigenous practices. Quinn, who attends Serpell PS, devised an ingenious working model called "Buoyancy" - a floating object displaces a volume of water that is as heavy as the object. Chris, who is home-schooled, came up with a 'Water vortex compeller' which is a power generator. Other intriguing titles included: Can You Unscramble An Egg?; Empires Of The Sky; Capturing Reflections; Temporal Discord: The Arrow Of Time; Going Bananas and REM - The Cavern Of Lost Dreams.

"Some of these kids would probably do just as well if they went in a poetry contest." ■





Tim Mendham and Steve Roberts report on the  
29th National Skeptics Convention.

# CONSPIRACIES in CANBERRA

**T**he 2013 Australian Skeptics convention was held in Canberra in November, taking place in the highly-scientific surrounds of the CSIRO's Discovery Centre.

In light of the event being held on the 50th anniversary of the assassination of John Kennedy, the key theme was conspiracy theories (with a bit of Doctor Who, also celebrating a 50th, thrown in for good measure).

The miscellaneous Agent Smiths, resplendent in black suit, black tie, white shirt and sunglasses, who ushered attendees and quietly controlled the masses were a great addition to the theme, even if they were occasionally heavy handed with some of the speakers, occasionally locking the doors and despatching recalcitrants to an uncertain future.

Kicking off the event was a special live link to arch-skeptic James Randi. He commented about some of the issues facing skeptics globally, waved his Randi doll to the camera (while admitting it was actually a Darwin doll with a trim) and wished the event well. His wishes were granted.

## STOW & STOKKEN<sup>1</sup> A Tour de Farce

Canberra committee members Coran Stow and Shelley Stokken – with the latter doubling as Convention Poet Laureate – kicked off the event with an overview of the state of conspiracy theories, the topic that many of the subsequent speakers would elaborate on in more detail. Conspiracy theories have been around for centuries, they said, and more are created every day. Three of the definitive features of conspiracy theories are:

- Connect the dots – lots of disparate pieces of information tacked together without evidence to create a single idea.
- Enormity – conspiracy theories usually involve an impossibly large number of people keeping an impossibly complex secret for an impossibly long time.
- Evidence supporting the theory proves it. Evidence contradicting the theory proves it as well because it indicates a massive cover-up.

A quick A-to-Z summary of some of the conspiracies around ranged from Agenda 21, Big Pharma and chemtrails, to Roswell aliens, vaccines, and the ever reliable “Who killed ...?”.





## SHANE GREENUP

### Rebutting conspiracy theories

Shane Greenup has been developing a software program called Rbutr, which is intended to highlight misinformation on internet sites, and offer alternative sites where correct information can be found. The internet is rife with sites that, sometimes innocently, sometimes knowingly, present information that is supposedly accurate but is directed by a specific philosophy to either present half-truths or outright falsehoods. Greenup gave as example a number of sites covering the supposed MMR/autism link and global warming, which have been shown to contain misinformation. The idea of Rbutr is for individuals to tag those pages so that later visitors know there are contrary views and more

by researchers to test out the gullibility of the general population. Believers cross all socioeconomic groups, although in the US they are more common in Black populations, less so among Hispanics and least among whites, which seems to reflect a racial marginalisation that encourages belief in conspiracies by authorities. Conspiracy theories are divided between those that assume “benign neglect” on the part of authorities as opposed to those based on “malicious intent”, and likewise the propensity to believe is based on intuition (automatic, fast, approximate) as opposed to reason (slow, systematic, effortful). The former is the basis of belief in conspiracy theories, as it also seems to be with belief in the paranormal. A problem impacting on the concept is that little research has been done to date, but French says that this is changing.

definitive evidence Bowditch proffered included that all members of the 1957 Federal Cabinet are now dead (with the possible exception of Harold Holt who might still be living in retirement in China). Apparently Cabinet papers of the period do not mention the conspiracy, and the Snowy Mountain Hydro authority will deny it ever happened, so a cover-up appears certain. I’m convinced.

## RACHAEL DUNLOP

### Lizard people, chemtrails ...

Dr Rachael Dunlop, vice president of Australian Skeptics and medical researcher, began by showing some statistics for how many Americans believe weird things, including 28 per



accurate information, and are directed to those latter pages via links. As the saying goes, don’t trust everything on the net; in fact, cast a skeptical eye over most of it.

## CHRIS FRENCH

### Conspiracy theories don’t die

Keynote speaker Prof Chris French, who runs the Anomalistic Psychology Research Unit at Goldsmiths, University of London, kicked off his presentation with a depiction of the controversies surrounding the assassination of US President John Kennedy. This case is indicative of conspiracy theories generally – widely supported and an accepted part of popular culture, but often not accurate. He pointed out that people can believe theories that are totally spurious, created

## PETER BOWDITCH

### Secret Australia

Peter Bowditch, long time skeptic and longer time ratbag, revealed a conspiracy going back to 1957 – the real reason for construction of the Snowy Mountains Scheme. He acknowledged that politicians of the time said that it was to make electricity and put water into the Murray and Murrumbidgee Rivers, but apparently that was far more than was needed for Australia’s population at the time. The real reason for the scheme, Bowditch says, was to construct a secure, safe and anonymous world headquarters for governments of the free world once London, Washington and the Bilderberg Hotel had become targets of Russian H-bombs. Australia was perfect: geologically stable and politically safe. The

cent in the New World Order, 20 per cent that vaccines are linked to autism, 5 percent that airplane contrails are sinister chemicals and 4 per cent that lizard people control politics. She cited a statement from what she referred to as “the journal of New Idea” where our very own Olivia Newton-John says she saw a UFO when she was 15, “it was flying and it was unidentified”. Well yes, that is the definition of a UFO. Dunlop then went on to discuss the recent findings of Lewandowsky, who reported that right wing beliefs correlated with climate change denial, rejections of GM foods was not associated with any specific worldview, whereas anti-vaxers tended to be a mixture of left leaning and conservatives. She then told us that people who endorse one conspiracy theory are more likely to endorse others, and used anti-vaxer Meryl Dorey as an



# CONSPIRACIES

*Continued...*

example since she is a strong supporter of “the vaccines pharmaco-governmento-medico conspiracy theory”, that vaccines cause autism as well as being an AIDS/HIV deniers and a Freeman of the Land believer. Skeptics need to be diligent, as while the conspiracy theorists are small in number they are organised and noisy, thus we need to contribute to the media so as to avoid false balance – the concept of giving equal time to opposing theories even though they are not equally valid – where possible.

## NICK WARE

Woo in the climate change debate

Nick Ware, microanalyst and a member of the team that developed the Synroc nuclear waste disposal product, gave a detailed exposition on the scientific data behind the concept of anthropogenic climate change, and looked at the evidence presented by climate change deniers, including such high profile individuals as Lord Monckton, Ian Plimer and David Bellamy. Areas where ‘errors’ have crept in include temperature changes, glacier movements, CO2 concentrations and the influence of cosmic rays. Global warming is real, he said, and no amount of rewriting the evidence will change that.

## KETAN JOSHI

Climate syndrome

Ketan Joshi works as a research and communications officer in the wind industry, and his presentation looked at issues of how science is presented, community reaction and the rise of conspiracy theories, particularly regarding wind farm technology and the so-called ‘wind farm syndrome’. He gave examples where scientific principles were totally misunderstood, ignored or twisted to suit particular purposes. In some instances, community members who might be uncertain of the impact of wind farms

are being pushed into greater activism by groups with an interest in ensuring this form of energy generation does not proceed. The motivations are unclear, but the ‘science’ presented by these groups is definitely not supported. In this case, real information would be an antidote for unscientific propaganda.

## IAN BRYCE

Measuring morality

Ian Bryce, prominent Humanist and atheist as well as lifetime member of the Skeptics and an ethics teacher, proposed the beginnings of a system for measuring morality without recourse to religious belief or other arbitrary systems. Instead of a dogmatic moral code, and one which addresses issues separately and inconsistently, Bryce wanted to find a single moral principle that could be applied equally to all situations of the human condition. He suggested this



could be along the lines of the “quality of sentient life”. A moral decision, for example to turn off a comatose patient’s life-support apparatus, would be weighed up in terms of the quality of the life subsequently to be enjoyed by the patient and by those caring for him/her. Bryce gave an example of such a decision being arrived at and defended quantitatively, although clearly at this early stage the concepts and figures are very fluid.

## PAUL BERCHTOLD

Fear & belief in the paranormal

Paul Berchtold is a social worker specialising in working with children and adults with intellectual and physical disabilities. He said there are several theories that have attempted to explain the high number of people who believe in the paranormal, including cognitive and social accounts. The psychodynamic explanation, he said, holds that these beliefs serve psychological functions for the holder. They may enhance perceived control over the future or act as a defence against anxiety. He described a current study of 382 people in which several analyses were undertaken, with the results indicating that there was a slight negative relationship between belief and fear of the paranormal, indicating believers held less fear than non-believers. Additionally, the results indicated a positive relationship between anxiety and paranormal beliefs and fear, indicating that these beliefs may serve as a defence against anxiety.

## JOHN GOLDER

Enuresis – bed wetting myths

Bed-wetting is a spontaneous condition that affects about 10-13 per cent of children, though is twice as common in boys as it is in girls. The *false* theories around causes of bedwetting, said John Golder, a partner in a general medical practice in Queensland, include laziness, weak bladder, excess fluid, nervousness, stress and kidney/bladder disease. In reality, he said, it is largely genetic - chromosomes 12 and 13 - which leads



to soft signals from the bladder failing to arouse the brain (deep sleep). There are many suggested treatments, but the one that does work is a Pavlovian conditioned response, with technology that wakes the child if moisture is detected.

## AMANDA DEVAUS

### Guerrilla skepticism

No more preaching to the choir, says Amanda Devaus – it's time to get active. She works in law enforcement, so she understands what it means to be active. In this case, we are talking of proactive developments in online activism and responsible internet practices. One such development is the Web of Trust, which rates sites on the basis of accuracy and give consequent warnings, particularly in the list of results given by internet search engines such as Google. Rbutr (as described earlier) is another such tool, as is FishBarrel. And the problem? Close to one-and-a-half million people viewed a single Wiki page on homeopathy last year. Can blogs and podcasts compete to reach that size of audience? Her answer is to ensure that pages that can be accessed by third parties are accurate and preferably translated into other languages. "We need to act now", she said - a theme that was to reoccur in many of the presentations at the convention.

## DINNER WITH DALEKS

A convention dinner for close to 100 people (and eight Daleks) was held at the Hellenic Club in the centre of Canberra. Chris French regaled the audience with examples of audio pareidolia – sounds and back-masking that were totally incomprehensible until you were told what was being said, and then the secret satanic messages became obvious.

At the same event, the annual Skeptics awards were announced (see News story this issue) and a number of items, including the inflatable Daleks, were auctioned to raise money for the Canberra Skeptics.



## TRYSTAN SWALE

### Crop circle conspiracies

The conspiratorial theme was well evidenced on the start of the second day by Tristan Swale's presentation, given over a remote link. We could see his computer desktop with images, movies, mouse cursor and lines being drawn etc, but we never saw Swale himself, and we didn't even know where he was! In fact, he is a UK-based folklorist, and he gave a very interesting presentation of British crop circles, a world in which he himself is a leading exponent and knows just about everyone else. All crop patterns have an outer circle, from which measurements for the design are then projected, but a challenge to create a seven-pointed star without such a reference circle had been met. A complex design involves between one and four people and takes several hours; it is easy to avoid detection if you don't park your car at the field gate. A sharp farmer can recover the value of the trampled crop - and more - by charging people to come in and see it, but the visitors have done far more damage than the original design, so farmers have now ceased to let visitors in.

## GARY BAKKER

### Skeptical clinical psychology

Clinical psychologist Gary Bakker looked at the various 'voodoo' psychology theories on anxiety and depression – somewhere between 400 and 500 according to different sources. So how do you choose which one is correct? Those on the "loopy" side of the ledger include hypnotherapy, drug therapies, subliminal tapes, and psychoanalysis. Tapping into various 'energies' – vital, meridian, 'thought field' – have in the past been supported by researchers and trials, but these latter are often poorly set-up and/or analysed. The disciplines where poor use of psychology is evident range from creationism and alternative medicine on the more extreme end of the 'loopiness' spectrum, with geology, dentistry and engineering on the opposite end. At various places in the middle are the waverers – nursing and physics (well-founded but moving toward the loopy end), medicine (moving in the opposite direction) and social work and psychology (torn between the two different ends of the spectrum).

## GRAHAM WILSON

### The myth of Simpson and his donkey

The story of Simpson and his donkey, bravely going back and forth across the front in Gallipoli, rescuing badly wounded soldiers and bringing them back for medical treatment – and eventually being killed by the enemy in the process – is an emotive part of the ANZAC legacy. Unfortunately, as former military intelligence officer Graham Wilson pointed out, it's largely not true. Only soldiers with minor wounds could ever have been taken on the back of a donkey, and the terrain would often preclude any such action. The numbers were large, and a man and his donkey would never have more than a minimal impact.

# CONSPIRACIES

Continued...

## ERAN SEGEV

Why Jews rule the world

It's a myth, and a conspiracy you might say. Jews really don't rule the world. But as Eran Segev, past president of Australian Skeptics, pointed out, there are in fact many instances where Jews punch (or pull) above their weight, not least in Hollywood where the non-Jewish executive is an endangered species. One reason for this, he said, is a cultural emphasis on education, leading to percentages of higher degrees and executive positions greater than that of the general population. This situation has come at a cost, including government-sanctioned exile and extreme persecution. Religious historical restrictions on money-lending often meant that some Jews have taken particular roles in financial affairs,

for lack of alternatives. Despite that role being forced on them by the non-Jewish community, it has led to an illogical mistrust and

hatred of Jews as the sources of finance and associated interest. But Jews have survived, and flourished, and Segev suggested that there might even be a genetic condition – however slight – that is intrinsic to 'Jewishness'.

## CHRIS GUEST

The Jesus Myth

Chris Guest - who, with added robe, sandals and halo would pass for the real thing - presented data for the locations and movements of the Biblical Jesus, the historical Jesus and the mythical Jesus. When not being the messiah, Guest



works in IT and is the newly-appointed president of Victorian Skeptics. He said that some 'mythicist' scholars suggest that 'Jesus of Nazareth' was a fabrication of later Christians, eager to perpetuate their cult by solidarity with an historical founder. Guest said that arguments from silence - that there no contemporary records of Jesus and that the Apostle Paul had no knowledge of an earthly Jesus - are at the heart of the 'Jesus myth' theory. Similarities between Mediterranean mystery cults and Christianity, the rapid spread of Christianity to Rome within a generation of Jesus' supposed death and the anathema to the Jewish faith of a human as god, are given as reasons why an historical Jesus is implausible. While this argument has some appeal as a contrarian view to established theories, the Mythicist arguments are not as convincing as first appears, he said. No contemporary accounts of Alexander the Great or Diogenes the Cynic exist either. Early Christian writers were not aiming at an historical narrative and we should be cautious of interpreting a lack of historical details from the life of Jesus as evidence of his fabrication.

## CRAIG CORMICK

Non-scientific beliefs

Subtitled, "Why clever people believe stupid things", Dr Craig Cormick, a science communicator and author, began with descriptions of confirmation bias, where attitudes not formed by logic are not going to be influenced by logical argument. As an indication of the level of "stupid things", approximately 55 per cent of Americans believe in spiritual healing, and more than 40 per cent in demonic possession, about 35 per cent in astrology and alien visits,

and less than 10 per cent in channelling. Australians, on the other hand, believe in ESP (54 per cent), angels (41 per cent), touch healing (37 per cent), and UFOs (34 per cent). In the future, this is likely to lead to a distrust of science, extremist activism, increasing fears and concerns, superstition, and science/community divides. The cause, he suggested, is the result of being time poor and overwhelmed with data, leading to the use of mental shortcuts such as 'intuition' that interfere with the application of logic and values. He said that, given everything we know about how attitudes are formed, "it's surprising that fringe ideas and anti-science are not more widespread". The only preventative is early education into rational and scientific thinking, even more than science education itself.

## MIKE McRAE

The evolution of alt med

Medical scientist and writer Mike McRae pointed out that alternative medicine does not equal junk medicine, the latter typified by intentional fraud to substances or methods based on poor research or premature conclusions. Alt med, he said, isn't exclusively a modern western phenomenon but an historical one, dating back to ancient times and positioned as counter to a population's dominant medical culture. But the use of alt med has seen a rapid increase in recent times as countercultural movements have grown in the 20th century. Alt med will evolve, McCrae said, though not always for the better. 'Legitimisation' can be influenced by new hybrid language, "old faces - new clothes", loopholes in legislation and the diversity of alt med sub-cultures.



“Don’t be negative; it doesn’t go down well with the public.” – Paul Willis

## PATRICK STOKES

### Ethics of conspiracy belief

Dr Patrick Stokes, from the School of Humanities & Social Sciences, Deakin University, pointed out the propensity for people (and the media in particular) to choose conspiracy over ‘cock-up’. However, conspiracy theories are not always irrational; there are real conspiracies, and there are no *a priori* grounds on which we can dismiss conspiracy theories just because they are conspiracy theories. One advantage for conspiracy theories is that they deal with errant data by using auxiliary hypotheses that support the original theory, whether or not those auxiliary theories have any more basis than the original conspiracy. This means they take on the appearance of science, likened to ‘degenerating research programs’ that draw on auxiliary hypotheses but lack any predictive abilities. The end result is a sliding scale, with extreme suspicion on one end and excessive credulity on the other. Somewhere in between lies trust, which might be the default position: we assume most people, most of the time, are telling the truth.

## RICHARD SAUNDERS

### True Believers

Australian Skeptics Inc president Richard Saunders has dealt with believers and proponents of pseudoscience and paranormal piffle for some time, not least as resident skeptic on *The One*, the psychics’ version of the *X Factor*. In his well-travelled skeptical life, he has come across many manifestations of belief and believers, and many excuses from those same believers for when the paranormal doesn’t quite work out the way they had hoped. All of this means that belief is a

slippery fellow, and trying to pin it to the wall and say, “See, this is what it is, and it doesn’t work” is almost a fruitless and thankless task. But it is worth a go, and Saunders offered up a checklist so you’ll know what to expect.

## KRISSY WILSON

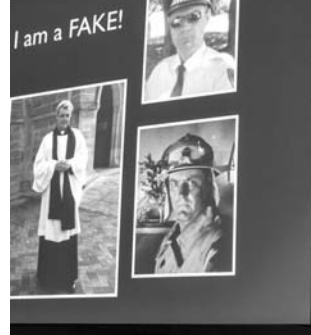
### Dead Centre Skeptics

Dr Krissy Wilson is always a popular speaker, and not just for her energy and funny English accent. Beginning with a look at sacred sites around her new stomping ground in Alice Springs – anyone been to Corroboree Rock, home to the first spirit photo? – her presentation moved across country to Macquarie University in Sydney, where she is helping to establish a new course in critical thinking. This will be a much-needed cross-disciplinary series of lectures and workshops intended for students but no doubt helpful for academics as well. (An article on the course will appear in a future issue of *The Skeptic*.) She finished her talk with a well-received animated rendering of misunderstood lyrics to Carmina Burana’s *O Fortuna*. (<http://tinyurl.com/mfo5fle>) Well worth a look.

## PAUL WILLIS

### Where to now?

Dr Paul Willis, the former *Catalyst* star and current director of the Royal Institute of Australia, started off his closing notes on the convention by giving skeptics a kick up the rear – don’t be negative, it doesn’t go down well with the public. He then offered a positive solution to the lack of serious skeptical coverage in the mainstream media by going down the DIY route – blogs, Facebook, podcasts,



vodcasts etc. This was the perfect medium to present a more considered and positive image for skeptics everywhere. But Willis wants more, particularly when it comes to supporting the skeptical point of view in the comments section of media websites. How many skeptics made detailed critical comments on the *Catalyst* cholesterol story, and how many made positive comments on the earlier *Catalyst* chiropractic story? Not enough, he said.

Thus the convention ended on a cry to get off your seat and do something positive. And there is no conspiracy about that; just good advice couched in tough-love terms.

Kudos for a great event should go to Kevin Davies, the ever-busy president of Canberra Skeptics, Andrew Gould, MC and master of disguise, and the miscellaneous men and women in black, or secreted behind the scenes:

Sally Wherry, Nick Ware, Amanda Devaus, Jim Manning, John Bundock, Coran Stow, Felix Bloomfield and Greg Lloyd. Well done all. ■



Photos by Ruth Ellison (#1,3,4,5,6,8,10,11,16, 18,20,21 + audience and spoon bending) and Mal Vickers (#2,7,9,13-15,17,19,21 + main photo and conspirators)



# Readers' indigestible

Tim Mendham looks at those 'other' publications, where skepticism is a dirty word.

This issue, we again look at one magazine and one website. But like their differing formats, the two examples here could not be further apart ... almost. The magazine is completely negative and paranoid, the website is all light and goodness. But there are also similarities, as both are silly and both are fond of aliens. Read on.

## HARD EVIDENCE

**More like hard reading**, actually, as this bi-monthly publication coming out of Queensland (\$7.95) features one of the most boring and uninspiring layouts we have ever seen.

Subtitled "Exposing the Truth", *Hard Evidence* is one of that genre of publications that see conspiracy and evil wherever they look. We have covered others of this ilk in the past, particularly *Uncensored*, which comes out of New Zealand. That latter magazine is pretty clunky looking, but it is an artistic masterpiece beside *Hard Evidence*.

The Australian publication has news pages that just run on and on as if they were one long Word file – they probably are – and articles that are not quite sure how to lay themselves out, randomly hopping between three-column and two-column pages, sometimes within the one page. This, as any graphic artist will tell you, is a no-no, as it makes reading difficult and gives the publication an amateur feel. This might be an accurate judgement, as there seems to only be an editor and no-one else working on the copy and layout. There is a research assistant, but she might only be for picture sourcing; we're not sure.

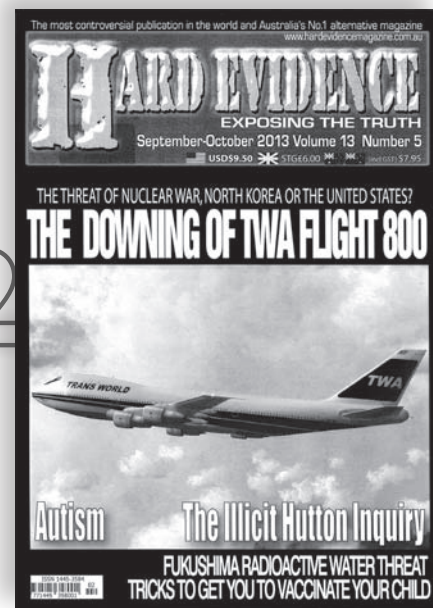
The magazine is in its 13th year, but it might not have moved far from its initial look. As an

indication, the editor solicits articles, photographs etc "in an attempt to expose subjects the mainstream media won't or don't tackle". Fair enough, that's pretty traditional fare for such publications. But how traditional the publishing process might be is indicated by the request that such articles be typewritten and presented on a "floppy disc or CD for Mac/PC". Your reviewer has been an editor for more than 30 years, but we haven't seen a submission on floppy disc or CD this century. In fact, floppy discs don't exist anymore. Hopefully *Hard Evidence's* contributors are a bit more up-to-date in their use of technology than the magazine is in its content.

Ok, snide remarks on artistic limitations to one side, what is the magazine about?

Well, judging by the issue under review, there are two main topics – nuclear conspiracies and vaccination conspiracies. The nuclear ones cover "the Hiroshima myth" (dropping the bomb wasn't necessary); the threat of nuclear war (who is worse, North Korea or the US?); and the problem with radioactive waste from Fukushima (poisoning the entire Pacific Ocean).

On the vaccine front, we have the perennial scare tactics of "tricks played to get you to vaccinate your



child" and several articles on the claimed links with autism. One of the latter is written by Viera Scheibner who won the Skeptics' Bent Spoon award back in 1997 – still going strong, and still spouting the same arguments. One of those arguments in her article is indicative of her general stance: "What Constitutes the Evidence of Causality? Let us start by not relying on the words of medical 'authorities' in western countries."

Other articles cover the supposed shooting down of TWA Flight 800 in 1996, and the supposed poisoning of Iraq War whistle-blower, David Kelly and the consequent inquiry into his death.

The Kelly article kicks off with one of the best examples of purple prose you're ever likely to see in a 'factual' article: "If Albion is perfidious in foreign lands is it not likely its cunning and its lying will be strong suits on the home front? The trappings of Crown, ancient ceremony, and red empire stamp authority and apparent integrity on the British state. These, and much else, are the coinage of a supine and



# AETHERIANS

**The Aetherius Society** ([www.aetherius.org](http://www.aetherius.org)) is one of those groups that just keeps on keeping on, and you have to wonder why. It doesn't seem to have a lot to offer that's very specific, as it covers a panoply of New Age topics and late 50s obsessions.

For a start, the basis of the group's philosophy is UFOs and the imparting of great wisdom from aliens. As the blurb on the site says: "The Aetherius Society is an international spiritual organization dedicated to spreading, and acting upon, the teachings of advanced extraterrestrial intelligences. In great compassion, these beings recognize the extent of suffering on Earth and have made countless sacrifices in their mission to help us to create a better world."

The Society was founded by 'Dr' George King in the UK in 1954 or 1955 – no-one seems to be quite sure; even the Society's official site says "mid-1950s". King started the group "shortly after he was contacted in London by an extraterrestrial intelligence known as Aetherius. The main body of the Society's teachings consists of the wisdom given through the mediumship of Dr King by the Master Aetherius and other advanced intelligences from this world and beyond."

