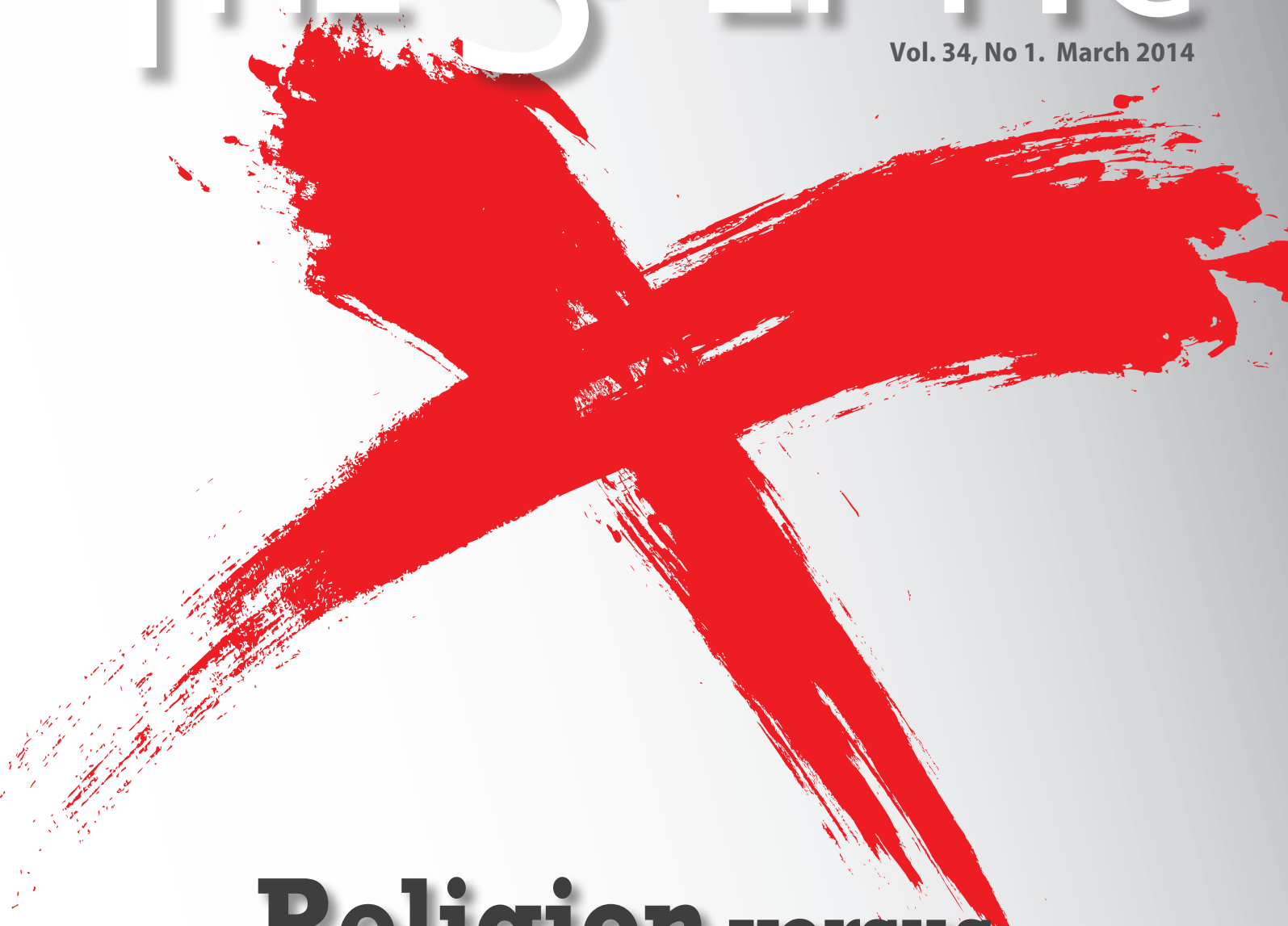
SKEPTICISM ■ SCIENCE ■ SOCIETY

THE SKEPTIC

Vol. 34, No 1. March 2014



Religion versus Real Medicine

+ Simon Says Dolphins Activism Belief

Australian Skeptics ■ www.skeptics.com.au

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.
March 29 dinner - Ketan Joshi, Technophobia
2014 convention - November 28-30. Details and speakers tba.

Hunter Skeptics – *John Turner*
Tel: (02) 4959 6286 johnafturner@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

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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

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

Meetings with a guest speaker on the last Monday of the month from February to November at the Redbrick Hotel, 81 Annerley Road, South Brisbane. Dinner from 6pm, speaker at 7.30pm.
Qskeptics eGroup - www.egroups.com/list/qskeptics
Skepticamp Brisbane planned for July 2014 - watch for details.

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/

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 nigeldk@adam.com.au
www.meetup.com/Thinking-and-Drinking-Skeptics-in-the-Pub/calendar/10205558 or http://tinyurl.com/loqdrt

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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

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Australian Skeptics in Tasmania – *Leyon Parker*
PO Box 582, North Hobart TAS 7002
Tel: 03 6225 3988 BH, 0418 128713 parkerley@yahoo.com.au

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

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Darwin Skeptics – *Brian de Kretser*
Tel: (08) 8927 4533 brer23@swiftdsl.com.au

Seek The Evidence
www.skeptics.com.au

THE SKEPTIC

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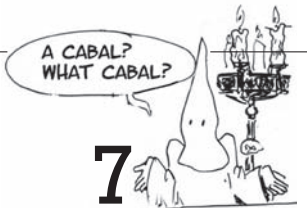

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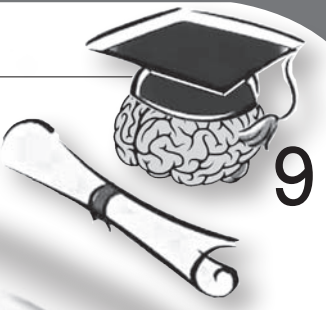

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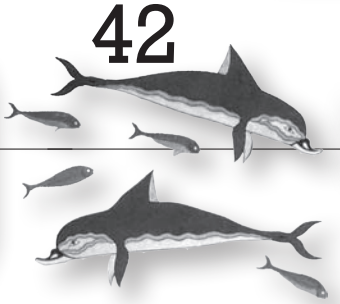

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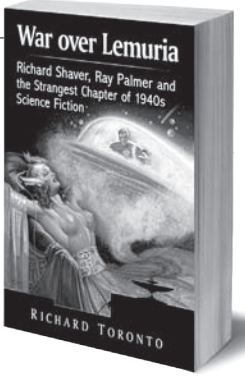

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Skeptics

Get the picture?

There are a number of articles in this edition of *The Skeptic* which impinge on an issue I have been mulling over for some time. And this is the 'bigger picture' of skepticism when dealing with pseudoscience and the paranormal.

It's one thing to investigate the claims regarding specific issues – these are important and interesting areas to cover. Sightings of the Loch Ness monster, the testimonies of alien abductees, and the spurious claims made by the alt-med and anti-vax crowds are the sorts of areas that are the staple of skeptical discussion, whether over a beer at the pub or online via Facebook or Twitter.

There is absolutely nothing wrong with doing this, and it is vitally important that we do so to continue the education of the public, the media and those who are new to the field and who might not be aware of the actual facts and the skeptical view.

But the 'bigger picture' is what affects all of us.

We can have much coverage of "the lies of anti-vaccination" and not enough on what it all means in the bigger picture. In the Simon Singh case, where he was taken to court over comments on chiropractic, that means anti-science and distrust of science; the legal measures used by pseudoscientists to maintain their position; what it means to skeptical campaigners like Ken Harvey; and the acceptance by the public of simplistic pseudoscience and marketing claims in the face of truth-sayers being too cautious or scared to respond. Ultimately, it leads to a despair of getting the skeptical message across and people then moving into areas that offer a faster payoff and higher profile issues (environment, politics, etc).

The sort of discussion of "why people believe weird things" is getting there, but an even broader topic is "what happens to the world when people believe weird things".

What happens is that we have creationists in parliament influencing political decisions that affect all of us. We have medical authorities such as the NHMRC tying up valuable time and money because they've been asked to assess - yet again - totally unsupported medical practices (homeopathy, reflexology, etc). We have schools teaching non-science and nonsense in science classes in the name of inclusiveness. And we have a population so lacking in critical thinking, as exemplified by their belief in weird things, that they will be incapable of assessing the claims of any marketer, lobbyist, abuser of statistics, merchant of doom or politicians.

Anyone for a march on parliament? ■

- Tim Mendham, editor

A Correction: *Before any brickbats are thrown our way, let us own up to a terrible way to treat an American university – we moved it. The uni in question is the one where Pamela Gay works, Southern Illinois University, which we placed in Edmondsville (page 23 of the last issue). Unfortunately, the campus where Dr Gay works is actually in Edwardsville. We don't even know if there is a town called Edmondsville in Illinois, so we may have thrown Pamela into a black hole, which may be familiar territory to an astronomer. She kindly says that "Screwing up the name of my university is a long and honourable tradition. You found a novel way to rename us, so you get points for that." So there we are; shame-faced, but apparently earning points. And our apologies to the citizens of Edmondsville, wherever you are.*

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Around the traps...

Marron wins Order of Australia

AUSTRALIA: Loretta Marron, three-time winner of Australian Skeptics' Skeptic of the Year award, has been granted a 2014 Medal (OAM) in the General Division of the Order of Australia "for service to community health".

Marron is the only person to have won the Skeptic of the Year award more than once, and she has done so three times: in 2007 and 2011 for her individual efforts, and again in 2012 as part of the Friends of Science in Medicine group that she was instrumental in forming at the end of 2011.

Taking on the more dubious aspects of the billion-dollar therapeutic goods industry, the government, supermarkets and pharmacies, she is an indefatigable and persistent campaigner for patients' rights, for common sense and for critical thinking in the face of ignorance, duplicity and the purveyance of ineffective, potentially harmful and sometimes fatal products and treatments, many of which she has exposed.

In 2003, she was herself diagnosed with breast cancer. This gave her first-hand experience of the scope of medical misinformation that contributes to the exploitation of our most vulnerable Australians. After successful cancer treatment in 2004, she looked for opportunities to help other cancer patients. As a retired business woman, with a background in science, and under her initial guise as the 'Jelly Bean Lady', she has used her considerable communications skills to alert the media to counter false information about health matters, and to persistently lobby regulators to do their duty of regulating dubious claims and treatments.

Her activities have resulted in the withdrawal of many pseudoscientific products from the market and from the Australian Register of Therapeutic Goods, and highlighted many dangerous practices in both private 'care' and public institutions, particularly the unwarranted treatment of infants with chiropractic manipulation.

Shonky science papers

UK: *Nature's* online news service reports that more than 120 conference proceedings have been removed from subscription databases after it was revealed that they were computer-generated.

Reporter Richard Van Noorden says that over the past two years, computer scientist Cyril Labbé of Joseph Fourier University in Grenoble has catalogued computer-generated papers that made it into more than 30 published conference proceedings between 2008 and 2013. Sixteen appeared in publications by Springer, which is headquartered in Heidelberg, Germany, and more than 100 were published by the Institute of Electrical and Electronic Engineers (IEEE), based in New York. Both publishers, which were privately informed by Labbé, say that they are now removing the papers.

Among the works were a paper published as a proceeding from the 2013 International Conference on Quality, Reliability, Risk, Maintenance, and Safety Engineering, held in Chengdu, China. (The conference website says that all manuscripts are "reviewed for merits and contents".) One of the authors of the paper, entitled 'TIC: a methodology for the construction of e-commerce', told *Nature News* that he first learned of the article when conference organisers notified his university in December, and that he did not know why he was a listed co-author on the paper.

Van Noorden says that Labbé has developed a way to automatically detect manuscripts composed by a piece of software called SCIgen, which randomly combines strings of words to produce fake computer-science papers.

SCIgen was invented in 2005 by researchers at the Massachusetts Institute of Technology to prove that conferences would accept meaningless papers and, as they put it, "to maximise amusement". SCIgen is free to download and use, and it is unclear how many people have done so, or for what purposes. (A related program generates random physics manuscript titles on the satirical website snarxiv.org/vs-arxiv/.)

SCIgen's output has occasionally popped up at conferences, when researchers have submitted nonsense papers and then revealed the trick, the *Nature* report says

OFFICIAL: NZ PM is not a reptile!

NEW ZEALAND: Prime Minister John Key has consulted a doctor and a vet, and has reported to the New Zealand people that he is not a reptile, nor an alien.

3News in New Zealand reports that Key was responding to an Official Information Act request submitted by an Auckland man, asking for "any evidence to disprove the theory that Mr Key is in fact a David Icke style shapeshifting reptilian alien ushering humanity towards enslavement".

"I'm certainly not a reptile," said Key. "I've never been in a spaceship, never been in outer space, and my tongue's not overly long either."

Writer musician Shane Warbrooke, the "ordinary Kiwi bloke" who

submitted the request, said he did it as a joke, "alongside some other more serious requests as part of his research into UFOs".

Loch Ness is Nessieless

SCOTLAND: *BBC News* reports that, for the first time in almost 90 years, there have been "no confirmed sightings" of the Loch Ness monster.

Gary Campbell, who keeps a register of sightings, said in February that no one had come forward in 18 months to say they had seen the monster.

Bookmakers William Hill had said they had had three entries to its annual Nessie spotting contest, but they could be explained as a duck, a wave and a picture not even taken on Loch Ness (and presumably also not a monster, though that was not made clear).

Campbell, who has been logging sights for 17 years since his own sighting of something in the loch, said "It's very upsetting news, and we don't know where she's gone.

"The number of sightings has been reducing since the turn of the century, but this is the first time since 1925 that Nessie wasn't seen at all."

Campbell said that 1036 reported sightings had been recorded over the years, with some in 2012.

"I'm convinced that Nessie has just taken some time out and will be back with a vengeance this year."

Tourists have been warned to be cautious about approaching a vengeful monster.

And the loser is ...

RUSSIA: UPI reports that a satirical prize to be awarded to the top achievements in pseudoscience has been established in Russia. The public can make nominations for the award, dubbed the Obscurantis Prize, on the obscurantist.ru website, Irina Levontina, the head of the prize-organising committee, told *RIA Novosti.*

"We've long been outraged by various anti-scientific TV shows and articles full of outrageous nonsense and messing with people's heads," said Levontina, a linguist who works at the Russian Academy of Sciences.

The academy has its own unofficial commission against pseudoscience and has repeatedly attacked ufology, astrology and numerous 'inventors' requesting state support of questionable technological projects.

"This flood has increased greatly in recent times," Levontina said. "We realised that the scientific community must try to counteract it."

UPI reports that "the academic community in Russia has become increasingly concerned about the rise of pseudoscience since the demise of the Soviet Union, when the educational system began to decline".

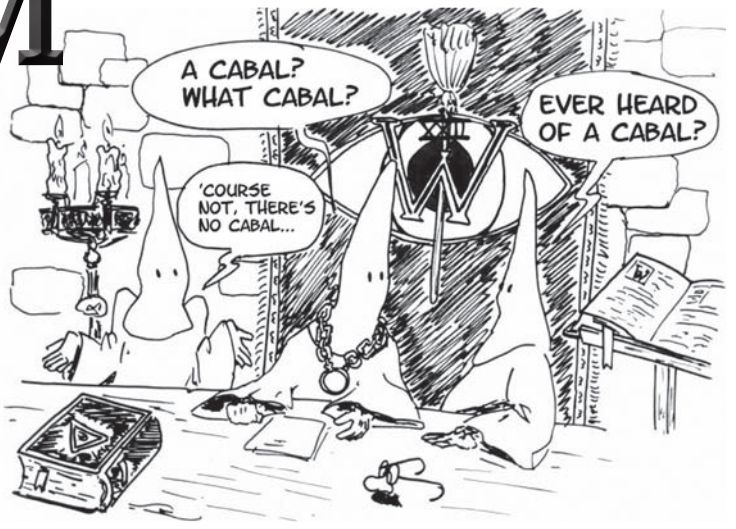
Debate helps ark?

USA: The high-profile debate between evolutionist Bill Nye and creationist Ken Ham may have helped raise funds for Ham's Creation Museum and Noah's Ark project.

Associated Press reports that Ham has announced that a municipal bond offering had raised enough money to begin construction on the Ark Encounter project, estimated to cost about US$73 million. Precise figures on the amount raised were not clear.

Nye said he was "heartbroken and sickened for the Commonwealth of Kentucky" after learning that the project would move forward. ■

Harvey, FSM & the Secret Skeptics



Tim Mendham reports on some interesting claims arising from the resignation of Ken Harvey from LaTrobe

The fallout from Dr Ken Harvey's resignation from LaTrobe University because of a proposed deal with Swisse Wellness has had a number of twists and turns since the 'serial campaigner' made his announcement in early February.

Harvey objected to LaTrobe's accepting $15 million from Swisse for the establishment of a Complementary Medicine Evidence Centre. But apparently at least three other universities - Bond, Monash and Sydney - were also approached by the vitamin company during the 18 months before LaTrobe's acceptance, and all three had rejected it.

"I certainly support more research into the efficacy of complementary medicines," Harvey told LaTrobe's vice-chancellor, Prof John Dewar, in his letter of resignation, "but, in my view, it is crucial that the design, assessment and funding of such research be at arm's length from a particular company and overseen by an independent body such as the ARC and/or NHMRC.

"Swisse is well known for prioritising the marketing of its products (especially by the use of celebrities) over their scientific assessment," he added. "Indeed, many of the claims Swisse have made about their products have been judged to have breached the Therapeutic Goods Advertising Code."

Harvey's decision has been supported by academics and science-based organisations around Australia, including the Friends of Science in Medicine and the Consumers Health Forum of Australia (CHF).

Mark Metherell, a spokesman for CHF, said that LaTrobe, in describing Swisse as "Victoria's leading global wellness company", "appears to have fallen for the company's celebrity-backed marketing pitch. Such a statement exposes the university as credulous and naive."

SKEPTICS CONNECTIONS

Meanwhile, in response to Harvey's resignation and FSM's support of his action, an open letter was published on the website of the Australian Integrative Medicine Association (AIMA). The letter criticised FSM for "broader agendas that need to be clarified if they are to be seen as anything other than a polarising force directed exclusively against complementary medicine alone". It added that FSM was perceived by many in the community not as friends of science in medicine, but specifically antagonistic to, or enemies of, complementary medicine."

According to the letter, the AIMA saw FSM as "the public face of the Australian Skeptics Inc", which is curious, as we had always felt that Australian Skeptics had its own public face.

"It would be appropriate that members of FSM publicly declare their association with both FSM and Australian Skeptics Inc," the letter says. "This association should be well understood when FSM or its members are making public comments. Furthermore, if any FSM member has influence over academic decision making within a university, government funded organisation, journal or media publication or research facility, we strongly encourage this interest be disclosed as appropriate."

The letter does not say why Australian Skeptics is such that anyone associated with it needs to declare an interest, as if there were nefarious goings-on.

Another site, Information to Pharmacists (I2P), published a piece by Mark Coleman called "Ken Harvey - His Mission is to be Controversial".

Coleman says that "Ken Harvey has a life in another world where he is a member of Skeptics Australia.[sic] ... The medical Skeptics have become a powerful lobby group and focus on gaining executive control within various health organisations. Then these organisations act in concert ... when some sort of secret Skeptic campaign is mounted, giving the impression that there is a grass roots support for a given activity when it is a very narrow focus indeed.

Linking universites, FSM, Choice and Metherell, Coleman says, "It's like everyone hides in plain sight but the actual campaigns are developed in secrecy. [It's] more like a counter-intelligence underground agency than a respected group of people."

While it might be flattering to think of ourselves as an all-powerful cabal, Australian Skeptics is not a secret organisation nor a "counter-intelligence underground agency", and it would be a good idea if those making such claims take some medication and have a good lie down. ■

Blimey in Blighty

Prof Chris French describes skeptical activity in the UK – overflowing with events and celebrities

In the UK, it's really very very healthy and active. It's incredible how things have taken off over recent years. The Skeptics in the Pub has been going for about 15 years and *The Skeptic* [UK] magazine for longer than that; things have been bubbling along. I started going along to the Skeptics in the Pub meetings in London almost from the time it started. There was one branch, and the London one was it. Typically there'd be thirty people turn up each month, and then suddenly, a few years back, the whole thing exploded. Not only were two or three hundred people turning up a month, but there were branches opening up in other cities - it may have gone past 50 branches by now.

One of the most recent will be the one I started in Greenwich, because I'm lazy and I wanted a branch just around the corner, and that's been going since April 2013. We've always had a full house, and one of the nice things is that it's pulling in people who might not normally be going to this sort of event. We do get the card-carrying skeptics travelling across London to come, but we also get my friends and neighbours whom I've known for years. They're really getting enthusiastic about it as well.

We also have the QED convention in Manchester and the Centre for Inquiry UK. I organise a speaker series at Goldsmiths College where I work.

We couldn't have more skeptical events on; we couldn't cope with it.

ACCOUNTING FOR THE EXPLOSION

I occasionally write a column for the *Guardian* science pages online, and the very first one I did for them I specifically asked that question, what's caused this explosion of interest and support, what's been the tipping point. And obviously it's all speculation but I think there are a number of factors that have probably at least played a role.

One is the good old internet. It's now so much easier for like-minded people, whatever their belief systems, to get together and have meetings etc. Also, I think the fact that Richard Dawkins' *God Delusion* was a best seller, and people who were atheists and in the past were a bit guarded about saying that, suddenly they felt they had the right to speak, that you can debate these issues.

Another factor is that a lot of groups that have been going a lot longer, like the British Humanist Association, the National Secular Society, various other groups, you suddenly realise that they all have similar viewpoints – maybe not identical viewpoints, but very similar. So there's a lot of mutual support between those groupings.

I think another thing that helped is the fact that there was quite a lot of celebrities who suddenly made it obvious they saw the world in that way – Stephen Fry, Dara Ó Briain, Tim Minchin, Robin Ince, media scientists like Brian Cox, Dawkins, the list goes on. And having those people who were prepared to stand up and nail their colours to the mast made it not quite so nerdy ... actually, it is still seen as nerdy, but nerdy is alright.

THE KEY ISSUES

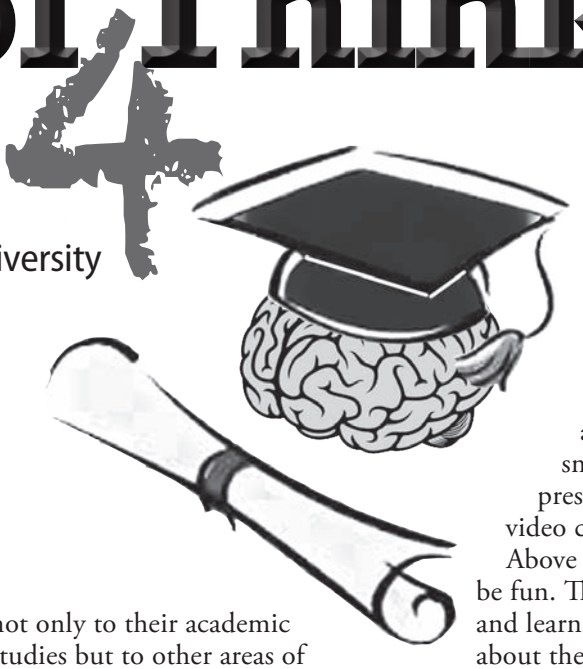
One of the issues, or features, is the different demographics between the various groups, even now. When I go to Humanist meetings they tend to be older generation; the Skeptics in the Pub, that does tend to get younger people in and it does get women in. There's still not enough ethnic minorities, but that's happening as well.

But having said all that, if we go way back to the beginning, it was very much a specific focus on the paranormal. That's still my main area of interest, but I'm very glad to see it's now gone beyond that.

So any kind of controversy in science, be it climate change, anti-vaccination, all of those things are in there too, including discussion of religion. You look at some of the variety of topics covered at Skeptics in the Pub meetings, it's almost got to the point with anyone who has anything interesting to talk about. We do need to have a bit more of a focus than that, but it's still good as it's getting people to think for themselves. ■

Chris French is Professor of Psychology at Goldsmiths College, University of London, head of their Anomalistic Psychology Research Unit, and former editor-in-chief of The Skeptic (UK) magazine. He was interviewed at the Skeptics National Convention in Canberra, November 2013

School 4 Thinking



Dr Krissy Wilson describes a new undergraduate course on critical thinking at Macquarie University

A worrying trend appears to be developing within academia with more and more universities offering undergraduate courses on alternative therapies and assorted pseudoscientific claptrap. Tim Mendham, for example, reported in The Skeptic (Vol 31:1), that 19 of Australia's universities, including some that are ranked among the highest in the country for academic excellence, were offering undergraduate courses on acupuncture, naturopathy, and chiropractic. It is a sad indictment on our tertiary system that the decision to offer such courses is almost certainly financial and is a reminder to all of us in the Skeptical community that there is still much work to be done. However, today I can offer some good news.

Last year Associate Professor Mark Carter, director of the Macquarie University Special Education Centre (MUSEC) employed me to devise a new undergraduate unit, Special Education 102 (SPED 102), to be called "Why people believe in weird things". This is essentially a course on the importance of critical thinking, demonstrating to students the difference between science and pseudoscience that draws on examples from education, medicine and the paranormal. The principle aims are to make students understand what constitutes 'good' from 'bad' science, to show how we are all susceptible to unfounded beliefs regardless of intelligence, education or background, and to equip them with critical thinking skills that they can apply not only to their academic studies but to other areas of everyday life.

The course will be delivered on campus for the first time in the second session of the academic year starting in July. This is a 12-week course that includes a one-hour lecture and a two-hour tutorial session each week. In the final week the subject has been left open as it is our intention to have a guest speaker each year to come and speak directly to the students on a related subject.

From a personal point of view it has been both academically satisfying and enormous fun putting together a course that includes all the stuff that myself and others in the field have been banging on about for years. Some of the topics include: the nature of knowledge, ie where our knowledge of the world comes from; how our cognitive abilities consistently let us down; the right and wrong way to 'do' science; and how self-deception is not prejudiced, even the smartest people can be fooled! The lectures will be mostly theoretical with relevant examples with the tutorial sessions being the time when students can get the chance to discuss the topics in more detail with practical workshops.

One session, for example, includes a whole two-hour workshop on the art of cold reading. Another session will have students designing a study to demonstrate how not to do science with a prize (additional marks) for the best, ie the worst piece of pseudoscientific twaddle they can dream up. The tutorials will be a mixture of workshop, small group discussion and presentations and illustrative video clips.

Above all, this course is going to be fun. The scholarship of teaching and learning consistently harps on about the importance of student engagement. I have no doubt that our students will be engaged in this subject thanks to course material and delivery style. As someone who knows all too well how painful it can be to teach psychology undergraduates the horrors of statistics and research methods, this approach should be refreshingly fun and stress free for both tutor and student.

The course is primarily intended for Education students but SPED 102 will be open to all participating Faculties. This means that students from both Arts and Science subjects will be able to enrol and so potentially the cohort could be in excess of 500 participants. All in all we hope that by the end of the 12 weeks our students will appreciate how fortunate they have been to enrol in such a unique course. They will learn skills and knowledge that will be useful throughout their lives as well as give them an advantage in their academic studies.

Further details about the course will be available on the SOAP website over the coming weeks – www.soap.org.au, or contact Dr Krissy Wilson directly for more information. ■

Readers' indigestible

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

This issue, we look at two versions of the one thing. Well, almost the one thing, and actually more than two, but you'll get the idea. We're looking at psychic associations in print and online. The difference will astound you, perplex you, thrill you and make you wonder why they do it at all. Read on.

PSYCHICS DIRECTORY

We were very excited to see this on the newsagents stands – the *International Psychics Directory* (A$6.95). Sadly, we soon realised there were a couple of problems with that title – the publication was neither international, nor was it a directory.

Touted as "The MOST comprehensive list of Accredited Clairvoyants, Mediums and Intuitives available ANYWHERE", this is the 2014 Australian edition, so presumably "ANYWHERE" means they're referring to ANYWHERE in Australia. It may very well be the only psychics directory in Australia, so it probably doesn't have a lot of competition. Still, if it is the most comprehensive list of psychics available ANYWHERE in the world – we wouldn't know, we haven't seen them all – then we can be pretty proud of the fact. Go us.

