*In their early years children are knowledge junkies, questioning everything in their view, though exhibiting little skepticism. Most never learn to distinguish between inquisitiveness and credulity. Those who do either come to a bad end or become professional skeptics.*
***Michael Shermer***

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content




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editorial

# Irrationality waxes once again

THERE are times when the world seems to run along quietly from day to day, with very little happening. Then there are times like these. There are the ongoing aftershocks in Christchurch, many of them big enough in their own right to qualify as major quakes at any other time. There was the far larger earthquake in Japan, with its ensuing slow-motion nuclear disaster. There are wars and revolutions across the Middle East and North Africa which seem set to transform the politics of those regions. Millennial anxieties are on the rise once more.

It's only to be expected at such times that irrationality should flourish. When natural disasters strike at random, many have a desperate need to seek some kind of pattern, or cause. Hence the attention given to Ken Ring's claim to have used phases of the moon and solar activity to predict the Christchurch quakes – if the experts can't say when earthquakes will strike (though the general pattern of aftershocks has actually followed GNS's forecasts quite well) then there is a niche for those who claim they can. Many skeptical bloggers (eg Peter Griffin, Matthew Dentith, Alison Campbell, Darcy Cowan and particularly the Silly Beliefs team) have dealt with Ring's claims; we add our five cents' worth later in this issue.

Meanwhile in the US, many commenters on internet forums are putting the Japan earthquake down to karma for Pearl Harbour. Also in that country self-proclaimed prophet Harold Camping is raising quite a stir with his calculation that the Rapture will occur on May 21 this year – 19 months before the 2012 buffs' choice for the Big Day. Camping says of the current upheavals: "There are still people that God has to save, and he uses them to get them to cry out for his mercy."

There's not much sign of that happening yet in Christchurch, where the citizens are more intent on helping themselves and each other, rather than seeking divine assistance. Slowly the city is getting back on its feet, despite ongoing tremors; life is returning. A small sign of that is that the NZ Skeptics annual conference will once again be held there, from 26 to 28 August. Register with the form mailed out with this issue, or do it on-line at **www.skeptics.org.nz**

Christchurch always seems to have had more than its share of Skeptics, many of whom have been seriously affected by the quakes. It will be good for us to get together once again, to share the strength of our usually far-flung community.

# Dealing with wingnuts – which way to turn?

**Michael Edmonds**

*It's not a hopeless cause to engage with proponents of the irrational – but some ways of doing this are more effective than others. This article is based on a presentation to the 2010 NZ Skeptics conference.*

THERE has never been a time in history when the public understanding of science and rational thinking has been so important. Science has revealed new challenges for humankind, such as climate change and depletion of resources, while new technologies are often accompanied by ethical and social implications that need to be carefully considered. In response to these challenges science communicators spend more time trying to carefully explain science and related issues to the public. However, these efforts to make science more understandable are being confounded by 'wingnuts' who use misinformation to confuse public understanding of science.


**Identify your target: Michael Edmonds presents a field guide to wingnuts at last year's NZ Skeptics conference in Auckland. Photo: Rayna Ramsay.**

The term wingnuts has been used by a number of people to describe those who propagate misinformation for a variety of reasons. In his book *Wingnuts: how the lunatic fringe is hijacking America*, John Avlon describes a wingnut as "someone on the far-right wing or far-left wing of the political spectrum – the professional partisans and the unhinged activists, the hardcore haters and the paranoid conspiracy theorists." This is probably a fair summation of the groups that skeptics often confront. Specific examples include Jenny McCarthy for her misinformed and vehement opposition to vaccines, Suzanne Somers for her advocacy of dodgy and dangerous "natural" therapies, Peter

Duesberg with his HIV denialism, and Christopher Monckton for his use of misinformation in opposing global warming.

With wingnuts attacking many areas of science and undermining attempts to educate the public, the question has to be asked – How should we deal with these purveyors of irrationality? Some skeptics advocate an aggressive counterattack – personally attacking the wingnuts, in the same way that they have attacked science and science communicators. Others suggest a purely educational and rational approach, relying on the ideal that the truth will win out in the end. For myself, I see the first approach as dangerous in that it muddies the waters – one only has to look at the mess that has resulted in the climate change debate. Personal attacks from both sides of the debate – accusations of conspiracy, impropriety, etc – have confused the public and risk having climate change dismissed as 'too hard' to deal with. On the other hand, taking a purely rational approach overlooks the fact that human behaviour is not always rational and prone to being swayed by emotive arguments.

In trying to sort out the best way for me to respond to wingnuts I have developed a list of 10 rules as a guide.