The site says "The single greatest aspect of the Society's teachings is the importance of selfless service to others." The Society's motto is: "Service is the jewel in the rock of attainment". We're not quite sure what that means, but it sounds nice.

Then comes the list of beliefs, which the Society admits "encompass many different subjects". These kick off with "Oneness and the Divine Spark within all life; God is all".

From that vague beginning

what you get includes: UFOs and advanced life on other planets; karma and reincarnation; yoga philosophy and practice, including yoga breathing and the chanting of mantra; kundalini, chakras and auras; spiritual energy and spiritual healing; psychic powers and intuition; holy mountains; life at other frequencies of vibration, which are also known as other "planes" or "realms"; and Ascended Masters.

Hang on, what was that about "holy mountains"? Apparently the Society organises several pilgrimages a year to holy mountains "which contain special spiritual energies which can be radiated to those in need through prayer, mantra and visualization". The pictures on the site show a reasonable number of people, young and old, standing in circles and holding hands, taking part in mountain pilgrimages that are "an inspiring – sometimes life-changing – event for any open-minded spiritual seeker".

You'll be pleased to know that Australia has two holy mountains – Mt Kosciusko and Mt Ramshead (Rams Head?), both in the Snowy Mountains. Africa only has one holy mountain – Kilimanjaro – and the whole of Europe only has two. The British Isles, however, is flush with holy mountains, nine in all, so that's obviously the place to go for your spiritual energies.

Overall, the Aetherians appear to be a well-meaning bunch, such as helping Japan get over the earthquake/tsunami/Fukushima disaster via prayers and meditation sessions. But add the religious robes, the rigmarole of services, a charismatic leader, secret imparted knowledge and the dedication of the members, and you start to wonder if this is more cult than prayer session. ■

incestuous media and especially of the BBC, the state broadcaster and supreme propagandists. 'Nation shall speak peace unto nation' is its most ironic motto. The whole works in terrible concert."

But one thing the article's author left out of that opening paragraph, and indeed the article as a whole, is an actual explanation of who David Kelly was and why he was apparently poisoned.

And thereby hangs the tale (to use some purple prose of our own). The articles in *Hard Evidence* don't need introductions or explanations. The topics are hardly new to skeptical eyes, so presumably even less so to their conspiratorial target audience.

In other words, ho-hum, been there, debunked that.

Far more interesting are the ads, some of which move into more exciting paranormal territory: UFOs, ancient astronauts, Atlantis, mind control, end-of-the-world scenarios, unknown animals, crop circles and hollow earths. Others, however, promote less pseudo products. One of the best is for Sci-Fi movie posters – Creature from the Black Lagoon, This Island Earth, Forbidden Planet, The Blob, etc – as well as others offering junior astronomy kits and copies of Carl Sagan's Cosmos series.

That's almost ... almost ... worth the price of the magazine. ■

**I**n October, the ABC-TV's science program *Catalyst* broadcast two programs, collectively titled "Heart of the Matter". The first program, on October 24, was titled "Dietary villains", and looked largely at 'dissident' stances to the accepted view that there is a serious danger from cholesterol on health, and particularly on the heart. The second program, on October 31, was titled "Cholesterol drug war", and looked at the role of statins, prescribed to deal with cholesterol and heart issues, with the suggestion that a low efficacy rate for the drug combined with a variety of side effects and a possible over-prescription made the use of statins inadvisable, or at least ineffective.

Despite a disclaimer on the second program saying that it should not be regarded as offering medical advice, the message, based on the amount of coverage given to divergent views, was that cholesterol is not bad but that statins are.

In this special report, we hear from Dr Justin Coleman, senior lecturer, School of Medicine, at Griffith University; Dr Rachael Dunlop, vice-president of Australian Skeptics Inc and a Postdoctoral Fellow at the UTS School of Medical and Molecular Biosciences; and the ABC's own Media Watch program, all of whom take exception, to varying degrees, to the program's content and approach.

## Viewing Catalyst's cholesterol programs through the sceptometer

**T**he ABC's *Catalyst* programs on cholesterol set off a chain reaction of protest from sections of the medical community, aghast that the non-medical media would question the accepted wisdom that dietary saturated fats kill people and that statins – medication to lower cholesterol – save lives.

Professor Emily Banks, chair of the Advisory Committee on the Safety of Medicines, warned the ABC to pull the second program. Yet the show went on: as befits a catalyst, it remained unaffected by the reaction it had produced.



Dr Justin Coleman of Griffith University looks at the science and 'experts' behind the program's cholesterol claims

Australian Medical Association president Dr Steve Hambleton claimed the programs "gave extraordinary weight to an opinion that is a minority view", while his predecessor Professor Kerry Phelps put her weight behind the minority view, tweeting "Time for Australian therapeutic guidelines on cholesterol and statins to be revisited."

Plenty of fat spitting from the frying

pan in all directions. So what is a non-expert to make of it?

As a GP who has no intention of ever doing a PhD on sub-types of fat (for fear of brain supersaturation), in these situations I whip out my most discriminating organ: my sceptic's eye.

The result? Surprisingly, the two *Catalyst* programs scored almost polar opposites on the sceptometer.





The first program starts with a fellow called Dr Jonny Bowden saying: "I think it's a huge misconception that saturated fat and cholesterol are the demons in the diet, and it is 100 per cent wrong."

At the phrase 100 per cent, my sceptometer already gives a twitch. Just who is this confident expert? A quick search reveals that Jonny describes himself as the Rogue Nutritionist to promote his 14 diet books. His website contains 20 pages of online shopping for bottled pills for anti-aging, detox, liver clearing, immune support and brain power.

Next up, cardiologist Dr Stephen Sinatra: at least he should know a thing or two about cardiovascular risks. But it doesn't bode well that the home page of his website serves as a shop front to sell his own personalised brand of vitamin pills. You can buy Dr Sinatra's T-support or click through to "anti-aging bombshell" Longevity Plus, before spending \$55 on an "energy booster to refuel your cellular engines". Er, no thanks, my engines are fine.

The next expert is US diet-book author and infomercial developer Dr Michael Eades. His website suggests that your weight loss solution is Metabosol Ultimate Success Pack, full of Diet Aid natural ingredients. And he'll sell it to you for just US\$209.95. Have these guys never heard of broccoli?

During *Catalyst*, Dr Eades questions the motives of the multibillion dollar food industry fuelling our phobia of

fat in the diet. "That's not science. That's marketing," he explains. At last: a statement where I can unreservedly accept that he would be an expert.

Honestly, even at this early point, I give up. The sceptometer has blown a fuse.

Saturated fat isn't a "demon in the diet", according to the Rogue Nutritionist.

The quality of the messengers has me doubting their counterintuitive message. For now, I'll stick with the 2012 Cochrane Review that suggested a modest (14 per cent) reduction in heart attacks when participants tried to lower their saturated fat intake, although no conclusion could be drawn on overall risk of death. Certainly no reason to change mainstream dietary advice.

With a heavy heart (probably the trans-fats) I awaited the second *Catalyst* on statins, but to my pleasant surprise, the first commentator is respected academic Professor Rita Redberg, who prefers editing JAMA Internal Medicine to selling vitamin cure-alls. I have long been a fan of her *Less is More* series, which applies the blowtorch of best-available evidence to common medical interventions which our profession probably over-uses.

It's hard to quibble with anything in her opening gambit:

The marketing concentrates on the fact that you can lower your cholesterol

as if that was the end in itself, which it is not. Cholesterol's just a lab number. Who cares about lowering cholesterol unless it actually translates into a benefit to patients? The crucial question, then, comes down to mortality data in randomised control trials (RCTs). As end points go, death is easily measured, and all my patients consider it suitably clinically relevant.

Says Redberg: "One or two people in a hundred will benefit from taking a statin. What people don't understand is that means the other 98 will get no benefit at all. It's not going to reduce their chance of dying."

Despite the shocked reaction to the *Catalyst* episodes, the science behind the claim that we overprescribe statins - the world's most profitable drug class ever - has been steadily building for years.

This may be a revelation for the general public. And for doctors who rely on pharmaceutical reps for a substantial portion of their medical education. However, we learnt this back in 2010 from a meta-analysis of 11 RCTs looking at the ability of medications to reduce the risk of death in people who were at high risk of heart attack (but who had no history of heart attacks).

Its conclusion was fairly unambiguous: it did not find evidence that cholesterol-lowering drugs reduced the risk of death in people at high risk of heart attack.

Is this enough to show statins simply "don't work"? No. But it is more than enough to make one suspect we may have overstepped the mark with many of the 40 million people currently prescribed statins.

And the mark - the cutoff point recommended by expert panels - keeps shifting lower, encouraging more treatment. *Catalyst* pointed out that eight out of nine of the 2004 US guideline panel members had a direct conflict of interest after declaring financial ties to the companies that manufactured statins.

This "guideline" conflict is, if anything, worsening. According to



**Left:** *Catalyst*'s opening title for the two-part series. The long-running program has been a consistent supporter of scientific endeavour.

## A Catalyst for change *Continued...*

a September 2013 *BMJ* report: "... widespread financial conflicts of interest among the authors and sponsors of clinical practice guidelines have turned many guidelines into marketing tools of industry. Financial conflicts are pervasive, under-reported, influential in marketing, and uncurbed over time."

Because of their popularity and the sheer enormity of the profits involved, statins provide one of the most concerning examples of this type of market engineering.

This second *Catalyst* episode goes on to mention publication bias, pharmaceutical sponsorship potentiating biased reporting of outcomes, withheld trial data (see the AllTrials campaign) and the distasteful phenomenon of "Key Opinion Leaders". These are specialist doctors identified and sponsored by the pharmaceutical industry to educate other doctors about diseases for which there is a branded treatment.

So was *Catalyst* wrong to air a program which, as National Heart Foundation CEO Dr Lyn Roberts pointed out, might encourage some people to stop taking their statins without consulting their GP?

No; the more likely effect is that people will start raising the issue with their GP, which is a good thing.\*

Although I can understand the NHF's concern after suffering through the snake-oil salesmen in the first program, I think the second chapter effectively introduced an important debate, and certainly everybody is now talking about it.

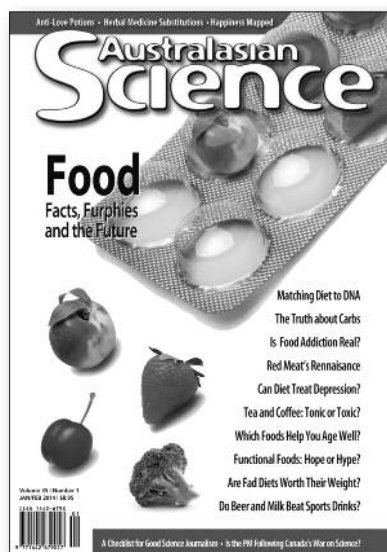
So in the end, I'm glad I sat down for the sequel, despite my overheated sceptometer warning against it.

I did have to watch the dial anxiously when Jonny the Rogue Nutritionist returned to plug his Coenzyme-Q10 pills. But then, I'd also watch the dial if I ever attended a GP educational session and discovered that the specialist talking was a Key Opinion Leader and his topic was statins.

*Dr Coleman, senior lecturer, School of Medicine, at Griffith University*

**Note:** This article was first published on *The Conversation* website on November 4, 2013.

**\*Editor's note:** In fact, after Dr Coleman's article was published, a survey commissioned by Merck Sharp & Dohme - which created the first statin in the early 1980s - and undertaken by market research company Cegedim, asked 150 doctors what the reaction had been with those patients with whom they had discussed the use of statins following the program. The survey found that 40 per cent of patients asking about statins had already stopped taking them, and the remaining 60 per cent wanted to stop. About 58 per cent of those patients were considered to be at high risk of heart attack or stroke. Another survey, by Australian Doctor magazine of 500 doctors, found one in four were reassessing their patients need for statins in the wake of the program. A further 16.5 per cent were reconsidering the prescriptions when their patients asked about it. ■



## Food Facts and Furphies

Most Australians are taking some form of vitamins, minerals or herbal supplements, and bookstore shelves are bursting with the latest fad diets.

With nutritional recommendations and dietary trends ever-changing, the Jan/Feb 2014 edition of *Australasian Science* looks at the health claims made about food.

- Can diet be tailored to your DNA?
- Why are beer and milk better than sports drinks after exercise?
- Are tea and coffee tonics or toxic?
- Which foods help you age well?
- Functional foods: hope or hype?
- Can diet treat depression?
- Should red meat be making a renaissance in our diet?
- Is food addiction real?
- Are any fad diets worth their weight?

Available in newsagents at Christmas.

**australasianscience.com.au**



# Catalyst challenges the mainstream

A transcript of the ABC's Media Watch program on what it suggested is Catalyst's sloppy journalism.

There was trouble close to home, at our ABC, where the popular science program *Catalyst* has come under attack.

In its recent two-part documentary, "The Heart of the Matter", which pulled in a huge audience of almost 1.5 million people per episode, reporter Dr Maryanne Demasi suggested that high cholesterol does not cause heart disease and most people are wasting their time taking cholesterol-reducing drugs called statins. She also suggested we've been conned by pharmaceutical companies so they can make billions of dollars in profits.

After the first episode went to air on October 24, there was a storm of outrage from medical experts. The National Heart Foundation of Australia declared that it was "shocked by the disregard for the extensive evidence" (National Heart Foundation, Media Release, 28th October, 2013). It added that "High cholesterol remains a risk factor for heart disease, the number one killer of Australians."

Professor Emily Banks, chair of the Advisory Committee on the Safety of Medicines, was also highly critical and demanded the second episode not be shown.

Then, after the second episode went ahead, the ABC's health expert Dr Norman Swan also came out firing, saying *Catalyst's* program would kill people ... because it would make them stop taking their medicines.

Now, *Media Watch* is not going to take sides in this scientific debate. But looking at the journalism, we're almost as shocked as the doctors. Both episodes of *Catalyst* struck us as sensationalist and grossly unbalanced; and some of

their so-called 'experts' had questionable qualifications.

But see for yourself. Here's how episode one of "Heart of the Matter" began:

**Reporter, Dr Maryanne Demasi:** "For the last four decades, dietary fat and cholesterol have been the villains in heart disease."

**Dr Michael Eades:** "You very seldom see the words 'saturated fat' in the public press when they're not associated with artery clogging. So it's like it's all one term - 'artery clogging saturated fats'."

**Demasi:** "But now some medical experts are coming forward to challenge this medical paradigm."

**Dr Jonny Bowden:** "I think it's a huge misconception that saturated fat and cholesterol are the demons in the diet, and it is 100 per cent wrong."

**Dr Stephen Sinatra:** "Saturated fat has been vilified for years because of the cholesterol theory."

**Demasi:** "A multibillion dollar food industry has fuelled our phobia of fat and cholesterol and

dramatically influenced our diet."

**Eades:** "That's not science. That's marketing."

**Bowden:** "It's lived past its expiration date, and it's one of these hypotheses that just won't die."

**Demasi:** "Have we all been conned? In this episode, I'll follow the road which led us to believe that saturated fat and cholesterol cause heart disease, and reveal why it's being touted as the biggest myth in medical history."

Powerful stuff is it not? Conned; 100 per cent wrong; villains; demons; vilified; phobia; the biggest myth in medical history. If you make claims like that on an ABC Science program, you'd want be sure they're pretty well-sourced, especially when they contradict the vast weight of mainstream medical opinion.

So who are these three 'experts' that Demasi so relied on?

Well, Dr Jonny Bowden and Dr Stephen Sinatra are co-authors of this popular American potboiler, *The Great Cholesterol Myth—why lowering your cholesterol won't prevent heart disease and the statin-free plan that will*.

The foreword to this book was written by the other 'expert' we saw in the opening clip, Dr Michael Eades. Three men with one mind, presented as three independent points of view.



**Right:** Paul Barry, presenter of Media Watch: "We're almost as shocked as the doctors."



## A Catalyst for change *Continued...*

And what exactly is their expertise?

Well, 'Doctor' Jonny Bowden isn't a medical doctor at all, even though *Catalyst* claimed he is. And he also has a conflict of interest. The self-styled 'Rogue Nutritionist' has written 14 books on healing, weight loss and longevity, sells heart health pills which compete with statins, he also sell pills for brain power and anti-aging.

And while he does have a PhD, it's not from a recognised university. It's a Clayton's PhD, obtained by correspondence from the Clayton College of Natural Health in Alabama, which offered degrees in naturopathy, holistic nutrition, herbal studies and iridology before it went out of business in 2010. It was damned by one critic at the time as "The biggest quack school in natural medicine" (*The Huffington Post*, 12th July, 2010)

Yet Clayton's Dr Bowden was relied on by *Catalyst's* Maryanne Demasi for claims like "When you look at the data, it's very clear - everything that we have been told about saturated fat and cholesterol is a bold-faced lie. It's just not so."

Dr Michael Eades, who wrote the foreword to Bowden's book, is a medical doctor. But he's not a cardiologist or world expert, and his views are somewhat on the fringe. His best-selling book *Protein Power* promotes an Atkins-style diet that ticks fatty foods like butter, eggs and cheese. Eades also sells dietary supplements and heart health drugs.

The other expert in *Catalyst's* opening pitch, Dr Stephen Sinatra, is a cardiologist. He too has a website selling cholesterol pills that compete with statins. And while Bowden's co-author has published peer-reviewed research on heart disease, he seems to be more interested in a treatment called 'Grounding': "You look at grounding for example or earthing, you know, putting your bare feet on the ground, you'll soak up lots of electrons because the earth is negatively charged, our bodies are so full of free radicals, from, you

know, anything from heavy metals to air pollution, to trans fats, I mean, our body is being inundated with a firestorm of free radicals so you got to put the fire out ... So I am so bullish on grounding as the most primitive, easiest, cheapest way of creating optimum health." (*You Tube*, Dr Stephen Sinatra, 20th April, 2010)

So why on earth did *Catalyst* end up relying on people like this to take on the world's medical establishment and rubbish the views of heart experts around the world? And why did Maryanne Demasi fly all the way to America to interview them? Especially since she claims on *Catalyst's* website: "Over the last two to three years, I have interviewed at least a hundred experts and patients worldwide about their views on diet, heart disease and medications to lower cholesterol."

So how did she end up with so many views outside the mainstream? With the sort of advocates you'd expect to find on *A Current Affair* or *Today Tonight*, instead of on the ABC?

But it's not only the type of expert *Catalyst* relied on that is a problem. It's also that the prosecution was given so much more time to make its case.

In the two episodes of "Heart of the Matter", eight witnesses were called to say that cholesterol does not cause heart disease or that statins do not save lives. And they were given nearly 27 minutes.

The defence was allowed to call just two witnesses who got just 4 and a half minutes between them.

The rest of the hour was given to reporter Demasi. And it's not hard to see whose side she was on. She obviously agreed with Stephen Sinatra, nodded enthusiastically at Ernest Curtis and liked Jonny Bowden. But she was stony-faced when she listened to Clinical Associate Professor David Sullivan, Royal Prince Alfred Hospital, who undoubtedly is a world expert in the field ... and who was appalled by what she eventually broadcast: "In my opinion, both episodes of the two-part *Catalyst* program were unscientific, confusing and irresponsibly misleading." (Response to *Media Watch* questions, 8th November, 2013) In a scorching three page email to *Media Watch*, which you'll find on our website, Professor Sullivan accused

Maryanne Demasi and *Catalyst* of "Overwhelming bias; intransigence; serious misconceptions; incorrect assumptions".

And much much more.

Professor Sullivan also told us "the answers I provided during more than two hours of interview were largely ignored and omitted."

*Catalyst* has confirmed that Sullivan was only interviewed by Demasi because the ABC TV's Editorial Policy Unit reviewed the program and advised it was so one-sided it needed to offer a balancing point of view. This kind of echoes what the US science writer Gary Taubes told Demasi in the "Heart of the Matter" when he laid into the medical establishment by saying: "What you do in bad science is you ignore any evidence that's contrary to your beliefs, your hypothesis, and you only focus on the evidence that supports it."

I'm afraid to say that's what you do in bad journalism too.

And that's what these two episodes of *Catalyst* appear to be. And that's a shame because the causes and treatment of heart disease are an important subject for debate. Thousands of lives and billions of dollars are at stake; and the ABC should be free to challenge established medical wisdom.

But it needs to do it much much better than this.

In the program's defence, the team at *Catalyst* stood by its choice of experts and told us: "Our intention was to explore a provocative thesis. Inevitably a larger percentage of each 30 minute programme was taken explaining that thesis. ... Discussing and raising the profile of a non-mainstream view like this will inevitably raise objections, but we believe we did so in a responsible way that complied with the ABC's Editorial Policies." (Response to *Media Watch* questions, 8th November, 2013).

Sadly, we do not agree. ■

**Note:** This is a transcript of the *Media Watch* segment broadcast on November 11, 2013 (Episode 41). It is reproduced with permission. The program, with links to the documents referred to, can be found at [www.abc.net.au/mediawatch/transcripts/s3888657.htm](http://www.abc.net.au/mediawatch/transcripts/s3888657.htm)



# The ABC of science programs

Dr Rachael Dunlop looks at the media's coverage of scientific issues, and the audience's reaction

So now that Media Watch has laid into *Catalyst*, calling the program “sensationalist and grossly imbalanced”, the discussion should be over, right? Can we all go home now? Apparently not.

Elsewhere in this issue of *The Skeptic*, the scientific claims made by *Catalyst* have been challenged so I won't delve into these here. What I will do, however, is muse on why people apparently fell so readily for the *Catalyst* story. Some falling so far that a survey of GPs conducted by a statin manufacturer reported that, after viewing the show, 40 per cent of people have gone off their medication without consulting their doctor.

Recently, I was chatting with people on Twitter who were wrestling with the concept that what *Catalyst* presented was wrong, given that it had come from a respected science program. One decried, “But if we can't trust *Catalyst* then who can we trust?”

It is true that *Catalyst* has fostered a good reputation, but to presume therefore that everything that spouts forth will be good is a mistake. And it's one I've made myself.

I was once of the mind that “ABC good, commercial stations bad” but

changed my view some time ago as closer scrutiny of the mainstream media made me realise that it's more complicated than that.

When it comes to science reporting on the tele, sifting the wheat from the chaff requires some effort and the application of a skeptical eye, but once you apply this technique, you might find yourself surprised.

Ok, so we all love to bash *A Current Affair* and *Today Tonight*, but remember who broke the story of Power Balance being a con? That exposé was the beginning of bad publicity that eventually sent the Australian distributor into receivership. It was reporter Frank Pangello interviewing Australian Skeptics President Richard Saunders on *Today Tonight*. Similarly, Frank also did a damning story on ear candles in which I was interviewed.

You can be as sceptical as you like about the quality of News Limited (known to some as Limited News) but they do employ the delightfully acerbic Tory Shepherd who writes a column called ICB (I Call Bullshit), which covers BS such as activated almonds, psychics and anti-vaxers.

How about this public statement

issued by Channel 10's *The Project* on its Facebook page regarding anti-vaxers: “Anti-vaccination is a fringe opinion. For every five doctors who oppose vaccination there are 95 who support it. We are not obliged to provide equal time and space to unscientific and dangerous viewpoints – *The Project*.”

Contrast this with “The Great Vaccine Debate” that aired several weeks ago on Channel 7, which was a false balance disaster of huge proportions. Pitched as an “expert”, anti-vaxer extraordinaire Meryl Dorey beamed alongside paediatrician and infectious disease expert Prof Peter McIntyre, as around the country pro-science viewers' heads met desks.

Back at the ABC, there are many good journalists who do a fine job of evidence based reporting, and amongst these is Dr Maryanne Demasi who presented the *Catalyst* story. Recall only a few months earlier she eviscerated chiropractic during a 30 minute special, which featured many faces from the skeptical community (I was given a credit for research assistance).

The ABC's Steve Cannane was recognised with a Skeptic Award in 2010 for his work on *Lateline* exposing the lies of the AVN.

On the flipside, recently ABC *Landline* did a credulous story on geomancy, dowsing and subtle energy practices in farming. Dowsing has been investigated by Australian Skeptics for over 30 years and we are yet to find any evidence that it works.

So how did Demasi get it so wrong, especially when she says she researched the story for three years? Well, not unlike Meryl Dorey who has researched vaccines for over 20 years, you can research bad science for as long as you like – you still end up with bad science. As they say, garbage in, garbage out. I

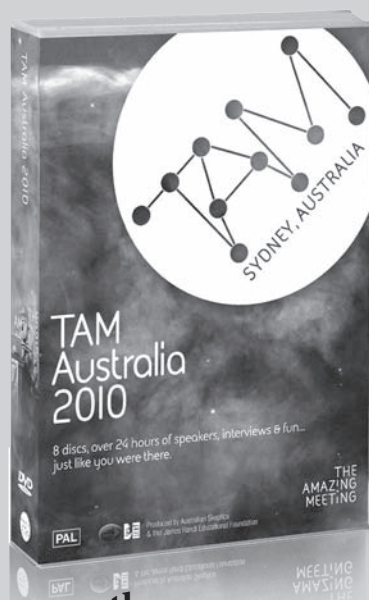


**Left:** Dr Maryanne Demasi, *Catalyst* presenter, uncovering a ‘blockbuster’?

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## A Catalyst for change *Continued...*

suspect that along the way she picked up the odd "bad science" article that led her to another and then another, eventually manifesting as confirmation bias, which simply means you only read things that confirm your views.