The IPDAE, for short, is "proudly" published by the International Psychics Association. Maybe that's why it's an international directory - it's published by an international association ... with headquarters in suburban Sydney, near to the airport, which may add some international cachet to the venture.

Actually, the International Psychics Association was originally the Australian Psychics Association, founded in 1983, but it was "upgraded" to the IPA in July 2013. Apparently it was "originally set up as a public information organization, presenting lectures and workshops on a wide variety of psychic-related subjects". We're not sure what it is set up to do now – there is no website for the International Psychics Association, just one for the old APA. The new IPA is associated with the New Age Supastore, which sells lots of stuff, so maybe that's what it is now set up to do: sell lots of stuff. Nothing wrong with that; Australian Skeptics sell stuff too. But you can see our review of the Supastore's site in the story to the right, and it's not pretty. Literally, it's not pretty.

The IPA is run by Simon Turnbull. *The Directory* is edited by Simon Turnbull. We assume Simon also runs the New Age Supastore, though it's not stated who owns it.

Down to brass tacks on *The Directory*. We have to admit that there are some international elements – an interview by Simon Turnbull with Sally Morgan during her visit to Australia; an interview by Simon Turnbull with a visiting Brazilian "psychic artist" who channels dead painters in oils; an interview by Simon Turnbull with visiting psychic Kai Muegge. Two non-Simon Turnbull pieces are an interview with a US tarot card designer and a report on a psychic competition in the Ukraine (the psychic who represented Australia came third, met his soul mate there and is now living in Kiev, hopefully peacefully).

That's it for the international element; now for the *Directory*.

We've always thought directories were something like the phone book or a product guide – organised lists where you could find what you want and where, contact details, etc. The IPDAE is not that; it is actually a series of articles on such diverse topics as crystals, tarot, angels, energy, orbs, pets, tasseography (reading coffee grounds), etc. As for trying to find a specific psychic or someone local, forget it. You have to work your way through every article and advertisement on the off chance of finding what you want. This is

not a directory.

What comes closest (but not close) to being a directory is the list of winners of the new Psychic Ambassador Awards, handed out at the 30th anniversary celebration of the APA. The awards "acknowledge an outstanding group of people committed to promoting the psychic field in a variety of ways over the years". There's no indication of who the judges are, or the criteria applied outside of being outstanding, but top of the list is the much-deserving Simon Turnbull. Second on the list is Hiromi Mitsuya, who is credited on the magazine's publisher's panel as their "accountant". Now, you could expect to see the editor, publisher, designer, production manager, even ad sales on that panel, but accountant is not normally one of the people you'd list among the creatives producing a magazine. But Ms Mitsuya has another string to her bow, in that she is also Mrs Simon Turnbull.

If you're now getting the idea that the Australian International Psychics Association and the *International Psychics Directory* (Australian Edition) is a bit of a family affair, then you're probably not that far wide of the mark.

And, using our own psychic powers, we confidently predict that, in 2014, the situation will stay that way ... unless it doesn't. ■

INTERNATIONAL PSYCHICS

There seem to be two International Psychics Associations. One is the co-publisher of the *International Psychics Directory Australian Edition* (see over there on the left) and the other is an American-based International Psychics Association.

The website for the Australian International Psychics Association is actually named for the New Age Supastore (http://www.newagesupastore.com), co-publisher of the Australian Directory. It "specialises in holistic and new age products and services", including psychic readings, tarot readings, books, events competitions, and such. The readings link to Simon Turnbull's professional services, and the events are largely things he organises.

But we do have to say that the Supastore is one of the worst-designed sites we have ever seen. With a garish purple background, the items for sale seem to be scattered higgledy-piggledy across the page. We can only assume you have to be a psychic to divine the location on the page of what it is you are after. (One thing we did like in the books-for-sale section is the description of Uri Geller as a "mental bender". That probably says it all about the IPA Oz and the New Age Supastore.)

The other International Psychics Association has a Facebook page at www.facebook.com/ipaorg. This IPA – let's call it IPA Other – "is an independent organization, set up primarily for the purpose of creating and maintaining standards and practices around the business of spiritual counseling. We endeavor to lead by example and establish a benchmark for ethical behavior, quality control and truth in advertising. IPA works with several well popular psychic and spiritual consultation sites as well as the phone based and traditional brick and mortar establishments to compare notes and create a roadmap for the future of the industry."

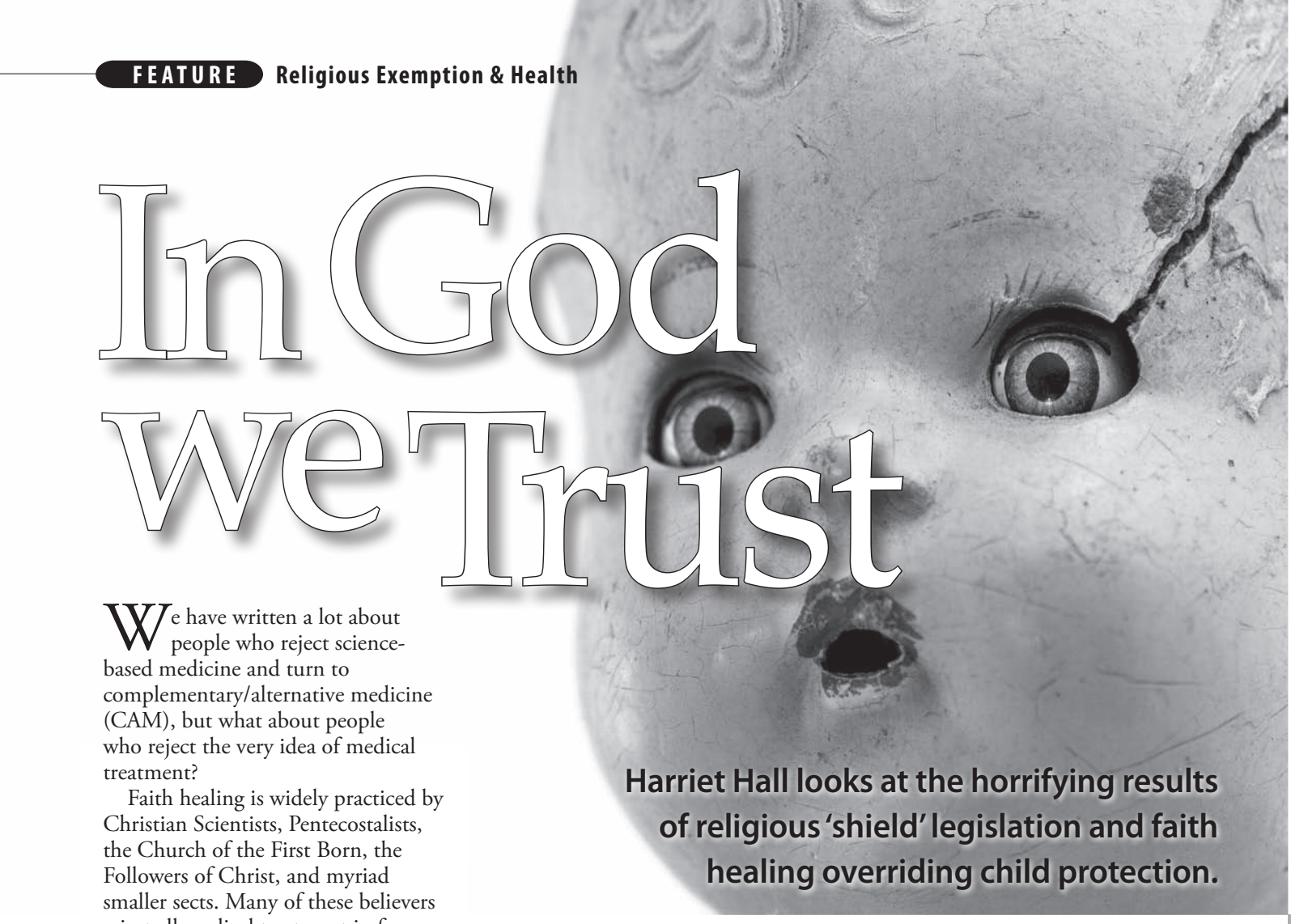
You can tell by the spelling that it's American.

The site has lots of links to interesting articles, like how to get X-Men superpowers using a "living laser" beam. One we were really excited to read was "Learn how to build a UFO anti-gravity electrogravitic saucer". Unfortunately, the link to this ground-breaking technological development was broken, so that particular bit of technology will have to go undeveloped. Pity really, as we were really looking forward to finding out more about "electrogravitic", which until now had passed us by. (Apparently it's an "unconventional type of effect or anti-gravity propulsion created by an electric field's effect on a mass". It's popular in UFO and conspiracy circles, which say that major aeronautics companies in the 1950s researched it and suppressed the results. The writer Byron Preiss said it was "much ado about nothing, started by a bunch of engineers who didn't know enough physics".)

The reason the link to build your own saucer is broken may be because all of the links of the IPA Other Facebook page are broken. Look not very closely, and you'll notice that none of the items date later than July 2011, so we're going to have to assume that IPA Other no longer exists.

Which leaves the field wide open to the Australian IPA to rule the roost. We hope you like purple. ■

In God we Trust



Harriet Hall looks at the horrifying results of religious 'shield' legislation and faith healing overriding child protection.

We have written a lot about people who reject science-based medicine and turn to complementary/alternative medicine (CAM), but what about people who reject the very idea of medical treatment?

Faith healing is widely practiced by Christian Scientists, Pentecostalists, the Church of the First Born, the Followers of Christ, and myriad smaller sects. Many of these believers reject all medical treatment in favour of prayer, anointing with oils, and sometimes exorcisms. Some even deny the reality of illness. When they reject medical treatment for their children, they may be guilty of negligence and homicide. Until recently, US religious shield laws have protected them from prosecution; but the laws are changing, as are public attitudes. Freedom of religion has come into conflict with the duty of society to protect children. The right to believe does not extend to the right to endanger the lives of children.

A new book by Cameron Stauth, *In the Name of God: The True Story of the Fight to Save Children from Faith-Healing Homicide*, provides the chilling details of the struggle. He is a master storyteller; the book grabs the reader's attention like a fictional thriller and is hard to put down. He is sympathetic to both the perpetrators and the prosecutors of religion-motivated child abuse, and he makes their personalities and their struggles come alive.

CONVERSION TO CRUSADER

Rita and Doug Swan were Christian Scientists who firmly believed that disease was an illusion, and that "the most dangerous thing they could do was to show lack of faith in God by relying on medical treatment". (One wonders just how strong their belief was, since when an ovarian cyst caused intractable pain, Rita had surgery to remove it.) When their baby Matthew developed a fever, they paid a Christian Science practitioner to come to their home and pray over him. She told them fever was just fear; and indeed, Matthew recovered.

> "The Church fought at every step, but the publicity contributed to the ongoing decline in membrship."

At age 16 months, Matthew developed a fever again and this time he didn't improve with the practitioner's prayers. The Swans were worried but unwilling to reject the lifelong beliefs that made sense of their lives. Rather than taking Matthew to a doctor, they compromised by calling in a second Christian Science practitioner. The practitioner accused Rita of sabotaging her work with fear, and both parents believed that defects in their own thoughts were responsible for Matthew's illness.

Eventually they called in a Christian Science 'nurse' (trained in metaphysics, not medicine). She did nothing except talk to Rita. Shortly after she left, Matthew began having convulsions. The desperate parents found an escape strategy: they would take Matthew to a doctor with the complaint of a broken bone (something the Church allowed to be treated by a doctor), and would not mention the fever. He was quickly diagnosed with bacterial meningitis

and a brain abscess. They had waited too long. Despite intravenous antibiotics and surgery to relieve pressure on the brain, Matthew died.

That happened in 1977. The Swans promptly resigned from the church. They filed a wrongful death lawsuit, but the case was dismissed. Ever since then, Rita Swan has devoted her life to preventing the deaths of other children from faith healing.

She founded the Matthew Project, which developed into a foundation called CHILD (Children's Healthcare Is a Legal Duty). She exposed case after case of child abuse that would otherwise have gone unnoticed and reported outbreaks of polio and measles in Christian Science schools and camps. She documented preventable deaths of Christian Science children from meningitis, diabetes, diphtheria, measles, kidney infection, septicemia, cancer and appendicitis.

The Church fought her at every step, but the surrounding publicity only contributed to the ongoing decline in Church membership. The Church doesn't announce membership numbers, but since 1971 it is estimated that the number of Christian Science churches in the US has fallen from 1800 to 900, and by one estimate they have fewer than 50,000 members in the entire world. [Other sources have said 85,000 – Ed]

As time passed, Swan turned her attention to similar abuses in other religious sects. A one-woman tornado, she cut a swath across America. She headed a child advocacy organisation, published a quarterly newsletter, wrote articles, became a media presence, spoke at conferences on child abuse, lobbied and testified in states where proposed bills would help or hinder her cause, and even moved to Oregon for a time during the campaign to pass effective legislation there. She was eventually instrumental in getting religious shield laws changed in several states.

In 1998, pediatrician Seth Asser and Rita Swan published an article in the medical journal Pediatrics entitled "Child Fatalities from Religion-motivated Medical Neglect". They documented 172 faith-healing deaths over a 20-year period, involving 23 different sects in 34 states. The true numbers were undoubtedly much higher, since these cases were collected informally rather than systematically and some deaths are never reported. In most of these cases the prognosis would have been excellent with medical care. Asser later characterised some of the cases as babies literally being tortured to death. In one case, a mother died in childbirth after the infant's head had been at the vaginal opening for more than 16 hours. The infant's corpse was so foul-smelling that it was inconceivable that anyone attending the delivery could not have noticed.

In 1988, the American Academy of Pediatrics had called for elimination of religious exemption laws, and in 1983 the federal government had removed religious exemptions from federal mandate; but at the time of the study there were only five states that had no religious exemptions either to civil abuse and neglect charges or criminal charges.

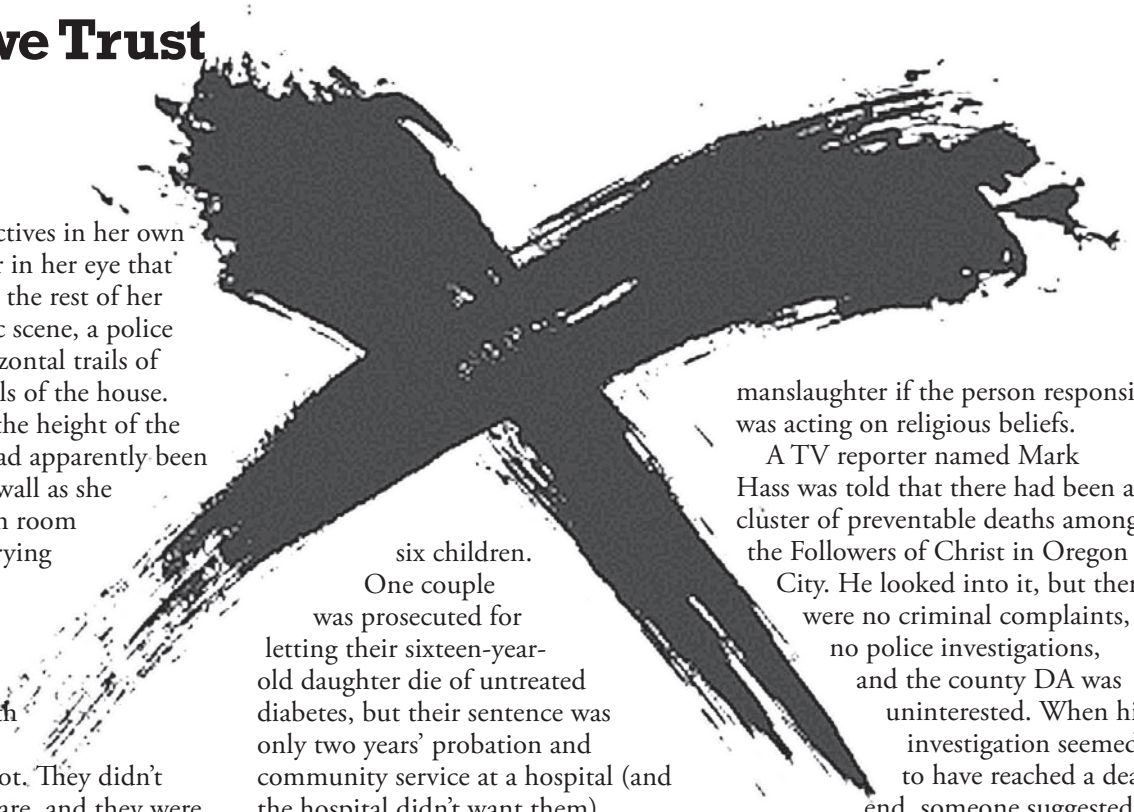
INVESTIGATIONS

One of the first non-Christian-Science-related deaths Rita discovered was in Indiana. As Stauth tells the story, 4-year-old Natali Joy Mudd was

Above: 18-month-old Alayna Wyland - a neglected enlarging hemangioma almost made her blind. Her parents got 90 days in jail.

In God we Trust

Continued...



found dead by detectives in her own home, with a tumor in her eye that was almost as big as the rest of her head. At the horrific scene, a police sergeant found horizontal trails of blood along the walls of the house. The trails matched the height of the girl's head. Natali had apparently been leaning against the wall as she dragged herself from room to room, blinded, trying to find a way to freedom, before the tumor killed her.

Natali's parents belonged to the Faith Assembly Church, a Pentecostal offshoot. They didn't believe in medical care, and they were not prosecuted because Indiana had strict religious shield laws. Two years later, Natali's five-year-old sister died from an untreated tumor in her stomach the size of a basketball.

The Faith Assembly Church was responsible for as many as 100 childhood deaths and for a maternal childbirth mortality rate that was 870 times the usual rate. The most common cause of death was infant mortality in home births; something that is now rare in Christian Science because it now supports prenatal care and hospital births attended by doctors.

> "A six-year-old boy died from a necrotic bowel due to a hernia. The pathologist's reaction: 'Not again!'."

The Faith Tabernacle Church is a sect that has been responsible for deaths from exorcisms in several countries. One believer strangled her five-year-old son to death and kept his body for several days hoping for his resurrection. One couple in Pennsylvania lost six children to untreated illness, all under the age of two. A measles epidemic involving 491 people resulted in the deaths of six children. One couple was prosecuted for letting their sixteen-year-old daughter die of untreated diabetes, but their sentence was only two years' probation and community service at a hospital (and the hospital didn't want them).

In 1997, 20 years after Matthew's death, a six-year-old boy in Oregon died from a necrotic bowel due to a hernia that could easily have been treated. The pathologist's first reaction was "Not again!". He and his associate had compiled evidence of 18 children who had died over the last 10 years from curable diseases in a Followers of Christ congregation of 1200 people. That worked out to 26 times the usual infant mortality rate. And it wasn't just children: followers' wives were dying in childbirth at 900 times the usual rate. One died of a type of infection that hadn't killed anyone in America since 1910.

Nothing could be done about it, because Oregon had one of the strongest religious shield laws in the country. It protected parents from allegations of religious intolerance and gave them the right to withhold medical care for their children. In fact, the shield had just been beefed up: a new law to increase the punishment for murder by spousal or child abuse specifically prohibited prosecution for manslaughter if the person responsible was acting on religious beliefs.

A TV reporter named Mark Hass was told that there had been a cluster of preventable deaths among the Followers of Christ in Oregon City. He looked into it, but there were no criminal complaints, no police investigations, and the county DA was uninterested. When his investigation seemed to have reached a dead end, someone suggested he visit the local cemetery. He counted the graves of 78 children. He launched America's first major series of TV reports on faith-healing abuse on KATU in Portland.

THE PSYCHOLOGY OF BELIEVERS

Even Rita and Doug Swan found it hard to break away from the seductive premise that the power of belief itself could heal, a create-your-own-reality idea that is echoed by Rhonda Byrne in *The Secret* and by a host of other New Age gurus.

The faith healing sects truly believe they are doing the right thing when they let their children die; they accept it as God's will. Some believers even refuse to wear seat belts. Their inconsistent behaviour shows that they tend not to have thought things through very carefully. They hypocritically accept care from eye doctors and dentists. Adults often clandestinely seek medical care for both major and minor medical problems while children don't have that option. In some cases parents saw a doctor for hangnails or mole removal for themselves yet refused to take their child to a doctor for a fatal illness.

Their beliefs come from groupthink

and social consensus rather than from reasoned theology or the Bible. Many of them have not read the Bible; when a whistle blower did, he was surprised to learn how much it differed from what he had been taught. They have a supportive, close-knit community and face overwhelming peer pressure. If they resort to medical care, they are shunned by everyone they know and may never see anyone in their family again.

There has never actually been a single extraordinary healing among the Followers, only ordinary recoveries from common illnesses; but that's enough to convince them prayer works, if only their belief is strong enough. Confirmation bias is a powerful thing, and when a child dies the death is considered unavoidable and is attributed to God's will. An insider said he thought that if a few Followers were punished, the rest would rationalize that going to doctors was OK after all and would come up with a new doctrine. He thought most of them would be happy to change if everybody else did. When courts have ordered blood transfusions for the children of Jehovah's Witnesses, they have sometimes seemed more concerned about what their co-religionists would think than about the religious implications of the transfusion itself.

Prosecutions have taken place under "no shield" legislation; the tragic nature of the cases speak for themselves.

Eight-year-old Josef Smith was beaten to death during an exorcism in Tennessee. His parents, members of the Remnant Fellowship, were found guilty of murder and sentenced to life in prison plus 30 years.

A mother who beat and smothered her child was sentenced to life in prison for first-degree murder. She gladly accepted her punishment as part of God's plan.

The people who starved a 16-month-old to death for failing to say "Amen" and then absconded with his corpse in a suitcase were sentenced to 50 years each for second-degree murder.

In Oregon, a test case was needed, but District Attorneys were reluctant to prosecute, and even church members who no longer approved of their own churches were too frightened to provide inside information. Finally Patrick Robbins turned whistle blower after the death of his newborn baby led him to doubt the teachings of the Church. His assistance led to several prosecutions.

In 2008, 15-month-old Ava Worthington died with a softball-sized lump on her neck that obstructed her breathing and caused pneumonia. Investigation of the case was difficult, because witnesses denied having observed any signs that the child was in distress. Her parents were the first to be tried under a revised 1999 law (see below). The jury was sympathetic to the parents. The father was convicted of misdemeanour criminal mistreatment, but not of manslaughter; he spent two months in jail. The mother was found not guilty.

The Beagleys were convicted of criminally negligent homicide in the death of their 16-year-old son Neal for complications of a congenital urinary tract anomaly that could have easily been repaired. They each served 16 months (consecutively, so one of them was always home to care for their other children).

18-month-old Alayna Wyland nearly went blind from an untreated enlarging hemangioma that obstructed her left eye. She was rescued just in time for pediatric ophthalmologists to save her eyesight, and her parents were tried for first-degree criminal mistreatment of their child. They got 90 days in jail and three years' probation.

These are tragic cases. No one likes to see children taken away from their parents, and these parents loved their children and truly believed they were doing the right thing. They were victims too.

PROGRESS IN LEGISLATION

The first state to repeal a religious shield law was South Dakota. Then CHILD won a federal lawsuit in Minnesota, arguing that taxpayers should not be required to subsidise Medicare and Medicaid payments for Christian Science nursing. Unfortunately, Senator Orrin Hatch negated their win by getting a new law passed that provided for Medicare payment for "religious non-medical health care". CHILD sued again but this time they lost.

In 1999, a compromise bill was passed in Oregon eliminating religious shields for murder by abuse, murder by neglect, first and second degree manslaughter, and criminal mistreatment. After this, no Followers died of medical neglect for the next

Top: The Schaibles - Their pastor said their two children died because of the parents' "spiritual lack"

Above: The Beagleys, each given 16 months consecutively so one of them was always home to care for their other children

In God we Trust

Continued...

five years, and there were major modifications in the shield laws in several other states.

But the 1999 bill was not enough: it had repealed five of the nine religious shield exemptions but left four others in place. After five years without a death, three more Followers' children died in 2008 and 2009.

In 2011, after extensive lobbying by Rita Swan and others, Oregon passed a new law to eliminate religious beliefs entirely as a legal defence and allow prosecutors to seek murder charges against parents who deny their children medical care for religious reasons. There are only five other states in the US with no religious exemptions for sick and injured children: Hawaii, Nebraska, Massachusetts, Maryland, and North Carolina.

But Oregon law still allows religious exemptions for caregivers of dependent adults, and it still allows religious exemptions for immunisations, metabolic screening (for conditions like PKU), newborn hearing screening, vitamin K and prophylactic eye drops for newborns, and bicycle helmets. Ashland, Oregon has the highest school vaccine exemption rate of any US city; and in one school in Eugene, 76 per cent of students had rejected one or more vaccines for religious reasons. The religious exemption for bicycle helmets is particularly puzzling: where in the Bible does it say "Thou shalt not wear bicycle helmets" or even "Thou shalt take no precautions against injury"? I guess the reasoning is that if God wants a child to die from a head injury, we shouldn't get in His way.

The Oregon law is being enforced. Later in 2011, Dale and Shannon Hickman were found guilty of second degree manslaughter in the death of their infant son, prematurely born at home with only unqualified midwives in attendance. They were sentenced to six years and three months in jail, followed by three years supervised probation.

A few months later, when Oregon members of the Church of the First Born were accused of negligent homicide for the death of their son from a treatable condition, they didn't even try to fight, but pleaded guilty. They agreed to provide medical care for their other children and were sentenced to probation with close monitoring.

In Philadelphia, Herbert and Catherine Schaible were put on 10 years' probation after their two-year-old died of untreated bacterial pneumonia. The terms of their probation required them to purchase medical insurance and put their other children under the care of a pediatrician. They callously disregarded the terms of probation and their eight-month-old son died of untreated bacterial pneumonia when they failed to seek medical care for him. They were charged with third-degree murder, involuntary manslaughter, conspiracy, and endangerment. They were jailed and denied bail because the judge feared their co-religionists might hide them in other parts of the country. They pleaded "no contest." Their pastor said the father "knows he has to obey God rather than man". He said the children died because of the parents' "spiritual lack."

Some members of the Followers sect were starting to accept medical treatment and even wondering what all the fuss had been about.

Reporter Dan Tilkin covered the Oregon court cases, and he has reported on 10 more dead children of the Followers of Christ in Idaho, where religious shield laws are still in place. Of the marked graves in the Peaceful Valley Cemetery, more than a quarter are children. Sadly, his report ends by saying "No significant move to change the laws is underway."

CONCLUSION

The medical ethics principle of autonomy justifies letting competent adults reject lifesaving medical care for themselves because of their religious beliefs, but it does not extend to rejecting medical care for children. Society has a duty to override parents' wishes when necessary to protect children from harm. It is not uncommon for the courts to order life-saving blood transfusions for the children of Jehovah's Witnesses, or cancer treatment against parents' wishes. But 30 US states still have religious shield laws, and every state but Mississippi and West Virginia allows religious and/or philosophical exemptions for school vaccination requirements. Those laws should be repealed. The Affordable Care Act ("Obamacare") requires insurance companies to cover "nonmedical" health care such as prayers by Christian Science practitioners. That provision should be removed.

> "Society has a duty to override parents' wishes when necessary to protect children from harm."