**1) Know what you are talking about**

Many wingnuts are well versed in their area of 'expertise'. Debating them without adequate knowledge of the subject as well as an understanding of the typical wingnut ploys is risky. It is worth noting, however, that when exchanging views with a wingnut via blog comments this does give one the opportunity to do research between exchanges.

**2) Use precise, simple and neutral language**

It is easy to be misunderstood, especially via written language. So, one should keep the language as precise and simple as possible. A choice of neutral language helps maintain a calm exchange of ideas. Emotive language can readily escalate an exchange of ideas into an irrational argument. We have over 600,000 words in the English language to choose from, so why not take some care in deciding how we explain things to others.

**Many wingnuts are well versed in their area of 'expertise'. Debating them without adequate knowledge of the subject as well as an understanding of the typical wingnut ploys is risky.**

**3) Respond to rudeness in a calm manner**

Some people, including skeptics, see debating ideas as an opportunity to insult others. In my opinion, snide remarks, personal attacks and swearing detract from any rational exchange and serve to both escalate any exchange of thoughts into irrationality as well as hardening the views on both sides of the debate.

When confronted with rudeness, I try to focus on repeating factual information. There is also value in pointing out the rude behaviour. This can be done in an assertive, non-threatening way by making comments about the wingnut's behaviour and not about them personally. For example by saying "I find it offensive, when you claim that scientists are shills for big pharma" followed by a list of supporting facts, instead of "you are a rude and obnoxious #$@&". Most people will accept criticism of their behaviour far more readily than what they feel is a personal attack, particularly when the person making the comment 'owns' the effect of the behaviour.

It is also worth remembering that it is difficult for someone to continue being rude if you do not reply in kind. If you can maintain being polite to someone who is being rude, in most cases the rudeness will dissipate and one can return to a calm exchange of ideas.

**4) Remember – wingnuts are people too**

No one is completely rational. We all have our own biases which may result in irrational behaviour. Whether it is a result of our environment or our biology, many of us engage in irrational behaviour without even recognising it. So while we may often assume that a wingnut is being purposely irrational, it is usually the case that they consider their actions to be completely rational. In his book *Why we Believe*, Michael Shermer describes such behaviour as "intellectual attribution bias" – where those with opposing views typically consider their own actions as being rationally motivated, whereas

they see those of their opponents as more emotionally driven.

A simple rule to remember – challenge the ideas, not the person.

### 5) Ask questions ... and listen to the answers

When someone appears to express a view counter to what we believe it is easy to respond by bombarding them with counter arguments. However, this will not only put them on the defensive, it also relies on the fact that you have understood their point of view correctly (see point 7, below). If one takes the time to explore their beliefs further by asking questions, it not only gives you time to assess the extent of their beliefs, if done in a friendly manner it helps establish rapport, allowing for a more rational exchange of ideas. If we leap into an argument with a limited understanding of the other person's position we can find ourselves trying to convince them of something they already agree with.

### 6) Leave your ego at the door

In my experience once you start taking comments personally, rationality goes out the window. There are times when the comments of some wingnuts make me furious. At such times the best option is to take time to calm down before responding.

> "Science is the search for truth - it is not a game in which one tries to beat his opponent, to do harm to others." – Linus Pauling

### 7) Expect misunderstandings

No matter how carefully we think we have phrased something, those hearing or reading them will often misunderstand at least part of what we have said. So one always needs to be ready to rephrase. In order to clarify what we are saying a number of techniques can be used:

a) Counter anecdotes with anecdotes. Follow up by explaining this is why anecdotes are not particularly good as evidence.

b) Use analogies to explain difficult concepts.

c) Apologise when you make a mistake. While some may view apologising as a loss of face, it can actually establish a better rapport. It is far more honest and trust-inspiring than trying to cover up or justify a mistake you have made. There is nothing wrong with acknowledging that we all make mistakes.

d) Acknowledge points of agreement. In any argument there are often points that both parties agree on. If we can identify these up front and acknowledge them, it not only makes it easier to explore the points of difference, it again establishes some rapport by saying "look, there are some points on which we can agree."

### 8) Don't make the same mistakes we criticise *them* for

There is nothing more frustrating than seeing other 'skeptics' debate a wingnut by erecting their own strawmen, using ad hominem attacks or other irrational arguments. An experienced wingnut will quickly turn these mistakes to his or her own advantage. It always pays to carefully think through all of your own arguments before using them.

### 9) Be persistent and don't expect to change their views overnight

Most wingnuts have spent years developing and reinforcing their positions. Some probably have the psychological equivalent of Fort Knox built around their ideological positions.

So if we can't easily change their minds, what is the point in debating with them?