I think Demasi genuinely believes she has uncovered a blockbuster, but once again, apply your sceptical eye and you'll see red flags all over what she presented. Accusing cardiologists of being in the pay of 'Big Pharma', broadcasting experts who proclaim medicine is "organised crime" and that the role for cholesterol in heart disease is "100 per cent wrong" is the kind of rhetoric we expect from quacks. And it was what she didn't reveal that is also telling. Three of the four experts have written books together describing the "great cholesterol myth", and they sell assorted supplements and diet plans. One believes that "earthing" is the way to good health, another that vaccines cause autism.

Science, on the other hand, is complicated and nuanced; we always equivocate because nothing is 100 per cent. And unlike quacks, scientists are constrained by facts and evidence, so juxtaposed alongside quacks, we have no chance.

Just as you can't judge a book by its cover, neither should you a television program. As skeptics, we pride ourselves on highly-tuned BS detectors, so it's critical that we use them on everything we see, even if the source seems beyond reproach. Just as Demasi made a grave error with her biased reporting on Catalyst, so have those who refuse to believe they were duped. ■

*Dr Rachael Dunlop is vice-president, Australian Skeptics Inc, and postdoctoral fellow at UTS School of Medical and Molecular Biosciences*



# Space To Think

**D**r Pamela Gay is Assistant Research Professor at the Center for Science Technology Engineering & Mathematics (STEM) research education and outreach at Southern Illinois University Edmondsville. She is also an instructor with the Swinburne University of Technology in Australia as part of its astronomical distance learning program. During her recent visit to Australia and New Zealand, in this interview she talked with editor Tim Mendham about life, the universe, faith and bad science fiction.

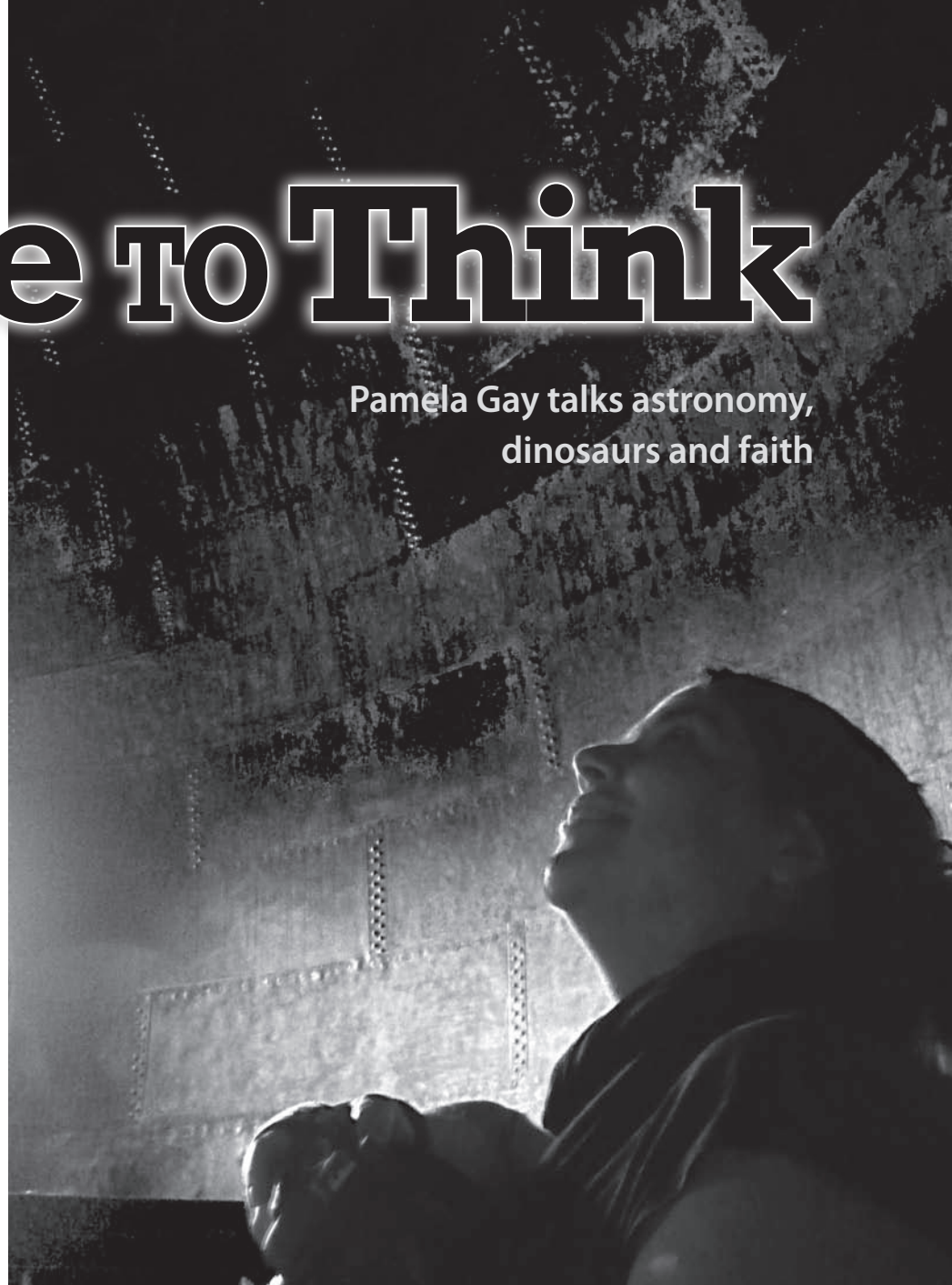
*Can you tell me a bit about your CosmoQuest project?*

That's a project I run at Southern Illinois. It's an online virtual research facility to help enable members of the public and scientists from around the world to work together on cutting edge research as we work to map out other worlds and the universe beyond our atmosphere.

*By members of the public, what do you mean? Qualified people or just general people?*

We train people, so anyone who comes through our doors, which means anyone who types in our URL [cosmoquest.org], we'll take them through tutorials, we'll provide them with seminars and online class opportunities. So we know that we have people working with us who are everything from your average person who may not have any college but has an interest to school children to people with PhDs in other fields who want to spend their spare time doing space science.

*You're dealing a lot with social media, which tends to be typified as having a certain audience – younger, more tech savvy. Are you finding that's the case?*



**Pamela Gay talks astronomy, dinosaurs and faith**

We do attract more people who have college degrees in science technology and engineering than seems representative. In fact, if you compare it with the distribution of people who use our software with US census data our audience is more educated, is more science and technology focused. But we do have everyone in the mix, it's just not the same mixture that you see in the census.

*But they tend to be younger? Under 30?*

They seem to be representative of the age of the people who are on the internet, so you don't see as many

grannies, you don't see as many young children, but you do see a lot of IT professional aged people. It's not an all-youngsters population, it's also a fairly greying astronomy-loving population.

*So those grannies and kids and people who do take part would show a lot of enthusiasm, they would be self-culling.*

Well, what we see is the grannies while they might love to do it, they tend to not be hanging out on the internet as often and the little kids are hopefully getting thrown out into the yard to play and catch frogs rather than hang out on the internet marking craters.

# Space to Think

Continued...

*The thing that strikes me, certainly ever since I was kid and when I've been involved in science and the promotion of science, there have always been two topics that everyone loves about science. One is space, and the other one is dinosaurs.*

Yes, and the asteroids killed the dinosaurs, so we won!

*Can you explain that, why those two things are so fascinating, from little kids being scared by dinosaurs even to the grannies?*

I think the dinosaurs are intrinsically interesting because they're something that isn't here today, and they were so big and they speak to that fairy-tale dragon and that monster in tales and then we find that these things that our mums and dads have told us, "Don't be afraid, there's nothing in your closet that's going to eat you". Well, it may not be in your closet but it may be buried under your house, dead. And that's suddenly awesome. Like a Tyrannosaurus Rex with little tiny arms and arguments over whether or not it could see well enough to see something

that wasn't moving, but its giant mouth is capable of eating you with a single bite. This is awesome fairy tales behind the visage of science.

*The meat-eaters are very exciting because they can kill you, but the plant eaters are the cumbersome lumbering creatures - not necessarily that they were, but that's the image that they have. It's that mixture of violence and size and, of course, the novelty that they're not around any more.*

Yes. And of course whales and elephants and giraffes are amazing too.

**But they don't have the same fascination. If you think about it, the museums put on exhibitions of dinosaurs and the people go rushing to see it. And then we have space. This is your area. Why is space so fascinating to people?**

Well, again there it's answering, in this case, not what's the monster under the bed but where did we come from, where are going. It's that great beyond, that place over the horizon that is waiting to be explored. It used to be that people were amazed to think of the New World, of what lay beyond the sea, what lay on the other end of the spice trail.

We've conquered and mapped those

corners. Now, what's left? At the bottom of the ocean? While there we also have something that's fascinating, people don't tend to talk about that as much.

But space is that other great uncharted land that we don't fully understand. You can imagine yourself as tomorrow's swashbuckling pirate going off in your Firefly to worlds ... it's a different set of fairy tales.

*I'd hate to say it's the final frontier, but in a way it is. It's the unknown and hopefully fairly exotic, which it is. Whereas marine life in the depths of the sea, there are very strange things down there, but we do know about them. And dinosaurs, we do know about them. But out there, there could be anything. And when you talk about what's there, especially when you talk about physics and astrophysics, these are just weird and hard to comprehend for a lot of people.*

Even the more mundane things, the sorts of things where people say 'Oh, I never thought about that'. Light echoes is one of my favourites. If you turn a flashlight on and off the beam changes so fast that you perceive that as the room going on and off; what you don't see is you've actually released a chunk of light that's propagating through space. When a star flashes, when it has a nova or a supernova event, it sends a sphere of light echoing across the universe and as that light travels through dust and travel through gas, it will illuminate these ghostly streaks. We find these things and can trace them back to where past explosions were. And just being able to find random packets of light propagating through a dusty cloud, that's kind of cool.

*And strange; it's mind-blowing stuff. And that's the stuff we know about, that's the easy stuff.*

It's not the easy stuff but it's the more mathematically understandable stuff.

*On that fascination for space and the strange things out there, I try to*



Taking in the sights and (previous page) inside the dome of the Sydney Observatory





*understand why space in particular seems to drag in a variety of woo. Astrology, conspiracy theories – the moon landings – aliens ...*

All the people who don't think relativity is true and that faster-than-light travel is possible ...

*And catastrophes. Asteroids. What do you think? Is this part and parcel of dealing with a fairly 'out-there' science?*

I think in a way it's a sign that you've made it. As soon as you attract the people who take these weird amorphous emotions that they experience and transferring them ... well, in the past they used to think of a witch sitting on their chest probing them in the middle of the night, now people imagine aliens. We've taken the things we're afraid of in the dark and moved them from one form of woo to another because there are certain psychological experiences that we can experience - those waking moments when you're still not able to move your body because all of your brain has still not woken up yet. We're now perceiving them to be associated with aliens instead of witchcraft.

*There's the age-old argument about which came first, astrology or astronomy. I think astronomy has to.*

Actually, they were the exact same thing. Kepler was the royal astrologer. It was only in recent history as the word 'science' replaced the 'natural philosopher' term that astrology got set aside in favour of astronomy, and it was only in the 1920s that astrophysics became a thing to think about.

*Do you ever think about why people believe in astrology and the influence of planets?*

There's a really fascinating transition stage between putting all of your fate in the hands of gods to putting all of your fate in the hands of science in a very misunderstood way. It takes a long time to clean the cobwebs

**Below:** Two abiding interests - space and dinosaurs (space won!)



out from between the ears of the ignorant. And people who don't take the time to understand how much gravity lessens over distance. "But these are giant planets in our solar system, of course they're going to have an influence." But they're not; a semitrailer going past on the street will have a greater gravitational bearing on your existence. People don't understand force at a distance, they don't understand that they're just shining lights. They want meaning, they want something other than their own actions to be responsible.

*It just feels strange - the idea that the stars are doing that. Yes, they have animistic gods in everything – the rocks and trees etc. But why should the stars have an influence on your life? Yes, they're up there and they're strange and they move around, but it just strikes me as curious that ... I agree with you that people are looking for something to explain what happens, but it just seems like a long shot to bring in the stars.*

I don't know, if when laying there in the middle of the night leaning back in the grass seeing the stars twinkle down upon you, there's something that triggers that part of your brain that is the reason the word 'awe' exists.

And if you're going to find meaning in something, I can understand why you might find it in the sunset, why you might find it in the stars. That doesn't mean it's right, but there are those things that create transcendent experiences. And art, music and staring into the depths of space are some of those things.

*Do people come to you with strange claims? There was David Morrison at NASA who was given the full time job of explaining to people about 2012. Do you get much of that?*

I'm getting very good at disengaging from telephones. I suspect they would call me up were that a possibility, but I get them in my inbox, I get them at my office door, it's everything from staff members from my university unsure about what they saw shooting across the night sky to some guy bringing me their cell phone video to people ringing me up not reaching me and being redirected to 'send me a letter'. And their letters are inevitably "here is my theory, you are under a non-disclosure agreement, even though I've never spoken to you before, and I want you to keep all of this secret and we'll publish it together ...". No. I think that's what I get most often, the person sending me their theory for the universe that isn't based necessarily on mathematics and trying to get me to agree to not disclose it and wanting me to co-publish it with them.

*What line do you take with those people? I know you don't like being rude to people like that?*

Generally, if it's an actual mailed letter, I'm a horrible person and simply ignore it and move on with my day in the corner where I'm slightly afraid of it. If it's electronic, I will often respond to them saying, sorry, I'm too busy, and hope that they won't write back.

I don't know what to do, as some of these people are mentally ill, some of these people have been deluded by others. I don't know if you consider that as another other form of mental illness, but it's something that makes



# Space to Think

Continued...

me sad. The reality of science is so amazing, and to watch people chew away at days and weeks and months of their lives on pseudoscience and trying to prove to others things that are unprovable is deeply sad.

*Some of the people who do such things are quite creative. But on something else, what do you feel about ancient astronomy?*

Buildings like Stonehenge and the pyramids, they show clear alignments with the cardinal points for the time at which they were built. Our planet, it's changing where the North Star is at a very good clip, so the alignments today aren't perfect, but it's clear that the primary stones at Stonehenge were there to mark out the calendar year – the solstices, the equinox. There's less evidence that it was used for solar eclipses, for lunar calendars, that's much more argued over by archaeo-astronomers. It probably wasn't used for the rising and setting of any particular bright stars, which is something that has been occasionally theorised.

But the idea of building that observatory, the facility on Cahokia Mounds in America, there are things like this all over the world. And trying to mark out the calendar was very difficult. Our year, inconveniently, is not an integer number of days. And so building structures like this allowed them to maintain calendars. And it was a religious celebration to maintain the calendars.

*Your view of skepticism is quite critical of people who are 'dicks', as Phil Plait calls them. What's your feeling of what skeptics should be and how they should react to people who make the sort of claims we've been talking about?*

At the end of the day, life is too short for hate. If someone is clearly mentally ill or delusional, why waste your time being shouty trying to convince them they're wrong. Pat them on the head and send them somewhere where you hope that they can find help.

Within our own community, the goal of scientific skepticism is to get a better understanding of our universe through empirical means. Scientific skepticism itself doesn't have the ability to address all the questions – there are places where things are neither predictive nor testable. We're left with choices. And if we have choices there's again no reason to get shouty. We need to be able to have rigorous discussions with each other. We don't need to come to an agreement but we should be able to come to a respectful understanding of the different viewpoints.

*Does that make you despair, when you see how some skeptics operate?*

**“ Sit down next to some of the big name skeptics, and they judge whether you are important or not.”**

Yes. I look around, and especially the American skeptics movement today, and I see a lot of people infighting and personal accusations and issues of harassment rising above important issues such as vaccination. We have people dying from lack of vaccination. We have an economic crisis that, well, it isn't going to get helped by people despairing and being hateful, but it might help if we thought more critically about things like global warming, for instance, which are going to have massive economic consequences as sea levels rise, as more droughts and wildfires occur. We need to focus on building a Star Trek future and not building a Fahrenheit 451 where it's “lets shout down the people who we don't agree with, and make the world bland”. We need the richness of ideas.

*It seems like there's a lot of ego in some areas of skepticism, and some of*

*it seems quite desperate, which seems strange. There's a certain confidence in skepticism, it's an approach you can use, and yet some people seem lost in the skeptical community. There are people claiming patches, this is my area, and it is very sad. It does give solace to the other side who are very critical of skeptics – “see, they can't organise themselves”.*

And one of the things that worries me is the cult of personality. I have a great respect for Hal Bidlack because I knew him for two years as the one who showed that the dowsing rod for explosives did not work for the US Army. I knew about what he had accomplished; I knew that there was an awesome skeptic person out there who did something important. But the name wasn't the thing. It's when I hear “Oh, do you know so-and-so, have you read his series of books” instead of “Do you know so-and-so and look at her amazing series of actions”.

There's the Australian woman, Loretta Marron, who's fought all of these bad ‘medical’ devices here. In my head, she's the survivor who fought so that other survivors wouldn't have to be faced by all of these devices.

*She's the only person who's won our Skeptic of the Year more than once, and she's won it three times; the third time was with the Friends of Science in Medicine which she helped set up.*

And it was that third time because she was able to create something bigger than herself, which I have so much respect for. When you create something bigger than yourself and do good for the world.

*I get worried when I see things like TAM in the US, and there's a lot of genuflecting. What seems strange is the attitude of people who come to see someone like Randi – it's not Randi himself, but the attitude of people who come to sit beside him.*

What I appreciate about Randi is, when you do sit down next to him, he'll just randomly start doing magic,

he's amusing and entertaining. But you sit down next to some of the so-called "big name skeptics" and they sort of look at you, judge whether you are important or not and ignore you or not accordingly. Randi doesn't do that. I've had that happen to me at TAM with some of the other big names, where I might come off the stage and I've had a standing ovation, I'm on a high and I think, wow I've pulled that off. But you then come up against someone who says "I'm going next, get out of my way". It's just unnecessary.

### *Best films? Best TV shows?*

I have to admit to being a connoisseur of horrible science fiction because it amuses me to no end. But in terms of getting stuff right, *Firefly* gets a lot of it right, the whole silence in space. And the new version of *Battlestar Galactica* has an amazing sense of human beings going through the vacuum of space, briefly getting it right. And hats off to the production teams of both of those shows for doing it right rather than doing it flashy.

*Battlestar Galactica* has many other issues but, as long as you don't watch the last episode in particular, it gets a lot of the science of space flight right.

*Any films that you particularly like? For me it would be 2001.*

Yeah, 2001 does a great job. I particularly like how they get the shoes for walking in spacecraft correct.

I probably don't watch anywhere nearly as many movies as I should. In terms of getting it wrong, there's *Armageddon* which is so disturbing, and then there are things on the Sci-Fi channel. There's *Sharknado* - a new one with tornados with sharks in them that eat people. I don't know who thought that was a rational idea. It's so wrong that you think it's something that should be showing on the television during a *Simpsons* episode ... on the *Simpsons*' television. It's just wrong.

*With the recent stage of Voyager moving outside of the solar system, it interests me that people on the news*

**Battlestar Galactica - "an amazing sense of people in space" (but don't watch the last episode)**



*often get it wrong; I've heard them say Voyager has "just left the galaxy".*

One of the problems with that one is that it's so easy to make a slip of the tongue between the solar system, galaxy and the universe. I know that I flip those about one in every five episodes of the *Astronomycast*, mainly because I'm tired and I'm talking fast. But when you're on TV you have to catch it instantly and correct yourself.

*One question that I like to ask everyone, how did you become a skeptic? Were you always a skeptic? Your father was a pastor?*

No, he led a Bible study group. He wanted to be a pastor but he couldn't pass foreign languages to save his life. I grew up with this very strange hybrid background of a Dad who had a very deep and abiding faith but was also an engineer and wanted to be a physicist. So we would go to the movies and take apart how the special effects were done and see what science was done well and what wasn't. We'd go out into the night and watch things through a telescope when I was very little. He was always reading science fiction and I was always stealing his science fiction. And there was always that skepticism in our home.

And at the same time there was this idea that there were things that were beyond what was understandable with science. I was raised with the sense

that it's an awful waste of ... I'm not sure what the correct set of words is ... but it's an awful waste if this is the only existence we get because there's so much left that needs to be forgiven and forgotten and moved on. And the idea that there could be redemption. And it was this parrying of ideas that was a very strange hybrid upbringing. But it led to me growing up with being at peace with knowing I don't know if I'm right or if I'm wrong but I'd rather be wrong in choosing to believe that there's something spiritual than not believing and being wrong because there is something.

*Do you have a faith?*

I am a Christian, and it's a faith where I know it's a faith I chose, and there's no empirical evidence. But, it's just like Carl Sagan said it's an awful waste of space if we are the only life forms. It seems that it's an awful waste of a multiverse if there's not something greater to enjoy all of it.

I don't know if I'm right. But I've made the choice and if given either opportunity I'll err on the side of believing. ■

About the author:

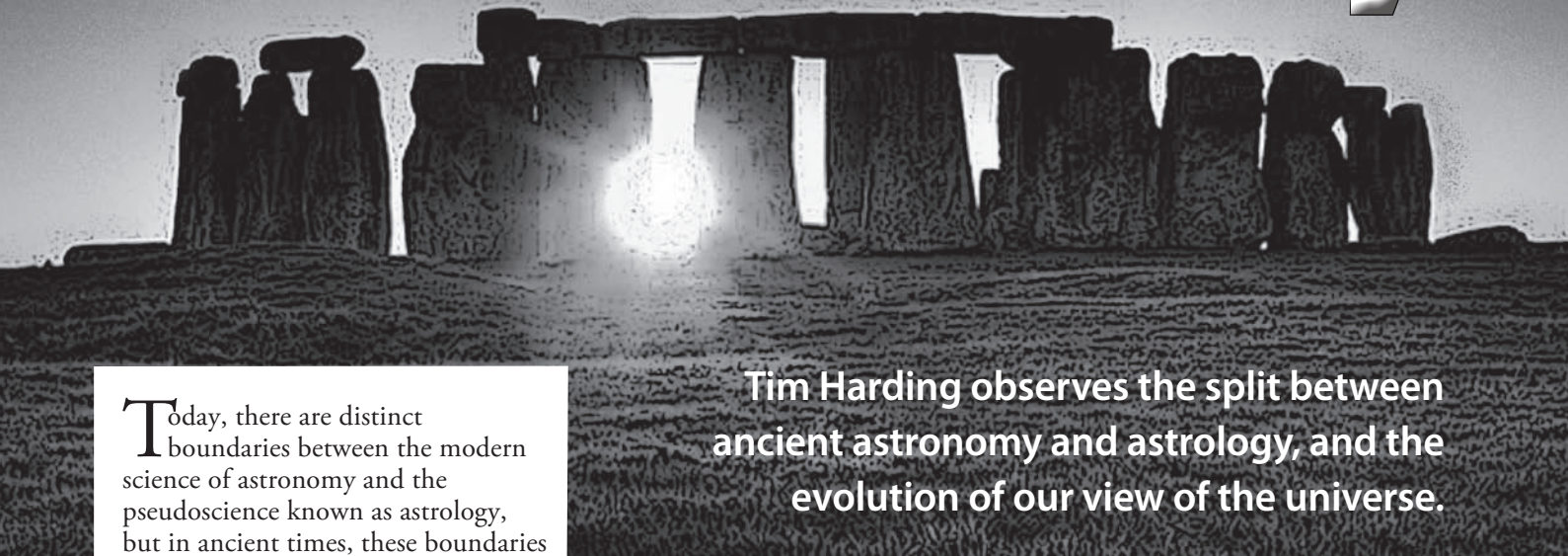
**Tim Mendham**

is executive officer and editor with Australian Skeptics Inc.





# An Eye to the Sky



Tim Harding observes the split between ancient astronomy and astrology, and the evolution of our view of the universe.

Today, there are distinct boundaries between the modern science of astronomy and the pseudoscience known as astrology, but in ancient times, these boundaries were not so clear. Both fields of study used a common set of astronomical observations – but for different purposes. The practical purposes of ancient astronomy were celestial navigation and the development of calendars of seasonal dates and events (such as the flooding of rivers) for the planting of crops. In contrast, the purpose of astrology was to interpret celestial phenomena as signs of divine communications.

Long before the invention of the telescope, ancient observations and predictions could only be of celestial objects visible to the naked eye. This restricted astronomical and astrological studies to the stars, the Sun, the Moon and five planets – Mercury, Venus, Mars, Jupiter and Saturn. (The Earth was not counted as a planet until much later.)

## PREHISTORIC STONE OBSERVATORIES

In some locations, early cultures assembled stone structures that are thought to have astronomical

observations as one of their purposes. The best known of these structures is Stonehenge in Wiltshire, England, which commenced construction around 3100 BCE and went through several building phases. As there are no written records to go by, there are several theories as to various religious, mystical and other purposes of Stonehenge. One of these theories has been proposed by well-known Victorian skeptic, Dr Lynne Kelly. Cambridge University Press is publishing an academic book based on her PhD thesis about the use of structures like Stonehenge as mnemonic aids, to ensure that the oral knowledge of the culture is retained and passed on to succeeding generations. (Kelly is now writing another book on this topic for the

general public.)

The layout of Stonehenge also includes a celestial observatory function, which would have allowed the prediction of eclipse, solstice, equinox and other celestial events important to a contemporary religion.

One of the world's earliest known archeo-

astronomical devices is a stone circle at Nabta Playa, in southern Egypt on the Tropic of Capricorn. The site is between 6000 and 6500 years old, or about 1000 years older than Stonehenge. Two pairs of upright stones stand directly across the circle from each other, defining a view that would have marked sunrise at the summer solstice, this providing the beginnings of a prehistoric calendar.

“ Ancient astronomy’s purpose was celestial navigation; astrology’s was to interpret celestial phenomena.”