It has been argued that most of the increase in human lifespan was due to advances in hygiene rather than to advances in medicine. The estimates of a 26-fold increase in infant mortality and a 900-fold increase in maternal mortality among the untreated Followers of Christ demonstrate just how valuable modern medical care really is. ■

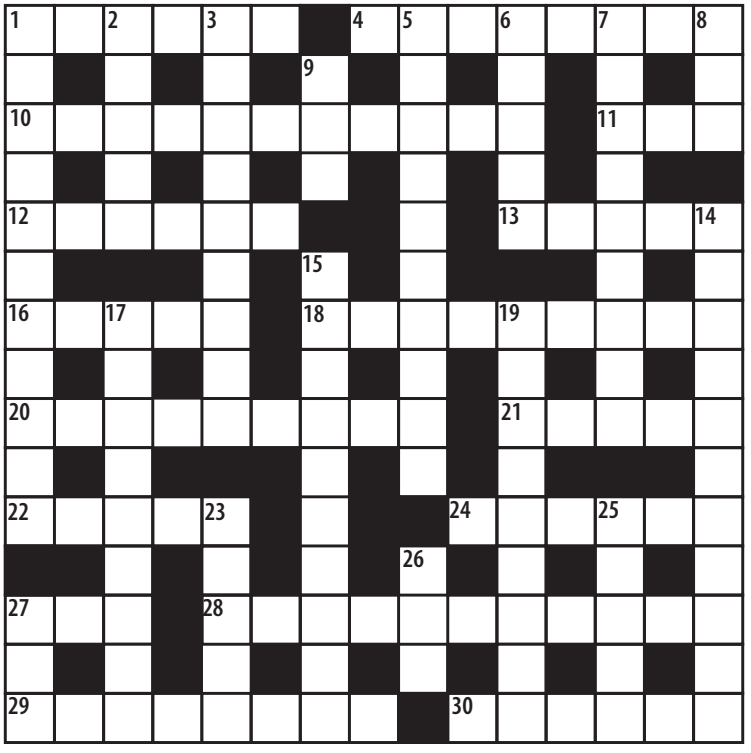
Note: *The newsletter archives of CHILD are available free online (childrenshealthcare.org/). They describe many more tragic cases of children who have been harmed or have died from religion-motivated child abuse and neglect.*

Reprinted from Science-Based Medicine, November 2013 - http://www.sciencebasedmedicine.org/

About the author:
Harriet Hall
is a retired physician and author of skepdoc.info

Brain testers

CRYPTIC CROSSWORD no 21



Tim Mendham + Steve Roberts

ACROSS

1. Logical businessman. (6)
4. Wasted feathers on the wrong man. (8)
10. Mental power moves senile kites. (11)
11. Express annoyance with an old king. (3)
12. Voodoo Baron or Identical Princess. (6)
13. A callous nut. (5)
16. Excited conjurer? (5)
18. Might be rough with this young lady with the timely figure. (9)
20. Deep confusion about stunned teacher. (9)
21. Queen carries article through everything. (5)
22. Cruel vestiges hold traces of naughty fairies. (5)
24. Doomed to madden sadly. (6)
27. Zoo education days start on the 26th. (3)
28. So magic isn't an uncertain belief. (11)
29. Spy a real mess to freeze you. (8)
30. Chapeaux exist for renewable energy targets. (6)

DOWN

1. When Catherine has part of a poem, you know it can't be good. (11)
2. It's a monster! Head for the lunar excursion module! (5)
3. Piracy is forbidden - really! (2,7)
5. Organisations where tint is thrown at tradies' cars. (10)
6. Least version of an inventor. (5)
7. The spa too agitated for a manipulator. (9)
8. Crazy to throw up most of the tuna. (3)
9. And back for some genetic material. (1-1-1)
14. One American prosecutor who gets stuck into crazy quack remedies from a crackpot seer. (11)
15. The eighth snob to claim connection to your kneebones. (10)
17. When broken, divine rod lacks distinction. (2,7)
19. Weapon inserted in cordial. (9)
23. Delay the horse home. (5)
25. I am in the middle, physiognomically speaking. And it's loud! (5)
26. Basic interrogation of a small king. (3)
27. Do up and get out! (3)

DR BOB'S QUIZ

(all from The Simpsons and Their Mathematical Secrets by Simon Singh)

1. **What is the volume of a pizza, of thickness A and radius Z?**

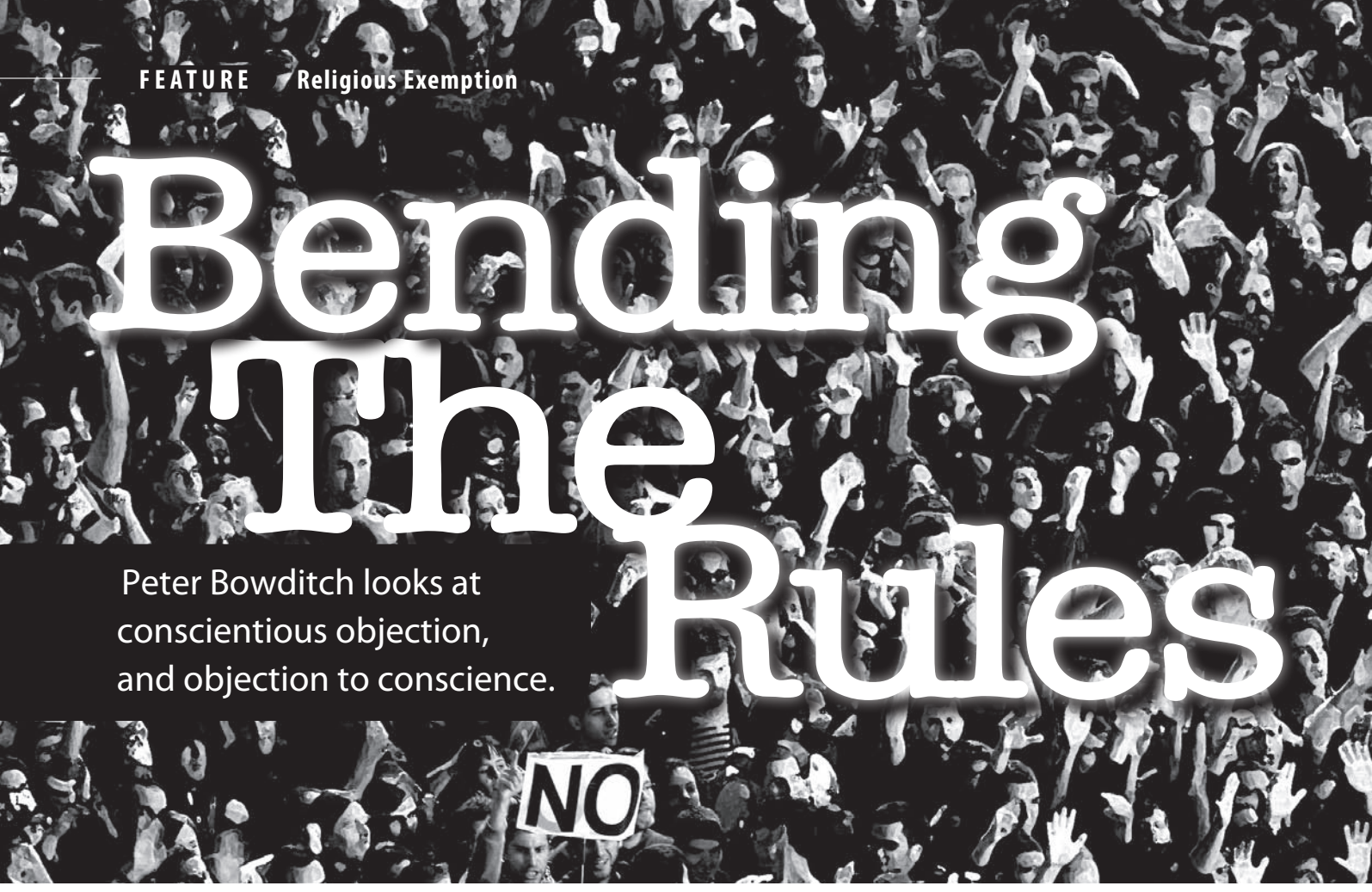
2. **In the opening titles of The Simpsons, the baby gets checked out along with the food items at the supermarket; the register rings up $847.63 - why that amount?**

3. **Using a calculator, verify that $3987^{12} + 4365^{12} = 4472^{12}$. (Raise the sum to the power of 1/12, and you should get 4472.) But you have just contradicted Fermat's Last Theorem! (a) Explain. (b) Throw the calculator away and look a bit harder at the numbers 3987, 4365 and 4472 - can you suddenly see why the addition can't be right after all?**

4. **A Simpsons' playground rhyme goes "Cross my heart and hope to die / Here's the digits that make pi / 3.14159265358979323 84..." Why does the camera then pan away?**

5. **Simon Singh prefers line 3 of this rhyme to be "3.1103755242102643021...". Explain, with especial reference to the traditional mutation of anthropomorphic attributes in animated iconography.**

Answers on page 62



Bending The Rules

Peter Bowditch looks at conscientious objection, and objection to conscience.

Forty-five years ago Australia was participating in a war in Vietnam. Because the volunteer Army wasn't big enough, conscription was used to build up the numbers. On their twentieth birthday (a year before becoming eligible to vote) young men had to register. Every three months a ballot of birthdays in that quarter was held and men whose birthdays came out of the barrel could look forward to two years in uniform. If you missed out you were "deferred", not "absolved", and on at least one occasion the total number of men registered in a quarter was less than the Army needed, so people who had been previously deferred were give two weeks to get their affairs in order and get themselves down to the induction centre.

If someone was called up there were three legal ways to avoid doing the two years' service. (Hiding in Australia or another country was possible, but not legal. Not turning up triggered an automatic two-year gaol term, suspended until you were located.) These ways to avoid service were rejection on medical grounds (and you had to have a serious medical problem), full-time university study (in a time of expensive university fees, the default option for the sons of the wealthy), and conscientious objection.

To gain exemption on conscientious grounds you had to argue your case before a magistrate, and you had to prove that you were an active member of a religious faith group that opposed war in all its forms. I was opposed to our involvement in the war and to conscription but I couldn't claim conscientious objection because I wasn't a churchgoer and in any case I had no objection to war in the abstract, just to this particular instance.

You might think that appearing in court with a letter from your minister, priest or pastor would be all you would need, but you would be wrong. Your entire life could be examined for consistency with your pacifist claims. A friend of mine was the son of a Methodist minister, and the Methodists were at the forefront of the anti-war movement. He wasn't just any old parishioner either – he was studying full time to be a Methodist minister himself. His application for conscientious objection was denied and he spent two years in prison. His two brothers followed him shortly afterwards. Because he had chosen conscientious objection as his response to the call-up he could not use his status as a full-time student as a fallback position, so his studies had to be put on hold until he was released. The reason that his application was rejected was that he had been in the cadets at high school, something that was as close to compulsory as any non-curricular activity could be, and this was seen by the magistrate as being inconsistent with claims of pacifism.

RELIGIOUS OBJECTION

Fast forward a few decades and conscientious objection is back in the news, not against military service but against having children vaccinated.

Legislation across the various states of Australia has recently made it mandatory for vaccination status to be declared before children can be accepted into childcare centres and some schools. Unvaccinated children

can only be admitted if they have a legitimate reason for not being vaccinated. Medical reasons are obviously acceptable, as some children can have allergies to vaccine ingredients (such as egg in flu vaccines) or have suffered reactions in the past that cause their doctors to recommend caution.

The other reason is conscientious objection. Again, as for objection to fighting in a war, the objector is supposed to base their objection on religious grounds. The parent gets a form signed by a doctor stating their objection and this form has the same weight as a medical exemption.

I should state at this point that I have no problem with sincerely-held religious beliefs, no matter how silly they might appear, unless those beliefs cause harm to others. Not vaccinating children exposes not only those children to harm but also the children they come in contact with who might not be fully immunised for a variety of reasons (too young, immune-compromised, medical exemptions, etc).

I would also not have a problem with conscientious objection if the rules now were the same as they were in 1969 – the objector has to support their objection in a court by reference to their religious affiliation and commitment. But now all someone has to do is claim that their religion forbids vaccination and get a compliant doctor to sign the form. Many doctors are refusing to sign conscientious objection forms because the religious evidence is not made available to them.

ANTI-VAX BELIEF

So which recognised religious groups in Australia are opposed to vaccination? It might be surprising, but the answer is "None of them". The obvious candidates would be Jehovah's Witnesses and Christian Scientists.

The Watchtower Society opposed vaccination in its early years, but in 1952 published the following statement on the matter: "The matter of vaccination is one for the individual that has to face it to decide for himself. ... And our Society cannot afford to be drawn into the affair legally or take the responsibility for the way the case turns out."

> "How can you claim religious objection to vaccination in Australia? It's simple. You can't, unless you lie, and most religions forbid that ."

So, joining the Witnesses doesn't get you out of vaccinating your children.

What about Christian Science?

"Christian Scientists prefer not to use doctors, medicine, or immunisations. Christian Science Practitioners are used to help people through the false reality of illness."

So, like the Witnesses, the use of vaccines is not forbidden but is left up to the individual. This again does not validate the claim that the religion forbids vaccination. The US-based National Vaccine Information Center advises that Christian Science is an organisation "whose written tenets include prohibition of invasive medical procedures such as vaccination", but bending the truth is what these people do.

One claim that surfaces regularly is that Catholics should not use vaccines because the ingredients include parts of aborted foetuses (a lie – some vaccines use a cell line in manufacture that is derived from a foetus legally aborted in the 1960s). In the early 2000s the Vatican was asked to rule on this, and after long consideration (a knee-jerk was expected) they published a statement which allowed Catholics to use these vaccines and which contained one of the best exhortations to vaccination I have ever seen: "morally justified … due to the necessity to provide for the good of one's children and of the people who come in contact with the children".

Vaccination isn't just to protect the vaccinated, it's to protect everyone. The soon to be renamed Australian [anti]Vaccination Network reported the Vatican's statement using the headline "Vatican says, 'Parents must oppose vaccines from human foetal remains'." Bending the truth.

Attempts have been made to create fake religions which have no dogma except opposition to vaccines, but even the most rabid opponent of vaccines should be embarrassed by that. If they *can* experience embarrassment and shame, of course, which is itself problematical.

So how can you legitimately claim religious or conscientious objection to vaccination in Australia? It's simple. You can't, unless you lie, and most religions forbid that ... while simultaneously allowing vaccination. ■

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

States of Exemp

Tim Mendham reports on the status of Australian federal and state policy on religious exemption in health, assuming they have any.

The US situation re legislated exemptions to health treatment (or leniency in the case of legal cases against poor child treatment) varies dramatically from state to state, ranging from complete lack of exemption to an apparent anything goes attitude. In Australia, there is generally a much less lenient attitude to religious freedom in this area. Though there are exceptions ... presumably.

Vaccination is 'mandatory' in Australia for many situations – eg some payments from the Federal Department of Human Services, such as the Family Tax Benefit Part A supplement, Child Care Benefit and Child Care Rebate, can only be paid for children who have been immunised.

However, there are "approved immunisation exemptions" based on medical contraindications and "philosophical, religious or medical belief involving a conviction that vaccination under the National Immunisation Program should not take place". This exemption can only be claimed following a consultation with a health provider who has a Medicare provider/Australian Childhood Immunisation Register number, and relevant forms completed by both parties.

In NSW, the state government recently passed the Public Health Amendment (Vaccination of Children Attending Child Care Facilities) Bill 2013. This states that, as of January 1, 2014, a child cannot be enrolled at a childcare facility unless the parent or guardian provides an official immunisation record proving the child is fully immunised.

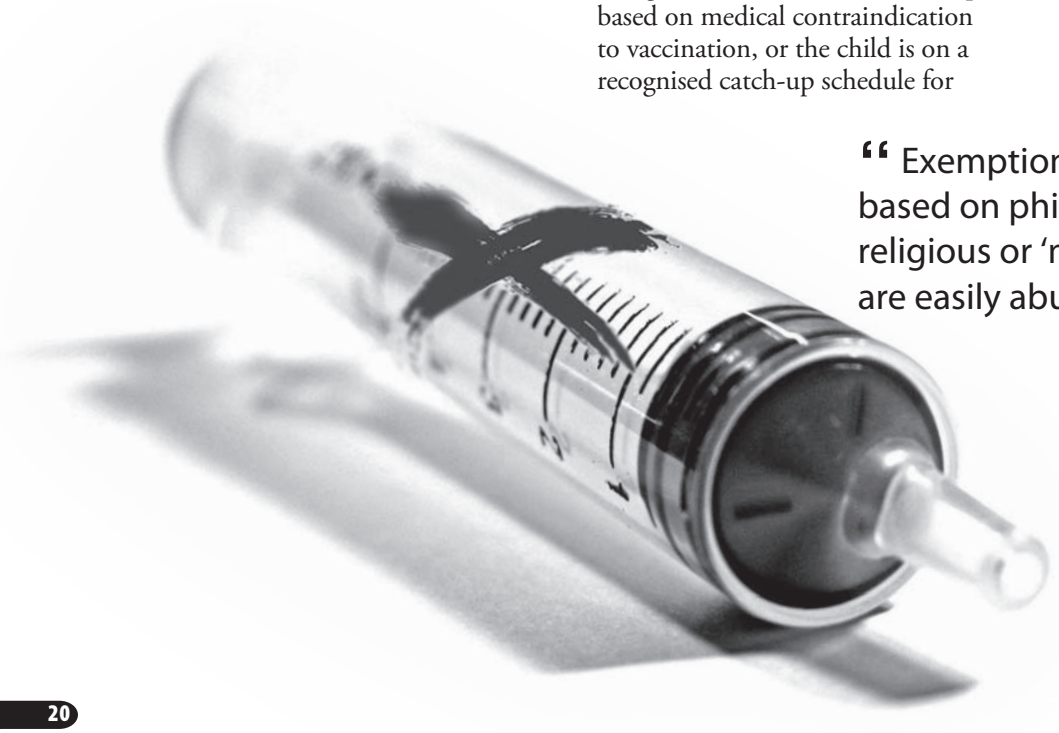
Again, however, there are exemptions based on medical contraindication to vaccination, or the child is on a recognised catch-up schedule for immunisation, or if the parents or guardians are reluctant to vaccinate on religious or other grounds.

The over-riding impression of these acts is that your children have to be immunised, unless they don't.

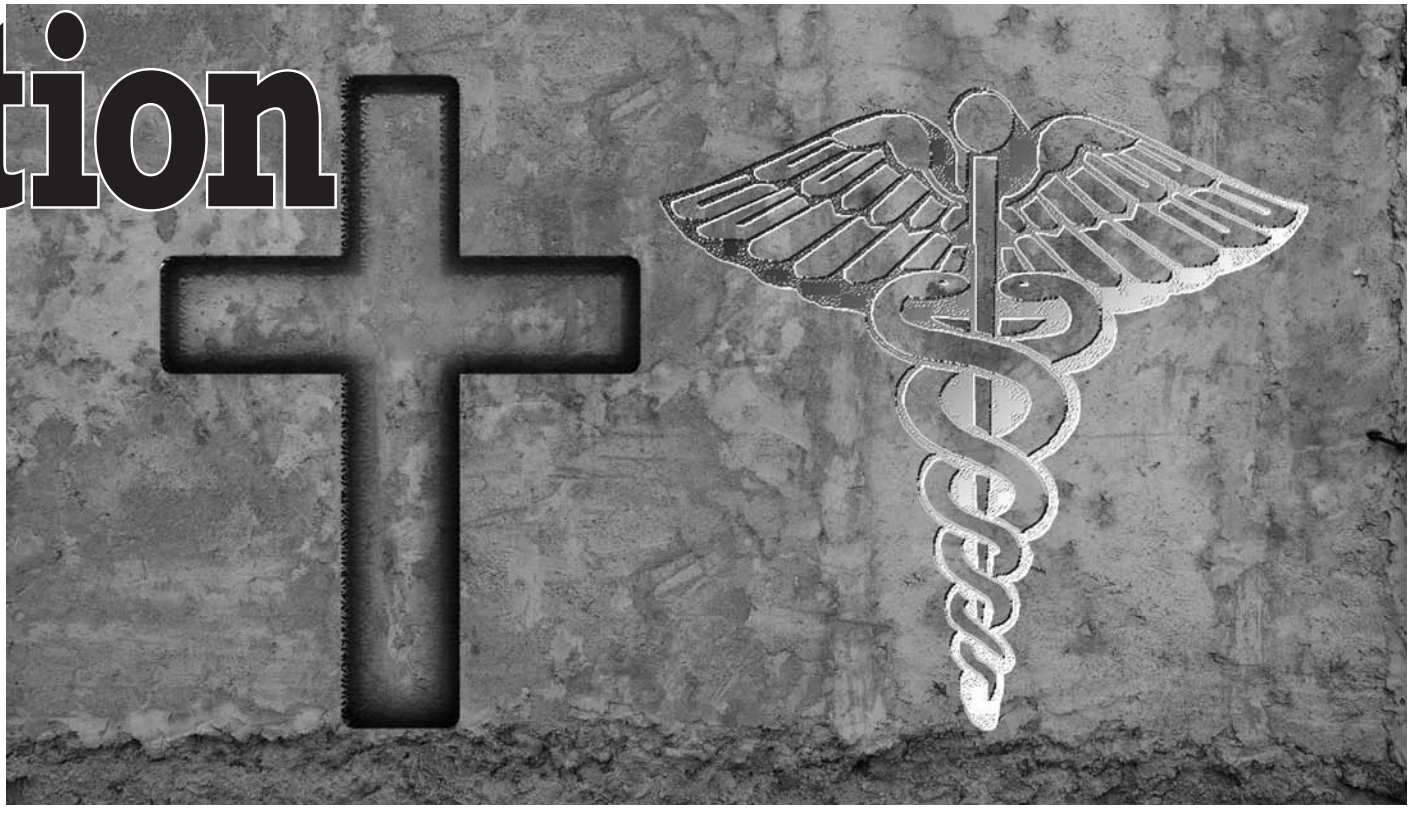
While medical conditions that preclude vaccination are understandable, exemptions based on philosophical, religious or "medical belief" are easily abused.

The 'Church of Conscious Living', touted by Meryl Dorey and the Australian [anti]Vaccination Network to its members, has, as one of the "Earth's Sacred Laws", the "rejection of orthodox vaccination, for both adults, children and animals". (Another Sacred Law is "What you think creates your reality", indicating a tenuous grasp of that concept.)

That the Church is set up purely to claim exemption is obvious from the group's website, which contains no information apart from the vague sacred laws, some equally inane statements about the premise for the church, and an application form to join. The requirements of membership are filling in an application form and supplying an email address. (Membership for an individual or family includes "a certificate, copy of the sacred laws, church cards, a bi-annual newsletter and invitation to the gathering of members". Despite a field for it, there are no newsletters on the site.)



> "Exemptions to vaccination based on philosophical, religious or 'medical belief' are easily abused."



It is groups such as this that make a mockery of the exemption provisions in the various health legislations.

STATE EXEMPTIONS

With this in mind, we approached the health departments of Australian state governments* with a query re "the current state of formal exemption in health treatment on religious/cultural grounds".

As can be seen, most states did not supply any information. There was no indication if this was due to lack of a policy in this area, lack of available information, or an unwillingness to supply information. In any case, a total lack of response does presumably indicate that the various health departments (or their media units) are either less than enthusiastic to deal with this issue, or don't particularly want to talk to the Skeptics, or both.

NEW SOUTH WALES

No response.

There is, however, a policy on "Burials – Exemptions from Public Health Regulations 2012 for Community and Religious Reasons" (document number PD2013_048, issued December 6, 2013).

This says that "Clause 63 of the Public Health Regulation 2012 provides that unless otherwise approved by the Director-General of Health the body of a deceased person must not be buried or cremated unless their body had been placed in a coffin and the lid of the coffin securely sealed.

"In some communities or religious groups, religious beliefs are such that the body of a deceased person needs to be wrapped in a shroud and placed in direct contact with the earth without the use of a coffin."

While exemption on those latter grounds is allowed after specific formal application, there are some provisos:

- The cemetery authority has agreed to carry out the burial of a body that has not been placed in a coffin, in particular the handling of bodies on cemetery grounds
- the body mist be wrapped in at least four layers of cotton/linen sheeting "which is able to prevent the leakage of any body exudates or substances"
- the body must be contained in a coffin until the body is placed into a grave
- a non-reusable coffin is to be dismantled and placed within the grave prior to commencement of backfilling. If a re-usable coffin is used, at the completion of the burial the re-usable coffin is to be steam cleaned and disinfected.
- The name plate on coffin is to be removed and placed near the body in the grave
- the body of a deceased person who is known or is reasonably believed to be infected with a prescribed infection disease must be buried in a coffin for health reasons
- the body must be prepared in a registered mortuary

QUEENSLAND

No response.

SOUTH AUSTRALIA

"There are no formal exemptions on religious/cultural grounds from legal requirements regarding health matters in South Australia. The *Consent to Medical Treatment and Palliative Care Act 1995* provides the legal basis for the provision of medical treatment in South Australia. A person over the age of 16 is able to consent to, or refuse consent to medical treatment, including in advance.

States of Exemption

Continued...

"If emergency medical treatment is required and the person is incapable of consenting and the medical practitioner is aware that the person has previously refused the specific treatment, the treatment cannot be given. These requirements apply to all members of the community; there are no provisions which specify exemptions or exceptions on the basis of religion or culture.

"In the case of children (ie person under 16) requiring emergency medical treatment section 13 (5) of the *Consent to Medical Treatment and Palliative Care Act 1995* specifies that consent to treatment must be sought from the child's parent or guardian but that the child's health and well-being are paramount. If the parent or guardian refuses consent, the treatment may be administered despite the parent/guardian's refusal of consent, if it is in the best interests of the child's health and well-being. This provision enables emergency medical treatment to be provided to a child in circumstances where a parent/guardian does not consent and may therefore be used to provide necessary treatment in situations where a parent/guardian may object on religious grounds.

"In the case of medical treatment which does not constitute emergency medical treatment, a capable adult can refuse consent to any treatment including in advance. A parent/guardian may refuse consent on behalf of a child, however a child may consent to their own treatment where it is determined that the child is capable of understanding the nature, consequences and risks of the treatment and the treatment is in the best interest of the child's health and well-being. This opinion must be supported by a second medical practitioner who has examined the child. If a parent/guardian refused to consent to treatment and the lack of treatment was going to have a deleterious impact on the child it may become a child protection matter depending on the circumstances of the particular case.

"In regard to immunisation, under the provisions of the Immunise Australia Program, parents are able to apply for exemption as a conscientious objector on a number of grounds including religion. This is a national program.

"No formal exemptions apply regarding burial and cremation.

"While there are no formal exemptions on religious or cultural grounds, the general policy of SA Health is that health services will be provided in a culturally sensitive manner."

VICTORIA

No response.

WESTERN AUSTRALIA

"Unfortunately we are unable to assist on this occasion."

No response to a follow-up query as to whether there are no WA regulations or policies on religion-based exemptions, or if the WA Department of Health does not have the information, or if the department cannot or will not supply the information.

We have an open invitation to those states which did not or could not provide information to change that view. ■

**For the record, we did not approach the Tasmanian state authorities, as that state was heading into an election and government departments are unable to comment on policy during the election period. We did approach South Australia, as an election had not been called at that stage. Despite the imminent approach of the election there, the SA Department of Health was nonetheless willing to supply information. In fact, as can be seen, more willing than any other state.*

About the author: **Tim Mendham** is executive officer and editor with Australian Skeptics Inc.

Birth of a Notion

Prof Chris French, Dr Karl Kruszelnicki and George Hrab, brought into skepticism by reading, mowing and raining.

Top to bottom: Chris French, Dr Karl and George Hrab

CHRIS FRENCH, ANOMALY RESEARCHER

I can remember that moment quite distinctly. Until going to university I was a believer in the paranormal. Throughout my undergraduate degree, I was a believer in the paranormal. When I was doing my PhD, which was on a completely different subject, neuroscience stuff, someone recommended a particular book, and that was *Parapsychology – Science or Magic*, by James Alcock, the Canadian psychologist. It was reading that book that made me realise that there was another way of thinking about all of these things, and it was one that appealed to me.

I looked in the back and there were a lot of references to this magazine called Skeptical Inquirer, which I'd never heard of, so I started to subscribe to that. And then I read these books by a guy named James Randi, like *Flim Flam*; I was already quite into Martin Gardner but I hadn't read *Fads and Fallacies*. All of those wonderful classic books. And the rest, as they say, is history.

And now, when I actually know James Alcock and consider him a friend, I can say to him "You bastard, it's all your fault! You got me into this!"

But really, I thank him very much.