## EARLY EGYPTIAN ASTRONOMY AND ASTROLOGY

The Ancient Egyptian calendar year was 365 days long, divided into 12 months of 30 days each, plus five extra days at the end of the year. This was one quarter of a day shorter than the solar year, leading to the problem of a 'wandering year' requiring frequent astronomical correction. Observation of stars was important in predicting the annual flooding of the Nile, for the allocation of resources to the planting of irrigated crops.

Early Egyptian astronomy was intertwined with astrology. The Sun was believed to be a major god named Ra, representing light, warmth, and growth. Ra was thought to travel on two solar boats – one on his journey through the sky during the day and the other in a river flowing underneath the flat Earth from west to east at night.

Most Egyptologists believe that the Great Pyramid of Giza was built as a tomb for fourth dynasty Egyptian Pharaoh Khufu (Cheops in Greek) over a 10 to 20-year period concluding around 2560 BCE, although other dates have been suggested. One theory is that this pyramid was carefully aligned towards the northern pole star, which at the time was Thuban, but is now Polaris due to the precession of the Earth's rotational axis.

## ANCIENT MESOPOTAMIA

The ancient region known as Mesopotamia comprised the plains of the Tigris and Euphrates rivers, in what is now Iraq, plus parts of Syria, Turkey and Iran. The lower part between the rivers was known as Sumer, with Babylon, Uruk and Ur as its major cities. The significance of this region is that it was the cradle of astronomy and astrology as organised fields of study.

Sumer was also the birthplace of writing, in the form of cuneiform clay tablets dating from the mid 4th millennium BCE. These tablets provide us with the first written evidence of astronomy and astrology in the West, albeit in a fragmentary state.

From these tablets we know that the Babylonians developed with a sexagesimal (base 60) numerical

system, resulting in our current 60 minute hour, 24 hour day and 360 degree circle. The Babylonians were the first to recognise that astronomical phenomena are periodic and to apply mathematics to their predictions. They developed the idea of a seven day week and a 12-month calendar based on cycles of the Moon, together with the seasons of summer and winter. The Babylonians also measured variations in the length of the day over a year.

At around 1800 BC, the first star catalogues were compiled. The Babylonian astronomers noticed that a few 'stars' (later called planets) wandered in relation to other fixed stars and even retrograded in their motions. These movements were confined to a narrow belt at an angle of about 23 degrees to the equator. This belt – the Zodiac – was divided into 12 sections, and each section was named after a constellation of fixed stars in the neighbourhood. The Zodiac also became one of the important features of western astrology.

In this early period, astronomy consisted of observations, calculations and predictions of events such as solstices and eclipses. As such, astronomy at this stage was like a branch of applied mathematics plus a database of observations. There were no cosmological theories to tie all the observations and calculations together and try to rationally explain them. The explanation vacuum was instead filled by astrology, which claimed to

interpret celestial events as religious or mystical omens.

The Enuma Anu Enlil (In the days of the gods Anu and Enlil, c1600 BCE) is a major series of 68 or 70 tablets dealing with Babylonian astrology. (The number of tablets varies according to textual interpretations.) It comprises a substantial collection of omens, estimated to number between 6500 and 7000, which interpret a wide variety of celestial and atmospheric

phenomena in terms relevant to the king and state (known as 'mundane astrology'). For example, a typical astrological report to the king reads: "If the moon becomes visible on the first day: reliable speech; the land will be happy. If the day reaches its normal



**Top left:** Stonehenge, home of a prehistoric observatory and modern 'druids'.

**Top:** First millennium BCE Venus tablet of Ammisaduqa covering observations of Venus.

**Right:** Ra, the ancient Egyptian sun god, travels back and forth by boat.

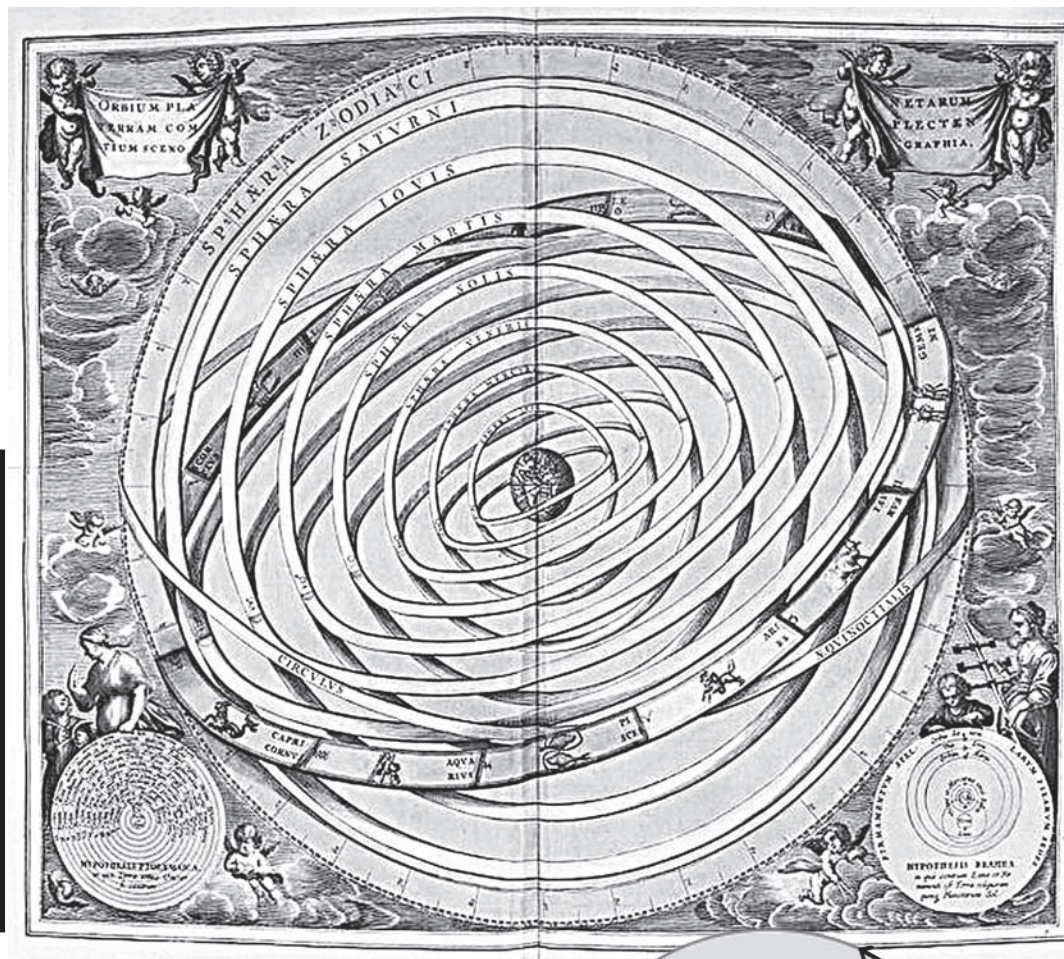


# An Eye to the Sky

Continued...

**Right:** Ptolemy's geocentric solar system, as described in his *Planetary Hypotheses*.

**Below:** Claudius Ptolemy of Alexandria, 90-168 CE (Early Baroque artist's rendition).



length: a reign of long days. If the moon at its appearance wears a crown: the king will reach the highest rank."

Movements of the Sun, Moon and five planets were regarded as representing the activity of the gods in question. Evil celestial omens attached to any particular planet were therefore seen as indications of dissatisfaction or disturbance of the god that planet represented.

During the 8th and 7th centuries BC, Babylonian astronomers developed a new theoretical approach to astronomy. They began to develop an internal logic within their observational data systems to improve their predictive power. This was an important contribution towards the development of astronomy from a database to a science. Some scholars have thus referred to this new approach as the first scientific revolution.

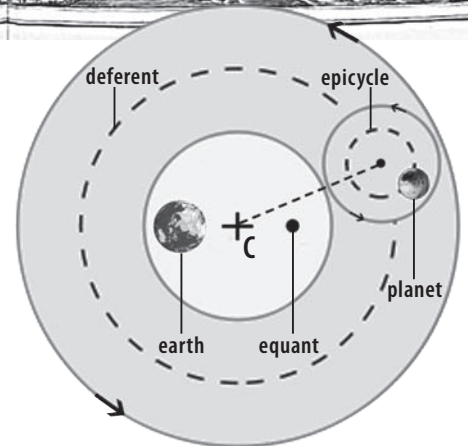
The new scientific approach to astronomy was adopted and further developed in Greek astronomy. This process was considerably helped by the conquest of Babylon by Alexander

the Great in 331 BC. According to the late classical philosopher Simplicius of Cilicia (c490–c560 CE), Alexander ordered the translation of the Babylonian historical astronomical records under supervision of his chronicler Callisthenes of Olynthus, who sent them to his uncle Aristotle in Athens. Aristotle was also the teacher of Alexander until the age of 16 – what a small world!

## ANCIENT GREECE

The name "planet" comes from the Greek term "aster planētēs", meaning "wandering star". The names of individual planets within our solar system were drawn from Greek mythology, but were later Romanised outside Greece.

References to identifiable stars and constellations appear in the writings of Homer and Hesiod in the 7th or 8th centuries BC. However, the first Greek attempts to rationally explain the structure and behaviour of the cosmos date from the period 600–450 BC. The anomalies in the motions of the

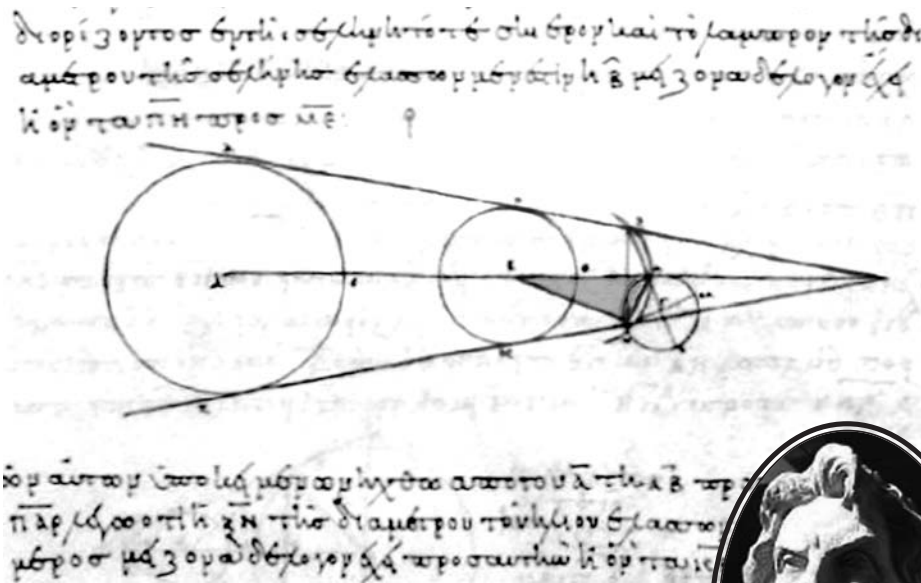


planets bothered the early Greeks, who were culturally inclined to try to find rational physical explanations for them.

Pythagoras of Samos (c570–c495 BC) was an Ionian Greek philosopher and mathematician who founded a philosophical movement known as the Pythagoreans. Astronomy was listed by the Pythagoreans among the four mathematical arts (along with arithmetic, geometry and music).

Herakleides of Pontus was a Pythagorean who lived in the 4th century BC and studied under Plato. Herakleides held that the Earth rotated





on its own axis, which accounted for the apparent procession of the stars across the night sky, but did not explain the retrograde motion of the planets.

By now, these anomalous planetary motions had become the central problem of astronomy and cosmology.

Plato encouraged Eudoxus of Cnidus (c410 BC–c347 BC) to develop a two-sphere model with the Earth at the centre, and the planets occupying a separate sphere to the stars.

Aristarchus of Samos (310–c230 BCE) has been called “the Greek Copernicus” because he proposed a heliocentric model of the cosmos, with the Sun at the centre instead of the Earth, about 1800 years before Copernicus did. Aristarchus also calculated the sizes of the Sun and Moon, as well as their distances from the Earth in Earth radii. His working drawings of the relative sizes of the Sun, Earth and the Moon are shown above.

(Eratosthenes of Cyrene - c276–c195/194 BC - mathematician, geographer, poet, astronomer, music theorist and inventor of the word “geography”, calculated the circumference of the earth by using a measuring system using stades, or the length of stadiums during that time period. Depending on which form of the stade he used, his calculation was between 1.6 and 16.4 per cent off the actual distance.)

Unfortunately, Aristarchus was unable to persuade his contemporary colleagues of the merits of his theory,

**Above:** Aristarchus' working drawings of the relative sizes of the Sun, Earth and Moon

**Right:** Aristarchus of Samos (310–c230 NBE), “the Greek Copernicus”.



which was largely forgotten until rediscovered by Copernicus in the 16th century CE. Seleucus of Seleucia (b.190 BC) was the only Greek Babylonian philosopher to support a heliocentric model of planetary motion. He also correctly theorised that tides were caused by the Moon, a theory which was overlooked by Galileo 1700 years later.

Hipparchos of Nicaea (c190–c120 BCE) was a Greek astronomer, geographer, and mathematician of the Hellenistic period. He is considered the founder of trigonometry but is most famous for his incidental discovery of precession of the equinoxes. He compiled a star catalogue recording the position and brightness of the stars, which was used by astronomers for centuries afterwards.

As a result of the non-acceptance of Aristarchus's heliocentric model, subsequent Greek astronomers persisted with trying to reconcile the anomalous movements of the planets with a geocentric model of the cosmos. Apollonius of Perga (c262–c190 BCE) introduced two new mechanisms: the eccentric deferent and the epicycle.

Claudius Ptolemy of Alexandria

(c90–c168 CE) was a Greco-Roman mathematician, also known as an astronomer, geographer and astrologer. Ptolemy explained how to predict the behaviour of the planets by introducing the equant.

The basic elements of Ptolemaic cosmology indicate a planet rotating on an epicycle which is itself rotating around a deferent inside a crystalline sphere. (See lower image, opposite page.) The earth is slightly off of the centre of this system. Opposite the earth is the equant point, which is what the planetary deferent would actually rotate around.

Ultimately, these attempts at retrofitting cosmological theory to seemingly endless observational anomalies became too much. Dislike of the equant, on top of the deferent and the epicycle, was a major motivation for Copernicus to construct his heliocentric system after the scientific renaissance some 1500 years later.

Although astrology was not as popular in ancient Greece as it was in Egypt and Mesopotamia, belief in astrology continued through the Roman period and the Middle Ages. Through most of its history, astrology was considered a scholarly tradition. It was accepted in political and academic contexts, and was connected with other studies, such as astronomy, alchemy, meteorology, and medicine. At the end of the 17th century, new scientific concepts in astronomy and physics (such as heliocentrism and Newtonian mechanics) called astrology into question. Astrology thus lost its academic and theoretical standing, and common belief in astrology has since largely declined. ■

Note: *The references for this article may be found on Tim Harding's blog at yandoo.wordpress.com.*

About the author:

**Tim Harding BSc**

is a regulatory consultant who is studying history and philosophy at Monash University.





# Full Moons & Empty Heads



In this Classic Catch article, Barry Williams looks to our own natural satellite for guidance on gravity, light and loonies.

A commonly-held belief has it that various social phenomena are associated with the phases of the Moon. Such is the strength of this belief, achieving folk-lore status in many societies, that it is accepted almost without question, especially by the popular media.

There are at least two possible reasons why this belief is so strongly held; it may be that it is true; or it may be that some other factor is in play that makes it appear to be true. A number of studies has been conducted into this assumed phenomenon, some of which purport to show that there is some validity in the hypothesis that the phase of the Moon has an effect on such things as child birth, suicides, accidents, bleeding and mental instability. Many other studies are unable to show that any such relationship exists. Details of several of these studies can be found in "The Moon and the Maternity Ward" (Abell and Greenspan) in *Paranormal Borderlands of Science* (Prometheus, 1981) and "The Moon is Acquitted of Murder in Cleveland" (N. Sanduleak) in *Science Confronts the Paranormal* (Prometheus, 1986).

Informal inquiries among emergency service workers and hospital staff have revealed a belief that when the Moon is full there is an increase in the number of accidents and in the rate of bleeding in patients undergoing surgery. Other inquiries show that most of the people questioned (in common with most of the population at large) have no idea of what the phase of the Moon is at any particular time. This raises the suspicion that when any particular period of increased activity occurs, those involved, having cognisance of the folk-lore, may well assume that it must be a full Moon, without any real knowledge of whether or not this is the case.

If this is true, then the 'Lunar Effect' could easily achieve the status of a self-sustaining myth, without the benefit of any facts intruding into the case. Although it would not be easy to prove it, there is a strong suspicion that this very simple explanation can account for most of the folk-lore associated with the Lunar Effect.

Before we seek to discover whether or not a Lunar Effect is a reasonable supposition, we should consider some of the facts about the Moon and its relationship to the Earth.

Earth is the only one of the four inner 'Earthlike' planets to have a substantial natural satellite. Mercury and Venus have none and Mars has two very small ones. Each of the four 'gas giant' planets has a retinue of major and minor satellites. Pluto, as far as can be presently ascertained, has only one. [Editor's note: Since this article was written, Pluto has been ruthlessly excised from the list of planets, but it is also now thought to have five moons.] Our Moon is a respectable body, being the sixth largest of all the satellites and is larger than Pluto.

The Moon travels in an elliptical orbit around Earth or, to be more accurate, both Earth and the Moon orbit about a point called the barycentre, which is located in a direct line between the centres of the two bodies. In our case, the barycentre is within the Earth, about one third of the distance between the surface and the planetary centre (ie, orbiting not around the centre of the Earth, but closer to the surface). At its closest approach, or perigee, the Moon is 354,000km from Earth's centre and at its furthest point (apogee) it is 404,000km away. The Moon makes



one rotation on its axis and one revolution about Earth every 27.3 days but, because of Earth's motion around the Sun, one 'lunation' (the period between the beginning of a particular phase and the next beginning of the same phase) is 29.53 days. The Moon's orbit is also tilted at about 5 degrees to the ecliptic (the projection of Earth's orbit against the celestial sphere or the apparent path of the sun against the background stars).

This is fortunate for lovers of full moons. If this were not so, every full Moon would occur simultaneously with a lunar eclipse and every new Moon would produce a solar eclipse.

The 'moonlight' we see is only reflected sunlight, the Moon having no intrinsic luminosity and, such is its albedo (the fraction of incident light reflected) that only approximately seven per cent of the incident sunlight is reflected to us as moonlight.

## TIDAL EFFECTS

We are all familiar with the Moon's tidal effect on the oceans of Earth, which is a function of gravitational attraction between the two bodies. This effect is directly proportional

to the mass of the two bodies and inversely proportional to the square of the distance between them. Less well known effects of the tidal interaction are the synchronous or captured motion of the Moon, in that it always presents the same face to the Earth, that the dissipation of tidal energy means that the Earth's rotation is slowing by 0.02 seconds per century, and that this slowing of Earth's rotational speed is transferred (by conservation of angular momentum) to the Moon, causing it to speed up and recede from Earth by about 4.5cm per year.

These are the main physical effects of the two bodies. I make no mention here of the psychological effects of moonlight on the more romantic denizens of Tin Pan Alley, as these lie outside the orbit of this article.

In the context of the facts mentioned above, what does the term "full Moon" mean? As moonlight is reflected sunlight, we see a full Moon only when the Sun, Earth and Moon lie in an approximate straight line, with Earth between the other two bodies. That is when the Sun is shining directly on the lunar face we can see.

On the opposite side of its orbit, when the Sun is shining on the side of the Moon we never see, we have a new Moon, when we cannot see the Moon at all.

(Actually, we can sometimes see a very faint Moon by reflected Earthlight.) The other phases lie between these two extremes and are dependent on the angles between the three bodies.

One physical effect of the Moon on Earth that is dependent on the phase of the Moon is the height of tides. When the Sun, Moon and Earth are in line, either at full or new Moon, then we get spring (higher than normal) tides. This is caused by the tidal effects of the Sun and the Moon being cumulative.

At other times, when the three bodies subtend an angle other than 180 degrees, the solar and lunar tidal

effects tend to ameliorate each other to some extent.

While the tidal effects between Earth and the Moon may be substantial, these effects of the Moon on a single human being are so minute as to be unmeasurable, and this is what we should be considering when seeking any particular lunar effect on individual people.

Tidal effect, as was mentioned earlier, is a function of gravitational attraction. The gravitational effect of Earth on each of us is so weak that we can stand up, jump or climb a ladder despite the entire mass of Earth trying to prevent it. The Moon has only 1/81 of the mass of Earth and it is sixty times as far from us as is the centre of Earth, not forgetting that the gravitational attraction falls off as a function of the square of the distance. Thus the Moon's gravitational attraction on us is negligible. Add to this the fact that the tidal effect of the Moon on Earth is enhanced when the Sun, Moon and Earth are in line, then if gravity has anything to do with this lunar effect, its effect at new Moon should be even stronger than

at full Moon. We should also have a 'Solar Effect', because while the Sun's tidal effect is less than that of the Moon, it is nonetheless significant.

And we should not forget the

fact that at some times (perigee) the Moon is 50,000km closer to us than at others (apogee). Perigee and apogee have nothing to do with the Moon's phases. This difference in distance (remembering the inverse square rule) certainly should have a greater effect than would the different phases.

Why then has the 'Perigee Effect' not become part of our folk-lore? I suggest that no-one, apart from a few astronomers, has any idea when the Moon is at perigee (or indeed that such a thing as a perigee even exists), while everyone has been exposed, through the media, to the Full Moon

“ The ‘moonlight’ we see is only reflected sunlight - approximately seven per cent of the incidental sunlight is reflected to us as moonlight . ”



# Full moons & Empty heads

*Continued...*

Effect mythology, and only has to look at the night sky to determine when there is a full Moon.

Unless we accept the mysterious EUTS (Energies Unknown to Science), which have been covered before in this magazine (10:1), and for which there is no evidence outside the fevered imaginations of those who would postulate a paranormal view of the world, we have to assume that any Full Moon Effect must be mediated by either gravitational or electromagnetic radiation.

Gravity, as shown above, would

appear to be a very poor candidate and electromagnetic radiation would appear to be even worse. The only difference in electromagnetic radiation we experience at different phases of the Moon is in the amount of reflected sunlight we see. If reflected sunlight can have such an effect, then we should experience a very much more noticeable effect between day and night, here on Earth. We certainly get orders of magnitude more sunlight reflected from our own planet on any

day than we do from a few pathetic glimmers of moonlight, no matter how full the Moon.

Regardless of how irrational it may appear, if there is indeed a Lunar Effect, then somehow we should be able to work out how it occurs. We human beings have managed to solve far more difficult

problems than this, as any non-scientist who has ever read about relativity and quantum physics will attest. But, as has been stated many times before in this magazine, there is not much point in wasting time on discovering how something occurs until it has been established that it does occur.

Until there is a great deal more evidence that there is a Lunar Effect, we are perfectly entitled to regard it as nothing more than moonshine. ■

*This article was first published in the Autumn 1991 (Vol 11:1) edition of The Skeptic*



About the author:  
**Barry Williams** is a past president and executive officer of Australian Skeptics Inc. He has also been known to croon to spoons in June.

“Tidal effects of the Moon on a human are so minute as to be unmeasurable.”

**Below:** Mont Saint-Michel off the Normandy coast of France - subject to major tidal impacts (and be careful where you park your car).

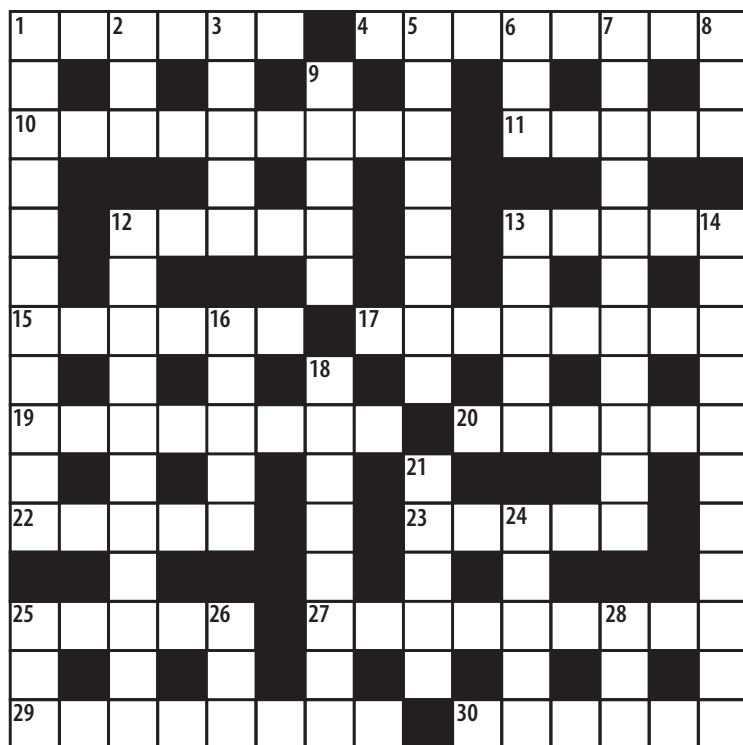






# Brain testers

## CRYPTIC CROSSWORD no 20



Tim Mendham + Steve Roberts

## DR BOB'S QUIZ

1. The four Beatles went to India to study with the Maharishi, but Ringo lasted only 10 days before returning to the UK. What made him come back so early?
2. The Swiss entry won the first Eurovision Song Contest in 1956. How was the result decided?
3. What major film role was offered to Adam West, after his role in the 1960s Batman TV series?
4. Why was the harvest of Western Poland not gathered in 1739?
5. What, according to the British Foreign Secretary in 2001, is Britain's national dish?