DR KARL, SCIENCE COMMUNICATOR

The first time I began thinking skeptically was when I was mowing the lawn when I was eight years old. The neighbour across the road was also mowing his lawn, and with his rotary mower he kept on running into a piece of wire, which would go flying. And he'd yell at it and shout at it and he picked it up and threw it into the long grass ahead of him where he hadn't mowed yet ... and he did this four times. I couldn't believe what was going on and at the age of eight I realised that we humans are basically irrational.

GEORGE HRAB, SKEPTICAL MUSICIAN

There are a few watershed moments for me. As a young boy – I think I was seven or eight – my dad had promised to take me to see a New York Yankees baseball game which, as a kid, that is just the event of all events. But rain was forecast for that day. I was raised as a Catholic, and I remember praying very vehemently, "Please don't let it rain. Please God, don't let it rain."

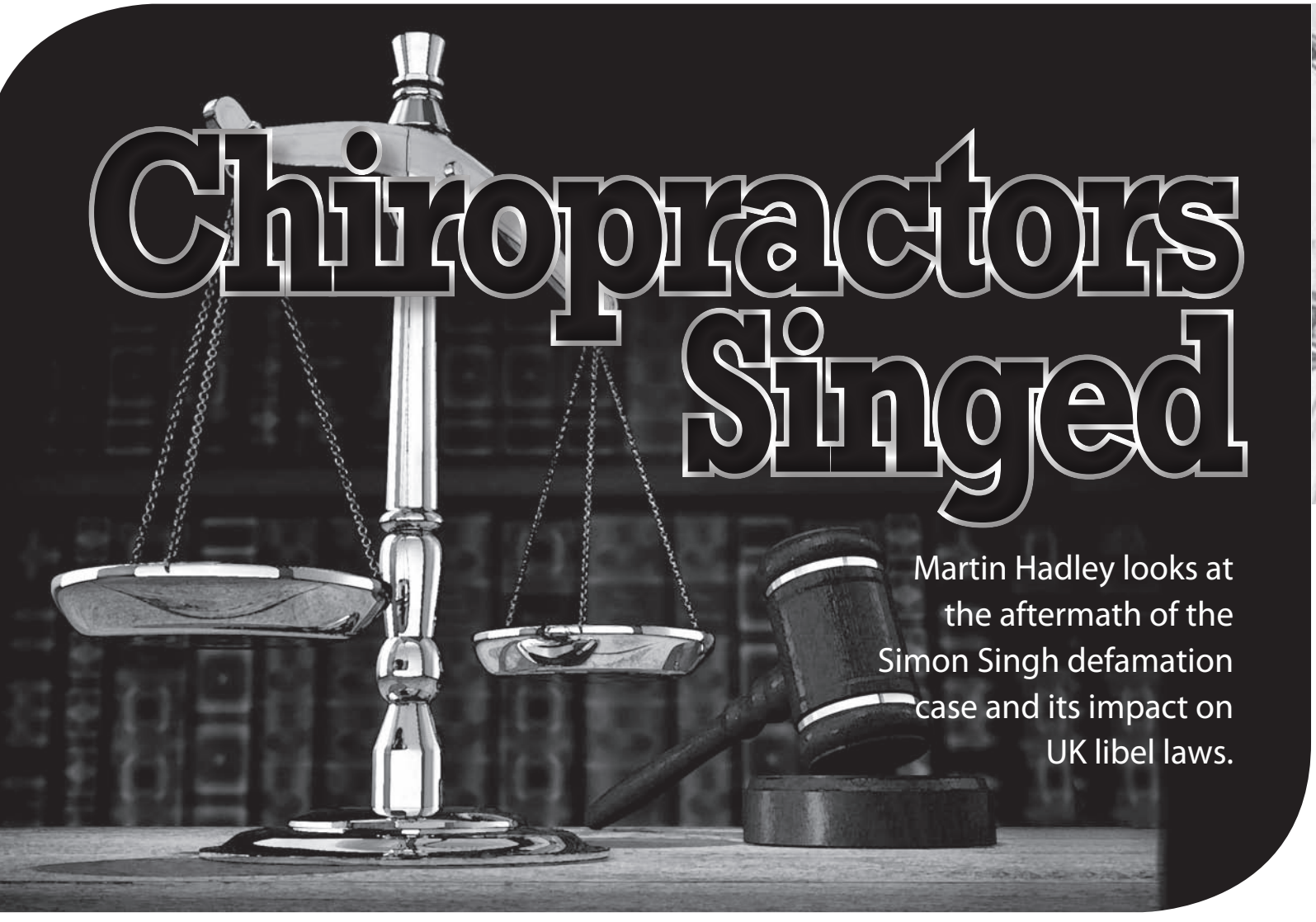
But then, for some reason, I imagined another boy somewhere else who was going to a family reunion or something equally boring and he was praying that it would rain. He had just as valid a reason as I had for or against rain.

I remember thinking, "How does God decide?" I think that was the first time that I thought that this doesn't really make much sense, like, what is God doing here, what's going on?

Then, reading *Inherit the Wind* when I was in school, I'd seen the word 'agnostic' and that was really exciting: "Ooh, we don't know, or we're not supposed to know, or we can't really know."

And then, finishing college and reading Michael Shermer's book, *Why People Believe Weird Things*, that was the first time I saw the term 'skeptic'. And I said, "That's me, that's cool, there are people like me who have this self-identifying thing, who question things, who want proof, who want evidence. And I'm not alone." ■

Note: *Chris French interviewed at Canberra convention 2013; Dr Karl and George Hrab interviewed at TAM Australia 2010. These latter and other TAM 2010 interviews and presentations are featured on the TAM Australia DVD, available from www.skeptics.com.au/shop*



Chiropractors Singed

Martin Hadley looks at the aftermath of the Simon Singh defamation case and its impact on UK libel laws.

It was bluebell time in Kent[1]; April 2008. It was also Chiropractic Awareness Week and the perfect time for science journalist Simon Singh to reveal a few truths about chiropractic treatments.

He hoped that his short article might surprise readers of *The Guardian* newspaper but few of them could have foreseen the distance these ripples would travel. By the time it was all over, the public's view of chiropractors had changed. So had the way chiropractors perceived themselves; and the law of defamation in England and Wales had received a few 'manipulations'[2].

Simon's article, entitled "Beware the Spinal Trap"[3] made two key points:

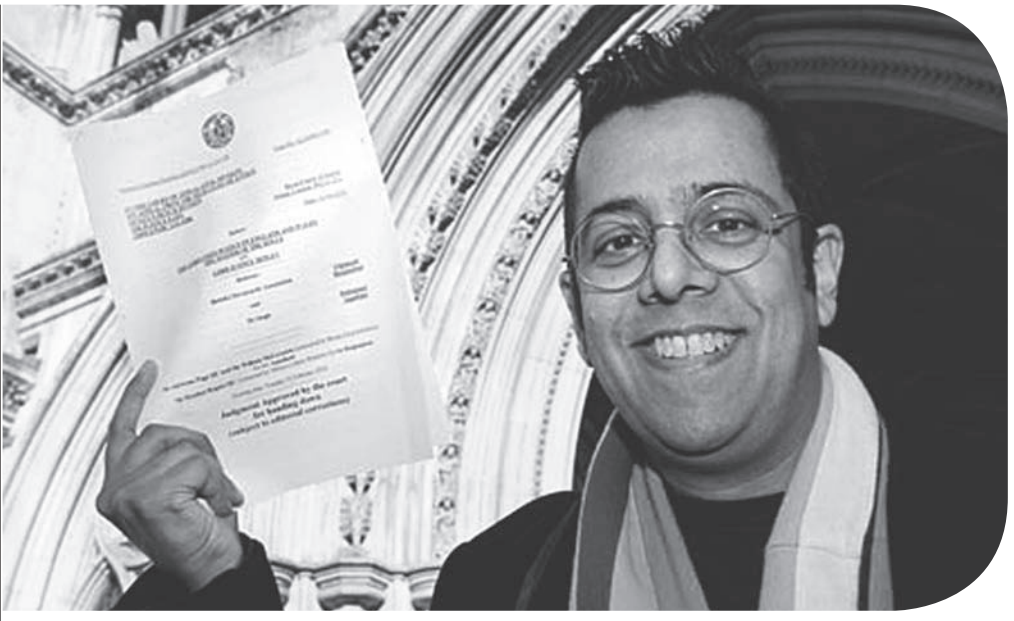
- Chiropractic as practised in Britain was not confined to a kind of physiotherapy for back problems. At the extremes of the profession, "fundamentalists" were making bizarre claims.
- The British Chiropractic Association (BCA) was helping even the extremists.

"You might think that modern chiropractors restrict themselves to treating back problems," the article said, "but in fact they still possess some quite wacky ideas. The fundamentalists argue that they can cure anything. And even the more moderate chiropractors have ideas above their station. The British Chiropractic Association claims that their members can help treat children with colic, sleeping and feeding problems, frequent ear infections, asthma and prolonged crying, even though there is not a jot of evidence. This organisation is the respectable face of the chiropractic profession and yet it happily promotes bogus treatments."

Simon's article went on to explain concisely why the treatments were bogus but the words "happily promotes" proved to be fateful. The essence of the ensuing stoush was that the BCA took Simon to be accusing them of deliberate dishonesty. Simon said he meant inadvertence. *The Guardian* offered the BCA right of reply but they decided that they wanted a decision from a judge, not the readers. Instead of open debate, the BCA headed for open court.

Years later, their president at that time, Dr Richard Brown, gave a revealing speech to chiropractors in Melbourne about that decision[4].

"In a move largely unexpected by many, rather than sue the newspaper, the BCA sued Simon Singh personally for libel. In doing so, the BCA began one of the darkest periods in its history, one that was ultimately to



Left: Simon Singh, outside the court and fairly pleased with the result in his favour.

cost it financially, reputationally and politically."

A LEGAL SETBACK

As with the worthy comedy series *Up Pompeii*, defamation cases often have a lot in "The Prologue". It is common to see important preliminary points fought over, months before the final hearing. Simon's case involved an early skirmish about whether he had been expressing a genuine opinion about the BCA's promotion of bogus treatments, or stating facts. A lot turned on that. An opinion can be ranked on a scale between reasonable and unreasonable but a factual statement is either true or false. Simon's team wanted to aim for a defence of fair comment rather than the more difficult defence of truth.

The ruling on that went against Simon, leaving his team with some challenging facts to establish at the final hearing. It helps to understand their situation if you note how Sydneysiders are now mired in controversy about the mental state of thugs who punch a person from behind, causing them to fall unconscious to the ground. When the victim dies, is that murder or manslaughter? It is not murder unless the prosecution proves a kind of intention on the part of the attacker. Proving a person's intention is often difficult. Simon's team pondered what kind of intention they could prove on the part of the people who ran the BCA, in relation to the "bogus treatments".

LAW REFORM

Simon's predicament set off a fusillade of complaints about how English libel laws were chilling scientific debates. While Simon announced he was appealing the preliminary ruling, supporters rallied and formed Sense about Science which launched its Libel Reform Campaign.

Veteran commentator Edzard Ernst voiced what many were thinking: "In healthcare, disagreements over evidence happen all the time, but it is wholly inappropriate to resort to personal attacks or the law courts. To resolve them we must employ open discussions about the scientific facts. If this process is bypassed, we jeopardise free speech and medical progress."

The case had a catalytic effect on a debate that had been seething over other aspects of the libel laws. The English system was accused of encouraging "libel tourists". These were plaintiffs who could have sued elsewhere but came to London hoping for handsome damages. If one copy of the offending work had been sold in England that was enough to give English courts jurisdiction, regardless of where the text had first been published or mostly sold.

> "Disagreements over evidence happen all the time, but it is inappropriate to resort to the law courts."

The English legal profession had welcomed these optimistic plaintiffs. The prospect of damages and a costs order – the loser usually pays – made many plaintiffs' lawyers happy to take on cases on a no-win-no-pay basis. Those lawyers then did a ton of work to ensure that they did win and get that costs order. The libel tourists got to have a lash in court with no money down while the defendant, usually a broadcaster or newspaper, faced the dilemma of caving in early or spending a fortune on their defence case.

Simon's was not a libel tourism case. The BCA was local and the offending article came from a British newspaper. The relevance of the issue was that libel tourism had pushed defence costs up so high that they had become a real worry for media defendants, let alone an individual journalist like Simon. The concerns had prompted research. On December 1, 2008, the Centre for Socio-Legal Studies at the University of Oxford published a report which concluded that the costs of defending a defamation case in England were 140 times the European average.

THE BOGUS TREATMENTS

After its win on the fact/opinion issue, the BCA was in a promising legal position. However, they were about to meet the spectre of history, carrying a sign marked "What Did You Expect?". Dr Richard recalls: "Using a software package to highlight key words in chiropractors' websites, claims were uncovered relating to everything from haemorrhoids to hair loss, chlamydia to cancer. A total of 718 complaints were made to the General Chiropractic Council (GCC) alleging that chiropractors were misleading the public and exploiting their lack of knowledge over health matters."

Dr Richard explained that this was 15 times the previous level of complaints but that, after a lot of work, 91 per cent were eventually dismissed.

Chiropractors Singed

Continued...

I make that 64 upheld compared to an historical level of 47 complaints being made in total (presumably for a comparable period).

ON APPEAL

The tide turned on 1 April 2010 when Simon won his appeal on the preliminary point.

It is worth spending a moment in the shoes of a law student learning how to interpret judgements. Depending on whether it is a lower level court, or an appeal, there can be a mix of the following:

- Findings of fact that are necessary to decide that particular case.
- Reasoning about how existing law applies to those facts. (These first two aspects are vital to the parties in that case but are basically irrelevant to litigants in other matters.)
- Statements about how the law must be extended or changed in order to resolve the present case. Such "dicta" will bind or influence judges in future.
- Additional statements of important principle – "obiter dicta" - not strictly necessary to resolve the present case, but intended to assist lawyers in future. The enduring significance of obiter dicta depends upon the context and the eminence of the judge(s).

Sometimes the obiter comes from a court that is not high enough to change the law, however the Judge firmly believes the law is wrong and that either Parliament or a higher court should change it.

In Simon's case, the three Justices of Appeal made that kind of statement. They were giving Simon a win on his preliminary point but they did not want to see a repeat of a similar exercise in future:

"This litigation has almost certainly had a chilling effect on public debate which might otherwise have assisted potential patients to make informed choices about the possible use of chiropractic. If so, quite apart from any public interest in issues of legal principle which arise in the present proceedings, the questions raised by Dr Singh, which have a direct resonance for patients, are unresolved. This would be a surprising consequence of laws designed to protect reputation.

"By proceeding against Dr Singh, and not *The Guardian*, and by rejecting the offer made by The Guardian to publish an appropriate article refuting Dr Singh's contentions, or putting them in a proper prospective, the unhappy impression has been created that this is an endeavour by the BCA to silence one of its critics. Again, if that is where the current law of defamation takes us, we must apply it."[5]

The BCA had lost round two but not the whole case. In brief, they remained entitled to show firstly that they had been defamed, and secondly to oppose Simon if he argued a defence that he had a genuine and reasonable opinion that the BCA had been promoting bogus treatments. Instead, the BCA "discontinued", which in plain English means surrendering and taking on a liability to pay Simon's reasonable legal costs. Plus the BCA had to pay their own. This occurred during another Chiropractic Awareness Week, almost exactly two years after Simon's article had gone to press.

How do we view the outcome, nearly four more years later?

THE BURDEN OF LITIGATION

Voltaire said he was financially ruined twice in his life: once when he lost a lawsuit, and another time when he was the winner. The usual reason why winners find that they are not grinners is that the loser has already gone broke. Fortunately Simon did not have that experience. The BCA paid most of Simon's legal costs but, as usually happens, there was an "unrecoverable" amount. It may not seem fair but every winner faces some gap between their bills and the amount that the opposition pays by way of reimbursement. In Simon's case that gap came to nearly one hundred thousand pounds. Part of Simon's deficiency was eventually made good by donations, including from *The Guardian*.

A winner gets no compensation for the time they had to spend working on the case. It is hard to understand this burden unless you have been sued. You have to devote countless hours to working with your lawyers while maintaining some kind of life under a threat of financial disaster if you lose. This stress and lost time goes uncounted, as in warfare where the dead and wounded are tallied but there is no measure of the enduring privations of the common soldier.

The individuals behind the BCA did not have as much personal skin in this game, but the outcome for their organisation was a financial disaster. From sowing this wind, their harvest was to pay about two hundred thousand pounds towards Simon's legal costs plus all of their own.

CHANGES TO DEFAMATION LAW

The protection of reputations is important, but it was time for the law to put serious commentators like Simon in a better position. The Libel Reform Campaign called for:

- A public interest defence;
- Allowing corporations to sue only

if the writer had been reckless or malicious;
- Modernisation of the law of republication, due to the way content gets reposted around the internet.
- Simplification of existing defences, including fair comment, to make them more accessible to deserving defendants.

A Defamation Bill containing proposed reforms was read on 26 May 2010.[6] As with any law that balances competing interests, there is no right answer and debate ensued.[7] To cut a long story short, reform of the defamation law nearly got sidetracked into the wider ethical issues raised by the Leveson Inquiry – an example of trying to achieve too many good things at once.

The new defamation legislation became effective on 1 January 2014. Time will tell but it appears to make a number of useful changes. The balance has been adjusted in favour of freer speech and libel tourism is less attractive.[8]

I spoke with Simon when he visited Sydney in January 2014.

"From my point of view it was most enlightening to see the toing and froing and I think at the end of the day it is a great example of how parliament can work and how citizens can change the system."

The case took from Simon the equivalent of a year's working time but he is admirably magnanimous.

"Had they not done anything, nobody would have noticed my article – tomorrow's fish and chips wrapping – literally nobody would have cared. But because they sued and the case went on for two years, so many people became aware of the article and the issues at stake. It worked at several levels. One, it forced chiropractors to look at their own practice and their regulatory bodies and what they should be doing. Two, it made people like doctors aware of what chiropractors do. Before, if a patient was coming to them with a long term difficult back problem they might say: 'Look, why don't you consider seeing a chiropractor?' Now they'd be a lot more wary of doing that, knowing that there are lots of odd claims associated with chiropractic.

"The complaints procedure that was used by the bloggers and skeptics in the UK had a massive effect on the number of non-evidence based claims from chiropractors."

CONSEQUENCES FOR CHIROPRACTORS

We do not know what fee agreement the BCA made with its lawyers or what advice they received about the damages they were likely to recover. It is safe to infer that they perceived some risk that even victory would not be cash flow positive, but their reputations would be vindicated. The resulting mixture of legal expenses and bad publicity must have come as a nasty surprise. The work of people like Simon showed the public that chiropractors came in many shapes and sizes. "Bogus" was a fair description of some of their 'treatments'.

> " Because they sued and the case went on for two years, so many people became aware of the article and the issues at stake. "

We are starting to see increasing division among chiropractors in Australia. The more conventional practitioners do not want to be classed alongside those who take risks with babies' necks or who make extravagant claims on their websites. In his speech, the chiropractor Dr Richard Brown divided his colleagues into "scientists and subluxationists". I'll let him conclude:

"Claims that the vertebral subluxation complex is the cause of illness and disease have persisted despite the three UK educational establishments advising the General Chiropractic Council that no evidence of acceptable quality exists to support such claims. ... The idea that somehow achieving a subluxation-free world will be the panacea for all ills has to be publicly debunked. Moreover, cheap public denouncements of standard medical care whilst at the same time lauding the near-magical effects of the spinal adjustment must stop." ■

About the author:
Martin Hadley is a barrister and treasurer of Australian Skeptics Inc and the Australian Skeptics Science & Education Foundation

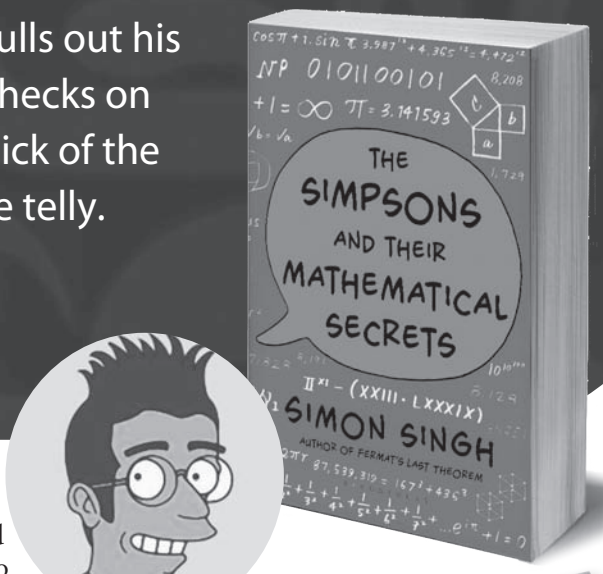
REFERENCES

1. An expression used by Lord Denning in the decision of Hinz v Berry [1970] 2 QB 40, a case about an accident on 19 April 1964.
2. Courts in the UK operate under three systems: one for England and Wales; another for Scotland and a third for Northern Ireland. Legal references in this article are to England and Wales.
3. Available at: http://tinyurl.com/k6wwqbd
4. The Chiropractic Report November 2011. Text available in full at: http://tinyurl.com/7mnhkds
5. [2010] EWCA Civ 350
6. Explanatory Notes at: http://tinyurl.com/mmd2bkz
7. See for example the reaction from Sense about Science, including Simon's view: http://tinyurl.com/k92vmvp
8. Parliament's website states that the new Act:
   - Includes a requirement for claimants to show that they have suffered serious harm before suing for defamation
   - Removes the current presumption in favour of a jury trial
   - Introduces a defence of "responsible publication on matters of public interest"
   - Provides increased protection to operators of websites that host user-generated content, providing they comply with the procedure to enable the complainant to resolve disputes directly with the author of the material concerned
   - Introduces new statutory defences of truth and honest opinion to replace the common law defences of justification, and fair comment.

The reaction from the press was favourable, eg: http://tinyurl.com/odnw4jy

The NUM8ER5 racket

Steve Roberts pulls out his calculator and checks on Simon Singh's pick of the programs on the telly.



What should we teach to children? It is surely better to teach scientific method than to merely impart scientific facts. Industry has long been crying out for graduates with lively and inquisitive minds, who can pick up and run with ideas, rather than those who have absorbed only facts, which will be largely irrelevant in the real world. And, since kids spend more time watching TV than attending school, the TV programs ought to bang some education into them, or at least a sense of curiosity.

School should be more fun anyway. I know a fellow Skeptic, a physics teacher who teaches inertia by lying flat with a Besser block on his chest. So far, so inertial, but then the Besser block is smashed with a sledgehammer; concrete and dust fly everywhere and he emerges unscathed. Those kids will never forget that physics lesson. (The hammer is not wielded by a student - "sorry Sir I missed", arghh. Instead, his wife enters the room, the students respectfully stand up, wife smiles cutely, students sit down again, then the wife ruins the dignity of the occasion by wielding the sledgehammer, like mighty Thor. I bet she enjoys that.)

We celebrate our great novelists, painters and musicians, so why not our mathematicians? Maybe it is because scientists fear and dislike mathematics, where everything is perfect - every line you write, every theorem you prove is perfect and correct. The rest of science, even if it is the best we can do, is fuzzy and imperfect, like the real world. But there are gold nuggets in the mud of reality: the bear in the Toblerone symbol; the arrow in Fedex (more obvious in the Arabic version); Easter eggs in every computer game.

On television, the animated TV series *The Simpsons* and *Futurama* are the best sources of mathematical education, believe it or not. The writers of these shows include highly qualified mathematicians, whose minds tend towards silly and illogical jokes; but there is no guarantee that a joke exists for a given situation.

Simon Singh points out some of the hidden mathematical gems in these TV shows in his book *The Simpsons and Their Mathematical Secrets* and expands upon them in a readable and amusing fashion.

He spoke on the book at recent events in Sydney and Melbourne, and my review also covers a talk he gave at Embiggen Books (including the above concealed nuggets).

Everyone watches *The Simpsons*, but few see the maths jokes because they tend to be hidden in freeze-frame gags: the bait is on the TV screen for less than one second, so you have to rewind and pause a recording to see it in detail, then curiosity leads to a rich intellectual reward. These jokes increase the comedic (and nerdic) density, without interacting with the plot. In his book, despite his background in an incomprehensible field (particle

Clockwise: Spotting the secret maths in *The Simpsons* is not as simple as spotting the bear on a pack of Toblerone (and why not delete the "tolo") or finding the appropriate arrow in the FedEx logo. (+ Simon gets the Groening touch.)

physics), Simon clearly explains the jokes and then delves deeper into the maths involved, in an entertaining and highly readable style: the Klein Bottle, pi, taxicab and Erdos numbers, etc.

For example, can cinema names be funny? In *The Simpsons,* the local multiscreen cinema is called the "Googolplex", a number that not even a homeopath would understand. And a thousand years hence, the *Futurama* cinemas have the embiggened moniker "Aleph-Null". These names don't interrupt the plot, so they can flash by on the screen and there is no need to draw attention to them. They are left hanging - high-hanging fruit, as it were - for people to find, reach up to and pick. And anyone can appreciate the humour. This book opens the way for any reader to savour these delicacies.

Another example, from the dozens in the book: A plot requires three numbers to be displayed on screen; any high 4-digit numbers will do, and we see 8128, 8191, and 8208. Why choose those? Well, why not. But as it happens, 8128 is a 'perfect' number, 8191 is a Mersenne prime, and 8208 is 'narcissistic' because having four digits it is the sum of the fourth powers of its digits.

And here's one for you to work out - in a horror story parodying *The Shining*, the binary number 0101100101 is written on the wall in blood. This is decimal 357, a rather dull number, until it is seen reflected in a mirror.

But not all numbers in *The Simpsons* have mathematical relevance. For example, the writers admit that the Simpsons' house number - 742 Evergreen Terrace - is "just a number" (even if it is the smallest number that is 1 more than triple its reverse).

One writer, with a Harvard PhD in applied maths, proved the "Futurama Theorem" to resolve a plot twist: a machine exchanges any two people's minds, but then it cannot swap the same two people again. How many fresh people must be brought in to restore all the minds to their proper bodies? (The answer is two.) Another writer and Harvard graduate has published on the pancake sorting problem - to sort a stack of different-sized pancakes into order, using a spatula that can be pushed anywhere into the stack to flip over the sub-stack of pancakes above it (for extra fun, the pancakes can be burnt on one side, which must end up facing downwards). For 19 pancakes, you need at most 20 flips; for 22 pancakes, nobody has any idea, not even Bill Gates, who published on this problem in his youth, his only mathematical paper.

The book contains several exams of increasing difficulty; bizarrely, both question and answer are given, and you score points if you can laugh at them. Examples: Why did 6 fear 7? Because 7 8 9. What goes "pieces of 7, pieces of 7"? A Parroty Error. What is brown and furry, runs into the sea and is equivalent to the axiom of choice? Zorn's Lemming.

You should rush out and buy this book, and while you're at it, buy Simon's other books (*Fermat's Last Theorem, The Code Book, Trick or Treatment, Big Bang*) which are equally readable and equally brilliant at explaining their topics.

Finally, the book has a beautiful gem just for the delectation of Skeptics. Homer invents a device to relieve back pain "even though there is not a jot of evidence" to support his claim. The local chiropractors want to destroy this rival device, so that they can "happily promote their own bogus treatments". Hmmmm, let's see if the chiropractors of Springfield take legal action against Simon, a hero of free speech and critical thinking. ■

Disclaimer: ***Please look up any unexplained terms, and thereby experience the joy of finding things out, as well as the elegance and beauty of mathematics (well, of some of it).***

About the author:
Dr Steve Roberts graduated from Imperial College London 15 years before Simon Singh did, but has not gotten around to writing any books at all.

the Logical Place

The Gambler's Fallacy

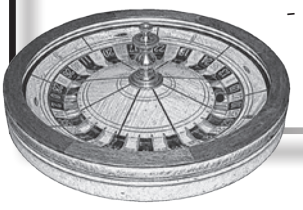
The **Gambler's** Fallacy (also known as the **Monte Carlo** Fallacy) is the mistaken belief that if an event happens more frequently than normal during some period, then it will happen less frequently in the future (the so-called Law of Averages). The fallacy is most strongly associated with gambling, where such errors of reasoning are common amongst players, and even more common among problem gamblers.

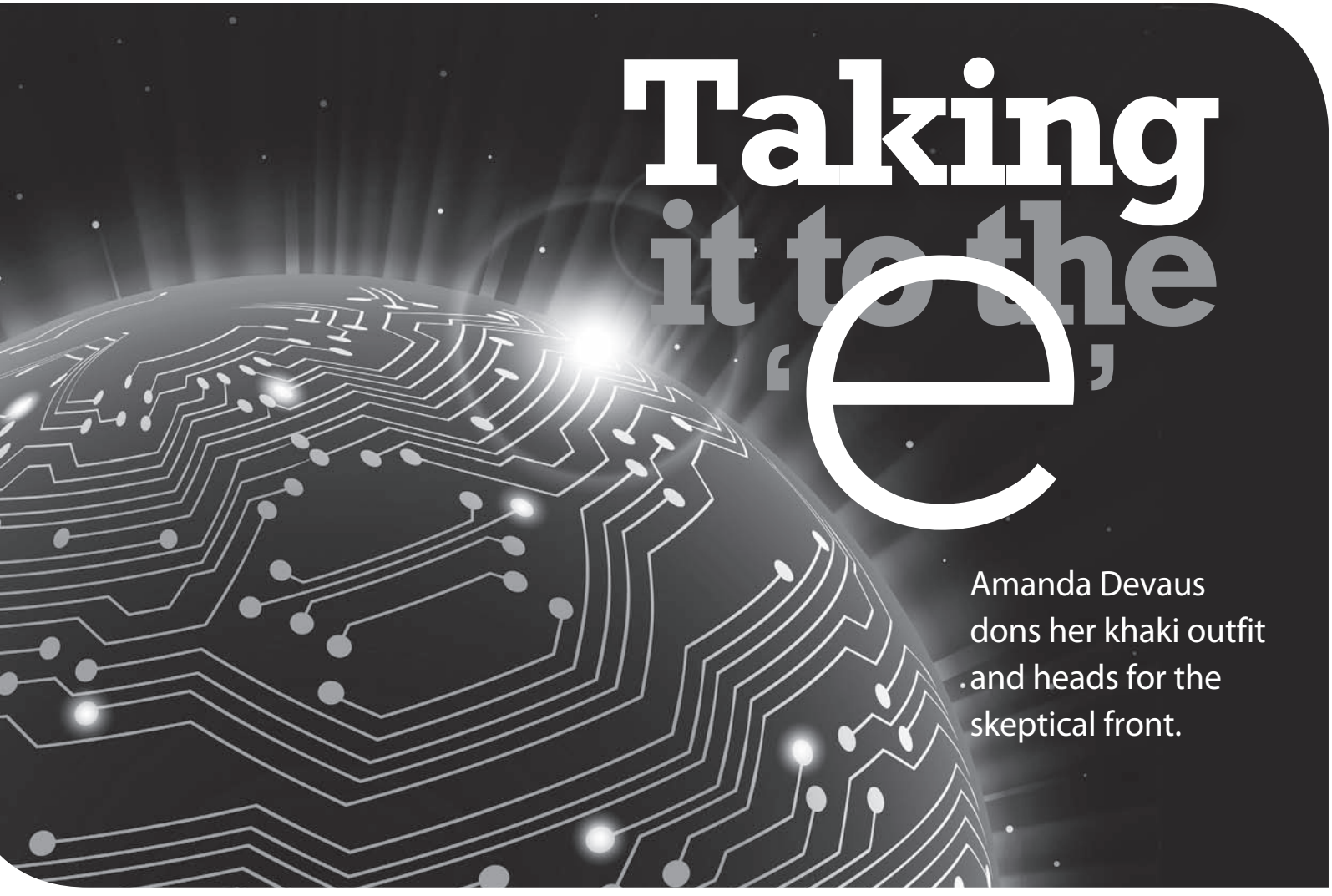
The most notorious example of this fallacy occurred in a Monte Carlo Casino on August 18, 1913. On this occasion, black came up a record twenty-six times in succession on a roulette wheel. There was a frenzied rush to bet on red, beginning about the time black had come up a phenomenal fifteen times. Players doubled and tripled their stakes, the fallacy leading them to believe after black came up the twentieth time that there was not a chance in a million of another repeat. In the end, the unusual run enriched the Casino by some millions of francs.

The reality is that if the roulette wheel at the Casino was fair, then the probability of the ball landing on black was a little less than one-half on any given turn of the wheel. Also, the colours that come up are statistically independent of one another, thus no matter how many times the ball has fallen on black, the probability is still the same at every turn of the wheel. (Remember that neither the roulette wheel nor the ball has a memory).

Almost every so-called gambling system is based on this fallacy, or a similar error of reasoning. Any gambler who thinks that he can record the results of a fair roulette wheel, or lotto numbers or a gaming machine, and use this information to predict future outcomes, is probably committing some form of the gambler's fallacy.

- by Tim Harding





Taking it to the 'e'

Amanda Devaus dons her khaki outfit and heads for the skeptical front.

I am tremendously proud to be an Australian Skeptic, because if you ask anyone you will most likely be told that as Australians we like to get things done. And we have had some successes, especially to do with the anti-vaccination crowd and chiropractic practice. However, I also believe that we can do more. And this was the topic of my talk at the Australian Skeptics National Convention in November 2013.

I felt privileged to present to people whom I respect and admire, especially about 'guerilla skeptics', a topic that I am very passionate about. My mission was simple – to promote skeptical activism and inspire others to get involved.

We are a wonderful community; however we tend to stay within traditional avenues of expression - skeptics in the pub, conventions and our own internet forums. There is nothing wrong with this, but we have a tremendous opportunity to use our skills, knowledge and contacts to make a difference.

And we are just not doing enough. We need to become more of a movement, not just a community, and not just within Australia, but to connect internationally so we can truly kick up some skeptical dust. We also need to provide information to decision makers, connect with government departments and start campaigns through government channels, the legal system as well as public campaigns. The "woo" crowd – the psychics, the charlatans, the 'healers' – are out there in the public, they are writing books, setting up expos, getting themselves extensive media coverage. We need to match their exposure with our own, to be there to give the counterpoints.

CAMPAIGNS

As part of being a guerilla skeptic, we can organise campaigns that have the aim of creating change. Some campaigns may be short and have a specific time frame, and there are others that are more long term, for example the ongoing campaign to stop anti vaccination groups spreading misinformation. Every campaign should have a goal, objectives, target audience and tactics.

Anti-vaccination groups are an excellent example of this. Australian Skeptics and the Stop the Australian (Anti)

Vaccination (SAVN) network had the goal of educating the public on one fact, "vaccination saves lives". The campaign was not to personally malign an individual, but to counter the harmful propaganda that anti-vaccination groups throw out into the community, and to give real information. The objective may include things like media coverage with the target audience being the general public.

Organised skeptical activism becomes more effective with the involvement of many people with their own specialties and contacts in the community. These people should represent diverse skills sets as well as a shared passion to get the information out to where it needs to go. There is a broad range of tactics available, and it is vital to ensure the most appropriate tactic is implemented for the issue being addressed. This can be either attracting media attention, good old fashioned email/letter writing campaigns, or using the internet.

The media are also an extremely powerful tool in the skeptical toolbox. By developing relationships with various media outlets, it becomes a little easier to be able to get your message out to the community. Two tips on dealing with the media:

- Make it personal – the media aren't just about the information, but a way to attract attention. It is important to inform as well as engage so your story can resonate. By bringing up a specific case study, this makes it personal and has an emotional connection to the audience.
- Make it a real story – a good story has a simple, straightforward narrative that conveys your message and key points. You need to make sure your message is clear and easy to remember.

FROM THE HOME FRONT

The focus of my convention presentation was the skeptical tools that can be used from your own home in order to be a skeptical activist. My inspiration was Tim Farley, Susan Gerbic and Mark Edward, and now I want to keep the word out there.

Skeptic Action

The Skeptic Action group (skepticaction.blogspot.com.au/), with the motto "An action a day keeps the pseudoscience at bay", was founded by Susan Gerbic, and you are able to follow it on Twitter, Google + and Facebook. Once you join, a task will be posted each day with a request to go to the link provided and rate, comment and review as you deem appropriate. The tools used are mainly WOT (Web of Trust), Rbutr and Fishbarrel. It is important to stress the following:

- You do not have to vote if you are not comfortable
- Please take the time to read the website you are presented with
- You are not obliged to vote in every category
- And we do not tell you how to vote.

Do Not Link!

Skeptics need to be mindful of linking to bad information that we want to act on. Search engines like Google use the number of links to a site to measure the importance of content.

As the site Do Not Link (www.donotlink.com/) points out, when you link to a website — regardless of the reason — this strengthens its position in search engines. This means that a bad review of a website makes it more popular.

If you are going to link to websites in Facebook, Twitter or other social media platforms, it is almost a necessity to get into the habit of using the DoNotLink tool. It uses three different ways to block search engines from crawling a link, so you are able to post your link on forums, message boards, reddit and other public places without giving the websites any undeserved credibility.

Web Of Trust

Web of Trust (WOT - www.mywot.com/) is one of the most important tools for skeptical activism. It is simple to use, and once you sign up and obtain a user name, you will have the ability to rate any website that you visit. Upwards of 120 million people have downloaded the tool, a strong indication of the reach of WOT. The person this is aimed at is someone who isn't fully knowledgeable on topics – those who Google and look up subjects on search engines, without understanding how truthful or trustworthy webpages can be.

> "Organised skeptical activism becomes more effective with the involvement of people with specialties."

WOT displays a coloured 'traffic light' next to website links to show which sites people trust for safe searching, surfing and shopping online: green for good; red for bad; and yellow as a warning to be cautious. The icons are shown in popular search engine results, social media, online email, shortened URLs, and many other sites.

When a 'layperson' looks up these sites, they will see the ratings and the comments that are left. When the red dots come up, a warning will show.

Rbutr

rbutr (rbutr.com/) is an excellent tool, much embraced within the skeptical activism community.

rbutr tells you when the webpage you are viewing has been disputed, rebutted or contradicted elsewhere on the internet. It is a community-driven app which connects webpages together on the basis that one page argues against the other. Visit a 'rbutd' page and you will be told "There are rbutls to this page." You can then open up the rebutting article(s).

The rebuttals are posted by the community, using a small logo on

Taking it to the 'e'

Continued...

the subject webpage to indicate that there are other sites or pages that put a different position to that being presented on the initial site.

Install rbutr and it will sit in the corner of your browser, out of the way, waiting for you to browse your way on to one of the thousands of websites in the rbutr system which have been linked to rebuttals. When you visit one of these rebutted pages – whether you got there by a friends recommendation, a Google search, or any other way – rbutr will pop a small alert on the page to let you know, and indicate how many rebuttals are connected to the rebutted page with a small number on the icon. The rbutr logo will fade out after a few seconds, so it is not particularly intrusive.

Clicking on the rbutr icon will reveal the list of rebuttals. Any webpage can be rebutted; even the rebutting pages can be counter-rebutted.

These rebuttal pages are worth reading, and have a tremendous value to those who would not normally see this information.

FishBarrel

FishBarrel was initially started in the UK to improve the process of making complaints about medical products and claims. Normally a long drawn-out and complicated process that turns off many would-be complainants, FishBarrel, a plug-in for Google Chrome, takes screen shots of the pages in question and manages the complaint process so that it takes just a few seconds. In the UK, complaints have been made to the Advertising Standards Authority or Trading Standards.

It was used effectively in the Simon Singh vs British Chiropractic Association legal case, where skeptics, led by the developer of FishBarrel, Simon Perry, scoured chiropractic websites for claims that went beyond what was legally allowed and filed hundreds of complaints to Trading Standards and the chiropractors' own regulator. This resulted in many online claims being retracted.

FishBarrel also tracks all text complained about in a central database. When you turn on FishBarrel, any text complained about by other users is automatically highlighted. This prevents you from submitting duplicate complaints. It also automatically revisits websites to check if the claims have been removed.

> "Wikipedia has become the 'go to' source of info for the general public. It is important to ensure the content is correct."

Relatively in its infancy in Australia, complaints are made to the Therapeutic Goods Administration (TGA) and the Australian Consumer and Competition Commission (ACCC).

The plug-in can be downloaded from Perry's blog, adventuresinnonsense.blogspot.com.au/

Guerilla Skepticism on Wikipedia

Guerilla Skepticism on Wikipedia (GSoW - guerrillaskepticismonwikipedia.blogspot.com.au/) is another brainchild of Susan Gerbic, and was started as a mission to improve the skeptical content on Wikipedia by improving the pages of skeptical spokespeople, providing noteworthy and correct citations and removing unsourced claims from paranormal and pseudoscientific pages. Contrary to the current claims, this is not about vandalism or furthering a skeptic agenda.

Wikipedia has increasingly become the 'go to' source of information for the general public, and is often at the top of search engine results. It is for this reason that it has become more important than ever to ensure the content is correct, fair and balanced. The GSoW team is dedicated to following the rules of Wikipedia and to have the content and sources correct and to have science featured in place of unproven woo. They can find notable Skeptics who have published in secondary sources about the subject of the page to provide expert opinion that can be used to improve the Wikipedia page. They also take well-written pages in one language and try to get them translated into other languages.

WHAT'S THE POINT?

Being a skeptic can be for the value of the community, the opportunity for self-improvement or as a source of academic interest. However, we can also be a movement and use our skills, knowledge base and contacts to not only expose those who commit scams, fraud or misinformation, but to help people. This is your call to action. We need to be active and participate, and we need to work together. Once we do, we can make a difference. ■

About the author: **Amanda Devaus** works in the public sector, and is vice-president of Canberra Skeptics.

THE mySTERY tour

The best places to find a mystery ... or solve one.

The travel service Wanderlust has produced a list of "travel mysteries to solve in 2014". While some of these we feel have already been solved and therefore not that mysterious, the Top 10 from the firm's list do make for an interestingly skeptical itinerary. They are, in order:

1 Moai, Easter Island

The giant heads on Easter Island. "Just who constructed these mystifying monuments?" The inhabitants, probably. "How did they do it?" They carved them. No great mystery, but definitely worth a look, if you can get there. A 5.5 hour flight from Santiago, Chile.

2 Gobi rock art, Mongolia

Among the petroglyphs in the Havsgait Valley are "some rather stranger scribbles". "Are they humanoid? Are they aliens?" A 90 minutes flight from Ulaanbaatar to Dalanzadgad, then a 2.5 hour drive.

3 Loch Ness monster, Scotland

One of our favourite places, monster or no. A half-hour drive from Inverness; several hours to circumnavigate the loch, lesser-travelled south side has great views.

4 Stone spheres, Costa Rica

Ranging in size from a few centimetres to over two metres, most of the 1400-year-old(?) stones have been moved from the original location – some stand outside the Costa Rica National Museum, some were blown up by treasure hunters! Tours from Costa Ballena take you to a delta where some still remain.

5 Eye of the Sahara, Mauritania

Looking a little bit like an eye, if you squint, this rock formation is 50km across. The Richat Structure (as it is also known) is probably the result of a meteor strike ... or the lost city of Atlantis. Probably best seen from space.

6 Pyramids of Giza, Egypt

Really! A mystery? Obviously a huge attraction, in more ways than one, but may be a bit dicey at the moment to go there. Accessible by bus or taxi from Cairo.

7 Sailing Stones, USA

In Death Valley, not far from Area 51, are these stones that move across the desert floor, really slowly. Probably propelled by wind while on ice or mud in colder weather, Richard Saunders went there (The Skeptic, 32:1) and said it's freezing. Visit next time you're at TAM Las Vegas.

8 Lost City of Ubar, Oman

Can't be that lost if they found it. But the Atlantis of the Sands has attracted such luminaries as TE Lawrence, Wilfred Thesiger and Ranulph Fiennes (third cousin of actor Ralph). There's a small museum at Shisr, a two-hour drive from Salalah.

9 Socotra, Yemen

Not so much a mystery as a fascination – an island 380km off the coast with much unique flora, including the dragon's blood tree (not to be confused with the other dragon's blood tree from the Canary Islands). Herodotus said the island is where the phoenix came to be reborn; finding that would be solving a great mystery. You need to fly there as the region is home to Somali pirates.

10 Marfa ghost lights, USA

Glowing orbs that appear in the night sky outside of Marfa, Texas. 'Mysterious' lights are found in quite a few places – Australia has several 'phenomena', such as the Min Min lights in the Channel Country – and the explanation tends to be vehicle lights shimmering in atmospheric conditions.

We're not sure what else there is to do in Marfa outside of heading for the viewing platform, 10km out of town, and we're definitely not sure why these lights rate higher than the Yeti (#12 on the list). So maybe the other less-than-top-10 'mysteries' would be of greater interest, including the Pulemelei mound in Samoa; the 1546 standing stones in Hintang Archaeological Park in Laos; Angkor Wat in Cambodia; Moeraki boulders on the North Otago coast of New Zealand; Lourdes in France; the stone figures of the San Agustin Archaeological Park in Colombia; and, of course, the Tasmanian Tiger.

Happy travelling. ■

Need to Believe

There are many bizarre claims out there, but Paul Berchtold looks at the psychological underpinnings of belief, and asks if people have an inbuilt drive to control and believe.

What is it that makes people believe in the paranormal? Researchers have posited several hypotheses to answer this question. Is it that they are deficient in intelligence or socially awkward, the loners of society? Or are they psychologically unwell, undergoing some psychotic episode. Perhaps they have watched too many episodes of the *X-Files* and *Star Trek*, confusing fiction with fact, or have particular personality characteristics that cause them to believe they had special paranormal powers. Or are they just people, struggling to cope with the day to day stresses of life, not knowing what the future holds.

In recent years, such as 2012, all of these explanations were especially evident in the general population to some degree. We had the Mayan apocalypse of December 21 come and go with widespread media attention, not to mention widespread belief, and Friday the 13th occurring the greatest number of times possible for any year. We also had the regular appearances of UFOs, Bigfoot and the explosion of paranormal reality (or unreality) TV such as *Ghost Hunters* and *UFO Hunters*. It was thus prudent that I presented evidence for these explanations at the 2013 Skeptics conference in addition to the results of new research in the area, and it is now timely to discuss these results.

Paranormal beliefs are a diverse field of interest, from the belief that aliens visit earth, creatures such as Bigfoot roam the wild, that new age medicine is good for you and that astrology can predict your future. Add to that the panoply of religious beliefs and life after death, ghosts, spirits and poltergeists, PSI processes including ESP, telepathy and telekinesis, and superstitions.

The actual beliefs don't appear to have much in common. For instance, belief in alien spacecraft has little in common with belief in ghosts, yet those who do believe have one major common characteristic - they all believe in phenomena which defy the current laws of science. It is this common characteristic which binds them to what Broad (1953) called violations of the basic limiting principles.

They also can't be explained by science and if they ever could, would require a major shift in the basic underpinnings of science (Braude, 1979). This has the rather perverse impact that, sadly, if we ever could scientifically study and find scientific evidence for a paranormal phenomenon, all that would occur is that it would no longer be classified as paranormal, meaning the paranormal can never really be understood in the first place. Despite this, many people choose to believe, with some devoting their whole lives to it. By some measures, a vast majority of people believe in the paranormal to some degree (Rice, 2003). Explaining why this is the case has thus become an important scientific endeavour in the field of psychology.

As I have outlined, researchers have proposed different reasons for believing in the paranormal. For a review, I can suggest readers obtain a copy of Harvey J Irwin's *The Psychology of Paranormal Beliefs* (2009) which, in addition to providing a review of the major explanations, provides a comprehensive reference list for further reading. In general, people believe in the paranormal because of cognitive, social or psychological reasons. In the cognitive realm, people believe in the paranormal because they have deficiencies in estimating the probabilities of events co-occurring and thus jump to paranormal conclusions or have difficulties in cognitive reasoning. In the social group, people believe because they are marginalised from society, making joining paranormal groups an attractive proposition. Alternatively, psychodynamic researchers have proposed that people believe in the paranormal, usually subconsciously, because they have an internal psychological state or need that draws them to the belief. It is these latter psychological reasons which I will outline.

To outline the basis of the psychological hypothesis, I will give an example of a discussion I had in 2013. I was challenged by a believer in UFOs who questioned the validity of the psychological explanation of paranormal beliefs given what the person saw as 'overwhelming" evidence in support the claim. I responded by pointing out that whether UFOs actually existed was beside the point. They couldn't prove to me that they existed and all I could do was offer alternative explanations to each phenomenon or provide disconfirming evidence.

I suggested the following example. If we were both standing in a field at night, and saw an unidentified light in the sky, they would most likely label it as a UFO, and see it as supportive evidence of their belief in UFOs, whereas I would most likely label it as an aircraft, or a star, or simply leave it unexplained and dismiss it. Neither of us could prove what it was, yet we each came to different conclusions.

> " I can't help but think that some psychics see themselves as particularly special people ."

Psychological explanations look to examine what internal state caused this person to choose to jump to a paranormal belief. In the case of UFOs, it could be that a person has such an inability to tolerate not knowing that they would label a light in the sky as a UFO rather than leave it unexplained. Thus the remainder of this article is focused on the psychological, or the psychodynamic explanation of paranormal beliefs.

As I asked previously, is it that believers are mentally unwell, undergoing a psychotic episode or some form of psychopathology? When you think of some of the bizarre beliefs people hold, such as demonic possession, you can't help but compare these beliefs to the symptoms of psychosis. Take the case of the belief in telepathy, believing that one can receive and transmit information using only the mind. This is seen in both paranormal beliefs and unfortunately, in some sufferers of schizophrenia. So given the symptoms are similar, might paranormal beliefs also be similar to schizophrenia? The answer is probably no. Yes, many people who believe in the paranormal score higher on measure of schizotypy, a non-clinical level of schizophrenia, but this doesn't translate to the other symptoms of schizotypy such as disorganised thoughts and antisocial behaviour (Goulding, 2005). Believers in the paranormal share the similar bizarre thoughts with people high in schizotypy but that's it. They don't share some of the really negative thought patterns and behaviours which define this mental illness. So we can safely say that paranormal beliefs are probably not a result of psychopathology, and while the beliefs are similar, they aren't a result of mental illness. In fact, some authors suggest that paranormal beliefs may have some protective aspects against mental illness (Goulding, 2005).

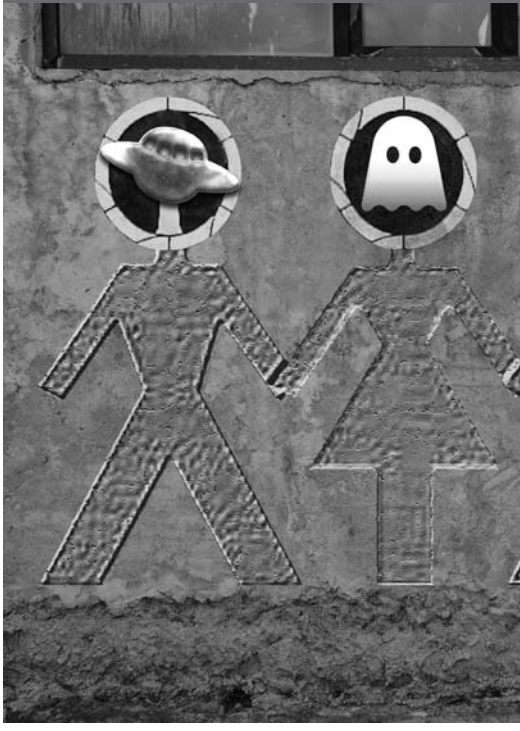
I also asked whether paranormal beliefs were formed because believers had particular personality characteristics which made them vulnerable to developing paranormal beliefs. Unlike the preceding psychopathology explanation, the evidence here is more supportive. I can't help but think that some psychics, and other dispensers of paranormal skills, see themselves as particularly special people, occupying a special place in the world. Not many people can predict the future, or heal your sickness with their mind, so of course this is something they must think.

This is the classic domain of narcissists, who have a psychological need to see themselves in grandiose terms, above others, uniquely skilled and important to the world. In reality my thoughts on this matter are generally supported by the evidence.

Paranormal beliefs and narcissistic personality traits are related, meaning those who believe in the paranormal tend to score higher on measures of narcissism, particularly those who invoke a great sense of personal ability such as ESP and PK (Roe & Morgan, 2002). So, in fact, narcissists may seek out the paranormal in order to show the world how special and unique they really are, something to consider next

Need to Believe

Continued...



time you decide to challenge a travelling psychic, given they might just enjoy your special attention to them.

Researchers have also looked at the relationship between other personality traits and paranormal beliefs. Unlike narcissists, neurotics have a tendency to not think much of themselves. They have a tendency to have low self-esteem, suffer from depression and anxiety and also have high levels of irrationality. These people tend to be particularly vulnerable to developing paranormal beliefs (Tobacyk & Mitchell, 1987; Thalbourne, Dunbar & Delin , 1995).

To understand why this is the case we need to delve into the world of psychological defence mechanisms. Briefly, these operate when our internal psychological states, such as depression or anxiety, become too painful or difficult to cope with. In response, our subconscious develops strategies to deal with these feelings by pushing them out of our conscious mind. For neuroticism, believing in the paranormal, which could be considered a form of dissociation, acts as a defence mechanism to avoid these negative internal states. Likewise, believing that you are telepathic, or have the ability to foretell the future might help against subconscious feelings of worthlessness so often seen in depression. Indeed, researchers such as Williams, Francis & Robin (2007) have shown evidence for this.

> “ The evidence doesn’t suggest that paranormal beliefs are a sign of mental illnesss.”

The last aspect of the psychological explanation seems particularly tuned to our highly stressful modern world. Researchers have questioned whether paranormal beliefs develop in order to help people cope with the stress of life in an unpredictable world. The evidence suggests this might indeed be the case. People have different capacities to deal with uncertainty in their life.

We all probably know the control freaks in life who blow their stack at the slightest thought of not being in control of a situation or know what’s going to happen in the future. For some of these people, the inability to cope with uncertainty, or a lack of control which, let’s face it, is a part of everyday life, leads them to a process of worry and rumination, often leading to high levels of anxiety. Believing in the paranormal alleviates these feelings. Having one’s fortune told obviously allows us a greater control over our future. Likewise, being able to read others’ minds increases our control over our interactions with them. In the case of the previous UFO example, for people low in the ability to tolerate uncertainty, labelling an object as a UFO causes them less anxiety then simply leaving it as unexplained.

The evidence in this regard has been somewhat mixed, but the most recent research from authors such as Roe & Bell (2007) and Hart, Sullivan-Sanchez, Packer & Loveless (2013) now supports this relationship between the ability to tolerate uncertainty and paranormal beliefs. So some people will use paranormal beliefs to gain a sense of control over life.

My own research from 2013 now supports this idea that paranormal beliefs, the intolerance of uncertainty and anxiety are related. This research explored the relationship between trait anxiety and paranormal beliefs, but also explored a relationship between a fairly new concept, the intolerance of uncertainty and paranormal beliefs. The intolerance of uncertainty is related to anxiety, but is focussed far more on the concept of worry about the future. Essentially it means that the less we can tolerate uncertainty, the more we will worry about it. I hypothesised that trait anxiety and paranormal beliefs would be positively related because people develop paranormal beliefs as a coping mechanism against this anxiety. I also proposed that higher levels of intolerance of uncertainty would be positively related to higher levels of paranormal beliefs. This was thought because people who can’t tolerate uncertainty about the future use paranormal beliefs to avoid this uncertainty. Essentially, the paranormal beliefs give the holder a greater sense of control over the future.

In order to measure anxiety and the intolerance of uncertainty, I administered two psychometrically-validated measures - the Beck Anxiety Inventory Trait (Kantor et al, 2008) and the Intolerance of Uncertainty Scale (Buhr & Dugas, 2002) - to 386 people who volunteered online. I also administered the Anomalous Experiences Inventory (Gallagher, Kumar & Pekala, 1994) and the Paranormal Beliefs Scale – superstitious beliefs subscale (Tobyack & Milford, 1983) - to measure participants’ paranormal beliefs.