Answers on page 62

## ACROSS

1. The madness of crazy Clan Yu. (6)
4. The complete satellite is brightest. (4,4)
10. End soccer debacle with rising intensity. (9)
11. What you can make especially from sin. (5)
12. Squints at our equals. (5)
13. Sharpened by putting one into high definition. (5)
15. A young animal, if here bewildered. (6)
17. I see between the scenes a lot of learning. (8)
19. I foresee that Dracula will be beheaded and buried in gold. (8)
20. SS Lava rides the serf. (6)
22. It's my shout – but devilled oysters go back, having neither lived nor rests. (5)
23. Records paste come unstuck. (5)
25. Australian god's emanations? (5)
27. Vicar hair pulled by a din. (9)
29. Used to be a type of dog, but now it's a monster! (8)
30. A witch doctor, a fake, and an indefinite article. (6)

## DOWN

1. Roy and Phil can't get confused when there's a full moon. (11)
2. A general start of the year in Brooklyn? (1-1-1)
3. About a revolutionary hoard. (5)
5. A wee way to predict the future. (8)
6. A depressed owl? (3)
7. Those favouring a living Universe suffer gastric ions. (11)
8. Negative responses to cutting off your nose. (3)
9. Boomerang strength retains a lot of stress. (5)
12. Little Philip and a couple of queens plays the field. (10)
13. Is he any worse than a happy dog? (5)
14. 50-50 in insidious mixture leads to disappointment. (11)
16. Eastern values – or some of them – are all the same. (5)
18. Reputed to be a vehicle to go a long way? It's a joke! (8)
21. It's trivial, so let's put up with warts
24. You can be hooked somewhat when you search for details online. (5)
25. Such a wag about a current concern. (1-1-1)
26. Plant a pig. (3)
28. A one metre target. (3)

# Yield to the Evidence



Canberra Skeptics recently completed analysis of a test of the alleged effects of the moon and stars on plant growth.

We became interested in this claim when the *Canberra Times* gardening column presented information on the best times for planting vegetables, based on the phases of the moon and its apparent passage through the zodiacal signs. This information was provided by the Canberra Organic Growers Society (COGS). Our president responded in a letter to the editor suggesting that this was drivel. Various letters then appeared attesting to the veracity of 'moon planting'. This correspondence led to Betty Cornhill (president) and David Evans of COGS attending a Skeptics meeting to discuss the theory.

In the 1920s, Rudolph Steiner developed the Biodynamic method of agriculture. Planting according to the moon's phase and position in the Zodiac is part of biodynamic theory.

Steiner is also known for his association with the Theosophical Society and as the founder of the breakaway Anthroposophical Society.

The association of various signs of the Zodiac with the four elements (earth, air, fire and water) and the movement of the moon, in various phases, across these signs was claimed, differentially, to affect the best times for planting, nurturing and harvesting leaf, root and fruiting plants. Planting at 'good' times was said to enhance germination, cause more prolific growth and produce qualitatively better produce. Good and bad times could be separated by less than 24 hours.

With the help of COGS, Greg Tanner (a biochemist with a greenhouse)

**In another Classic Catch article, Drew Meek reports on a test of lunar effects on crop germination times and yield**

and Warren Mueller (a biometrician – a statistician specialising in biological assays), the Canberra Skeptics arranged a test of these claims.

## METHOD

It was originally intended to select 14 pairs of planting times, each pair being selected having one favourable and one unfavourable time, as determined by COGS. Then comparison could be done within each pair and any effect of later planting times giving greater growth would be minimised.

Unfortunately, due to circumstances beyond our control, this plan was not followed and only 22 plantings occurred, with irregular patterns of good and bad times. A statistical analysis could still be done using a covariance analysis to minimise effects of later planting.

Radish plants, because of their quick growth, were chosen for the experiment. Seed and mulch were provided by COGS. Greg Tanner, who was planting and monitoring growth, was provided with a list of times to plant but was not told if these were good or bad days. This information was given to Warren Mueller, our statistician, only after he had processed the raw data.

Plants were grown in a glasshouse with environmental parameters monitored. Fourteen seeds were planted at each time indicated. The plantings were made in a chequerboard pattern to minimise the effects of shade or localised

environmental changes.

For each plant the following information was obtained:

- Tp = Time of planting (time of day and date)
- Tg = Day plant germinated (date only)
- Th = Time of harvest (time of day and date)
- R = Root fresh weight at harvest
- L = Leaf fresh weight at harvest

Harvest occurred approximately 35 days after planting. Weights were adjusted to 35 days to simplify comparison. [Weight (adjusted) = 35 x weight/ (growing time)]

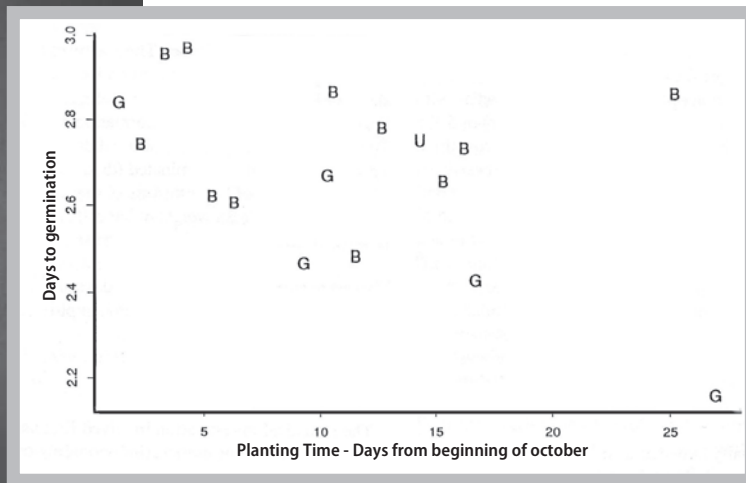
## RESULTS

The statistical investigation involved first analysing all data, then removing outliers (individual abnormal results) and then covariate analysis. A complete description of this analysis is available from Canberra Skeptics.

The figures presented below are based on a reduced data set after covariance analysis.

The table shows the mean weights of roots and leaves adjusted for a uniform growing time of 35 days.

VARIABLE	MEAN WEIGHTS (gm)	
	Good	Bad
Root	37.7	41.1
Leaf	10.02	10.30
Total	47.7	51.4



There was no statistically significant difference in mean fresh weights between good and bad planting times.

For crops, it could be argued that total yield could be a more important variable than mean weights. Therefore, the total leaf and root yields from the plantings were compared (results not shown). The results revealed no evidence that the phase of the moon and the signs of the Zodiac at planting had an effect on the fresh weights of the radishes at harvest.

The distortion of the intended design by planting times not occurring at the times originally indicated by COGS cannot be reasonably advanced as a possible explanation of the result, especially as the bad day means and totals were greater (but not significantly) than the good day means and totals.

## TIME TO GERMINATION

Germination times are shown in the chart above. There is a general downward trend in germination times as the month proceeded. This emphasises the need for the covariate analysis to correct for effects of later growth.

The study of germination times did produce some results which were near significance at the five per cent level. However, this must be treated with caution for two reasons.

Firstly, the data from several plantings were not collected due to illness and one planting occurred at a

time that was not defined as good or bad. It was only using this reduced data set, with the unknown planting being assumed to be bad, that differences approached significance ( $P=0.063$ ).

Secondly, germination was monitored only once per day, while germination took between 2-3 days. This period of observation was insufficient to properly establish differences between different groups. If possible astrological effects on germination is to be further studied, more frequent observations should be used, say every four to six hours.

## CONCLUSION

In this experiment, there was no significant difference in germination time or weight of produce when seeds were planted at “good” and “bad” times, according to alleged astrological influences.

## ACKNOWLEDGEMENTS

Canberra Skeptics would like to thank Greg Tanner and Warren Mueller for the collection and analysis of data. We would also like to thank COGS for their willingness to discuss their theory with us and their cooperation in organising this experiment. It should also be pointed out that not all members of COGS believe in moon planting. ■

*This article was first published in the Autumn 1991 (Vol 11:1) edition of The Skeptic*

About the author:

At time of writing **Drew Meek** was a researcher at CSIRO and a member of Canberra Skeptics committee

# STATISTICAL ANALYSIS

Warren Mueller explains how he analysed the data.

*Analysis of variance is a technique by which data are examined to determine whether known factors that are varied are causing observed differences in the data. A null hypothesis is set up, which asserts that there are no differences between the items being compared, in this case good and bad planting times.*

*The analysis then tests this hypothesis by determining the probability, or chance, that the data obtained could have arisen at random, with no true difference between the items. If the probability is very low, by convention less than 0.05, then the null hypothesis is rejected and it is asserted that the items are "significantly different". In this experiment, a significantly low probability would indicate a difference between good and bad plantings.*

*Analysis of covariance acts in a similar manner to analysis of variance but with an additional complication. A null hypothesis is still set up, but before testing for differences between items, the effect of some other variable, usually a nuisance variable of no real interest in the experiment, is removed. In this experiment, the nuisance variable or covariate is the date of planting, in that later planting might tend to give higher fresh weights after 35 days no matter whether the moon phase and Zodiac sign are favourable or unfavourable.*

*From an analysis of covariance, both the significance of the covariate in removing variation of no interest, and the significance of differences between items being compared, are obtained.*



# The Blood Test

There is a commonly-held belief that various phenomena are associated with the full Moon. We decided to look for evidence of increased trauma associated with the full Moon in the patterns of blood usage at a Sydney metropolitan hospital. Daily consumption of blood (in packs) was obtained from Hornsby & Kuring-gai Hospital for the period 1 July, 1989 through 30 June, 1990. If, as is claimed, accidents tend to occur more frequently, or if patients undergoing surgery tend to bleed more freely at the full Moon, then one would expect to see this reflected in the levels of blood usage.

The hospital chosen is one of the largest district hospitals in the Sydney metropolitan region. Situated on the Pacific Highway, on the northern outskirts of Sydney, this hospital services the victims of a large number of road accidents.

## APPROACH

A simple spreadsheet model was built to carry out the necessary statistical calculations and data management. Six columns were created to hold the data of primary interest to us:

- Date
- Day of week: identifying the day as "Monday" through "Sunday".
- Blood consumption: showing the total daily usage measured as a pack count
- Full Moon indicator: comprising a simple sequence of 1 and 0 in which the 1 indicates the days on which the full Moon occurred. This information was obtained from a standard ephemeris.
- Full Moon week total blood usage: containing twelve totals - each associated with the seven day period beginning with the full moon. Any

impact of Full Moon induced trauma should be seen in these periods as an increase in blood consumption.

- Non-full Moon week total blood usage: containing twelve totals - each associated with the seven day period beginning fifteen days before the full Moon. The selection of this period was made so that it began one half of a lunation out of phase with the full Moon. Such intervals of time should be free of full Moon effects.

## OBSERVATIONS

Among the features revealed in our spreadsheet were the following:

The average one week blood consumption for "non full Moon" periods actually exceeded the corresponding figure for "full Moon" periods (61.08 versus 57.83 packs per week).

**In another Classic Catch article, John Smyrk and Roslyn Fekitoa investigate the effect of lunar phases on blood usage in a Sydney hospital**

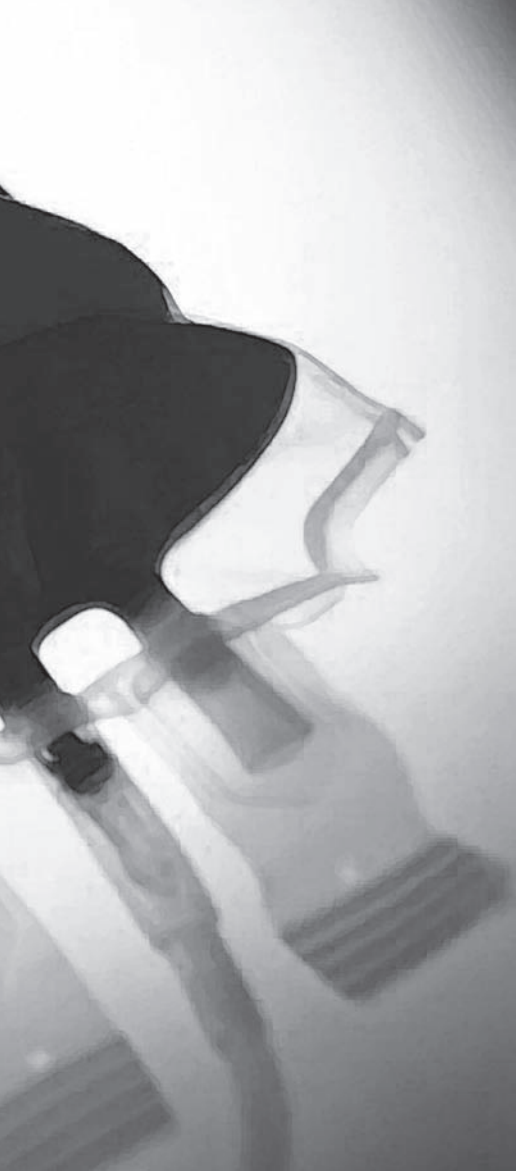
The starting days for "full Moon" weeks were acceptably spread among possible days of the week - Mon=1, Tue=1, Wed=2, Thu=3, Fri=2, Sat=1, Sun=2.

There is a statistically significant lower usage of blood over weekends - 6.21 versus 9.14 packs per day. This effect, called intra-week seasonality, can be attributed to the scheduling of elective surgery between Monday and Friday. We chose seven day periods for the two series on which the following analysis was based so that the seasonal effect would be eliminated.

## BACKGROUND ON STATISTICAL DECISION MAKING

We now face a common situation in hypothesis testing. To what extent are our results consistent with the proposition that blood consumption





tends to be higher due to trauma associated with the Full Moon? Conventional statistical practice offers us the following method. Frame the proposition as two mutually exclusive (and hence competing) statements. The first of these takes the form of a 'null' hypothesis which asserts that no underlying differences exist between the two sets of data being explored. The second is an 'alternative' hypothesis which asserts that there is an underlying difference.

Use the data to test the believability of the null hypothesis. This is achieved by assuming that the null hypothesis is true, and asking how consistent are the observed results with the null hypothesis?

If the observed results are not surprising in light of the null hypothesis, then we have no reason

to abandon it in favour of the alternative hypothesis and so we would accept it as an adequate explanation of the data at our disposal.

If the observed results are surprising in light of the null hypothesis, then we would reject it in favour of the alternative hypothesis as a better explanation of how our data came about.

We elected to use the average of full Moon week and non-full Moon week as the statistic on which this procedure would be based. We adopted the following hypotheses for testing:

- **Null hypothesis:** That there is no difference in average weekly blood consumption between full Moon and non-full Moon weeks
- **Alternative hypothesis:** That average weekly full Moon consumption and non-full Moon consumption differ.

Note how we do not say that either hypothesis is proven. The strongest statement we can make is to the effect that one hypothesis or the other is supported. In the event of the alternative hypothesis being favoured, those promoting a full Moon effect are required to do two things: find other data which may be used to replicate the initial result; and offer a model describing the nature of the cause/effect mechanism which explains the observed phenomenon.

### ANALYSIS AND CONCLUSION

To assess the consistency of our results with the null hypothesis, we used the "t" test for the equality of sample means from populations with unknown variances. This enables us to determine how surprising is the observed difference between the two average blood usage figures (61.08 - 57.83 = 3.25) if the null hypothesis was true. If we define "surprise" as a 1-in-20 event, then we would need to see a difference in usage figures of about 14.5 before we could reject the null hypothesis. We conclude,

**“ There is a statistically significant lower usage of blood over weekends.”**

therefore, that there is no evidence from blood usage at Hornsby & Kuring-gai Hospital which supports the view that increased

trauma is associated with any full Moon effect.

### APPENDIX A

For the benefit of readers with a knowledge of inferential statistics, we provide a formal statement of our test of hypotheses.

#### Hypotheses:

- Null:  $\text{mean}(\text{FM}) = \text{mean}(\text{NF})$
- Alternate:  $\text{mean}(\text{FM}) \neq \text{mean}(\text{NF})$

#### Where:

- $\text{Mean}(\text{FM})$  = (True) mean of blood consumption during weeks following the full Moon.
- $\text{Mean}(\text{NF})$  = (True) mean of blood consumption during weeks beginning 15 days before the full Moon

#### Level of Significance:

- 0.05

#### Test Statistic:

- $t = (\text{mean}(\text{fm}) - \text{mean}(\text{nf})) / s(d) \quad t(22)$

#### Where:

- $\text{mean}(\text{fm})$  = estimate of  $\text{mean}(\text{FM})$ .
- $\text{mean}(\text{nf})$  = estimate of  $\text{mean}(\text{NF})$ .
- $s(d)$  = estimate of standard error of difference between two means.
- $t(22)$  "students" t distribution with 22 degrees of freedom.

#### Decision Rules:

- Accept null and reject alternative if  $-2.074 \leq t \leq +2.074$
- Accept alternate and reject null if  $-2.074 > t > +2.074$

#### Computations:

- Estimate of pooled variance = 17.18
- $s(d) = 7.01$
- Critical ratio  $t = 0.46$



# The Blood Test

Continued...

## Decision:

The result requires application of our first decision rule, and so we accept the data as consistent with the Null Hypothesis.

## APPENDIX B

An additional test was conducted into the 'tidal' effect. It has been claimed that certain social phenomena are influenced by the colinearity of the Sun, Moon and Earth. According to this model, tidal effects are significant and so increases in events like accidents will occur at both the full and new Moon. We tested this hypothesis by examining four data sets - the two used for the primary study and another two 'quarter cycle' series. The latter were obtained by taking two seven day periods beginning nine days before ("3/4 cycle") and seven days after ("1/4 cycle") the full Moon respectively. The four resulting series correspond approximately to the full Moon, half Moon waning, new Moon and half Moon waxing.

In the second investigation we decided to test the hypothesis that the mean blood consumption was the same for all four series against the alternative that they were different.

We noted that the mean 7-day consumption figures for our two new series were 57.08 and 58.00 for the 1/4 cycle" and "3/4 cycle" respectively.

Our test in this case involved analysis

of variance – using the F test for the equality of sample means. As before, the data is consistent with the null hypothesis, in which the (true) means of all series are the same.

**We conclude therefore that there is no evidence from blood usage at Hornsby and Kuring-gai Hospital which supports the view that increased trauma is associated with any Tidal Effect.**

As before, we provide a formal statement of our statistical procedure.

## Hypothesis:

- Null:  $\text{Mean}(\text{FM}) = \text{mean}(\text{NF}) = \text{mean}(\text{H1}) = \text{mean}(\text{H3})$
- Alternative: The four means are not equal.

## Where:

- $\text{Mean}(\text{FM})$  = (True) mean of blood consumption during weeks following the full Moon
- $\text{Mean}(\text{NF})$  = (True) mean of blood consumption during weeks beginning 15 days before the full Moon.
- $\text{Mean}(\text{H1})$  = (True) mean of blood consumption during weeks beginning 7 days after the full Moon.
- $\text{Mean}(\text{H3})$  = (True) mean of blood consumption during weeks beginning 9 days before the full Moon.

## Level of Significance:

- 0.05

## Test Statistic:

- $F = \text{MSC}/F(3,44)$

## Where:

- MSC = mean variation between series
- MSE = mean variation within series
- $F(3,44)$  = F distribution with 3,44 degrees of freedom

## Decision Rules:

- Accept null and reject alternative if  $F \leq 2.80$
- Accept alternative and reject null if  $F > 2.80$

## Computations:

- $\text{MSC} = 37.50$
- $\text{MSE} = 218.13$
- $F(3,44) = 0.1719$

## Decision:

The result requires application of our first decision rule, and so we accept the data as consistent with the null hypothesis. ■

*This article was first published in the Autumn 1991 (Vol 11:1) edition of The Skeptic*

About the authors:

At time of writing **John**

**Smyrk** was a former secretary of Aust Skeptics Inc, and was and remains a consultant on business and statistical issues.



**Ros Fekitoa** was a pathologist at the Hornsby & Kuring-gai Hospital in Sydney.

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# Your Stars: DECEMBER 2013

With our Astrologer, Dr Duarf Ekaf

## Aries: 21 March - 19 April

If you feel time is moving slowly, try winding up your clock. If you feel time is moving too quickly try adjusting your clock with a hammer. Please visit my online clock store for all your timekeeping needs.

## Taurus: 20 April - 20 May

Your work and home life are simply too close and getting mixed together. Time to move your bed out of your office and tell your work colleagues to get the hell out of your house.

## Gemini: 21 May - 20 June

I predict that you will read all the horoscopes on this page. If you are only reading this one, why not read all the others and make my prediction come true!

## Cancer: 21 June - 22 July

Buying a new mirror will make you reflect on your purchase. But be warned. A broken mirror does not work very well but might make you look better. Seven minutes of bad luck as I'm in a good mood.

## Leo: 23 July - 22 August

The 'Law Of Attraction' is not very attractive really. I suggest you follow 'The Law' as you don't want to end up in gaol. Or you might follow 'The Law Of Repulsion' and steer clear of horoscopes.

## Virgo: 23 August - 22 September

At times you need to run and hide under the couch. A bowl of milk in the morning and rub behind the ears makes your day. Watch out for sunlight as it make you feel very sleepy. Next time try not to be born under the same sign as my cat.

## Ophiuchus: 0 - 0 - sorry

We all have our cross to bear. I meet a cross bear once in Canada as she crossed at a bear crossing. If your cross is too heavy to bear, tell the bear to stop eating so much. Yeah ... good luck with that!

## Sagittarius: 22 November - 21 December

Time to check your watch and watch your time. Don't take too much time and you won't get it back from yourself later as time is short and will have run out.

## Capricorn: 22 December - 19 January

The stars shine bright, all through the night and all through the day as it happens and not only deep in the heart of Texas. When you wish upon a star, your dream may or may not come true.

## Aquarius: 20 January - 18 February

I think skepticism is a good thing unless people are skeptical of me and my methods, then they are wrong, wrong, wrong!! And even more !!! In fact the more !!!! I use the greater my argument. So there, you bloody skeptics!!!!

## Pisces: 19 February - 20 March

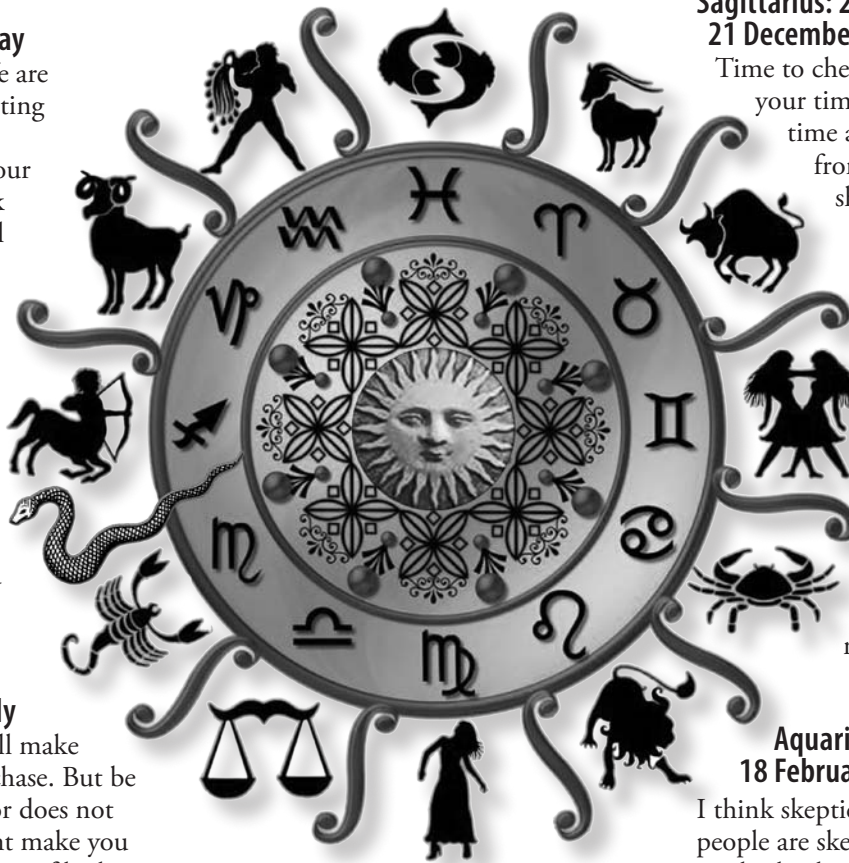
This is a good month for renewal. If your subscription to this magazine is up, then renew it so I have a job for next month. Yes, this is a direct commandment from the heavens ... trust me. ■

## Libra: 23 September - 22 October

If a cup of tea is not your cup of tea try a cup a coffee instead which would make your cup of coffee your cup of tea after all. Sugar anyone?

## Scorpio: 23 October - 21 November

I see you heading overseas or at least over a river, which is not as expensive. Remember to buy insurance as we can never know what the future will bring. Hmm ... sort of makes this astrology column a bit silly, then.



# Less than Paradise

Kathy Marks reports on Pitcairn Island, a place with a mythical history and a monstrous presence.

A few years ago, I came across a myth so strong and so enduring that, much against my better judgement, I felt impelled to write a book to try to puncture it.

The myth concerned Pitcairn Island, which, as you probably know, is the place where Fletcher Christian and his fellow mutineers fled after staging their famous mutiny against Captain William Bligh and commandeering his ship, the *Bounty*.

You may have seen one of the films about the mutiny – there were five made over the years. I remember watching the one with Mel Gibson and Anthony Hopkins, and it ends with a scene of the English sailors landing on Pitcairn with their Tahitian wives. And until quite recently, no one knew much about what happened next.