So what were the results? The first is that a significant moderate positive relationship existed between trait anxiety and paranormal beliefs. While I can’t necessarily infer that high levels of trait anxiety cause the paranormal beliefs, these results support the previous results in this area and support the theoretical model. Likewise, a small significant positive relationship existed between the intolerance of uncertainty and paranormal beliefs – but only for superstitious beliefs and not for global paranormal beliefs. I previously

outlined that paranormal beliefs are diverse, ranging from UFOs to alternative healing.

What this likely means is that the psychological causes of paranormal beliefs are also probably diverse. Thus narcissists are probably more likely to believe in aspects of the paranormal such as ESP which infer in them great abilities rather than aspects of the paranormal which do not, such as a belief in superstitions. Likewise in the current research, the ability to tolerate uncertainty obviously operates for some paranormal beliefs such as superstitions but not others because superstitions particularly act to enhance one's control over the future (think of that lucky tennis racket which ensures a player success, essentially controlling the outcome).

Psychological explanations of paranormal beliefs are relatively new in the field of psychology. My own research does tend to support this explanation. So what does this mean for skepticism and the world of research into paranormal beliefs?

The first implication is that many people believe in the paranormal for psychological reasons, whether it is to cope with the stress of life or as part of their personality traits, and when challenging these beliefs we need to be cognisant of the reason behind the beliefs. Challenge or dismiss a neurotic, and you might just reinforce their subconscious feelings of worthlessness leading for their need to believe more. Likewise, pay too much attention to a narcissist, and you might be encouraging them to express even more outlandish beliefs.

The second ramification of the psychological explanation is that education and scientific evidence will not always be the answer to challenging these beliefs. Sometimes it may feel as though all paranormal believers need is more evidence. If we consider these other reasons why paranormal beliefs may develop, we can explore alternative methods in addition to scientific evidence.

Finally, we should all consider that, regardless of the belief, the evidence doesn't suggest that paranormal beliefs are a sign of mental illness or psychopathology, but might be a way of coping with the world. Something to remember next time we encounter a stubborn true believer. ■

About the author: **Paul Berchtold** is employed as a social worker in the disability field.

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Rush to

Why do cops and courts sometimes get it wrong? Confirmation bias, denial, over-confidence and cognitive traps, says Brett Christian.

Showbiz types enjoy repeating a conversation that composer Andrew Lloyd Webber is said to have had with lyricist Alan Jay Lerner: "Alan, why do people always take an instant dislike to me?" Lloyd Webber asked.

"It saves time," replied Lerner.

Funny as this exchange is, it neatly sums a useful talent we have all inherited from our cave-man ancestors. But it is a talent that harbours many perilous traps.

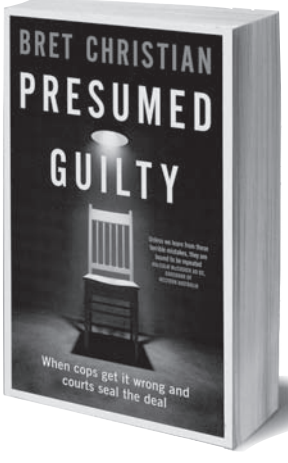
Pure survival was why instant decision-making evolved - is that other Neanderthal approaching me my enemy?

First one to get that decision right, quickest on the draw with the club, meant the difference between life and death. The survivor lived on to bequeath his quicker-thinking genes to future generations, and so on down the eons.

Today, this inherited gift for quick decisions enables us to play sport, ride a horse, surf a wave, drive a car, suss out a slimeball salesman and decide who to chat up in a bar. Intuition is a speedy, indispensable tool of modern life. But when we get it wrong, in a domain with real consequences such as the criminal justice system, it goes badly wrong, cognitive science now tells us.

The importance of all this became clear to me while researching a book on wrongful convictions, injustices that result in innocent people languishing in jail for crimes they have not committed. Think Lindy Chamberlain.

Horrific details of needlessly ruined lives always emerged from such cases, mostly unseen, but one nagging question always remained: why?



THE CONFIDENT COPPER

Why did the police too often ping the wrong person?

Long experience as a newspaper reporter taught me that usually these errors were not driven by malice – most police recruits I knew had signed up with altruistic motives. It was their intuition that let them down. And recent proof has emerged that such unthinkable mistakes are not a phenomenon just of my home town of Perth, or of Australia. It happens too frequently anywhere the British justice system has left its mark.

DNA testing has allowed a torrent of wrongfully-convicted prisoners to get out of jail – around 300 each in the UK and US; dozens from 'death row'.

Inevitably, exoneration is an agonisingly slow process, delays driven by the criminal justice system's stubborn belief in the guilwt of the person it has locked up. In Australia and the rest of world, exoneration has at times taken up to 30 years. It has cost family, friends and fortunes, often without compensation.

To find out what went so wrong, we have to go back to square one, to the initial arrest and charging of the person who first fell under police suspicion. Every wrongful conviction has started with a bad decision by a police officer who believed the suspect guilty when he was not.

Thousands of experiments by cognitive scientists over the past 30 years tell us why we reach such poor decisions, and why our legal system sustains them.

Over-confidence is the place to start looking. The confidence illusion, also called cognitive conceit, says that we think we know more than we do. A fear of cognitive conceit is familiar to any sleepless parent whose teenager has just passed his driving test.

Just like the misplaced confidence of the teen, a police officer whose gut instinct has proved to be right many times begins to trust it. This particular brand of cognitive conceit is approvingly labelled "coppers' instinct", an entrenched belief that, with long practice, experienced police become expert at detecting crooks by observing and listening to them.

Civilians also hold a highly-refined but flawed belief in copper's instinct, stemming from Charles Dickens' era when the public were told that detectives possessed almost supernatural powers to detect liars and truth-tellers,

Judgement

just by reading their subjects' faces. An army of novelists, crime reporters and screen-writers right up to the present day have reinforced this notion in the public mind.

But experiments by cognitive scientists using real police, lawyers and judges as subjects proved that their success rate in detecting liars is a mere 50-50, the same as chance.

> "Civilians hold a highly-refined but flawed belief in copper's instinct."

Mistakes by arresting officers are compounded when the legal system, which we assume to be almost bulletproof, turns out to be subject to another peril that afflicts hasty police: confirmation bias.

Once an officer's mind is made up that he or she has the right culprit, the temptation can be to emphasise evidence that supports the charge and discard that which does not.

Our system allows much evidence to be collected after the accused person is charged, a practice fraught with obvious dangers. Too often this has led to disastrous and sometimes dishonest evidence being presented to juries, including faked forensic evidence, perjury and pressured false statements from civilian witnesses.

When the indictment finally reaches the gladiatorial court arena, the temptation can be to tailor the evidence so as to reinforce the case against the person in the dock.

Celebrated UK writer Ludovic Kennedy, who investigated many wrongful convictions beginning with his book *10 Rillington Place,* held a jaundiced view of the British-based adversarial court and jury system.

"This is an invitation for police to commit perjury, and they frequently do," he wrote.

UNBUDGEABLE BELIEFS

After a trial is over and a conviction is seriously questioned with new evidence, sometimes many years later, the appalling prospect that the criminal justice system may have convicted and jailed an innocent person appears to make that system withdraw into itself, to protect and defend its position.

Denial, or belief perseverance, is a well-documented cognitive trap very familiar to readers of *The Skeptic*: clinging to a belief despite the

Rush to Judgement

Continued...

emergence of evidence to the contrary. Ufologists, Loch Ness Monster believers, anti-vaxers, water diviners and psychics share much in common with those police officers, prosecutors and jurors who refuse to change their initial impression of guilt.

At times, the entire criminal justice system and indeed the community appears seized with a collective attack of belief perseverance. I once received a chilling death threat for reporting court evidence that contradicted a widespread community belief in guilt after a successful appeal against a murder conviction.

The interview illusion is another trap that affects all of us, shared between some police officers and those employers who congratulate themselves on hiring good staff, having divined the employees' qualities via the interview process, without bothering to check references.

But cognitive science experiments now tell us that the interview alone is the most unreliable way to choose staff. After a run of good luck - confirmation bias - disaster will follow.

Since the 1950s, police and often judges have been trained in the US Reid Technique of recognising verbal and non-verbal signs and gestures to detect lies. Research and real-life cases have shown many of these assumptions to be wrong, yet the techniques are still taught.

Untrained jurors have been proved to be susceptible to all the illusions mentioned, where studies have proved jury verdicts can be catastrophically influenced by unreliable intuitive responses, such as to the appearance or demeanour of witnesses, prejudice against the accused persons and even the personalities of opposing lawyers.

And once the trial is concluded and the jury room door locked, there is added potential for injustice from an inability to understand the judges' instructions, prejudice and even bullying of fellow jurors, all problems that real life cases and interviews with jurors have proved to be more common than was once supposed.

The jury system is not robust just because it is ancient. In fact, science has now shown that the consensus system used in the jury room since the 13th century is the worst possible way to reach a just decision.

The final nail in the coffin of the jury system must surely be this: we have grafted an ancient decision-making process onto a technological age where even a simple Google search can turn a juror into a criminal guilty of contempt of court.

SUGGESTED SOLUTION

I argue that, in serious cases, a panel of three judges, as used successfully in the appeal process, replace juries. Most criminal cases are already decided by a magistrate sitting alone. Unlike juries, judges must give cogent reasons for their decisions.

Serious investigations could adopt the best features of some European systems, where each stage of the inquiry is supervised by a judge and questions about the evidence resolved between the parties before formal charges are laid.

The flip side of the largely-unrecognised perils of our criminal justice system is that when the courts lock up the wrong person, the real criminal is still out there, likely committing increasingly more serious crimes.

Austrian criminal psychologist Dr Thomas Muller, who has helped capture and has interviewed at length monsters such as mass rapists, serial killers and a cannibal, has a fine take on the perils of the bad initial police decision that "saves time".

The problem is with the police officer who wrongly believes he can divine guilt or innocence.

Says Dr Muller: "The best camouflage of evil people is the arrogance of the person who thinks they know what evil people look like." ■

Further discussion of this topic can be found in the author's recent book, Presumed Guilty: When cops get it wrong and courts seal the deal.

About the author:
Brett Christian is a journalist and newspaper proprietor.

Your Stars: MARCH 2014

With our Astrologer, Dr Duarf Ekaf

Aries: 21 March -19 April
You have a great need for other people to like and admire you.

Taurus: 20 April - 20 May
You have a tendency to be critical of yourself.

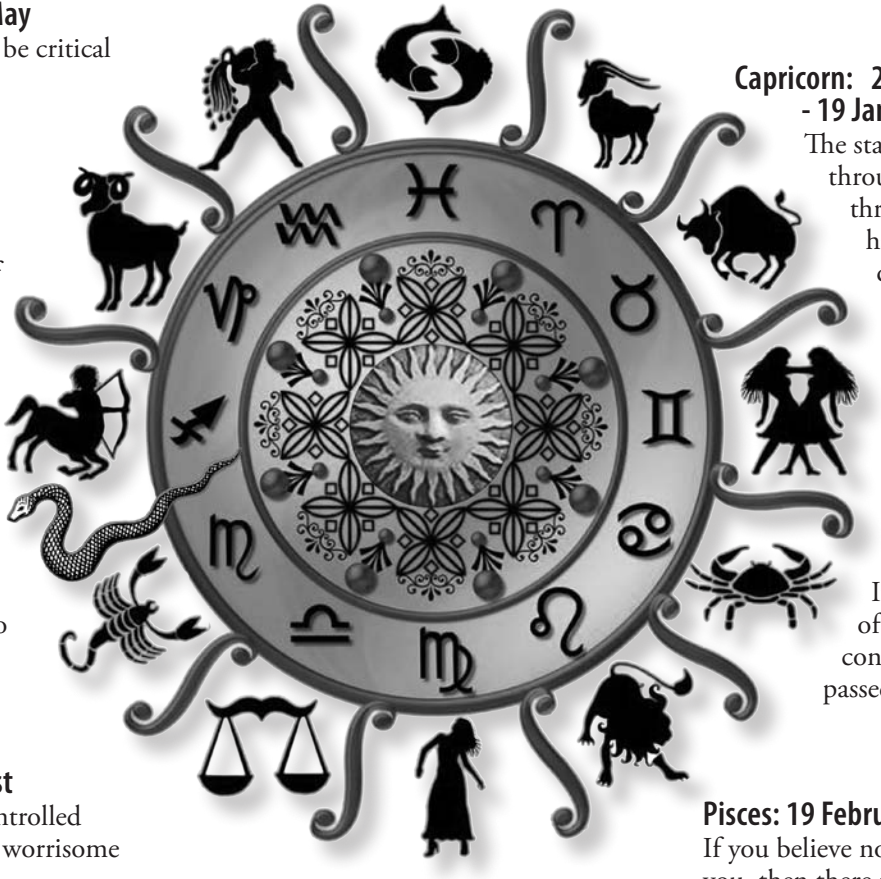
Gemini: 21 May - 20 June
You have a great deal of unused capacity which you have not turned to your advantage.

Cancer: 21 June - 22 July
While you have some personality weaknesses, you are generally able to compensate for them.

Leo: 23 July - 22 August
Disciplined and self-controlled outside, you tend to be worrisome and insecure inside.

Virgo: 23 August - 22 September
At times you have serious doubts as to whether you have made the right decision or done the right thing.

Libra: 23 September -22 October
You prefer a certain amount of change and variety and become dissatisfied when hemmed in by restrictions and limitations.



Scorpio: 23 October - 21 November
You have found it unwise to be too frank in revealing yourself to others.

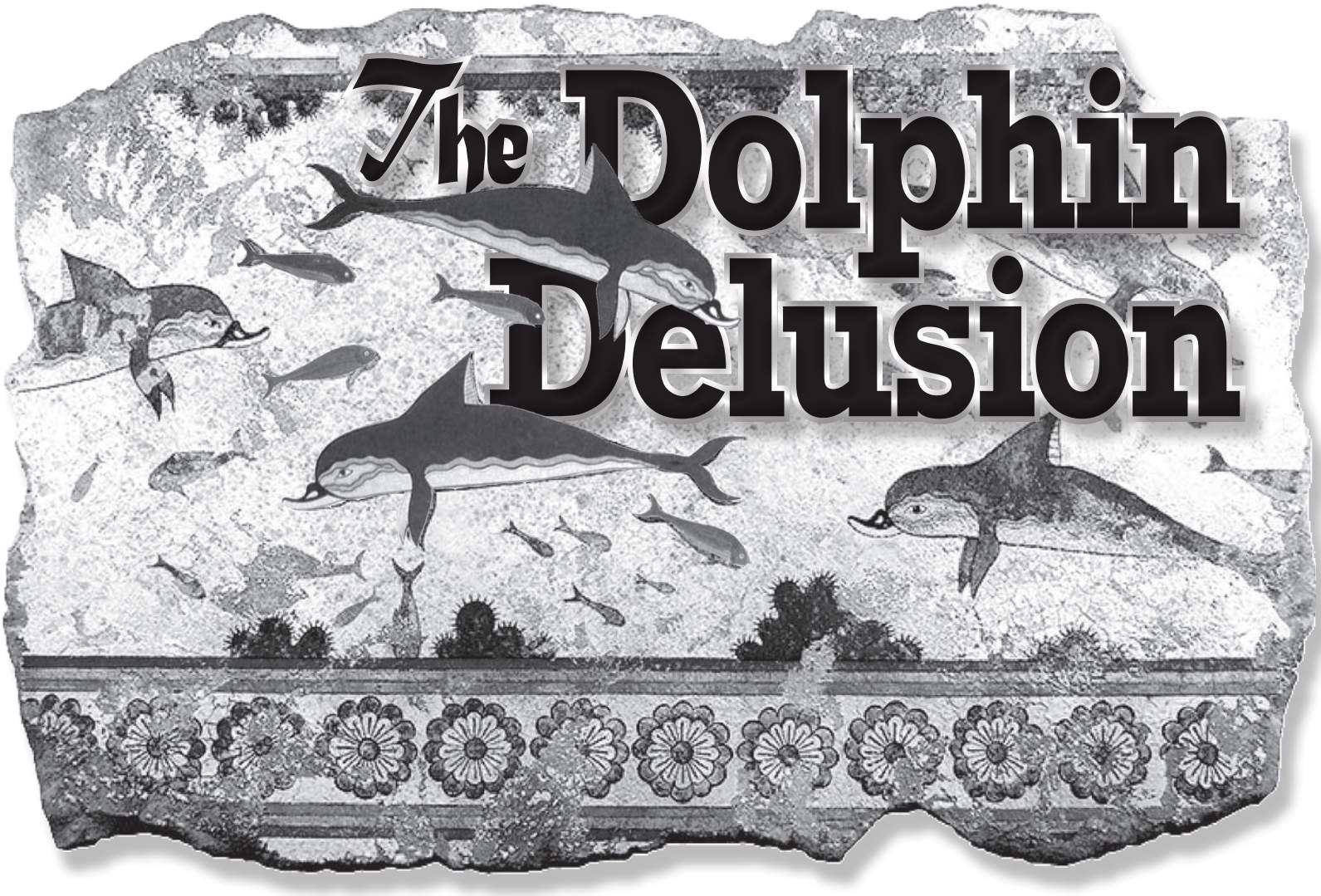
Ophiuchus: 0 - 0 - sorry
At times you are extroverted, affable, sociable, while at other times you are introverted, wary, reserved.

Sagittarius: 22 November -21 December
Some of your aspirations tend to be pretty unrealistic. Security is one of your major goals in life.

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
If you believe that all of these apply to you, congratulations, you have passed the Forer effect.

Pisces: 19 February - 20 March
If you believe none of these apply to you, then there must be something wrong with you. See your astrologer immediately for corrective services. The other sort of corrective services, not the one with bars, unless it's the drinking sort in which case the bars are OK, unless you drink too much, in which case you will end up behind bars in corrective services. Don't you now wish you had chosen the previous star sign? ■



The Dolphin Delusion

Tim Harding looks at dolphins in myth and history, and asks if they can give your life a porpoise.

Some people claim that swimming with dolphins is a mystical or spiritual experience. Irrational beliefs range from dolphins being super-intelligent, to having ESP, to possessing special healing powers and even being aliens from a planet in the Sirius solar system!

On the other hand, getting up close and personal with dolphins can be risky for both species - especially for the dolphins. These risks are greatest where dolphin populations are vulnerable to extinction, such as in Port Phillip Bay, Victoria.

ANCIENT DOLPHIN MYTHOLOGY

The current mysticism associated with dolphins may well date from ancient mythology, where dolphins were often depicted as helpers of humans. Ancient seals, coins and items of pottery often show a man or boy riding a dolphin.

One of the earliest known images is at the ruined Palace of Knossos in Crete, where there is an attractive fresco of some blue dolphins swimming with fish (c.1600BCE). Unfortunately, the Minoan script known as Linear A has not yet been deciphered, so the back story of these dolphin frescos remains as mysterious as the frescos of acrobats leaping over bulls elsewhere in the palace. One possibility is a connection with the god Dionysus, of which archaeological traces have been found among the Minoan ruins.

In classical Greek mythology, Dionysus (known as Bacchus by the Romans) was the god whose spiritual portfolio included the grape harvest, winemaking and wine, ritual madness and ecstasy. He may have been worshipped as early as c.1500–1100 BCE by the Mycenaean Greeks.

According to legend, Dionysus was once captured by Etruscan pirates who mistook him for a wealthy prince they could ransom. After the ship set sail Dionysus invoked his divine powers, causing vines to overgrow the ship where the mast and sails had been. He turned the oars into serpents, so terrifying the sailors that they jumped overboard. But Dionysus took pity on them and transformed them into dolphins so that they would spend their lives providing help for those in need.

Dolphins were also the messengers of Poseidon, the Greek god of the sea, and sometimes did errands for him as well. Dolphins were sacred to the other gods

Far left: The Palace of Knossos is peppered with paintings of dolphins, thousands of years old.

Left: Man on a horse, boy on a dolphin - common images on Ancient Greek coins.

Aphrodite and Apollo.

In Hindu mythology, the Ganges River Dolphin is associated with Ganga, the deity of the river. The dolphin is said to be among the creatures which heralded the goddess' descent from the heavens and her mount, the Makara, is sometimes depicted as a dolphin.

The Boto dolphins in the Amazon River are believed to be shapeshifters, or *encantados*, who are capable of having children with human women.

CONTEMPORARY DOLPHIN MYSTICISM

Today, there exists a range of mystical beliefs about dolphins, some of which may be a legacy of the ancient mythology. These beliefs range from seemingly innocuous brand names (such as the Dolphin Health & Wellness Centre at Cessnock, 50km from the NSW coast), to various manifestations of New Age nonsense, to some quite bizarre mystical and spiritual claims. I hesitate to use the term 'pseudoscience' because these claims rarely even pretend to be scientific. I have not found a single New Age or mystical web site that provides any empirical evidence in support of their often outlandish claims.

A common theme seems to be a claim that dolphins have miraculous healing powers, and that swimming with dolphins or 'channeling their energies' through a fee-charging spiritual healer will heal the soul if not the body. A typical marketing blurb reads: "We bring the gifts of the dolphins … from sea to land! By spreading Dolphin Love, Joy, healing, and higher consciousness in the world, we are co-creating, with Dolphin, Whale, and other spiritual sources, Unity-Community on land among humanity. This is the New Earth."

Other claimed services include Dolphin Healing Touch, Chakra Clearing, Channelling Ancient Atlantean Energy, Creating Flow (whatever that means) and Photon Light Therapy (is there any other type of light?).

One specific healing claim that can be tested is the following.

During the healing process, dolphins' wounds don't show signs of infection. Researchers have discovered that their skin and blubber contain compounds with antibacterial properties, which may help stop infections in the open wounds. This claim is demonstrably false. For instance, dolphins are susceptible to the fungal skin infection Lobomycosis.

At least one dolphin therapist offers "healing at a distance" not only at a distance from dolphins, but long distances away from the therapist! 'Anne' is an attuned channel to transmit dolphin energy to her clients. For a distance session you make a quick phone call to Anne and she will give you some simple instructions and help you set an intention for the session as well as help you to open to the frequency of the dolphins. Then you hang up and sit or lie down to receive. You can even fall asleep during the session! Sessions generally last about 40 minutes. After you feel complete, you phone Anne again and she will discuss how the session went for you and share with you her unique gift of receiving visions and messages from the dolphins and many other creatures from both the sea and land.

> " I hesitate to use the term 'pseudoscience', because these claims rarely even pretend to be scientific. "

One of the most bizarre claims about dolphins is that they are aliens from a planet in the Sirius solar system. The Pleiadians decided to bring some of the dolphins with them when they knew their home world was going to be extinct and they found Earth. "When I work with Dolphins I find I have an emotional and uplifting experience, similar to the Unicorns, but in a different vibration. Dolphin healing uses sound as well as the usual light vibration we use in Reiki and other forms of healing."

Had enough? I think you probably have the general drift of this nonsense by now.

SOME DOLPHIN SCIENCE

At risk if disappointing followers of the Pleiadians, dolphins evolved right here on planet Earth. They are marine mammals of the taxonomic order *Cetacea,* which includes whales and porpoises. Cetaceans evolved from land mammals and share a common ancestor with even-toed ungulates, such as the hippopotamus and deer. Unlike fish, cetacean skeletons contain scapulas or shoulder blades and the bone structure of their flippers is similar to mammalian forearms. They even have a small vestigial pelvis to which their hind legs were once attached millions of years ago.

Today, there are almost 40 species of dolphin in 17 genera. Marine dolphins are members of the family *Delphinidae* which evolved some 10 million years ago. Other families are river dolphins, of which there are only four species left on the planet. Marine dolphins eat mainly fish and squid, and a group of dolphins is called a 'pod'.

The Dolphin Delusion

Continued...

Worldwide, three species of Bottlenose dolphins are recognised: the Common bottlenose dolphin, *Tursiops truncate*s; the Indo-Pacific bottlenose dolphin, *Tursiops aduncus*; and the Burrunan dolphin, *Tursiops australis*, a newly discovered separate species that is found only in Port Phillip Bay in Victoria.

Port Phillip Bay is home to a resident population of Burrunan dolphins estimated to number between 80 and 120 individuals. The available evidence from records of cetacean strandings and previous anecdotal observations indicates that the current population is smaller than in the past, reflecting a loss of fisheries habitat in recent decades.

The dolphins in Port Phillip Bay use their home range for all aspects of their ecology, including their main activities, foraging and feeding, as well as socialising, resting, and the protection and rearing of young. The population of Burranan dolphins in Port Phillip Bay is vulnerable to extinction due to its small size, its restricted home range and the human activities that are likely to be having an adverse impact on the dolphins. These human activities (in order of decreasing threat) are jet skis, boating, swimming and low-flying aircraft (including sight-seeing helicopters).

Research findings from Port Phillip Bay confirm that apart from isolated harassment by jet-skis, the proximity of tour vessels is the key disturbance factor posed by interaction with dolphins. During the tour season, these vessels can spend up to six hours per day interacting with dolphins. Responding to interactions with tour vessels and swimmers may interfere with the dolphins' daily routine and may impact on their time and energy if interactions constantly interrupt feeding, resting or maternal behaviour. Dolphins normally have only one calf per year, so if the annual birth rate is for any reason lower than the death rate, the future survival of this dolphin species will be perilous.

There is no evidence that the majority of people who swim with dolphins are doing it for mystical or faith healing reasons. There are legitimate reasons for people wanting to closely observe or interact with dolphins, as there are for people wanting to look at animals in zoos. For this reason, dolphin watching and swimming with dolphins are activities that need to be carefully regulated rather than banned completely.

The Australian National Guidelines for Whale and Dolphin Watching have been adopted by the Federal Government and all state and territory governments. These guidelines are a clearly defined set of standards for all human activity around cetaceans, including maximum approach distances for boats and aircraft (except for authorised tour boats). They help people to understand that their actions may disturb these wild animals, and show them how to minimise any effect they may have while whale or dolphin watching. For instance, it is important for only one tour boat at a time to approach a dophin pod, and then side-on rather than from behind, so that the dolphins do not feel corralled (which is how sharks attack them).

State and territory governments are responsible for conservation and protection of whales and dolphins in coastal waters (out to the three nautical mile limit). These governments manage most of the human/dolphin interactions, and whale and dolphin watching. They each have their own regulations regarding whale and dolphin watching in coastal waters, based on the Australian National Guidelines. These regulations need not only a high level of compliance, but also strong public support. ■

The references for this article may be found on Tim Harding's blog at <http://yandoo.wordpress.com/>

About the author:

Tim Harding has worked as a consultant to the Victorian Department of Environment and Primary Industries (DEPI) assisting in the development of regulations to protect dolphins and other marine mammals. He is a former Director of Flora and Fauna in DEPI, with a background in biological sciences.

Right: New Age beliefs - energies, chakras, vibrations, Atlantis, Pleiadeans, spiritual healing, love, joy and leaping - dolphins have a lot to answer for.

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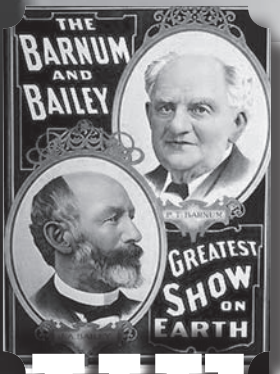
The cycle of life

Showmen – psych tests – magic – proof. And so it goes, the almost inevitable realisation that all knowledge is connected and connectable.

THE SHOWMAN

Phineas Taylor Barnum (1810-1891) was an American showman, businessman, politician, publisher, philanthropist who founded the circus that became the Ringling Bros and Barnum & Bailey Circus. He described himself as "a showman by profession ... and all the gilding shall make nothing else of me". Barnum is often erroneously credited with coining the phrase "There's a sucker born every minute", which was most likely spoken by journalist David Hannum in criticism of Barnum and his customers. An actual quote from Barnum is "We've got something for everyone", which lead to the concept of the so-called Barnum Effect.



What goes

THE SKEPTIC

There have been hoaxes (see www.museumofhoaxes.com/) and hoaxers ever since there were gullible people who were prime targets for "confidence men". The first known use of that term in English was in 1849 by the New York City press, during the trial of watch thief William Thompson. But where there are hoaxers, there are hoax busters. In the world of the paranormal, they include Harry Houdini and James Randi, who both were/are involved in offers of prize money for any person who can prove a paranormal feat. Among these is the writer who, in his 1865 book *The Humbugs of the World*, offered US$500 to any medium who could prove power to communicate with the dead. That writer was PT Barnum.

Harry Houdini, under attack from denizens of the spirit world

THE ETYMOLOGIST

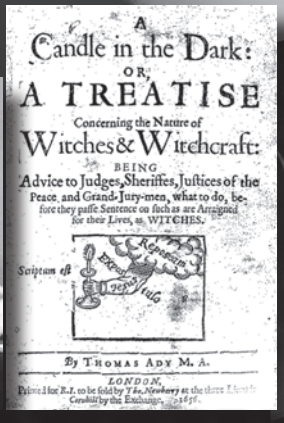
The etymology of the word "abracadabra" is uncertain, with various sources suggesting a first millennium Aramaic background, or a mnemonic for the alphabet. The earliest known use of "Hey presto" was in 1731 (or 1732, depending on your source). "Hocus pocus" is a contraction of the nonsense phrase "Hocus pocus, tontus talontus, vade celeriter jubeo", mentioned in physician, humanist and skeptic Thomas Ady's 1656 book *A candle in the dark, or a treatise concerning the nature of witches and witchcraft*. According to the 19th century philologist Robert Nares, "hocus pocus" is the source of the word "hoax".

Source: Wikipedia, except where noted

THE PSYCHOLOGIST

The Barnum effect is more properly called the Forer Effect, after psychologist Bertram R Forer (1914-2000). The effect is that individuals will give high accuracy ratings to descriptions of their personality that are supposedly tailored specifically for them, but are in fact vague and general enough to apply to a wide range of people. Forer tested this in 1948 by giving a personality test to his students, and subsequently a 'unique' personality analysis that was based on the test results. On a scale of 0 (very poor) to 5 (excellent) on how well it applied to them, the rating was 4.26. In reality, each student received the same analysis assembled by Forer from various horoscopes.

PT Barnum and General Tom Thumb (Barnum's half fifth cousin twice removed)



around...

THE BELIEVER

This effect can provide a partial explanation for the widespread acceptance of some beliefs and practices, such as astrology, fortune telling, graphology, and some types of personality test. It has been suggested that having prior belief in the paranormal correlates with greater influence of the Forer/Barnum Effect. (The same applies to the role of placebo in medicine, where a treatment that supposedly suits the patient's specific condition can have a beneficial effect, even though it is an inert substance.) Subjects who, for example, believe in the accuracy of horoscopes have a greater tendency and willingness to believe that the vague generalities of the response apply specifically to them.

How to stand out from the crowd in personality assessments

THE MAGICIAN

The willing suspension of disbelief is a term coined in 1817 by the poet and aesthetic philosopher Samuel Taylor Coleridge (1772–1834), who suggested that if a writer could infuse a "human interest and a semblance of truth" into a fantastic tale, the reader would suspend judgment concerning the implausibility of the narrative. Suspension of disbelief is often an essential element of a magic act. The latter is enjoyed as much for its entertainment value and showmanship as for the results of the magic act itself, with such famous (and attention-diverting) catchphrases as "abracadabra", "hey presto" and "hocus pocus".

Look into My Eyes

In this Classic Catch article from 1991, Kevin M. McConkey takes a look at the uses of clinical hypnosis in the laboratory. What do you see? Look closer.

The view put forward by many self-styled hypnotists and by many media reports about hypnosis is that it is an unquestionably authentic phenomenon in which a deeply entranced individual acts on the almost irresistible suggestions of the hypnotist in an automatic and zombie-like way. Clinically, hypnosis is too often presented as a magic cure for whatever ails you.

This more or less credulous view of hypnosis has never had the support of the scientific community. Rather, the scientific community has adopted a questioning position that, wittingly or unwittingly, has sometimes conveyed that there is something phony or faked about hypnosis.

Although I adopt a questioning position on the phenomenon, I do not consider that hypnosis is an unreal or insubstantial phenomena. Rather, it is a phenomenon that can be understood through an appeal to normal psychological processes. Thus, we neither need to dismiss the phenomenon, nor do we need to invoke 'unusual' processes or events to explain it. Moreover, we need to understand that hypnosis is a clinically useful procedure for some people, some disorders, some times.

I would like to give a necessarily selective account of some of the issues surrounding the clinical use of hypnosis.

If you go to the clinical literature, to the popular reports, or the advertising material of self-styled hypnotists, you will find an amazing range of uses of hypnosis and an amazing array of claimed successes: from stopping fingernail biting to curing brain damage; from stopping smoking to allowing major surgery without general anaesthesia; from helping to pass exams to helping remember past lives or experiences with aliens.

> "It would be easy to engage in a debunking exercise, and to criticise the excessive views and inappropriate uses."

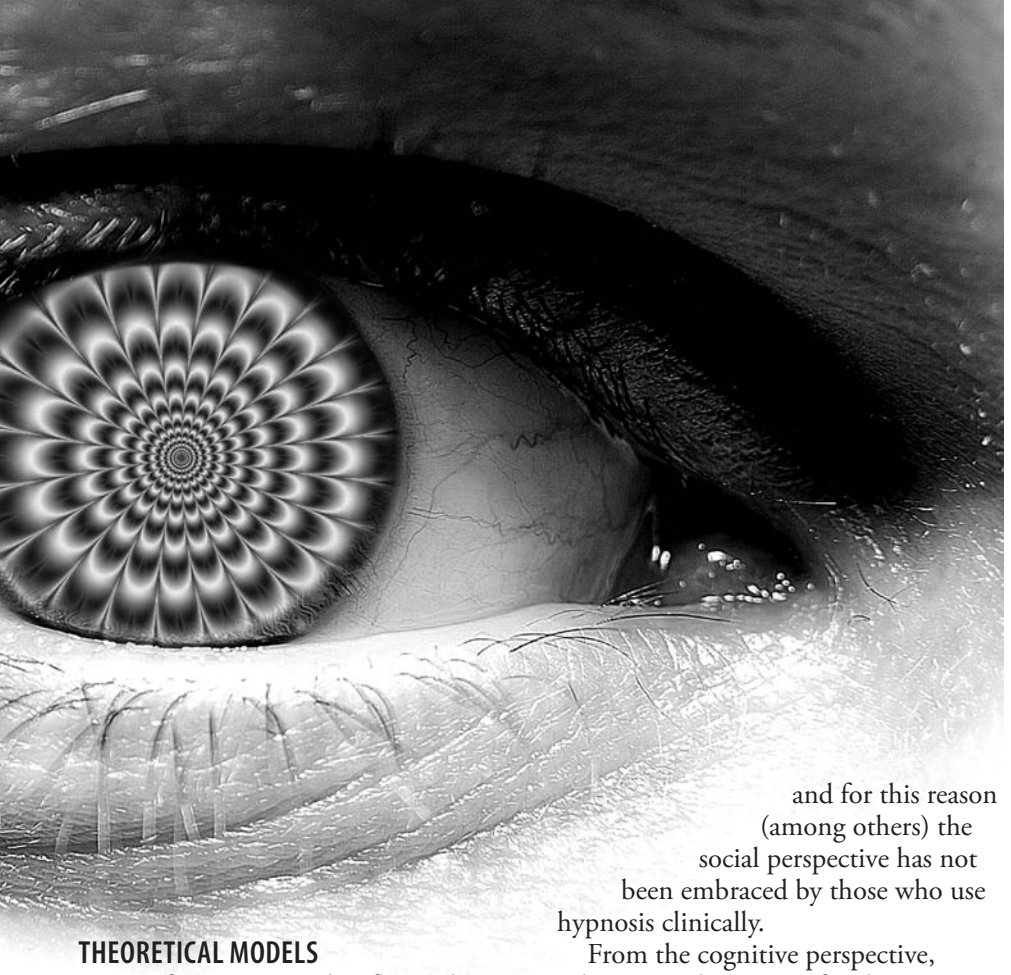
It would be an easy thing to engage in a debunking exercise, and to criticise the excessive views and inappropriate uses of hypnosis in the clinical setting. However, I think it would be more fruitful to take a positive stance and attempt to convey an appreciation of the phenomenon that will allow an appropriate view to be formed and the appropriate clinical uses of hypnosis to be understood.

HYPNOSIS IN THE LAB

Hypnosis has become an increasingly important technique in the clinical areas of psychology, medicine and dentistry in the last 60 years or so. This increased interest in clinical hypnosis has been paralleled, especially in the last 50 years, by the interest shown in the topic by researchers in the laboratory. As with other areas of psychology, however, it has sometimes been the case that clinical and experimental hypnosis are either ships that pass in the night or hostile ships that fire at each other in the day.

This doesn't have to be so, however. There is a good deal of similarity in the way in which researchers and practitioners should approach hypnosis, and there is a substantial amount of data that speaks to the rapprochement that can exist between the theory tested in the laboratory and the practice of hypnosis in the clinic.

In looking at selected aspects of clinical hypnosis I want to pay close attention to the relevance to clinical practice of salient findings from basic research. I would like to comment on theoretical models of hypnosis, individual differences in hypnotic responsiveness, and selected clinical applications of hypnosis: management of pain, recovery of memory, and management of burns.



THEORETICAL MODELS

Let me first comment briefly on the major theoretical models of hypnosis, because this can be especially confusing when one is trying to develop an understanding of the clinical use of hypnosis.

At this point, let me give a descriptive definition of hypnosis: Hypnosis occurs when one person (the subject) experiences alterations in perception, memory, or mood in response to suggestions given by another person (the hypnotist).

Although most researchers in the field agree that these alterations in experience and accompanying behaviour occur, they do not agree on the most appropriate way to explain them.

The major models that have emerged from laboratory work in the last 50 years focus on explaining hypnosis in terms of either social processes or cognitive processes, or in terms of the interaction of social and cognitive processes. From the social perspective, some researchers argue for the importance of expectation and compliance (among other social processes) as ways of explaining hypnosis. These researchers can easily be misinterpreted as saying that hypnotised people are simply faking, and for this reason (among others) the social perspective has not been embraced by those who use hypnosis clinically.

From the cognitive perspective, other researchers argue for the importance of dissociation (among other cognitive processes). This perspective has been influential in shaping the ways in which clinicians view and use hypnosis.

The third major model adopts an interactionist perspective that attempts to recognise more so than the other major models that hypnosis involves a social interaction between two people that is complex and multifaceted, the hypnotised individual is a cognitively active being who is attempting to respond to the many communications that he/she is receiving, and the hypnotised individual brings to bear particular cognitive skills to experience the events suggested by the hypnotist as best as he/she can.

From this perspective, researchers such as myself argue the importance of the cognitive skills of the subject, the communications of the hypnotist, and the relationship between hypnotist and subject. From my perspective, the interactionist model is the one that we need to adopt if we are to understand what occurs in the laboratory and in the clinic when hypnosis is involved.

Besides these major approaches, which are tied closely to the laboratory, there is another approach to hypnosis that has gained substantial popularity among clinical colleagues in the last 30 years; this is an approach that typically rejects the relevance of experimental analyses of hypnosis.

Variously labelled as "Ericksonian hypnosis" or "the new hypnosis", this approach is not one that I will deal with in this paper other than to say that advocates appear to see virtually every human interaction as involving hypnosis, and see hypnosis itself as involving some specific biological mechanism. For instance, some clinical colleagues argue that "hypnosis is a naturally occurring body defence mechanism"; "the critically ill are already in a state of hypnosis"; "a hypnotic trance can be induced by stroking the body"; and "people enter a hypnotic state when they are remembering any sequence of events". Within this un-bounded approach, it

Look into My Eyes

Continued...

is not clear to me what hypnosis is; it is even less clear to me what hypnosis is not. Let me simply lay this approach to one side, while also being quietly concerned about its popularity among clinical colleagues.

DIFFERENCES IN RESPONSIVENESS

The most basic laboratory finding about clinical hypnosis is that of individual differences in responsiveness. Variously called hypnotic susceptibility, hypnotic responsiveness or hypnotisability, the research findings consistently indicate that the distribution of hypnotisability pretty much follows the normal distribution. Researchers have gathered much psychometrically sound data on this issue in the past 50 years, but it is appropriate to note that the Abbe di Faria made this observation and gave a detailed description of individual differences around 200 years ago.

Nevertheless, the development of formal measurement scales of hypnotic susceptibility around 50 years ago has allowed researchers to document the nature of individual differences in hypnotisability. In essence, around 10 per cent of the population is totally unhypnotisable, around 10 per cent can experience very profound alterations in experience, and the rest of us can experience some but not other hypnotically suggested effects. Because a person responds well to a suggestion for a simple experience such as arm levitation, for instance, does not mean that he/she will respond well to a suggestion for hypnotic analgesia or age regression. To make that assumption in the clinical setting may lead to frustration and a sense of failure by the client.

Hypnotisability remains stable throughout adulthood, and attempts to enhance or modify hypnotic responsiveness appear to have little impact on the experience of subjects although their behaviour can be changed somewhat. This is not to say that hypnotic responsiveness never changes or that there is nothing that the hypnotist can do to maximise a subject's response to hypnotic suggestions.

In the laboratory, subjects' scores on formal measurement scales shift somewhat over the first few testing sessions before they stabilise at some level. In the clinical setting, the lesson from these laboratory observations is clear. Unless the hypnotist allays the client's anxieties and corrects his/her misconceptions about hypnosis, the initial attempts at hypnotic induction may not indicate the level of hypnotic responsiveness that the person is capable of.

Once the person has reached what is known as plateau hypnotisability, however, there seems little that the hypnotist can do to enhance the individual's hypnotic responsiveness. The ability to experience hypnosis lies with the individual, not with the hypnotist.

The distribution of individual differences, the relationships among particular hypnotic suggestions, and the relative stability of hypnotisability all point to hypnotic responsiveness being a skill of the individual.

Thus, what happens during hypnosis is essentially a function of the subject's hypnotisability, rather than the hypnotist's skill in inducing trance or administering suggestions.

For the clinician who wants to use hypnosis effectively, then, this finding indicates that the hypnotisability of the individual client should be assessed before hypnosis is used.

Of course, some degree of hypnotisability can be assumed to be present because only a small percentage of the population is entirely unhypnotisable, but many techniques of clinical hypnosis (such as hypnotic analgesia) are effective only with individuals of high hypnotisability. Given this, it seems a waste of time and a frustrating experience for all concerned for the clinician to try to

Below Franz Anton Mesmer practices "natural energetic transference" .

Right: French neurologist Jean-Martin Charcot demonstrates hypnosis on an "hysterical" Salpêtrière patient (*Une leçon clinique à la Salpêtrière* - André Brouillet - 1887).

Left A statue in Goa, India, of Abbe di Faria (José Custódio de Faria, 1756–1819), a Goan Catholic monk who pioneered the scientific study of hypnosis and introduced "oriental hypnosis" to Europe.

develop and use these phenomena in individuals who simply do not have the ability to experience them.

The best procedure for assessing hypnotisability in the clinical setting is through one of the formal scales of hypnotic susceptibility that have been developed specifically for use in the clinic, and that are suitable for adults and children.

CLINICAL APPLICATIONS

Let me comment in summary fashion on some selected applications of clinical hypnosis.

Management of pain

Following appropriate suggestions, many hypnotised individuals report that they experience a significant reduction in their experience of pain. In the clinical literature there are many case reports of hypnotic suggestion as the sole analgesic agent in appendectomies, caesarean sections, and other instances of major surgery.

These cases can be quite dramatic, but it is likely that less than five per cent of the population could tolerate such procedures with hypnosis alone. For most of the rest of the population, hypnotic analgesia is more effective when used with minor surgical procedures, postoperative pain, routine dental work, and discomforting medical procedures. Excellent clinical research, for example, has demonstrated that hypnotisable children who were undergoing chemotherapy for cancer showed significantly more pain reduction during bone-marrow aspirations than did their unhypnotisable counterparts when given suggestions for analgesia. In such situations, careful case series reports have indicated that as high as 50 per cent of clients can profit from the use of hypnosis and self-hypnosis to relieve pain.

> "It is likely that less than five per cent of the population could tolerate major surgery with hypnosis alone."

In the laboratory a substantial amount of work on hypnotic analgesia has been conducted in recent years.

The big question, of course, is how does hypnosis lead to a reduction in experienced pain.

Various studies in the laboratory have told us that, for hypnotisable individuals, hypnotic analgesia has a greater impact than either morphine, diazepam, aspirin, placebo or acupuncture. Other studies have told us that, for hypnotisable individuals, suggestions for a specific analgesic effect have a greater impact than do suggestions for relaxation and reverie; this tells us that hypnotic analgesia acts more like an analgesic agent than like a general tranquilliser.

Just what is the psychological mechanism responsible for this remains a question open to theoretical debate and empirical resolution. The fact, however, that hypnosis can be used to relieve pain in hypnotisable individuals has been established firmly in both the laboratory and the clinical setting.

Recovery of memory

A very different use of clinical hypnosis is as a tool for the uncovering of memories thought to be associated with particular symptoms. One common therapeutic technique, for instance, involves giving suggestions for enhanced recall or for regression to a prior age to recover forgotten memories of events or experiences.

Hypnosis is a fine technique for this clinical purpose, as long as it is kept in mind that the reported memories are not necessarily valid.

The use of hypnotic age regression to recover memories of events that occurred in the past does not provide a reproduction of the original events, but involves an active reconstruction of a story about the individual's past. In essence, the events focused on during hypnotic age regression in the clinical setting are probably more narrative than historical truth, in the sense that they have subjective meaning for the individual but may not have occurred in an objective sense.

The work from the laboratory on hypnotic age regression clearly indicates that the recovered events are reconstructions of the original events. This is not to say that the information is necessarily inaccurate.

Rather, it seems that hypnosis may lead to an increase in the amount of correct and incorrect information that is reported as memory. In the clinical setting, this probably does not matter

Look into My Eyes *Continued...*

all that much since the incorrect information probably has some degree of narrative truth, in the sense of its emotional importance to the client. This mixture of correct and incorrect information does matter, however, in situations in which there is a likelihood of treating the recovered material as either entirely accurate or entirely inaccurate; the forensic situation is one that comes to mind, but the complexities of that situation could be the topic of another article.

Management of burns

I would like to make a brief comment on what I consider to be one of the most clinically exciting and theoretically challenging uses of clinical hypnosis. This use reflects the increasingly important application of hypnosis in behavioural medicine, where hypnotic suggestions are employed to alter physiological functioning indirectly.

In this respect, hypnosis is being used increasingly with burn victims not only to help in pain management but also to help in the healing process itself. Dramatic and provocative case studies have been reported of more rapid healing, less blistering, and less scarring when hypnosis is used with burn victims soon after they have received the burn. The exact nature of the impact of hypnosis and the precise mechanism responsible for that impact needs to be analysed in much more detail.

Nevertheless, this is one application of hypnosis that I think we are going to see a lot more of. And it is one that raises intriguing questions for us to take into the laboratory.

There is more that I could say about the ways in which laboratory research on hypnosis can benefit those who are engaged in clinical practice.

One major area that I haven't discussed in this article, for instance, is the relevance of basic hypnosis research to our understanding of normal and abnormal psychological functioning. During hypnosis we are able to produce anomalies and disruptions in perception and memory processes that lead to hallucinations and delusions, amnesias and paramnesias. By analysing these particular phenomena in the laboratory, we may come to a better understanding of them when they occur as clinical symptoms.

I hope that I've conveyed that laboratory research has helped to lay down a scientific basis for clinical practice by documenting the effectiveness of some hypnotic techniques commonly used in the clinical setting and questioning the impact of other techniques.

By far, however, the most important contribution of the laboratory has been to impress upon us the importance of individual differences in responsiveness to hypnosis. Hypnotic response is a matter of subject ability, not of hypnotist technique. By showing what hypnosis is good for and what it's not, by showing who can experience suggestions and who cannot, researchers hope that clinicians can be helped to use hypnosis more effectively, and more creatively, in their practices.

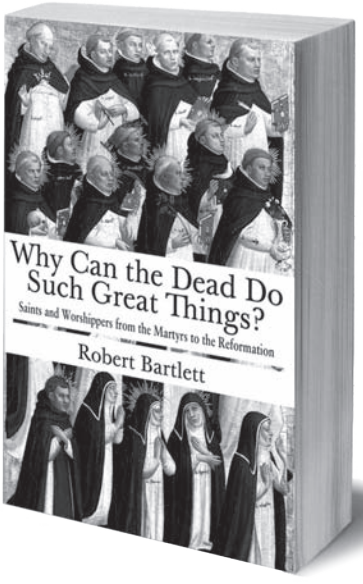
Finally, looking from the laboratory, the prospects for the use of clinical hypnosis are very good indeed, as long as excessive credulity is kept at bay. ■

Note: *This article is based on a presentation at the 7th Annual Convention of the Australian Skeptics, June 1991. The elapsed time periods referred to have been adapted to relate to the current date.*

About the author:
At the time of writing, **Kevin McConkey** was Associate Professor of Psychology at Macquarie University. He is now emeritus Professor in the UNSW School of Psychology

I feel dead people

Why Can the Dead Do Such Great Things?
By Robert Bartlett
Princeton University Press , **A$39.95**



St Augustine pondered the miracles that the saints could do (this was before he became a saint and presumably dabbled in miracles himself) and asked a question that the medievalist scholar Robert Bartlett has taken for the title of his new book, the full version running to *Why Can the Dead Do Such Great Things? Saints and Worshippers from the Martyrs to the Reformation.*

The book is an academic doorstopper, over 600 pages of small-print text, not to mention notes and a voluminous bibliography. It is a treat, though, to see such erudition amassed this way; it is hard to imagine any aspect of the cult of the saints that Bartlett has left out in this extraordinarily comprehensive text.

Yet there is enormous entertainment here as well. The times were far different from our own, and if miracles are happening now, they are not the same sorts of miracles that so astonished and inspired the men and women described in these pages. Nowadays, dead people do not do such great things, for instance, as did St Edmund of East Anglia who, even though dead, got so angry with King Sweyn Forkbeard for pillaging his abbey that he ran him through with a spear. Bartlett does such a splendid job of sympathetic understanding and neutrality, it is hard to figure out his own views of such miracles. Those of us who take a skeptical view of the supernatural will find much to condemn here, but readers among the millions who believe in saintly miracles will find no reason to leave off believing.

Holy men and women doing wondrous things are part of many religious traditions. The early Christian church took this a few steps further.

Not only was death no barrier for saints who wanted to continue working miracles, but their corpses, or bits and pieces of them, possessed wonder-working capacities.

Bartlett devotes many pages to the ways that people tried to understand this. Even in such superstitious times, there must have been some intellectual discomfort over accepting these miracles. Could it be, the thinkers at the time wondered, that people who went to a particular saint's shrine, in which the body or bits thereof were preserved, were more likely to get positive results from their supplications at the site itself? If this were indeed the case, would it thus mean that the remains were more powerful than the ubiquitous ethereal presence of the saint incorporeal? Paradoxically, some said that the miracles worked by saints at a distance from the remains were actually greater, in order to impress weak minds who, according to Pope Gregory I, "may doubt whether [the saints] are present to hear them in places where they do not lie in their bodies."

People also tried to figure out why prayers were not answered. One abbot was supervising transport of timber by sea, and expected St Columba to help, but was thwarted by a contrary wind. "We complained about how unwelcome it was that the wind was against us in this way, and we began to make a kind of accusation against our Columba, saying, 'Does this set-back that we are suffering please you, O saint?'"

This sort of complaint against saints who were dozing or not fulfilling their duties was common. Bartlett writes, "It was unquestionably the worshipper's right to reproach saints who failed to help." This particular reproach to Columba implied that he was not in high honour with God. It worked, and the winds turned favourable. If relics of a saint were not producing the requested results, they could be placed into the ritual called "humiliation of the relics", in which they were literally humiliated (placed on the ground) or surrounded with thorns in the hope that the embarrassed saint would wake up and get to work.

The church had to make rules about who could become a saint and who could not (although this did not keep people from worshipping saintly locals who had died but were not officially recognised). Originally, martyrs were the saints whose relics were venerated and whose shrines were visited. Bartlett writes of the problem this caused: "The end of persecution in the early fourth century meant that new martyrs were no longer being created on a regular basis within the Roman Empire."

Certainly the church could have sealed the numbers of approved saints to those historic martyrs and taken in no more, but this did not happen. Martyrs might still be dropping now and then, but the church decided to accept as saints "confessors" who did not die for the faith but had lived for it in a saintly or heroic way. The adoption of confessors coincided with the movement of asceticism, and plenty of the new saints came from the monks and hermits. But not all.

Particularly extraordinary was St Michael, who

I feel dead people

Continued...

was neither martyr nor confessor nor even human; he was not a dead man who went to heaven, but he had been there all along, an angel created before people were created. Not only this, but he was a warrior who had been in battle within Heaven (according to Revelation), and saintly or not, he was often depicted with arms and armour emphasising his military role.

There was another extraordinary saint, a martyr who was neither human nor angel, but a dog. Now, the church did not accept this greyhound as St Guinefort, but the locals near Lyons did, and the dog's burial place became a shrine, with pilgrims coming to seek the canine saint's help. A Dominican with no sense of humour dug up the dog's bones and had them burned. The church worked hard to suppress this saint's cult from the thirteenth century, and succeeded, although the cult was still in existence in the twentieth century.

It is fun to read the words of contemporaries who thought there might be something wrong in worshipping dead people rather than the supreme being they followed. The canon Henry Knighton wrote in the fourteenth century about those who believed "that the feasts of the saints ... should not be observed or celebrated, because no one knows whether they are damned or not, nor should any belief be placed in the canonisation and approval of the saints by the Roman curia".

The theologian John Wycliffe, who would be posthumously declared a heretic, also thought that papal canonisation was liable to error, and that those who pray should do so directly to Jesus and not to the "multiplicity of saints". Wycliffe's followers, the Lollards, "were not all theologians, and their views about religious practices could be expressed in an earthier way than was possible in Wycliffe's Oxford Latin". A hostile chronicler reported at the time that a couple of Lollards chopped up a wooden statue of St Catherine to use as firewood to cook their dinner, exclaiming, "This holy image will certainly be holy firewood for us." In the twelfth century, a critic confronted the problem that there were competing revered heads of John the Baptist, one in Constantinople and one in Saint-Jean-d'Angélyin France: "There were not two John the Baptists, nor one with two heads!" Perhaps some celestial someone had thought of the solution applied to the Welsh saint Teilo, who died around 560. He had been associated with three churches, each of which claimed the body to be its particular relic. It was decided to leave the question overnight to Jesus Christ to give a sign as to which church would get the body, and the next morning, there were three identical bodies of St Teilo, and everyone went back home happy.

Of course, come the reformation, there was plenty to say against the saintly cults. Luther wrote, "They have no Scriptural argument that one should invoke saints and have them as mediators, but Scripture makes Christ alone mediator and intercessor." Calvin mocked the slipper of St Peter which was preserved at Poitiers, a slipper of satin and gold: "See how they make him stylish after his death as a compensation for the poverty which he had during his lifetime."

These saints violated physical laws by such things as levitation, and some turned water into wine as Jesus had done, though Bartlett explains that "in the cooler northern and western parts of Europe, other beverages might be more suitable". He gives as an example St Arnulf of Metz, who miraculously provided beer for all the entourage carrying his body to burial.