Pitcairn is a lump of volcanic rock, about four and a half kilometres square, perched in the middle of the South Pacific, about half-way between New Zealand and Chile.

It's said to be the world's most remote inhabited place. And nowadays it's home to just over fifty people, most of them directly descended from the mutineers and still carrying surnames such as Young and Christian.

Just over a decade ago, some very

unsavoury stories began to emerge from Pitcairn. It all started with a fifteen-year-old schoolgirl who told a visiting English policewoman that she'd been raped by two local men. British police began investigating – since Pitcairn was a British territory – and the detectives on the case quickly realised that the problem went far wider than this one teenage girl.

Police found themselves criss-crossing the globe, interviewing dozens of women who'd been brought up on the island in different eras, and all of those women told a similar story.

It seemed that the sexual abuse dated back many generations. Almost every girl who'd lived on Pitcairn had been a victim, and almost every Pitcairn man had been an offender.

Eventually thirteen men were charged, and in 2004 seven of them went on trial on the island, in a ramshackle community hall that hadn't been used as a courthouse for thirty years.

Now, if you can imagine Pitcairn Island, with its towering cliffs, and lashing surf, and dusty red tracks, a

place where everyone gets around on quad bikes – all of a sudden, there were lawyers and judges all over the place, in their pinstriped suits and polished shoes

and long black gowns.

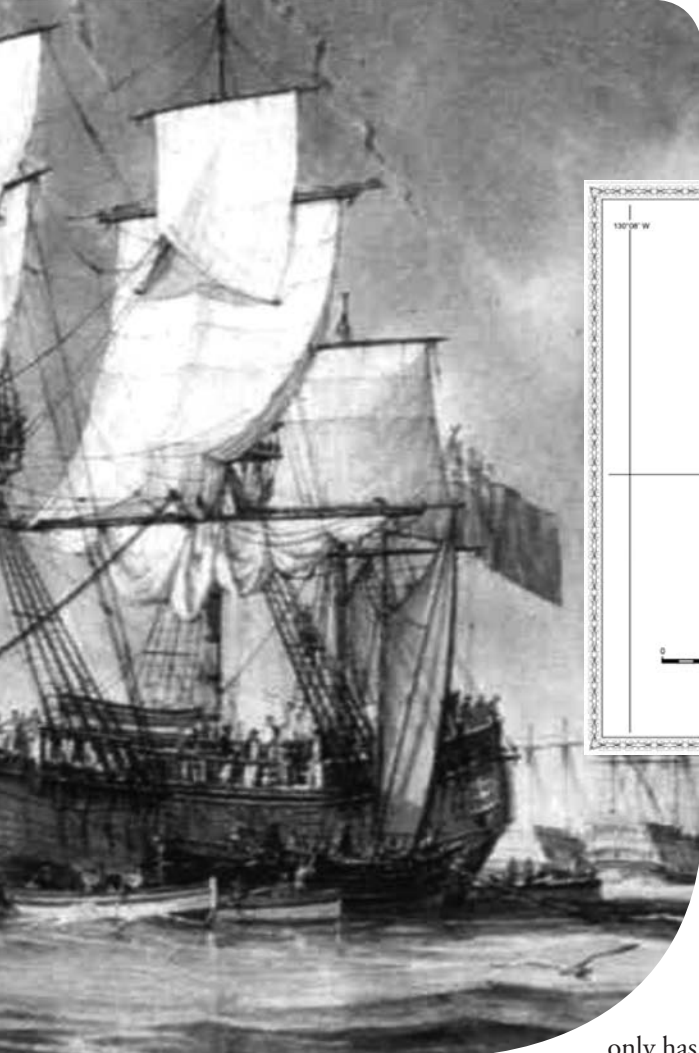
Then there were the accused men, who went to court in shorts and T-shirts, often barefoot. This little island was swarming with outsiders: lawyers, judges, police, diplomats, journalists. In fact, the place was so crowded that the defence lawyers – there were four of them – had to sleep in the jail. This was a jail, by the way, that the men on trial had built themselves, knowing that they might end up in it.

I was one of those outsiders: one of six journalists who went to the island to report on the trials, in my case for a British newspaper, *The Independent*. Our first challenge was to get to Pitcairn. From what I can gather, there are places that are geographically more isolated than Pitcairn, but there's nowhere that's quite so difficult to get to. This is an island that in 2013 still has no airstrip and no safe harbour, not even a regular boat service.

To get there, you either hitch a lift on a container ship, or – as we did – you have to fly to a very distant part of French Polynesia. So, first to Auckland, then to Tahiti, then to an island called



**“ The place was so crowded that the defence lawyers had to sleep in the jail.”**



**Left:** HMS Bounty, preparing for an “incredibly romantic adventure story”

**Above** Final destination of the Bounty - the most remote inhabited place on Earth?

Mangareva – that’s the closest airstrip – and from there it’s a thirty-hour boat voyage to Pitcairn: a very rough crossing, I might add.

Now, even when you get to Pitcairn, you’re not quite there. You have to anchor offshore and wait for the island men to bring out their longboat.

When we arrived, we were astonished to see that the two men who were driving the longboat were among the seven who were shortly going on trial for very serious child sex offences. And I think it was at that point that I realised how unusual this assignment was going to be.

It certainly was unusual. For six weeks, my colleagues and I lived right at the heart of the Pitcairn community. We certainly weren’t welcome visitors, but in a place that small you can’t avoid people. So every day we’d go out, and we’d bump into the accused men and their families. In fact, one of the men, Len Brown, was our next-door neighbour.

The islanders were reading our reports on the internet, and they weren’t very happy about what they read. So we’d go into the shop, for instance – Pitcairn

only has one little shop, and it opens for just one hour, three times a week – and we’d find ourselves being harangued by people. They’d say to us: “Why are you writing these lies?” and, basically: “Why don’t you f\*\*\* off our island?”

So there were some unpleasant moments and some hostile encounters. And meanwhile, in court every day, we were listening to these very harrowing stories of abuse from the victims, who were testifying over a video-link from New Zealand.

At the end of the trials, six men were found guilty, and I came back to Australia, but I continued to be fascinated – and, I suppose, haunted – by the Pitcairn story.

One of the things that struck me most powerfully was the fact that many outsiders were still defending the men, saying they’d been badly treated and shouldn’t have been put on trial – even after all that publicity, and the men being found guilty of very serious offences. And when I reflected on this strange phenomenon, I realised that what lay behind it was the Pitcairn myth. And so I set out to explore the myth.

## MYTH MAKING

At the time of the mutiny in 1789, most people in Europe knew very little about the South Pacific. However, from the accounts of the early explorers it sounded like a tropical paradise. It was all beaches and palm trees and lagoons teeming with fish – and friendly natives, with none of the sexual hang-ups of the Europeans.

One French botanist reported: “The Tahitians know no other god but love. Every day is consecrated to it, the whole island is its temple, all the women are its idols, all the men its worshippers.”

When William Bligh returned home, having survived the mutiny, he told a tale that made everyone in England sit up. His ship had been seized in the middle of the South Pacific, and the mutineers, as far as he knew, had sailed off to Tahiti, where before the mutiny they’d spent six months and grown enamoured of the local women.

Although mutiny was a very serious crime back then, it seemed an incredibly romantic adventure story, and it inspired books and newspaper articles and poems. A London theatre put on a musical called “The Calamities of Captain Bligh”.

Fletcher Christian, in fact, hadn’t gone to Tahiti. With eight of the other mutineers he’d taken refuge on an uninhabited rock called Pitcairn, where he hoped the Royal Navy would never find them. As for the beautiful Tahitian maidens who accompanied the sailors, most of those women had been



# Less than Paradise

*Continued...*

kidnapped.

And within ten years of settling on Pitcairn, all but one of the men had killed each other, mainly in fights over women. So it wasn't quite such a romantic story.

It wasn't until nearly twenty years later that the little community on Pitcairn was discovered. An American whaler stumbled across the island by accident, and found the one surviving mutineer, John Adams, living there with nine women and twenty-four children.

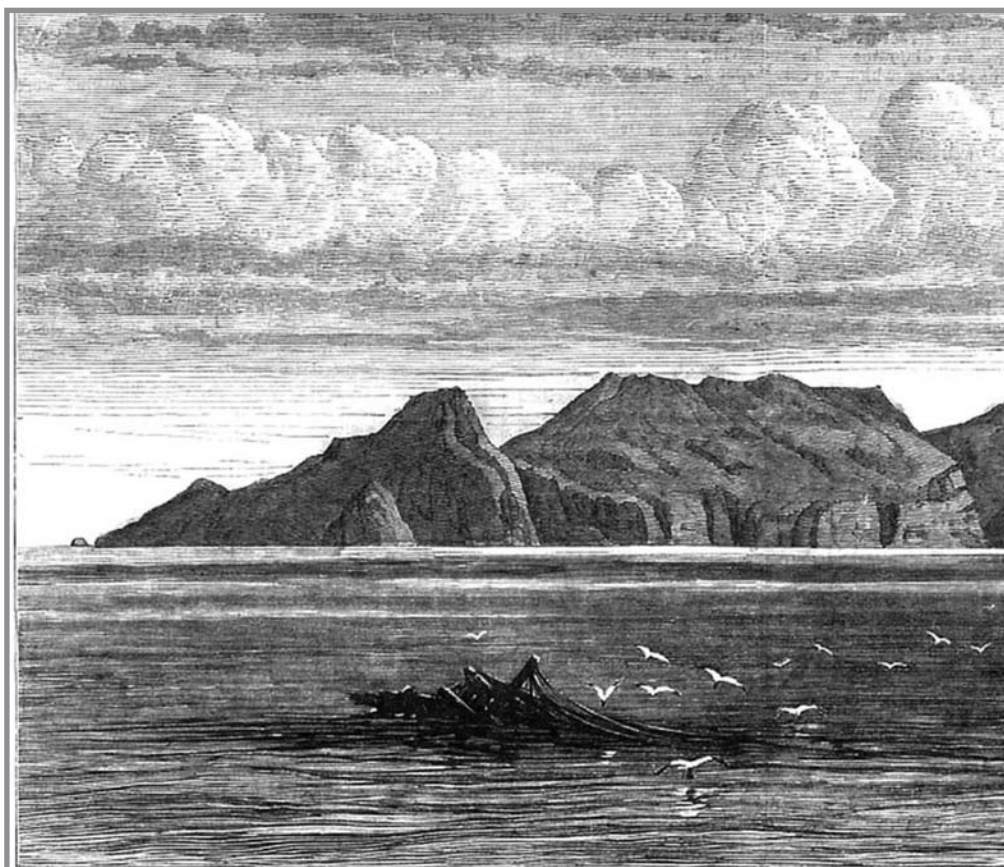
Adams told the ship's captain that, after the killings, he'd learnt to read, with the help of a Bible retrieved from the *Bounty*, and that he'd been so affected by what he'd read that he'd repented his sins and embraced Christianity.

The captain was very impressed; in fact, he reported that Pitcairn was "the world's most pious and perfect community". And all the other ships that visited subsequently, now that the island had been rediscovered, came to the same conclusion.

Very quickly this amazing story of an island of reformed sinners spread across the English-speaking world. To outsiders, Pitcairn seemed an idyllic place, an ideal society, a little Utopia. And the colourful history, and the exotic location, only added to its cachet.

The Pitcairners received a stream of gifts from well-wishers including Queen Victoria. Then, in 1876, after a missionary visited, they converted en masse to Seventh-day Adventism. The American-based Church was delighted, and from then on it promoted Pitcairn all over the world as a model Christian community.

That was how the island was seen throughout the 19th and 20th centuries, even by non-believers. For, as the rest of the world shrank thanks to jet travel, Pitcairn remained tantalisingly inaccessible. Armchair travellers projected their escapist fantasies on



BOUNTY BAY, PITCAIRN ISLAND.

to it, and despite the difficulties in getting there it attracted all sorts of visitors: sailors, adventurers, historians, anthropologists, film-makers.

The Pitcairners made a very good living out of this fascination with their island. They sold the visitors souvenirs, including T-shirts and wooden carvings. And, of course, those five Hollywood films helped to cement the Pitcairn myth.

Then, in about 2000, the stories of rape and child abuse began filtering out. Now the abuse of children is something that almost always evokes very strong reactions. We all know the stories of convicted paedophiles being driven out of their street by angry neighbours. It's a crime that's seen as vile and absolutely unforgivable.

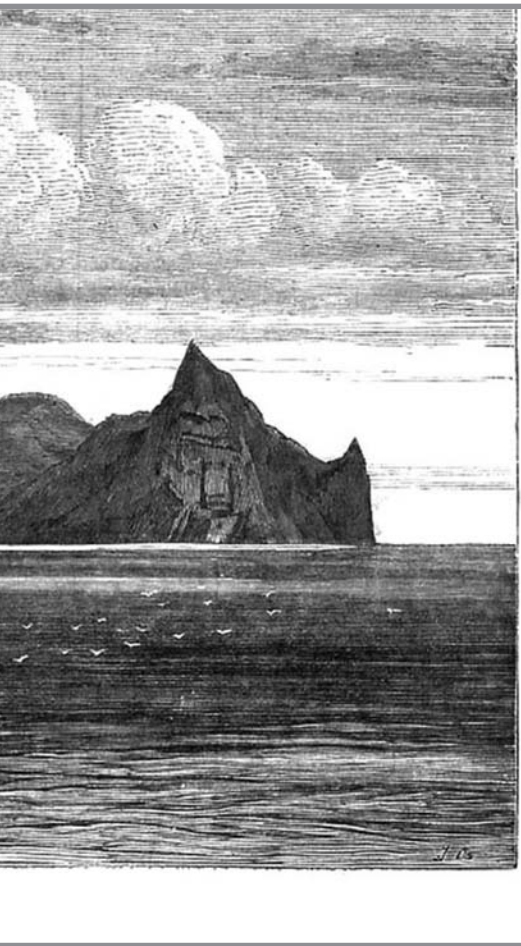
But the Pitcairn case was different. When the first reports appeared in the media, a number of influential outsiders urged people not to condemn the men. They said that Pitcairn was a South Pacific island, and like the rest of Polynesia it had always had a tradition of under-age sex.

The same argument was put very forcefully by certain Pitcairners, who claimed that the prosecution was a British plot to kill off the community. These islanders, and they included women, accused the "so-called victims", as they called them, of leading the men on – and of fabricating their allegations for money.

This propaganda campaign was phenomenally successful. All sorts of people – lawyers, journalists, academics – were convinced by it, and added their own voices to it. During the lead-up to the court case, which took years to organise, the media reports almost unfailingly referred to a Polynesian culture of under-age sex, and to a plot by the big bad colonial power to close down poor little Pitcairn.

As a result, many people believed that the case was a miscarriage of justice, and that the victims were not the women who were poised to give evidence, but rather the Pitcairn men themselves.

The Pitcairn myth was so potent that many outsiders refused to believe that anything bad had gone on there. And



**Left:** Bounty Bay and the wreck of the *Bounty*; almost all relics of the ship have been removed by tourists and divers

the adult men on the island, including the mayor, Steve Christian, were on trial at the time.

It seemed curious to me, the idea of tourists coming ashore and mingling with the accused men and their families, and I wondered: wasn't this whole child abuse business just, you know, a little bit off-putting?

Well, maybe some of those tourists hadn't read the media reports, but the same couldn't be said for newspaper columnists who wrote about the case. In the *London Times*, Ross Clark attacked Britain for treating "a genuine example of cultural diversity as perversion".

In the *New Zealand Herald*, Garth George scoffed at a headline that made reference to the men's lack of remorse. "Why on earth would there be any remorse over what had obviously been part of Pitcairn culture since the place was settled?" he asked.

Colleen McCullough, the best-selling novelist, who is married to a Norfolk Islander of Pitcairn descent, also weighed in. McCullough told an interviewer that the British government's treatment of the Pitcairners was "an absolute disgrace". She said: "These are indigenous customs and they should not be touched ... It's Polynesian to break your girls in at twelve."

When I got back from Pitcairn, certain friends and colleagues – to my surprise – expressed similar views. One friend said to me: "But it was cultural, wasn't it? I mean, it was part of their culture, and everyone accepted it, even the women. And they weren't actually children. They were twelve or thirteen. That's the age when girls get married off in some countries."

#### SUPPORTING THE MYTH

About six months after the trials, I went to England, and while I was there I attended a meeting of the Pitcairn Islands Study Group. This is a group

that was started by stamp-collectors – Pitcairn's stamps used to be highly coveted – but it now welcomes just about anyone with an interest in Pitcairn and the *Bounty*.

What struck me about this gathering of well-meaning eccentrics was that during the entire day they spent together the subject of the recent criminal case was never once mentioned. And when I raised it with one leading member of the group over morning tea, she replied: "Those beastly trials. My prayers have been with the men."

At one point, the group's honorary secretary made a public announcement of a "happy event" – the recent birth of a baby boy to Randy Christian, the mayor's son. Everyone clapped, and I just sat there, thinking: Surely they know that Randy's just been found guilty of serial child rape?

The Pitcairn myth is carefully cultivated by the islanders. They've always had a reputation for being charming to outsiders, particularly to tourists, and also to the crews of passing ships, who sometimes donate supplies to the island. The islanders even have their own term for this: they call it "hypocriting the stranger". And I saw it in action when the *Clipper Odyssey*

**"Islanders have a reputation for being charming - they call this 'hypocriting the stranger'."**

visited, and the Pitcairners – who'd been scowling at me for weeks – were suddenly all smiles. The smiles were for the passengers,

but these were their public faces, and so – just for that day – they smiled at me and my colleagues as well.

It struck me that the Pitcairners have become so accustomed to being actors in their own drama that they've bought into the myth themselves. They talk about Fletcher Christian as if he was alive just the other day, and they all wear T-shirts with the Pitcairn or *Bounty* logo – these are T-shirts which they manufacture to sell to tourists, but they wear them themselves, even when no one's around. It's almost like their national costume.

that attitude didn't change even when the trials began, and it became clear that the case was not about youthful experimentation; it was about hardcore sexual abuse – assaults on girls as young as five and seven years old. One ten-year-old was gagged and assaulted by two brothers, who took turns to hold her down and rape her.

Just how strong the Pitcairn myth is became plain to me during the court case. While several trials were in mid-flow, an American cruise ship visited. Quite a few such ships visit Pitcairn during the summer; they stop off for the day on their way to Tahiti or Easter Island, and the passengers get to meet the mutineers' descendants and visit historical landmarks such as Christian's Cave, where Fletcher Christian, it's said, used to watch out for British naval ships.

For many people, apparently, it's the highlight of their cruise. Some book their trip for that sole purpose.

But I was very surprised when I heard that this particular ship, the *Clipper Odyssey*, would be coming. I mean, half



# Less than Paradise

*Continued...*

One of the people I met at the Pitcairn Islands Study Group was Maurice Allward, a man in his early 80s, very dapper. He invited me to his home, where he and his wife, Joy, told me about the parties that they hold on Bounty Day – that’s the anniversary of the burning of the ship by the mutineers off the Pitcairn coast. On the island, the sailors’ descendants mark that day by torching a replica of the ship in their little cove, Bounty Bay.

Maurice Allward did the same: he built a model of the Bounty and set fire to it on the back patio of his suburban brick cottage in Hatfield, north of London. He and his guests sang Pitcairn songs, and dressed up as mutineers, and ate Pitcairn dishes, such as breadfruit fritters. When I met up with him, he’d recently celebrated Bounty Day in this way, although he knew all about the trials and even showed me a collection of newspaper cuttings.

I came to realise that there are people like Maurice all over the world – people who are fascinated by everything concerning Pitcairn and the Bounty. These diehard Pitcairn fans haunt the big auction houses, where they bid for obscure relics and memorabilia. Maurice owned a fragment of the Bounty’s rudder and a shard of rock from Christian’s Cave.

These people subscribe to the *Miscellany*, Pitcairn’s newspaper, and they finance trips by the islanders to come and visit them in America or Japan. And they congregate in online chatrooms, where they debate the details of Pitcairn’s history and exchange news about the mundane doings of its residents.

I dipped into the main chatroom, Friends of Pitcairn. Had I known nothing else about the island, I would have come away with the impression of a gentle, whimsical community where stalwart men and women struggle to survive against the odds.



The Friends debated questions such as “Do Pitcairners have washing machines?” and “Whatever happened to Fletcher Christian?” They cooed over photographs of children on Pitcairn, and dispatched birthday greetings to elderly islanders.

When the child abuse scandal broke, they deplored the bad publicity that followed, and blamed it on ignorant and ill-disposed journalists. In fact, when I came back from the island, I noticed a post stating that “Kathy Marks, for one, should be shot”. But despite the bad publicity, the island was still continuing to win new converts, such as a Swedish man who had joined the chatroom. He explained: “I thought it would be both interesting and fun to get to know and learn about how the daily life is today on this special and so mythical island.”

So, just to talk briefly about my book, which was published five years ago here and in the UK, and four years ago in the US: I guess my main aim was to get the real story out there, to put on record what really happened on Pitcairn over the two hundred-odd years since the mutineers arrived, and to make even just a little dent in the myth.

I hope I did achieve that, because I think it’s important to deal in facts and not myths, and I was very gratified and

**Above** The only way for visitors to get to the island – long boats landing at Bounty Bay, skippered by one of the accused

moved by some of the emails and letters I received after the book was published – from outsiders who had lived on Pitcairn, or had visited the island, or just had a fixation with the place, and even from some Pitcairners who were no longer living there.

And all of them said similar things, which was that they had themselves subscribed to the Pitcairn myth, but that they recognised the reality of the island in what I’d written, and they’d had their eyes opened.

And even dear old Maurice Allward, who died two and a half years ago – he wrote me a beautiful letter in his copperplate handwriting, thanking me for setting the record straight. And I guess for a journalist, there’s probably no higher compliment than that. ■

About the author:

**Kathy Marks** is The

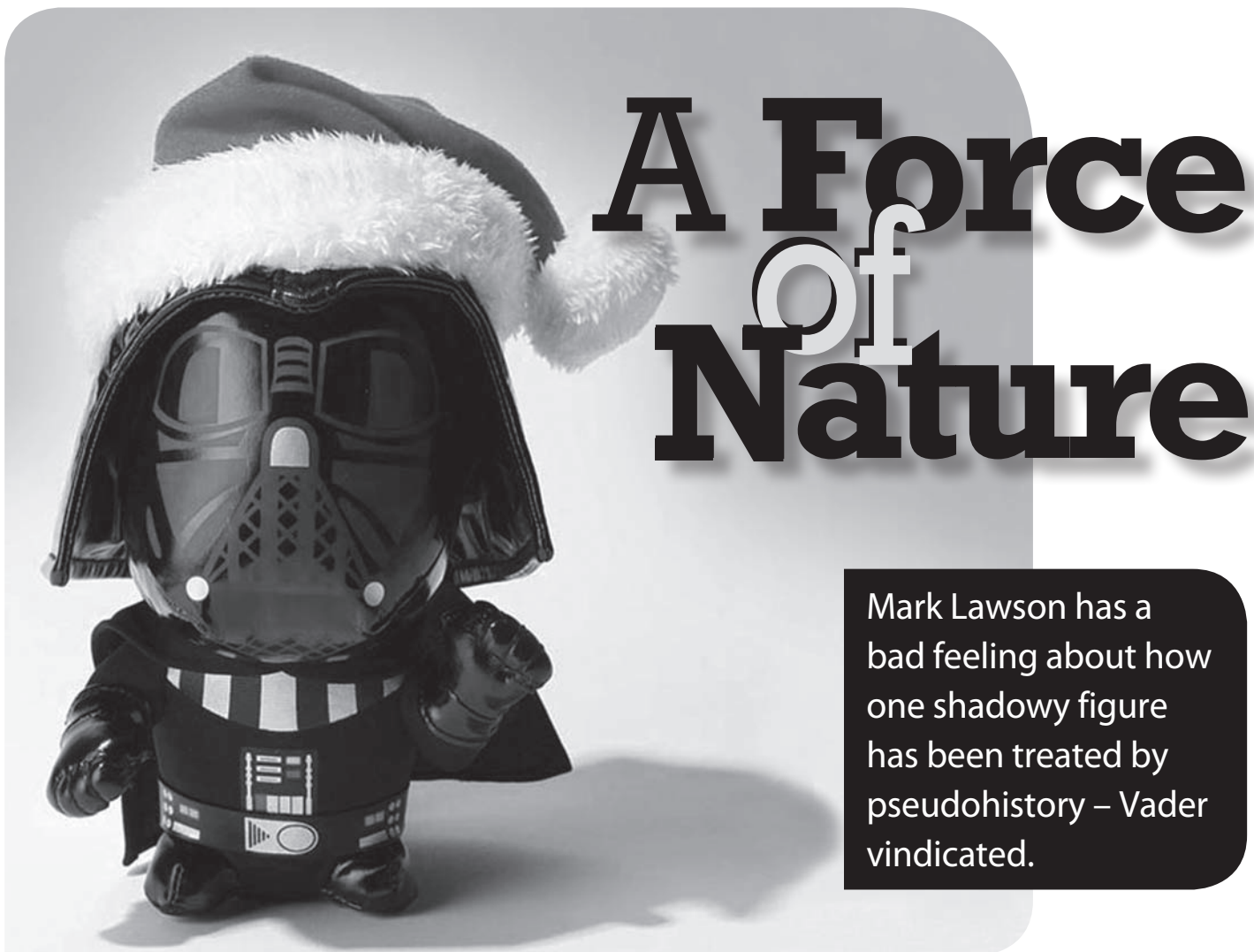
Independent newspaper’s

Asia-Pacific correspondent.

Her book, *Pitcairn Paradise Lost*, has won several awards.







Mark Lawson has a bad feeling about how one shadowy figure has been treated by pseudohistory – Vader vindicated.

When the bones of King Richard III were found under an English car park last year, the Richard III Society had another opportunity to press its case that the English king of the Shakespearean play had little to do with the real historical figure. But what about that other arch-villain of fiction who has, I believe, received similar bad treatment at the hands of the modern playwrights - scriptwriters and producers - and whose reputation should also be rehabilitated? This is the villain of the Star Wars series of films, Darth Vader. With the script for another film now being written (Episode VII, for the fans), it is time to take another look at the general's reputation.

**“Darth Vader - just some minor massacres, destruction of the Jedi order and of the planet Alderaan.”**

Everyone is familiar with the six Star Wars films covering the half century or so in which the Galactic Republic became an Empire, but films or plays supposedly about historical events rarely have much connection with those events. Shakespeare probably

wanted a good bad-guy for his play, but the distortion is particularly marked when the artists concocting the story want to stay out of government jails, and the artists who sent down the Star

Wars tales would have been keen to avoid the New Republic's infamous interrogation centre (motto: The truth shall set your spirit free). After all, the unlikely triumvirate of Princess Leia, Luke Skywalker and Han Solo had

already shown they would stop at nothing to gain power.

We don't have any reliable account of the period, of course, but we can make an informed guess from the material presented, which includes a lot of supporting literature as well as the films. Of Darth Vader's many supposed dark deeds only two - bar a couple of minor massacres as a young man - are really spelt out. These are the destruction of the Jedi order of which he was a member, including the slaughter of very young recruits, and being complicit in the destruction of the planet Alderaan as a demonstration of the power of the Empire's Death Star.

On the accusation concerning the Jedi order, Vader has a case to answer, but he may also have a defence. For elite groups such as the Jedis have always proved a problem throughout

## A Force of Nature

*Continued...*

history. Examples include the Varangian Guard (Byzantine Empire), the Praetorian Guard (Roman Empire), the Janissaries (Ottoman), and the Moscow Streltsy. The knight-monk orders of the middle ages, such as the Hospitallers and the Knights Templar, also have some parallels with the Jedi.

The first three episodes (the last three to be filmed), and various attendant literature, indicate that the Jedi Knights were a sort-of paramilitary police force whose members went around putting down potential threats to the order of the Empire, as well as occasionally acting as glorified bodyguards. There was no established chain of political command of the order, or seemingly any external supervision. Instead, the order considered itself the independent arbiters of justice in the galaxy, and meddled in politics.

All of the elites mentioned above were founded with the best of intentions but also ended up meddling

in politics, and become a nuisance in the empire they supposedly helped protect. The Ottoman Janissaries, in particular, became a powerful political bloc, and are perhaps the best historical analogy to the Jedi.

In their prime - the fifteenth and sixteenth centuries - the Janissaries were the fighting elite of the Ottoman Empire. Made up of Christian boys taken from their families very young and forcibly converted to Islam, they were initially not permitted any other life or to marry. By the early 18th century, however, Janissaries had families - membership had become hereditary - and they had become a powerful part of the government, able to dictate policy and change Sultans as they wished through Palace coups. To make matters worse they had lost their military effectiveness, but they resisted all attempts at modernising the military, as any change meant a possible loss of privileges. Eventually the sultan Mahmoud II had most of them killed in a major street battle in 1826. The rest were executed or banished.

The most likely scenario of the real Star Wars history is that the Jedi were an elite group of star rangers that had a


military role in putting down the small rebellions that occasionally occurred, but who had long ceased to be of any military use against external groups. The films play up the effectiveness of "the force" with its good side and bad side, but anyone trained in martial arts who has sat through any of the Hollywood or Asian films in which martial arts feature will know that these things get exaggerated.

Despite the order's posturing, the Jedi were tolerated as a cheap form of internal security force until a real war broke out with the Sith-bloc. The Republic found it had to modernise, but the Jedis still thought in terms of heroic hand-to-hand combat with light sabres! They had no use for the remote controlled clone armies which had come into use (citizens stayed at home where they belonged).

More importantly, reform meant that they would lose their privileges and powers, including the order's vast wealth and sideline of private security operations which might be described as protection rackets.

However, with the Republic's outer defences being over-run, a desperate Senate caved in to a demand by Chancellor Palpatine, undoubtedly a ruthless, opportunistic politician, for dictatorial powers. Palpatine then turned to a Republic general, Darth Vader, to eliminate the Jedis, as a necessary first step towards restoring military sanity. A bonus was that the order's wealth could be confiscated by the Republic and certain loans to highly placed Republic officials could be wiped off the Jedi banking books. In this the fate of the Jedis parallels that of the order of the Templars, which was dissolved by Philip IV of France in the 14th century largely because he owed a huge sum to the order.

All was quiet for some years but then a major group of planets on the other side of the Federation to the Sith-bloc declared themselves independent, in part over the quite separate issue of Droid rights, but also because they did not want to pay the Imperial taxes required to fund modern defence forces.



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As fans of the Star Wars series will recall, in the fourth episode (the first to be produced) the two droids R2-D2 and C3PO try to enter a low bar on a planet called Tatooine, only to be ordered out by the barman. Imagine the reaction of the good people of Tatooine when the Emperor decided to declare droids Imperial citizens.

The rest of the empire had moved onto collective artificial intelligences controlling robot units (including drone armies) which did the work, but the systems that rebelled still preferred the approach of using droid units with separate personalities. The decision by Palpatine (now an Emperor) to liberate the AIs is perhaps unfortunate in the circumstances, but most likely he was trying to placate the powerful planets run by artificial intelligences, and completely underestimated the strength of the reaction from fringe states.

Realising that something had to be done about a suddenly troublesome backwater, the Emperor dispatched Vader with whatever Imperial forces could be spared from watching the Sith-bloc, including a single Death Star. In the ensuing rumpus, however, the rebel forces managed to severely damage the craft. We can dismiss, out of hand, the apparent propensity of Death Stars to blow up, as if they are early twentieth century battleships and have large magazines filled with cordite. More likely it was the one craft that was damaged and then had to be repaired. The sixth episode (the third film to be made) suggests that an entirely new Death Star was built above a heavily forested moon inhabited only by cute, teddy bear-like natives. This is just fantasy! Instead the damaged craft would have been put in orbit around a heavily industrialised world, whose inhabitants would have

been made to pay for the repairs.

Now we come to the climax of the six films, and the final destruction of the Death Star, in which the sinister, shadowy Han Solo played a key role. The image of Han Solo presented in the films is that of a knock-about,

small-time smuggler with a single, poorly-maintained ship. Rebellions are not made by such persons. Instead, he was probably a gangster operating on the fringes of the Imperium, who saw his chance in the Rebellion and made contact with the farm boy-turned-Rebel Alliance strong man, Luke Skywalker (who doubtfully claimed to be Vader's son). As troubled times tend to bring forth ruthless leaders, it would not have been safe to cross either of them, or Princess Leia.

Very likely Solo financed the operation and helped suborn Imperial personnel. Luring officials into compromising situations and then blackmailing them is an ancient art. Once blackmail had opened a window of opportunity, the assault teams led by Skywalker would have struck hard and fast and Vader went down with his ship. He was undoubtedly a hard man but he did not deserve the bad press he received. History is written to favour the villains who win. ■

About the author:

**Mark Lawson** is a senior journalist at the Australian Financial Review. He fights to restore Darth Vader's reputation on [www.vaderisinnocent.com](http://www.vaderisinnocent.com) and has written a book *The Zen of Being Grumpy* (Connor Court).



“The knight-monk orders of the Middle Ages, such as the Knights Templar, have some parallels with the Jedi.”

## Logical Place

### Argument from Fallacy

This fallacy may at first glance seem counter-intuitive, but it illustrates an important distinction between the validity of an argument and the truth of its premises and conclusion. By definition, the conclusion of an invalid argument does not logically follow from its premises, but the conclusion of such an argument can still be true whether or not its premises are true.

The **argument from fallacy** is the fallacy of analysing an argument and inferring that, since it is logically invalid or is otherwise fallacious, the conclusion of the argument must therefore be false. This fallacy is also called the 'fallacy fallacy' or argument to logic (argumentum ad logicam).

The general form of this argument is:

**Premise 1:** There is an argument A with a conclusion C.

**Premise 2:** A is a fallacious argument.

**Conclusion:** Therefore, C is false.

To give a practical example:

John: "All dogs are animals. Scottie is an animal. This means Scottie is a dog."

Betty: "Ah, you just committed the 'affirming-the-consequent' fallacy. Sorry, you are wrong, which means that Scottie is not a dog."

In this example, John has committed the affirming-the-consequent fallacy, but it does not logically follow that his conclusion that Scottie is a dog is false – it just means that his argument for saying so is invalid.

Another example might be a belief that because somebody is unable to defend a position well, then that position must be false. All that has really been demonstrated is that the person in question cannot adequately defend their position, which could happen to be true. On the other hand, if this person is relying on a fallacious argument to support their position, then we should be skeptical of that position unless and until it can otherwise be shown through evidence and valid argument to be true.

- by Tim Harding





# Under Audit

Peter Bowditch looks into one of the more notorious cancer 'curers', Stanislaw Burzynski, and his slight problem with the FDA.

The very first article I ever wrote for my Millenium Project web site appeared in early 2000 and was an examination of the claims of a cancer quack, Stanislaw Burzynski. I looked at the documentation for some of the clinical trials he claimed to be doing at the time and it was obvious that he was doing nothing that looked like science. The reason for doing the trials was that the US FDA would not let him sell an unproven cancer treatment but he could test it in trials. As of this moment in 2013 only one of these 61 trials has been declared finished (in 2006, the results havd not been published) and Burzynski has never published anything in any scientific journal that matters.

His treatment is based on chemicals which he calls "antineoplastons". They were originally extracted from urine but are now synthesised. Nobody else in the world has ever shown any efficacy for these chemicals and like all cancer quacks they treat a wide variety of cancers. The preferred ones, however, are brain cancers in children - these are the best for generating public sympathy and the parents are desperate for a cure. He has always used sick and dying children in his advertising, although lately he has been using some adults as well, but only those with a good sob story to tell.

Unlike real clinical trials, where all costs are borne by the institution doing the research and patients might receive an honorarium to compensate for their time, Burzynski's patients pay large



amounts of money - in the hundreds of thousands of dollars per year - to participate in his trials. He lives in a house with a market valuation of \$6 million. The front gate features a large golden set of his initials. Because of the amounts of money necessary, fund raising sites are set up with pictures of sick kids. One prominent site claimed that the bank would not let them accept transfers from other banks, but PayPal or cash deposits at a bank branch were acceptable.

Burzynski also claims to have a PhD earned and granted in 1968 by the university he was at in Poland. However, in 1973 he claimed a DMSc from the same university on a grant application, with that being earned in the same single year - 1968. In 2011 he came up with what purported to be an affidavit, signed in 1990, saying that someone knew he had a PhD, although he was unable or unwilling



**Above::** Stanislaw Burzynski, friend to cancer sufferers with money, subject of hagiography and FDA investigations

to provide a copy of an actual testamur or certificate. In 1996-7 he was investigated for insurance fraud and the university told the investigator that it did not award doctorates in 1968, raising the question of why he didn't produce the 1990 affidavit then to



refute this. University Microfilms have no record of his earning a PhD in the US. He lies about his qualifications.

He currently employs a small team of people to defend and praise him on Twitter. They post on no other subject. Some claim to be patients but always refuse to say which of his “clinical trials” they are in. Two documentaries have been made recently about him. They were made by a true believer, feature several of the “patients” and are indistinguishable from paid advertorial. Any suggestion that the people in the advertisements might be actors playing a role is met with abuse and stories about cute children and lovely mums.

This year, the FDA has spent some time looking at Burzynski’s operation and has released a report. There is a link to the report below, but here is a summary, with my comments.

### OBSERVATION 1

An investigation was not conducted in accordance with the signed statement of investigator and investigational plan.

**COMMENT:** Why bother to keep records if you aren’t planning on publishing in real scientific journals? People making advertising videos (called “documentaries” in the quack trade) don’t need to know what you planned to do or how you did it, just what you said you did. It’s worth reading all the items included under Observation 1. There wasn’t even a pretence of conducting proper research or patient treatment.

### OBSERVATION 2

Failure to prepare or maintain adequate case histories with respect to observations and data pertinent to the investigation. Specifically, your MRI tumour measurements initially recorded on worksheets at baseline and on-treatment MRI studies for all study subjects were destroyed and are not available for FDA inspectional review.

**COMMENT:** Say what? Burzynski destroyed any evidence of the existence of cancer before people started doing his ‘treatment’. It certainly helps the

cure rate if patients didn’t have the cancer that you claim to have cured.

### OBSERVATION 3

Failure to report promptly to the IRB all unanticipated problems involving risk to human subjects or others.

**COMMENT:** Perhaps all problems were anticipated, so there was no need to tell anyone.

### OBSERVATION 4

The informed consent document did not include a statement of any additional costs to the subject that might result from participation in the research, as appropriate.

**COMMENT:** Costs like the thousands of dollars for prescription medications dispensed from Burzynski’s own in-house pharmacy at many multiples of the price everywhere else.

### OBSERVATION 5

Legally effective informed consent was not obtained from a subject or the subject’s legally authorised representative, 811d the situation did not meet the criteria in 21 CFR 50.23 - 50.24 for exception.

**COMMENT:** Who needs “legally effective consent”? These desperate people were dying of cancer and prepared to give Burzynski huge amounts of money. Surely assent can be assumed.

### OBSERVATION 6

Investigational drug disposition records are not adequate with respect to quantity and use by subjects.

**COMMENT:** If you don’t bother with patient records why would you need to keep accurate inventory records?

Burzynski was found to be doing what I and others have known he does for decades. He promises much, delivers nothing and charges a lot of

money to do it.

Maybe finally the FDA can close him down, although the PR exercise has already started, with stories in the British press about a lovely mother who has been cured of brain cancer in three years without the use of dangerous chemotherapy drugs. She appeared in a Burzynski advertising video wearing a bandana, the universal sign of a cancer patient who has lost hair from chemotherapy and something designed to elicit sympathy. If she didn’t have

**“ Doing what he does for decades - promises much, delivers nothing, and charges a lot of money to do it.”**

chemotherapy, why does she need the bandana? If she did, why is she lying about only getting antineoplastons? Did she ever have cancer? Who would know, because the original MRI images

have been destroyed? The article I saw said that she raised £75,000 to pay for treatment, but at one stage her begging web site said that she was already at £175,000 with a target of £275,000. I wonder where the extra £100,000-200,000 went. Burzynski has been using dying (and sometimes even dead) ‘patients’ in his promotions for years, so pardon me if I don’t take this latest success story without question.

I have a suggestion for Stan. If he needs to move his operation to somewhere where he won’t suffer so much interference, he could try Tijuana. If he puts the name into Google Maps it will even tell him the best way to drive there, and he won’t even have to pack the filing cabinets that he currently has for show. ■

*See the FDA report at* [http://www.ratbags.com/rsolhistory/2013/1109burzynski\\_fda.pdf](http://www.ratbags.com/rsolhistory/2013/1109burzynski_fda.pdf)



About the author:  
**Peter Bowditch** is a former president of Australian Skeptics Inc and a self-confessed (and titled) ratbag.





# Birth of a Notion

James Randi, Steve Cannane and Simon Taylor reveal how they became a skeptic ... all thanks to annoying people by asking too many questions.

## JAMES RANDI, CONJURER, AMAZING

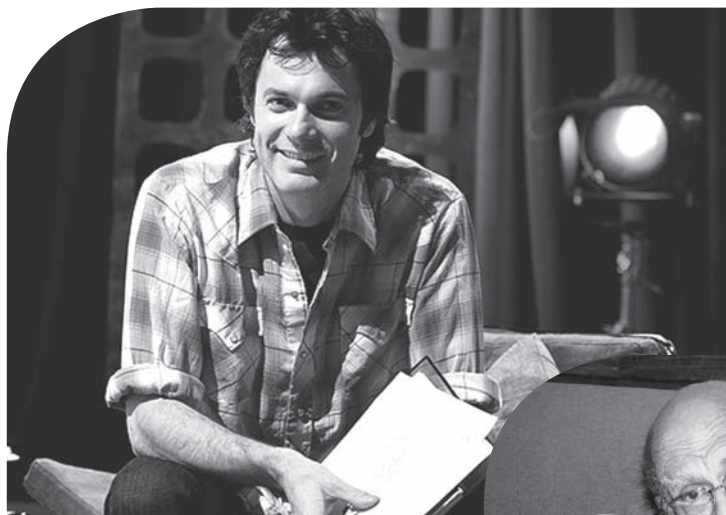
I think it started very early when I was just a little boy. They sent me off to Sunday school, and they gave me a 25c piece in my hot little hands that I was supposed to put on the plate as an offering to Jesus or whatever. And I started to ask questions in Sunday school. I only lasted two weeks because they said I couldn't come back because I'd constantly say, "But how do you know that?" "Oh, it's in the book, it's in the book," they'd say. "You don't ask questions."

I wasn't happy with that.

And I made another great discovery. I found out that that 25c at Purdy's Drugstore on Bayview Avenue would buy me two ice-cream sundaes, which was a much better investment than putting money on the plate. I continued to 'go to Sunday school', but I didn't actually go. My parents never found out ... or they didn't admit it.

## STEVE CANNANE, ABC JOURNALIST

I think I've been a critical thinker from a very young age – I've never trusted teachers, I've never trusted authorities. I've always asked why. I guess that's a very critical question for journalists to be constantly asking, constantly curious. I never get bored in my job because I always think there are stories and things I want to explore, expose. So critical thinking has been a part of my life since a young child. I probably gave my teachers a hard time. I'm hopefully continuing to give people a hard time. At university I studied political economy, which was all about critical thinking, about putting up ideas, challenging them, testing them. To



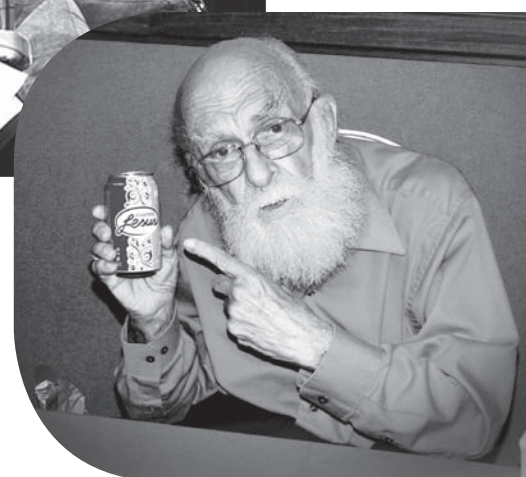
me, that's what journalism is all about, and that's what skeptics are about. It's testing people's beliefs, and I think that is a very good thing.

## SIMON TAYLOR, ENTERTAINER, MAGICIAN

I remember I was about 14 and I told a mate at school that "I don't really believe in God." And he said, "Me neither." And I said "I feel good about that; that's off my chest now."

But it was pretty progressive in a sense in that I apparently was a child who was happy to do things but I always wanted to know why. They'd say "Go clean up the backyard". "Fine, but why should I clean up the backyard? Why is that the most efficient thing to do?" That's the way my brain worked.

That led me to 'magic thinking' because I'd always thought about why, and how does that work, and what is the best way to do this and communicate that? I tend to deconstruct things a lot, that's why I like comedy as well. "How do you get that laugh and how does that joke work?" As soon as I realised I didn't believe in god - I questioned something as taboo as that - it just opened the floodgates, and then I would question all sorts of things. ■



**Top to bottom:**  
Steve Cannane,  
James Randi and  
Simon Taylor

*Note: Interview transcripts from TAM Australia 2010. These and other interviews and presentations are featured on the TAM Australia DVD, available from [www.skeptics.com.au/shop](http://www.skeptics.com.au/shop)*



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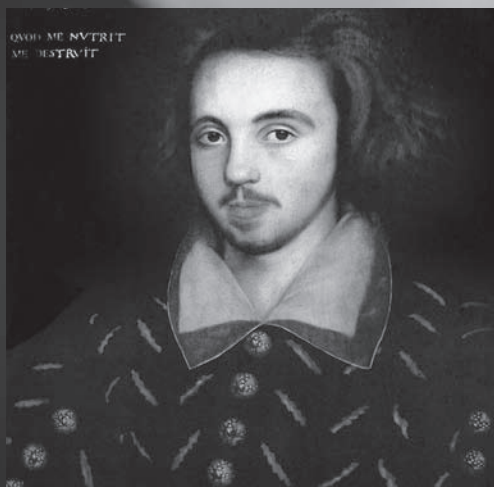
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# The cycle of life →

Blues – blacks – mixed – darks. And so it goes, the almost inevitable realisation that all knowledge is connected and connectable.

## HELLHOUND ON MY TRAIL

Christopher Marlowe (baptised 1564–1593) was an English dramatist, poet and translator of the Elizabethan era. Some regard him as the foremost Elizabethan tragedian of his day, and an influence (and competitor) to Shakespeare. He was supposedly stabbed to death, either in a pub brawl or in relation to a charge of blasphemy. Among his most famous works is *The Tragical History of Doctor Faustus*, a reworking of the classic German legend of a highly successful scholar, dissatisfied with his life who makes a pact with the Devil, exchanging his soul for unlimited knowledge and worldly pleasures.



Christopher Marlowe, possible spy, possible Shakespeare

## WENT DOWN TO THE CROSSROADS

Robert Leroy Johnson (1911–38) is regarded as one of the greats of American blues music. In his youth, however, he would often sit in with his blues heroes, including Charley Patton and Son House, but be ridiculed by them for his lack of skill. He withdrew to his birthplace of Hazlehurst, Mississippi, and on his return astounded his mentors with a new found skill, said to surpass theirs. That he had reached this stage in only a short time gave rise to the legend that he had sold his soul to the devil at a crossroads to achieve success. As an itinerant performer he played mostly on street corners and in juke joints.



# What goes

## WHO ARE YOU?

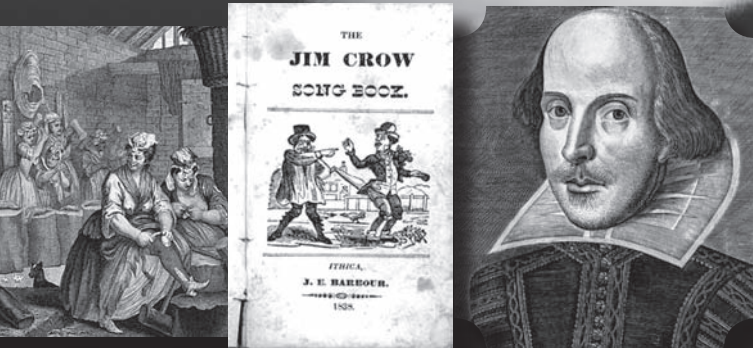
In Shakespeare's sonnets are three unnamed characters. One of them is the so-called "dark lady" (a term not used by Shakespeare), whom some have suggested was black. Some lines from one of the sonnets are: "If snow be white, why then her breasts are dun; If hairs be wires, black wires grow on her head." There have been various theories as to her identity – some black, most white - including a London prostitute Lucy Morgan, also called Lucy Negro or Black Luce. The other unnamed characters in sonnets are "young man" and "rival poet". Against, various theories have been put forward as to these might be, with some saying the poet was Christopher Marlowe.

### ROCK THIS JOINT

Juke joint (or 'jook' joint) is the vernacular term for an informal establishment featuring music, dancing, gambling, and drinking, primarily operated by African American people in the southeastern United States. The term "juke" is believed to derive from the Gullah word "jog", meaning rowdy or disorderly. Classic juke joints catered to the rural work force that began to emerge after the emancipation. Set up on the outskirts of town, often in ramshackle buildings or private houses, juke joints offered food, drink, dancing and gambling. Such places were needed for black workers particularly since they were barred from most white establishments by so-called "Jim Crow" laws.



**Robert Johnson, blues hero to thousands of would-be rock gods**



# around ...

### I FOUGHT THE LAW

The phrase Jim Crow Law first appeared in 1904 according to the Dictionary of American English, although there is some evidence of earlier usage. The origin of the phrase "Jim Crow" has often been attributed to "Jump Jim Crow", a song-and-dance caricature of blacks performed by white actor Thomas D. Rice in blackface, which first surfaced in 1832. When southern legislatures passed laws of racial segregation – directed against blacks – at the end of the 19th century, these became known as Jim Crow laws. One of the elements of such laws included a ban on miscegenation.

### SOCIETY'S CHILD

Miscegenation (from the Latin *miscere* "to mix" + genus "kind") is the mixing of different racial groups through marriage, cohabitation, sexual relations, and procreation.

Famous examples of miscegenation include: the parents of President Barack Obama (a Kenyan father and white mother); a rumoured relationship between President Thomas Jefferson and black slave Sally Hemings; and famous UFO abductees Betty and Barney Hill (some have suggested their claims of alien abduction stem from their stress over a mixed-race marriage).

Others said to be involved in mixed race relationships include Alexandre Dumas *pere*, Andre Gide and William Shakespeare.