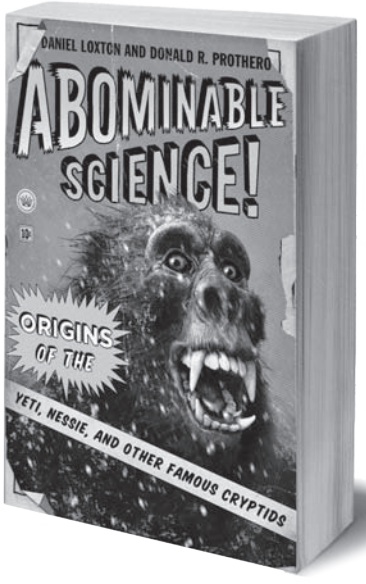
The chief miracles worked by saints, however, were cures attested by many grateful petitioners. It is a surprise, then, to read that saints were not always healing in their saintly way. Sometimes they caused rather than cured illness. A woman who swore a false oath to St Bertrand that she was innocent of adultery "saw her hand wither and dry up". A man who falsely swore to St Cuthbert immediately went blind. Around 840, men claiming to be monks brought some bones to Lyons, saying they had forgotten which saint they belonged to; perhaps objecting to this neglect, the relics "did not heal, but knocked women about the church, striking them to the ground". St Etheldreda took her staff and stabbed a man in the heart with it for oppressing her believers. Simon de Montfort, who died in battle in 1265, was regarded as a saint, but when some skeptic derided him, the skeptic "lost the power of speech and was unable to move a hand or foot but sat like a dead person".

This huge mass of scholarship never gets around to answering the question of its title; only believers, it seems, can understand why the dead can do such great things (and maybe how, as well). Perhaps this is as it should be; Bartlett summarises that "the cult of the saints met needs, in particular the need for the hope of a cure in a sick and suffering world without effective medicine, but it also suffused the imagination of worshippers". That may have to do for a "why". But who, and when, and where - this enormous and humane reference work gives all that, along with stories that are appalling and ghoulish and mysterious and funny.

- Reviewed by Rob Hardy

See creatures

Abominable Science : Origins of the Yeti, Nessie and Other Famous Cryptids
By Daniel Loxton and Donald R Prothero
Columbia University Press , **A$42.95**



"Cryptozoology" is a word that was coined in the 1950s to mean literally the study of hidden animals. One could make a case for any newly discovered species to have been hidden until it was revealed and named; the famous coelacanth was well hidden in the deeps until it was caught in 1938, proving it was not extinct as its fossils may have implied.

The fish is an inspiration for cryptozoologists, whose interest is not just in hidden animals but especially in big, scary, and legendary creatures that they are sure are out there but whose existence has yet to be proved by, say, capturing or killing a specimen. Instead, they deal in "muddy footprints, blurry photographs, grainy videos, and anecdotes about strange things that go bump in the night".

That description of what cryptozoologists study is in the foreword to *Abominable Science*, and though the description is written by Michael Shermer, it is a good reflection of the views of the book's authors, staff writer for the US *Skeptic* magazine Daniel Loxton and palaeontologist Donald R Prothero. Although the book has academic chops and plenty of footnotes, it has jaunty, amusing illustrations by Loxton and, although the authors must cast doubt on each of the monsters they take up in the individual chapters, they do so with good humour. *Abominable Science* tells of dubious tales, duplicity, and hoaxes, but also reflects on the nature of deserved doubt and how basic science is done.

Cryptozoology, the authors explain, "is built on openness to first-person testimony". The monsters here have been sighted, sometimes repeatedly, by observers who are often sincere. There is a review of just how unreliable eyewitness testimony is, as some courts of law are now admitting. Everyone knows that memories are imperfect, but those who say they have seen a big monster may have misperceived in the first place, or have coloured what they were seeing with what they were expecting to see, or had memories influenced by things they have seen on TV. It is perfectly possible that people can remember things that did not at all happen. A claim that there is a monster out there somewhere asserts that something spectacular is different from the world as we know it; such a grand claim needs more than eyewitness testimony. More than once the authors quote the science historian Frank Sulloway: "Anecdotes do not make a science. Ten anecdotes are no better than one, and a hundred anecdotes are no better than ten." Someone who says he has seen Bigfoot has an anecdote. It might be true, and it might be a spur to hunt for evidence, but it isn't evidence. There are plenty of 'investigators' covered in these pages who think that anecdotes mean something, when scientifically they do not.

Besides the effects of anecdotes promoting cryptozoological claims, the authors pay close attention to the effect of mainstream media. They find a disturbing attitude among media presenters who have "long tended to approach 'silly season' paranormal stories and monster yarns with a looser standard than that applied in other news items". A legend or regional folklore inspires an initial story, and the broadcasters cover the story without skepticism, causing a snowball effect, generating new sightings and new anecdotes. The authors think that things are worse in the days of 24 hour cable and unfillable programming time; it is easier to run the story without comment than to make an effort to track down the truth. Not only that, but cable stations that do run genuine science programs (or that used to) also feature 'documentaries' on cryptozoological topics (not to mention UFOs, Nostradamus, and plenty more). It is not hard to understand the reason that they do so; such topics are perennially popular and people do have fun with them, but the programs do not come with a warning label that they are not science.

There is a fine chapter here on Bigfoot, also known as the Sasquatch. Oddly, as I write this, there are news stories that a fellow named Rick Dyer has hunted and shot the Bigfoot, and has put him on display, and the hundred or so people who have seen the display are, according to Dyer's own report, convinced that he has the real thing. Maybe he does, but he said he had the real thing back in 2008 and then had to admit it was a hoax. Possibly because Bigfoot is supposed to reside in relatively remote mountainous areas, hoaxing of this particular cryptid is especially common, and the rest of the evidence consists of bad movie footage, blurry photos and faked footprints. There are no bones or carcasses, the hard evidence that

See creatures

Continued...

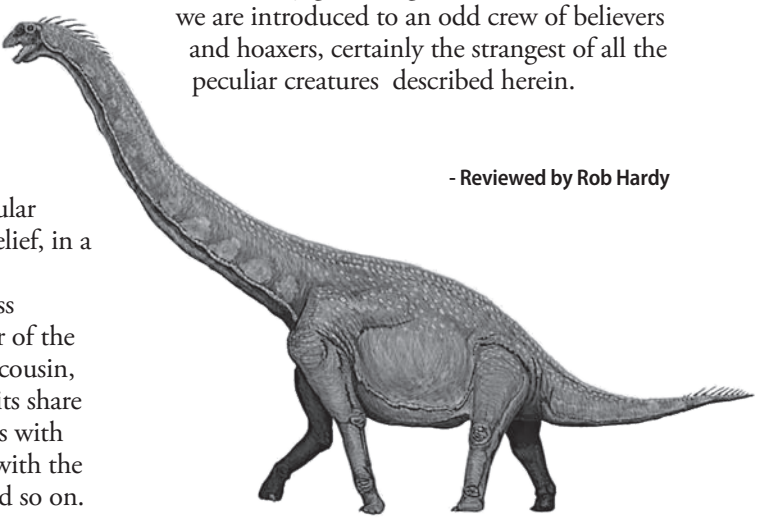
science needs. Combine this with the necessity that just one Bigfoot cannot be out there, there has to be a population of them, and none of the loggers or campers in the increasingly-traversed area are finding any evidence. Also, if there is some strange primate out there, where is the fossil evidence of its forebears? We have plenty of such evidence for other mammals of North America.

There is another chapter on sea serpents, which unlike all the other monsters here have an ancient heritage and did not show up only in the twentieth century. Similar to the sea serpents is the Loch Ness Monster, whose lineage is quite modern. There is a medieval biography that says St Columba had some encounter with a loch beast, but that book is packed with magic and other monsters, and is far from a reliable source of biological information. What is fascinating is that whatever beasties were in the loch, no one fussed much about them until 1933, the year that the film *King Kong* was released. The film includes an episode where a raft is attacked by a water monster, a *Diplodocus*, and sure enough, the report of the first canonical sighting of Nessie was a replay of this cinematic episode. It became the template for subsequent sightings and hoaxes, as part of a pattern encountered in all the chapters here: popular entertainment, media, and paranormal belief, in a sustained and stable feedback loop.

Similar to Nessie in many ways, but less famous, is Mokele Mbembe, the dinosaur of the Congo. It is less famous than its Scottish cousin, at least to most people, but has attracted its share of expensive trips by eccentrics, interviews with natives who enjoy impressing or playing with the visitors from the west, false footprints, and so on. What it also has is creationists who are among its most fervid supporters and who help finance expeditions to track down the beast. Somehow they think that if they find a prehistoric animal that was previously known just from fossils it will prove that Darwin was wrong, evolution is bosh, the world is 6000 years old, and scripture is inerrant. Such ideas simply prove the lack of understanding of science that creationists have repeatedly displayed; discovering the coelacanth caused no such revelations, for instance. The authors describe expeditions by people with degrees in religion, not biology, who explain that they have not seen Mokele Mbembe because of the wily creature's habit of burrowing quickly into the mud of the riverbanks; this might make one wonder why one expedition after another fails to bring good digging equipment, or maybe it does not make one wonder at all.

Loxton and Prothero have done a fine job of describing monsters which have an entertainment value for everyone, and without reducing the entertainment in any degree, they have taken each monster to illustrate how science is used (or ought to be used) to look at claims of monster sightings. There are many good laughs within the book, as we are introduced to an odd crew of believers and hoaxers, certainly the strangest of all the peculiar creatures described herein.

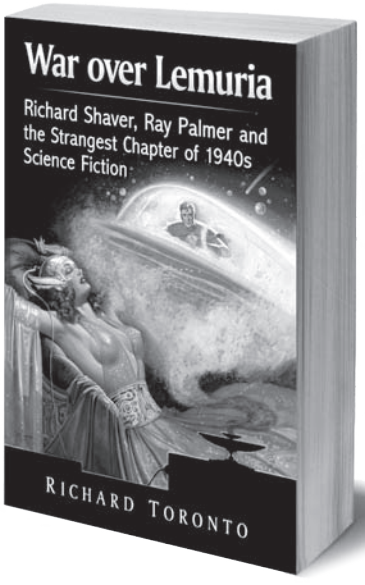
- Reviewed by Rob Hardy



Right: Euphelopus or Mokele Mbembe
Credit: DiBgd at the English language Wikipedia

Science friction

War Over Lemuria
By Richard Toronto
McFarland & Co, **US$40.50**



When malevolent underground beings called "deros" were controlling humans on the surface by means of electronic rays, only Richard Shaver could perceive the plot. His 1943 letter to Ray Palmer, editor of *Amazing Stories*, was almost discarded, but Palmer sensed that this was big news, and rewrote the letter into the sort of story his science fiction magazine usually published.

He maintained, though, that Shaver had hit upon the truth. And thus was born the "Shaver Mystery", a publishing phenomenon that was big news at the time. It all blew over, and we didn't hear from those underground ogres again, but in its facts the Shaver Mystery is itself an Amazing Story, and is recounted in full within *War over Lemuria: Richard Shaver, Ray Palmer and the Strangest Chapter of 1940s Science Fiction* by Richard Toronto.

The author is a journalist and edits an e-zine devoted to the subjects of this book, a funny, bizarre, and largely sympathetic tale of odd characters. It is so sympathetic that what Toronto claims in his preface is true: "This book does nothing to confirm or deny the reality of Shaver's deros - an evil race of beings living inside the Earth - or the existence of flying saucers and whether Richard Shaver and Ray Palmer invented them." Invented them? Even now, it is hard to say.

Shaver, you see, had a history of being hospitalised for hallucinations and for delusions of persecution. He grew up in a poor family that moved around searching for work during the depression. He liked working for a landscaping company, but eventually wound up working in an auto factory in Detroit. In the welding machines there, Shaver started to hear voices emanating from the underworld. The evil deros were projecting unwanted thoughts into his head, but he had the gumption to learn more; there were benevolent beings to counter them, the teros, and both groups had been deposited by aliens thousands of years ago.

The deros had prospered, and were responsible for almost all the calamities people experienced. They used rays from sophisticated electronic machinery to make the evils happen. Shaver had first-hand knowledge of their caverns, and had been taken prisoner by them for several years. It was an elaborate belief system, and given that his first wife died early in an electrocution accident and that his in-laws took away his daughter and arranged for his forced hospitalisation, he must have thought that the deros were doing an efficient job.

He would expose them by revealing their activities to Ray Palmer.

Palmer had his own tough life, for when he was seven in 1917, his spine was damaged in an accident with a passing truck, leaving him a diminutive hunchback and in considerable pain for the rest of his life. He was raised Catholic, but began to practice what we would now call 'new age' beliefs, relishing the imagination and a sense of wonder. He could never do anything about his back injury, but when in 1930 he was diagnosed as having terminal spinal tuberculosis, he turned it around by mental visualisation of healing activities.

His appetite for marvels was fed by a new brand of science fiction, as in Amazing Stories which was launched in 1926. He wasn't the only one; SF at the time became a way of life for enthusiastic fans who relished the intoxicating "what if" outlook to the future. Palmer insisted in the early 1930s that SF must be based on scientific facts and theories. He became editor of Amazing Stories in 1938, and he pushed these ideas, as well as promoting sensational and thrilling stories that would boost subscriptions from a juvenile audience.

Thus, in 1943, when Shaver, who had written some science fiction, sent the magazine his letter in which he told the true story of the deros, and included notes about their language and alphabet and their powerful rays, it wasn't surprising that a subeditor read the letter aloud to members of the staff, crumpled it, and dropped it into the waste basket. What was surprising was that Palmer walked over, rescued the letter, smoothed it out, and admonished, "And you call yourself an editor? Run the entire thing in next issue's letter column."

It isn't clear if he was pursuing a Barnumesque folly to boost circulation, but circulation grew mightily when the letter, and subsequent diverse exciting stories on the dero theme became a monthly feature of the

Science fiction

Continued...

magazine. Readers wrote in to say that Shaver's experiences confirmed their own experiences of hearing voices or to blame various misfortunes on the deros.

For three years, the magazine devoted to science fiction became a centre of what was supposed to be some sort of spiritual fact. There were Shaver clubs of true believers, and of course there were the naysayers. These were the organised fans of science fiction, and they were outraged that their magazine had been hijacked; they wrote vicious letters and yelled excited protest speeches at science fiction conventions. *Harper's Magazine* and *Life* publicised the controversy. Naturally, none of this hurt circulation.

The remarkable thing is that it did not all come crashing down because of the outlandishness of the stories or the accusations of hoaxing.

What really happened must have warmed the heart of any dero, if deros have hearts. In 1948, his publishers insisted that Palmer lay off the Shaver controversy. It had branched into flying saucers, and the federal government didn't like that because when people insisted upon the reality of deros-via-saucers, Uncle Sam was having to waste his time investigating UFOs rather than fighting Commies. Palmer was forced to print an editorial that the magazine would in the future stick to fiction.

Palmer would go on to other publications and independent publishing.

He maintained a friendship with Shaver, one that was strained by money issues and attribution of credit. Shaver found new evidence of underground civilisations in rocks on his farm, and developed a technique of making pictures from the patterns he saw within them; he got some recognition for his artistic work, but sadly it was mostly posthumous.

People are still seeing flying saucers, piloted by deros or not, and Shaver and Palmer deserve credit (or blame) for at least some of the UFO enthusiasm. Richard Toronto has told a true tale full of odd characters and events; if Shaver's Lemuria does not exist, this account has almost as much strangeness.

- Reviewed by Rob Hardy

What you think …

Peerless peers?

Your editorial comments on peer review [*The Skeptic*, 33:4, p4] are timely and your and The Economist's descriptions of some of the problems germane.

Having been a peer reviewer for the Medical Journal of Australia for more years that I can remember, I can (with the editor's permission) divulge to readers of *The Skeptic* a few inside details of this journal's peer review system, and some personal observations.

- The names of authors are not made known to the reviewers – to avoid bias.
- The names of the reviewers are not made known to the authors – to avoid bias.
- The Journal usually sends the articles to three reviewers. Where relevant, one is a statistician experienced in handling medical data.
- The reviewers' comments are placed on the editorial website, password protected so that each reviewer may see the comments of the other reviewers, but not know who they are.
- No word limits are placed on the reviewers.
- Reviewers are asked: Does the paper adequately focus on the issue? What are its strengths and weaknesses? How can the content be improved? and the statistician is asked some quite specific questions.

There are, of course, no perfect solutions to the problems raised in your editorial. I, too, have experienced some:

- Some reviewers submit a short comment, approving or disapproving, recommending or not recommending publication. Few make positive suggestions for improvement.
- A few make caustic, hurtful comments. This is, in my opinion, quite unhelpful.
- The subject matter might be so specific that the identity of the author is obvious. Only one person could have had access to the data. This can be a source of bias (or of a competitor's jealous comment).
- The subject matter might be so specific that the field of possible reviewers is so small that the identity of the reviewer is obvious to the author.
- The time pressure on journals is enormous. The (unpaid) reviewers, likewise, are usually busy practitioners volunteering their precious off-duty time. This does not bode well for thoughtful and detailed analysis of papers.

On the other side of the coin, I have found some peer reviewers' comments on my articles extremely valuable, opening my eyes to aspects of my papers which I had not realised could be misinterpreted, or to areas which could benefit by some expansion.

I should add that some journals have abandoned anonymity of author and reviewers, but ask reviewers if there is any possibility of a perception of bias with respect to the author(s), just as they ask authors if there are any areas of possible or perceived conflict of interest.

Are there any reasonable, practical alternatives to peer review? I think not. Could it be improved? Of course, but how? That is the question.

Dr Peter Arnold
Edgecliff NSW

Defending science

About 12 months ago the Australian Skeptic put a hold on printing articles and letters related to the climate change debate and within it the role that humans may have played in this geophysical dynamic. I understand the frustration of the editorial staff with the depths to which the debate had at times descended and their desire to shift our association's focus towards more fruitful targets for skepticism.

However, I think it should be noted that in all areas of scientific discourse, withdrawal from a debate allows opposing forces to fill the vacuum with assertions, aspirations and gross misrepresentations. While many masquerade as facts, they would more conventionally be seen as hopes or even lies, often with little scientific credibility. A classic example would be any withdrawal from the debate over vaccination, which would leave the field open to assertions completely lacking in scientific foundation.

We have recently seen a cabinet minister, a former prime minister and a range of government spokespersons giving, at least, equal weight to intuition, Wikipedia-based research and shock-jock-style anecdotal-style evidence as they do to long-term, extensive, peer-reviewed data, giving a degree of respectability to what we should regard as scientific nonsense. There are now numbers of senior figures in both the public and private sectors using their influence and private intuitions to determine science policy and we hear budgetary pressures used as a justification to remove any scientific research that has the potential to produce findings with which they might disagree.

We could be forgiven for observing that by withdrawing our moderating role in the debate we have not closed it down, we've merely allowed the inmates to take over the asylum.

Given the nature of the scientific method, the language used by scientists must retain a level of equivocation necessary to accommodate the small levels of doubt that remain. Rational skepticism accepts the reality of doubt and uncertainty. But those seeking to throw doubt on such findings then choose to berate the lack of definitive proof and evidence of an occurrence that is yet to happen. As PR it's been very effective, but is it credible science,

Science

Continued...

and does anybody still care?

Science, and the credibility of the scientific method, needs every friend it can muster if it is to be allowed to ask difficult questions and certainly publish findings and hypotheses that are not tainted by their acceptability. As skeptics we embrace the scientific method and should not stand idly by when we witness a concerted strategy to portray attempts to trash science as exercises in legitimate skepticism.

If the Australian Skeptics can't stand up for science when public figures are able to utter unsupported assertions masquerading as scientific facts we have reached a crisis point. Although the responsibility for this kind of 'fact checking' has begun to move to some media organisations, I fear that their independence to continue in this role will soon be curtailed. I think skepticism is the core attribute of a fact checker and so the natural home of 'Fact Checking' lies within the organs of the Australian Skeptic.

Ian Foster
Nicholls, ACT

Editor's note: *Mr Foster refers to an earlier decision to put a halt to discussion of the evidence (or lack of it) for and against climate change in these pages. That discussion had become akin to counting angels on pin-heads, and prone to ad hominem attack and conspiracy claims – all areas that are endemic to the proponents of pseudosciences, and should not be part of discussion between skeptics. I stick by that earlier decision. With that in mind, I thank Mr Foster for allowing some editing of his letter to focus on issues of scientific debate generally, though it was obvious that he holds very strong views on that same debate as it applies to climate change. I would prefer it if the publication of his letter were not seen as an invitation to revisit the climate debate.*

Turn of the tides

I greatly enjoy the classical articles from Barry Williams, in particular "Full Moons and Empty Heads" [*The Skeptic* 33:4, p32]. I can imagine a parallel universe where the cookie crumbled differently and he became a scientist, or at least a professional science communicator.

His considerations of the orbits and influences of the earth and the moon are illuminating. But the tidal effects need some correction. It is true that the gravitational attraction between two bodies is inversely proportional to the distance between them, but this would only "be" the tidal effect if one body (the earth) was nailed down and unable to move, so to speak. Then the direct gravitational pull would cause very high tides once per day.

But the earth is constantly falling toward the moon, and the rock and the water are affected equally. Only with a deeper analysis do we find the near side of the water is attracted more strongly than rocky earth, due to being closer to the moon, and the far side of the water, less strongly. This in effect elevates the water at both the 0 and 180 degree points.

Further, at the 90 degree points the force vectors are not parallel but are angled in a bit (since they all point to the moon), thus lowering the water here.

Thus the moon's gravitational field in the vicinity of the earth can be broken into two parts: a uniform field (which has no observable effect as the earth falls as a whole), plus a gravitational gradient. Mathematically the latter is a dipole term, and varies as the inverse cube of the distance. Newton guessed the cube law from tidal measurements (Principia), but never gave an explanation.

Finally, the sun also provides a gravitational gradient, about half that of the moon. When these two effects add up we have king tides, and when they subtract we have neap tides.

Ian Bryce
Rozelle, NSW

Response to Catalyst

As a practising community pharmacist, enthusiastic skeptic and supporter of evidence-based medicine, I feel that your magazine's articles rebutting the ABC's *Catalyst* "Heart of the Matter" programs were sadly deficient about the current science of this controversial topic. Your correspondents Justin Coleman, Rachael Dunlop and *Media Watch* very reasonably dissected the program's

sensationalist approach and rightly criticised its obvious bias.

However all writers devoted much of their columns to ad hominem attacks, rather than presenting any robust defence of the science. Dr Dunlop writes: "Elsewhere in this issue … the scientific claims made by Catalyst have been challenged." Beg pardon, but I found no such challenge in my copy.

Just as Dr Coleman's sceptometer twitched at Jonny Bowden's "100 per cent wrong", mine was engaged by *Media Watch*'s appeal to the authority of "the mainstream". Remember that great science story of Marshall and Warren's discovery of the connection between Helicobacter and gastric ulcers? According to their 2005 Nobel Prize citation, they "challenged prevailing dogmas". This, I thought, is what we skeptics do. We must ensure that we do not unwittingly become

part of an information cascade based on nothing more than authority or mistaken consensus.

More than half a century has passed since Dr Ancel Keys commenced his anti-cholesterol campaign. During this time, 'expert' dietary advice has turned over more times than a saturated-fat laden rotisserie chicken. Remember "don't eat cholesterol-rich foods"? Little if any impact on cholesterol levels, but this advice brought the egg industry to its knees and deprived many of a cheap, nutritious food. Then, for years, the theme was "polyunsaturates". Pure, farm-fresh butter was replaced by the artificial cocktail that is margarine. In the 1970s we had to replace fats in the diet with carbohydrates. And so on…

I have just had a quick skim round some respected recent research summaries.

Research collator NNT (for Number Needed to Treat) concurs with the worthy Cochrane reviewers on statin drugs: No overall benefit in primary prevention. (http://tinyurl.com/m23faoc)

If there has been one consistent message from the diet boffins in the last half century (and the food industry marketing machine) it has been "Eat less fat!" Permit me therefore to shout this one. Cochrane 2012: "There are no clear health benefits of replacing saturated fats with starchy foods (reducing the amount of fat we eat)"!

(See more at http://tinyurl.com/867f68k)

And a paper which will bring joy to the hearts of cheese eaters everywhere, and may be part of the explanation for the French Paradox: "(Dairy fat intake) was inversely associated with incident cardiovascular disease and coronary heart disease", J Am Heart Assoc. 2013; 2: e000092.

If Dr Keys has not yet been declared the emperor sans clothes, his metaphorical trousers are by now hovering around his ankles.

The great issue here is not the minutiae of lipid biochemistry, which will be argued in the journals ad infinitum. With the best of intentions, our benevolent technocrats have concocted elaborate health campaigns prematurely from incomplete evidence. The drug, food and marketing sectors have had a field day. For the year to June 2012, our Pharmaceutical Benefits Scheme spent $1.3 billion on lipid modifying agents.

I can't help feeling that in the multifactorial puzzle that is cardiovascular disease, we could have invested our efforts and health resources more wisely.

Ian J Carr
Taree, NSW

Jewish differentiators

In the last issue of *The Skeptic* [33:4, p6], there was a short summary about my talk at the National Convention in Canberra, titled "How Jews Rule the World" (and not as printed). Unfortunately, the summary got a key fact wrong, and missed what I consider to be the most important aspect of Jewish history in this context.

The summary states that I "suggested that there might even be a genetic condition – however slight – that is intrinsic to 'Jewishness'". I do not believe I have said anything of the sort. It runs contrary to my assessment of the evidence and I have spent quite a bit of time showing why genetics cannot be the reason for the overall success of Jews. In addition, I highlighted the fact (and reasons) that Jews have been an almost fully literate community for about 1900 years and that for most of that time this put them on par only with royalty and clergy, with the rest of the population mostly illiterate. I feel this is a key differentiator that should make it into any summary of the talk.

I am disappointed that I haven't conveyed those two messages strongly enough.

Eran Segev
Lane Cove, NSW

Cause or effect?

Re: The article on 'Lunarcy' (*The Skeptic,* 33:4). Are we overlooking something?

The Lunar Society of Birmingham met monthly in the 1780s. The heart of the Society was Matthew Boulton, the industrialist who built Watt's engines. Other members included Erasmus Darwin, famous physician, writer and Charles Darwin's grandfather; Joseph Priestly, the rebellious cleric and scientist famous for isolating oxygen; Josiah Wedgwood known for his fine tableware; the astronomer William Herschel, who discovered the planet Uranus; and John Smeaton, designer of the Eddystone lighthouse; among others. These men (they seemed to be all men) and other similar groups charted the development of the Industrial Revolution.

It was called the Lunar Society because it met during the full moon when roads were better lit for members who had to travel at night.

It is clear, therefore, that the moon does have an influence on human behaviour.

Ian Kirby
Nightcliff, NT

Where are you going?

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We know how traumatic it would be to miss even a single copy of ***The Skeptic.***

CRYPTIC CROSSWORD SOLUTION

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N	W	O	D	T	L	I	P	■	T	N	E	G	O	C

DR BOB'S QUIZ SOLUTIONS

1. pi.Z.Z.A

2. $847.63 was the monthly cost of raising a baby in 1989.

3a. They actually add to 4472.0000000071^{12} but most calculators will round off numbers to about 10 decimal places, so the 4472 looks like a whole number.

3b. 3987 and 4365 are both divisible by 9, their digits add to a multiple of 9, so their 12th powers must also be divisible by 9, but 4472 and any of its powers are not thus divisible.

4. The expansion of pi goes on forever, so the kids' song would also never end. Even Andrei Tarkovsky's camera would have to pan away eventually.

5. Like Mickey Mouse and all other cartoon humanoids, all Simpsons characters have a thumb but only three fingers on each hand and would surely, therefore, count in octal and thus express pi in base-8. (Except for one character: God, who is drawn with a thumb and four fingers on each hand.)

You can see more like this, every month and going back some years, at www.skeptics.com.au/features/dr-bobs-quiz/

Local Skeptical Groups

VICTORIA

Ballarat Skeptics
https://www.facebook.com/groups/39781220309544

Citizens for Science – *Mornington Peninsula (formerly Peninsula Skeptics, aka The Celestial Teapot)*
Contacts: Graeme Hanigan 0438 359 600 or Tina Hunt 0416 156 945 or glannagalt@fastmail.fm
http://www.meetup.com/Teapot-Mornington-Peninsula/

Gippsland Skeptics – *(formerly Sale Skeptics In The Pub)*
Meets at 6:30pm twice a month: Ryan's Hotel, Taralgon, on the second Friday, and Relish, Sale on the fourth Friday.
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

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
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/

TASMANIA

Launceston Skeptics
Contact: Jin-oh Choi, 0408 271 800
info@launcestonskeptics.com
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 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.

Skeptics

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