**Betty and Barney Hill, uncomfortable with alien probes**

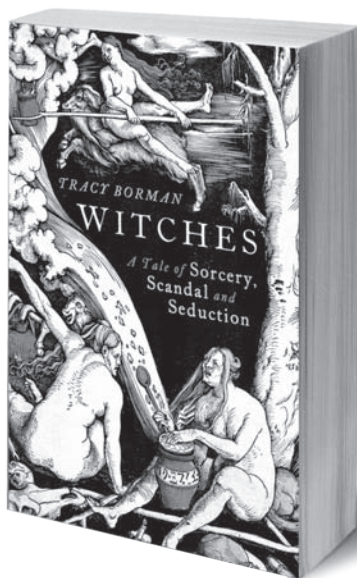


# I put a spell on you

## Witches: A Tale of Sorcery, Scandal and Seduction

By Tracy Borman

Jonathan Cape, £20.00



There have been few English kings who wrote books. James I was one of them, and because of it, woe to you if you were a poor old woman in the early seventeenth century. James's book was the 1597 *Daemonologie*, about how to find and persecute witches, and he and his book play important roles in *Witches: A Tale of Sorcery, Scandal, and Seduction* by Tracy Borman. The author is a British historian who has brought us the story of Francis Manners, the Earl of Rutland and the lord of Belvoir Castle in Leicestershire. The Earl had a serious problem with witches: they killed his sons. He even made sure that witches

got explicit blame on his sons' tomb in the village church. He was friends with King James, and took to prosecuting (and persecuting) the witches responsible, just as James advised.

Borman has given the facts of the case as best as can be known; the court transcripts are long gone, but as was often the case in sensational trials, there was a pamphlet all about the trials and the executions of the witches. It is a sad story of a time when superstition was backed up by religious fervour, and Borman does not restrict herself to just the Manners family and the three women of the Flower family that were accused of being witches. She gives a general depiction of witch persecution in England at the time, a broader picture that makes this a scintillating, if troubling, history.

Joan Flower and her two daughters, Margaret and Phillipa, had been among the many house staff within Belvoir Castle, as other members of the Flower family had been before them. There was some sort of disagreement, and they were let go. They were thus outcasts, but the three women would have been recognised as peculiar for they did not attend church. They may also have entertained men in some naughty fashion; the mother was a widow and the two daughters single, so no matter what they were up to, the stories about them would have been

salacious. Perhaps the greatest stroke against them was that the mother was a "cunning woman," knowledgeable about herbs and other natural medicines. These sorts of practitioners made up for the lack of physicians who would treat the public, and they may well have had even a better success rate. They also used amulets and religious charms, and they helped detect thieves. They might themselves be in charge of cancelling spells by witches, but of course they were doing something close to witchery. The eccentricity of the Flower women might have been tolerated if they had the blessing of the lord of the castle, but once that was withdrawn, calumny would prevail.

The earl and his wife turned fretful over the health of their younger and then their elder son, but if any rumours reached them about the Flower women practicing witchcraft, they initially paid them little attention. Indeed, the earl was able to employ physicians who did the same sort of magical treatments Joan Flower applied, but the earl's choices worked for a better class of clientele. Eventually the earl and his wife would have started to pay attention to the rumours. It was not often that people in power thought themselves the specific targets of specific witches, but once the idea settled upon the earl, it did not let go of him. His suspicion was more than enough to secure the women's doom.

He did this with the blessing of his king. James I had come to believe that he himself was the biggest enemy the Devil had, and that it was his duty to persecute the Devil's allies. With a religious zealot's passion, he exhorted his people first in Scotland and then in England to fear and to root out the witches among them. In *Daemonologie*, he made clear that the stakes were so high that any type of horror was justified in getting confessions from the women accused and then in punishing them. Borman cites many alarming gaps of reason in the work. One was that an accusation against a witch was in itself a sure thing; James wrote, "God will not permit that any innocent person shall be slandered with that vile defection." In other words, if the witch is accused, piety compels us to accept also that she is guilty. The Bible itself said that you should not allow witches to live, and that they should be stoned to death, but James favoured death by fire.

Even if accusations in themselves were assurances of guilt, a trial still had to happen. The brutality and unfairness of such trials is distressing. Since these women were guilty (or else they could not have been accused), they could not be treated badly enough. It is not clear exactly what the accused witches in this case went through, but they were kept in miserable

conditions. The mother died on her way to prison, in the extraordinary circumstance of her insisting on an ordeal to test her guilt. She was fed bread that had been blessed, and she promptly died; this must have obliged her tormentors. Her daughters went on to prison in Lincoln, and may (if they got treatment comparable to other imprisoned witches) have suffered exposure, sleep deprivation, and wounding or rape in attempts to find a Devil's mark. Judges were eager to hear that the witch had confessed to her crimes, and it is not surprising that confessions could be arranged under such torture.

There was little in the way of real evidence for the crime of witchery; no impartial observer at trial ever testified about witnessing an act of sorcery, and although authorities would raid the premises of other criminals in order to find evidence, they never did so against witches. Evidence was rather the depositions

of neighbours, who may have had a grudge against the outcast women. The courts allowed themselves extraordinarily wide leeway for taking evidence, even permitting the testimony of women and children, testimony which would not have been accepted in trials of other crimes.

The daughters were found guilty, of course, and hanged. Besides taking a broader view of witchcraft beyond this one sad case, Borman suggests that James's favourite, the Duke of Buckingham, may have wanted the earl's sons dead as he was engaged to marry the earl's daughter, the one remaining child. Well, perhaps, but such conspiracy suppositions are a sidetrack from the main show here, a thoughtful reconstruction of a particular witchcraft trial within a wider view of the European-wide witch persecution.

- Reviewed by Rob Hardy

# God on the couch

## God: A Psychological Assessment

By Gary Bakker

Universal Publishers, US\$23.33

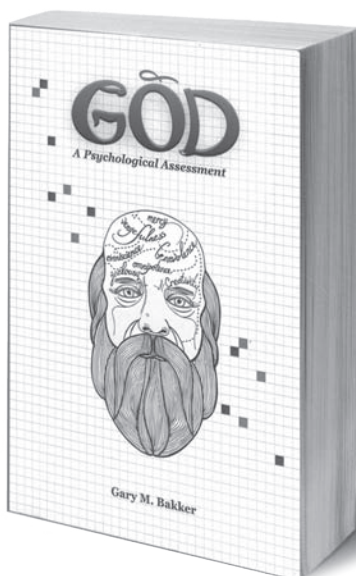
"God diagnosed with bipolar disorder," declared a 2001 headline in the satirical newspaper *The Onion*. The article reported that Rev Dr J. Henry Jurgens, supposed psychiatrist and doctor of divinity at Yale Divinity School, identified God as meeting the criteria for a diagnosis of bipolar disorder - a mood disorder formerly known as manic depression, famous for cyclical fluctuations between periods of euphoria and depression. Move forward to 2009, Professor of Pastoral Theology Donald Capps of Princeton Theological Seminary published an article in the journal *Pastoral Psychology* correcting Jurgens's diagnosis. In response to the article in *The Onion*, Prof Capps declared that God suffers from narcissistic personality disorder.

This exercise of evaluating God psychologically is not new, albeit rare. An online search might yield a

few informal, sometimes amateur psychological profiles, most of which are not flattering at all.

*God: A Psychological Assessment* is clinical psychologist Gary M. Bakker's attempt at this exercise. As a clinical psychologist, Bakker is qualified to conduct an assessment such as that proposed in the title of his book, but I am not sure this work qualifies as a psychological assessment. In fact, Bakker did not set out to address God's psychology but to question whether humanity benefits from the concept of God, a fact that only becomes apparent on the last paragraph of the penultimate chapter. At that point, Bakker's entire effort is revealed as a sort of metaphor to drive the notion that it is better for mankind's wellbeing to ditch God and its myths in favour of truth and accepting the frightening finality of death. However, Bakker's pseudo-assessment might confuse informed readers who know what to expect from a proper psychological assessment.

At the end of a psychological assessment, one might expect a clinical formulation, and this could range between a very simple introduction of key aspects about clients' presentation to a more elaborate, perhaps insightful description of clients' motivations and factors that maintain psychopathology. Accomplishing this requires clinical interviews and extensive contact with clients, and as Bakker rightly points out, such an undertaking would be impossible with God, or any other fictional character for that matter. But some insight into God's motivations may have



# God on the couch

*Continued...*

been found in Bible narratives, the only accounts of his interactions with others.

Instead, Bakker removes God from the text that gives him context and places him in the real universe, which lends itself to speculation and draws the essay's focus towards the folly of mankind and how our species is prone to believing in myth. The result is less of a description of God with a solid clinical hypothesis as to his conduct but a diatribe against God's inconsistencies and unfairness and the injustices committed in his name, a rant fuelled by suspicion and the impetus, "*J'accuse!*".

There were moments in the book where I wondered whether Bakker was angling to demonstrate the non-existence of God, which is irrelevant in a psychological assessment. Throughout the book, I am left wanting to know what Bakker thinks about God as to why the deity behaves like such a bastard. In fact, exploring the deity's motivation behind his conduct and the factors that maintain it is not beyond reach. The aforementioned Prof Capps accomplishes this elegantly in his description of God as having narcissistic personality disorder. Professor Capps draws on Bible interactions between God and his subjects to support his hypothesis, which results in insightful ideas with a taste for the poetic ("This pattern of grandiosity, need for admiration and lack of empathy is evident in the decision to make man in his own image," Capps writes, which captures the very essence of narcissism, admiring one's own image).

Where Bakker succeeds is in pointing out the inconsistencies in the logic behind God as a concept. It is as if Bakker is desperately trying to shake the reader into awareness, "Look! Look at what mankind has allowed itself to

uphold for millennia!" In doing so, he presents some interesting facts about human behaviour, types of beliefs in the divine and how some are ensnared by the notion of God and how others might use it to control crowds. However, the likely readership of this book - atheists and skeptics - is likely to be already familiar with these notions. Many of the ideas conveyed in this book are already widespread and tried ad nauseam; consider the collective work of the Four Horsemen and those of atheist bloggers and vloggers on the internet.

Also, writing about human behaviour and conveying philosophical ideas requires an accompanying bibliography, which is sorely missing in this book. The layout of the book is also quite interesting - key facts, bible quotes and other points of interests are laid out in boxes around the text linked to its corresponding passage via dotted lines. The result looks text-bookish and perhaps detracts from the essay's potential as literary non-fiction, but it is oddly creative and functional in conveying information succinctly.

Bakker's book offers some interesting ideas about God's behaviour towards man and the latter's response to it, but the reader is likely to emerge from reading this book none-the-wiser about the driving forces behind God's behaviour. It lacks insight about God. Indeed, God here stands as a defendant rather than the subject of a clinical assessment.

In the interest of self-disclosure, I am completing a Masters in Clinical Psychology, and I am still developing my psychological assessment skills. I am not pretending here to tell a clinical psychologist with 30 years of experience on me how to assess clients, but I do know what a psychological assessment looks like and the type of information it should provide. This is not it

- Reviewed by Marcos Benhamu

## The Skeptics' Guide to the Universe

is a weekly Science podcast talkshow discussing the latest news and topics from the world of the paranormal, fringe science, and controversial claims from a scientific point of view.

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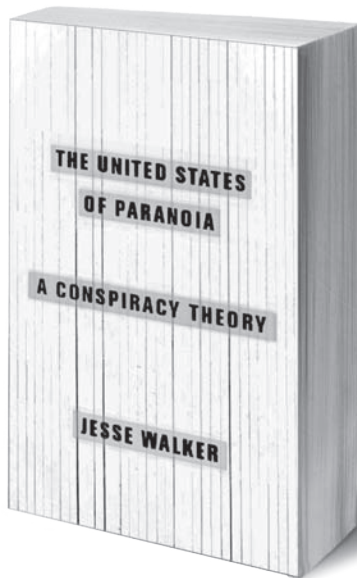


# Family plots

## The United States of Paranoia: A Conspiracy Theory

By Jesse Walker

Harper Collins, A\$29.99



**Y**ou know about those fringe movements that think there are secret plots against Americans. The Illuminati are controlling everything, for instance, or there is a vast network of Satanic child abusers, or a hidden group of insiders devoted to keeping us from knowing the truth about President Obama's birth certificate. According to Jesse Walker, however, these are not fringe movements. Paranoia and fear of conspiracy plots are as American as apple pie. Such conspiracy beliefs "have flourished not just in times of great division but in eras of relative comity. They have been popular not just with dissenters

and nonconformists but with individuals and institutions at the center of power. They are not simply a colorful historical byway. They are at the country's core." That's the thesis of *The United States of Paranoia* in which Walker shows that such fears have been part of America even before there was an America.

If you are looking to find who really shot Kennedy or how much the Masons are controlling the Congress, you won't find it here. Walker admits that some of the plots he describes are imaginary, but it isn't his aim to tell you which ones; conspiracies, after all, can always take in more unconfirmable territory, and no amount of evidence affects true believers. But he does give an historic insight into paranoid thinking and attempts to explain why so many of us have for centuries adopted it in many diverse styles.

Walker starts with reference to the most famous work on the

subject, Richard Hofstadter's essay "The Paranoid Style in American Politics" of 1964. Hofstadter, Walker shows, was too limited. Political paranoia is not manifested merely by fringe or minority groups, it's all over the place, and has been so from the beginning. The early colonists, for example, had the idea (paired with the one that they were setting up a land in accord with religious precepts) that the Indians did not just have their own barbarous religion, but were the actual agents of Satan. Cotton Mather, proponent of smallpox inoculation but also of the Salem witch trials, said the Indians included "horrid *sorcerers*, and hellish *conjurers*, and such as conversed with *demons*". This sort of fretting helped further the Salem witch trials, with the first accusation being against an Indian woman, then spreading to her assistants within the colonists.

Those Indians proved useful plot fodder in Maryland, which was the one colony to be ruled by Catholics. Recurrent rumours arose that those Catholic rulers had hired Indians to kill the Protestants, and eventually a Protestant agitator raised an army, took over the State House, made himself governor, and banned Catholic worship. (It was, of course, not the last worry about the plots of popery; they can be traced to such current manifestations as those who truly believe in the conspiracies outlined in *The Da Vinci Code* and, of course, encouraged by the church's response to pedophilia and banking scandals.)

The witch scares found an easy analogue in the commie scares two hundred and fifty years later. McCarthyist witch hunting was the same sort of manifestation of paranoia - that the seemingly upright neighbour next door was furtively studying tabloids from the American

Communist Party, and, of course, that commies were at work undermining the very government that granted them paychecks. Although one of the most enjoyable parts of his book is his focus on popular media, Walker does not mention the film *I Married a Communist*, but he does briefly cite *I Married a Monster from Outer Space* as one of the fifties films that featured aliens impersonating or controlling American citizens. The chief such film is, of course, *Invasion*



# Family plots

Continued...

of the *Body Snatchers*, which fed on the fear that people you trust were actually increasingly taken over by alien powers.

There was the Red Scare, and then there was the Lavender Scare, the idea that homosexuals were infiltrating the government. The director of the CIA himself warned Congress that there were “perverts in key positions” and they formed “a government within a government”. He explicitly said they were part of a lodge, a fraternity, and that they recruited other

perverts and made sure that perverts got promotions “usually in the interest of furthering the romance of the moment”. As a result, more suspected homosexuals got the axe than suspected communists did, but as Walker says, this should not be surprising; the US has always had more gay people than communists.

Preceding these in

the colour codes was the Brown Scare, a wave of worry about Nazis starting in the 1930s, resulting in calls for restrictions not just on Nazis but on reputable conservatives as well. The Brown Scare, once the threat of Nazism had been conquered, neatly served as a model for those other color schemes.

Racial misunderstanding has always been fertile ground for conspiracies. Owners always worried that slaves were plotting revenge. The Civil War and Emancipation didn't result in increased trust. When a few anti-slavery politicians fell ill, there was a theory that it wasn't chance, but a poison conspiracy to try to keep Southern planters in charge of what was really going on. Of course, it also worked the other way. In the early twentieth century, there were widespread stories told in African-American communities that “night doctors” were on nocturnal prowls to kidnap, murder, and dissect unsuspecting blacks. A variant came around 1980, when black children were kidnapped and killed, and the rumour was that the government was harvesting their genitals for

aphrodisiacs. The great problem is that although such stories sound silly, how unrealistic might they be given the four decades of the US Public Health Service's infamous Tuskegee syphilis experiment?

This is one of the things that makes belief in conspiracies so powerful: there really are conspiracies. There was a real one associated with Watergate, for instance, and with the 9/11 destruction. However, both of these conspiracies have been supplemented and broadened with unprovable offshoots that claimed, for instance, that the Watergate burglars were actually attempting to block extraterrestrials from running Democratic Party headquarters or that the government had deliberately refrained from preventing, or had actually promoted, the attacks on the World Trade Center. That's all malevolent, but not all conspiracies are plots against us. There is a whole chapter here called “Conspiracies of Angels”, about the sometimes elaborate schemes designed to do us all good. There are plenty of religious variations on these plots (although many of the religious plots described in other chapters are far from angelic), but I had never heard of the 11:11 conspiracy. You know how often you look at your alarm clock, and it so frequently says “11:11,” or you know how often your VCR flashes “11:11?” Well, me neither, but there are 11:11ers who believe that some friendly celestial conspiracy wants us to see the mystical gathering of four ones just to let us know they are here. One website says that when you chance to see 11:11, the best thing to do is to respond verbally to the manifestation, as in saying aloud, “OK guys I hear you, tell me what you want.”

Walker's epilogue tries to summarise all the funny, strange, and inexplicable stuff that has gone before, and to explain it. We are pattern-seeing creatures, he says, and psychologists well know that we see patterns when there is only randomness, like seeing faces in the clouds. With conspiracy theories, we construct stories to explain events, and the theory is enticing because it hints that there is some sort of intelligence behind the pattern. We are all conspiracy theorists, but Walker says we can limit any damage that paranoia does by being aware of the cultural myths that form such stories, and we can try to empathise with people who have bought into them. We can thus, he says, benefit from healthy skepticism and limit the effects of paranoia. But, of course, that's just what he wants you to believe.

- Reviewed by Rob Hardy





# What you think ... Words for Atheists

## Visions of death

Further to my Forum piece on near death experiences (NDE)<sup>1</sup>, a recently-published research article<sup>2</sup> has been brought to my attention. Researchers implanted electrodes into various areas of the brains of rats, and then recorded the electrical activity in the 30 seconds before their deaths. They found that immediately following cardiac arrest, in all their rats, there was “high frequency neurophysiological activity in the near-death state (which) exceeded levels found during the conscious waking state”, and they concluded that “the mammalian brain can, albeit paradoxically, generate neural correlates of heightened conscious processing at near-death”.

This heightened activity was especially prominent in the pathways from the frontoparietal regions back to the occipital (visual) areas of the brain. This is known to be associated with conscious perception<sup>3</sup>, as opposed to the transfer of information in reverse from the primary visual cortex in the occipital lobe to the frontal areas, which occurs subliminally when we observe something in the waking state<sup>4</sup>.

Obviously more work needs to be done, but it seems that there is highly organised brain activity and there are “neurophysiologic features consistent with conscious processing at near-death ... to explain the highly lucid and realer-than-real mental experiences reported by near-death survivors”.

So, the inference to be drawn is that people in this situation see visions. They experience “internally generated visions and perceptions”, which are very vivid. But they are not seeing into a new world beyond this one<sup>5</sup>. The memories from previous experiences – and their expectations – in their frontal cortex are stimulating

their visual areas. They are not looking into heaven. Neither are they dreaming<sup>6</sup>. Such activity does not occur in the conscious state, normal sleep, nor under anaesthesia<sup>2,7,8</sup>. These people are “seeing” visions induced by biochemical and electrophysiological changes in their brains at near-death.

Alan Moskwa  
Joslin SA

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Regarding your comment about a positive term for atheism [Editor's column; *The Skeptic* 33:3, p4] a better term (not new) for not holding a belief in the spiritual or mystic would be a “natural philosopher” or even a “naturalist”, although this may confuse some. What's most appealing is the correct use of the word stem “natural”, taking it out of the hands of the anti-technology movement who so often abuse it as the antithesis of science with the belief that science is an ideology.

I recently came across an anti-science argument claiming it was an ideology, using the term “scientism”. It was really an anti-reductionist argument. I reiterate my reply:

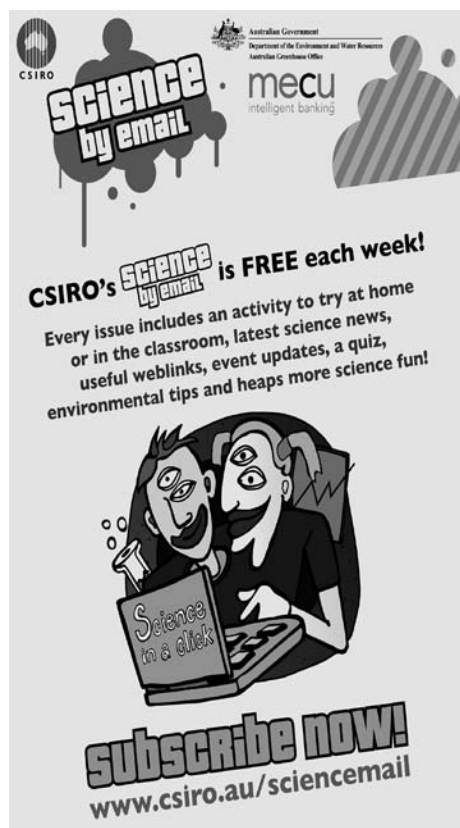
Science is not an ‘ism’. It is a process of understanding. Sure we can't reduce everything to physics, chemistry and biology but the social sciences are called science for a reason. Studies of behaviour, heuristics and theories of evolutionary psychology give us an insight into the good and bad in all of us. Philosophy is science when applied with evidence and is epistemology when not; you can still use knowledge to understand the thought processes behind conjecture and assumption. I strongly reject the objectification of science; you can't stop, deny or cancel “science”. It is the understanding of the natural world based on observation and verification.

Neil Cradick  
Buderim QLD

As a wise man recently said (I forget who it was): “If there is no word for people who do not accept that fairies exist, why should there be a word for people who do not accept that God exists?” I am as much an “afairyist” or “aghostist” as an atheist.

To my mind, there are “believers”, who believe in things, even like the





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sun's rising tomorrow. Then there are "non-believers", who do not believe in anything, but who will accept that some things happen (or are likely to, like sunrise tomorrow) or exist, or function/act in a certain way, because there is evidence for that likelihood, existence or function/act.

One is either a "believer", no matter in what or about what, or one is an "acceptor of evidence".

We skeptics "accept evidence". If there is no evidence, we do not accept the hypothesis/notion/postulate or wacky idea.

Dr Peter Arnold  
 Edgecliff NSW

## Return to sender

*[Written on the back of an envelope, returned to us following a subscription renewal mailout]*

Dear Cranky Old Men,

My husband has skipped over to the other side. I talk regularly to him, but don't get much back – similar to when he was alive. I'll pass on your regards, as he passes on his. He says it's very nice here and not at all what he was expecting. And by the way, you were all wrong.

Regards  
*[name withheld]*



## CRYPTIC CROSSWORD SOLUTION





# Local Skeptical Groups

## VICTORIA

### Gippsland Skeptics – (formerly Sale Skeptics In The Pub)

Meets every second Friday in Sale and Morwell in alternate months.  
[saleskepticsinthepub@hotmail.com](mailto:saleskepticsinthepub@hotmail.com) or 0424 376 153  
 Facebook <http://www.facebook.com/pages/Gippsland-Skeptics/172376579482915>

### Great Ocean Road Skeptics – (Geelong)

Meets on the last Wednesday of each month from 6pm, City Quarter, Cunningham Pier East Geelong  
 Contact: Carolyn Coulson [carolco@barwonhealth.org.au](mailto:carolco@barwonhealth.org.au)

### Melbourne Eastern Hills Skeptics in the Pub

Meets second Monday of each month at The Knox Club, Wantirna South.  
 Contact: Lucas Randall 0423141453  
[mehsitp@codenix.org](mailto:mehsitp@codenix.org)  
<http://mehsitp.codenix.org>

### Melbourne Skeptics in the Pub

Meets on the fourth Monday of every month from 6 pm at the Mt View Hotel in Richmond.  
<http://www.melbourneskeptics.com.au/skeptics-in-the-pub/>

### Mordi Skeptics in The Pub

Meets at 7.30pm on the first Tuesday of each month at the Mordi Sporting Club. (\$2 to cover website costs)  
<http://www.meetup.com/Mordi-Skeptics-in-the-Pub/>

### Peninsula Skeptics – (aka The Celestial Teapot)

Contacts: Graeme Hanigan 0438 359 600 or Tina Hunt 0416 156 945 or [glannagalt@fastmail.fm](mailto:glannagalt@fastmail.fm)  
<http://www.meetup.com/Teapot-Mornington-Peninsula/>

## TASMANIA

### Launceston Skeptics

Contact: Jin-oh Choi, 0408 271 800  
[info@launcestonskeptics.com](mailto:info@launcestonskeptics.com)  
[www.launcestonskeptics.com](http://www.launcestonskeptics.com)

Launceston: Skeptics in the Pub  
 1st & 3rd Thursday of each month  
 5.30pm @ The Royal Oak Hotel

Launceston: Skeptical Sunday  
 2nd Sunday of each month  
 2.00pm @ Cube Cafe

## QUEENSLAND

### Brisbane Skeptics

Meets on the first Tuesday of each month from 6:30pm at the Plough Inn, Southbank  
<http://Brisbanesitp.wordpress.com> -  
 follow links for Facebook, Twitter and email list

## NOTE: LISTINGS WELCOME

We invite listings for any Skeptical groups based on local rather than regional areas. Email us at [editor@skeptics.com.au](mailto:editor@skeptics.com.au) with details of your organisation's name, contact details and any regular functions, eg Skeptics in the Pub, with time, day of the month, location etc. Because this is a quarterly journal and most local groups meet monthly, it is unlikely we will be able to include references to specific speakers or events.





AUSTRALIAN SKEPTICS NATIONAL CONVENTION  
**NOVEMBER 28-30**

For more details go to [www.skeptics.com.au](http://www.skeptics.com.au)