Debates with wingnuts seldom take place in a vacuum. Whether they are arguing their point via a letter to the editor, on a blog or amongst a group of friends or workmates, there is always an audience. If their points go unchallenged some of the audience will be swayed by their arguments. So challenging the arguments of a wingnut is less about changing their point of view, and more about educating any audience they have about the flaws and fallacies of their argument. One should aim to win over any such audience with superior knowledge, civility and by pointing out how your position benefits them.

### 10) Learn more about persuasion

Many skeptics have a great respect for facts and rational debate. However, when it comes to making decisions human beings tend to be more readily swayed by their emotions. Psychologists have spent decades researching how people make decisions.

Such research has been embraced and effectively used by marketers and salespeople to get us to buy things we don't need or want. If the Journal of Marketing Research refer to books like Robert Cialdini's *Influence: the Psychology of Persuasion* as "the most important book written in the last 10 years" then perhaps we should also be reading it, not only to help us work out appropriate ways to better present a skeptical viewpoint, but to also immunise us against some of the less scrupulous methods of persuasion.

Some persuasive techniques directly applicable to debating with wingnuts include:

a) Appealing to self interest. Everyone naturally looks at how anything benefits themselves. So when we advocate for vaccination use, rejection of dangerous or ineffective 'alternative medicines' and other wingnut ideas we need to focus on the benefits of our positions.

b) Creativity. In a world where we are bombarded with many demands for our attention, the creative ideas stand out. One only has to consider the incredible amounts of money companies spend on novel advertising campaigns to understand this.

c) Repetition. Many wingnuts rely on the idea that if you repeat a lie often enough it will be believed. If this is the case, then surely if you repeat the truth often enough it will also be believed.

d) Soundbites. Many science communicators are now recognising the value of sound bites – short memorable statements outlining key points. Most people are more likely to remember sound bites than the long and complex (albeit more accurate) explanations preferred by many scientists.

e) Be positive. It has been demonstrated that most people remember positive messages more accurately. Thus is it more effective to say that "vaccines save millions of lives each year" as opposed to "vaccines *are not* dangerous." Over time, a negative message can become confused and may be remembered instead as 'vaccines *are* dangerous."

A good example of clever use of such techniques was the 10:23 campaign in January 2010 to educate the public about homeopathy. The public 'overdose' on homeopathic remedies by skeptics was a creative way to draw the attention of the media and the public to the irrationality of homeopathy. Clever sound bites such as "ten dollars for a teaspoon of water" were not only memorable but focused on financial self interest. The event also caused several homeopaths or homeopathic organisations to state outright that they don't know how homeopathy works, a remarkable and useful soundbite (for skeptics) in itself.

**Conclusion**

This 10-point list outlines my own approach to wingnuts. Others may have different, possibly even contrary rules. I believe it is important that we, as skeptics, share and discuss these ideas rationally and with the view of what will best encourage better and more rational thinking by the general public.

Whether you agree with all of my rules or not, there is hopefully one thing we can agree on. We cannot afford to ignore the wingnuts.

> "All that is necessary for the triumph of evil is that good men do nothing." – Edmund Burke

> "We have to create the future or others will do it for us." – Susan Ivanova, character, Babylon 5 TV series.

**Michael Edmonds has spent the last decade as a chemistry lecturer, researcher, and more recently as manager of programmes at Christchurch Polytechnic Institute of Technology (CPIT). With a background in medicinal chemistry, Michael has a particular dislike for homeopathy and AIDS denialism.**



# Opening a Dore?

**Michelle Coffey**

*A learning difficulties programme that claims to re-train the cerebellum makes some impressive claims which don't stand close scrutiny.*

DORE is an organisation that claims to treat learning difficulties without drugs. Their programmes supposedly

> "... tackle the root cause of learning difficulties by improving the efficiency of the cerebellum – the brain's 'skill development centre' – and the part of the brain now understood to play a significant role in learning, coordination, emotional control and motor skills."

Recently the company held a series of information sessions to coincide with the opening of a new Dore centre in Lower Hutt, to go with their existing centres in Auckland and Christchurch. I attended a session to see what it was all about.

As we entered the room, video testimonials were playing, showing parents and their children claiming dramatic results for a range of learning disabilities and conditions, such as Asperger's syndrome. An information pack was handed out, which included newspaper clippings and another testimonial. It claimed that Dore gets to the "core of learning difficulties", "actively improves ability to learn", is drug-free, based on scientific principles, is personally tailored and is not a "quick fix" or "soft option". A FAQ stated that people who successfully complete the programme did the exercises accurately and consistently and if improvements don't occur this is mainly because people are not sticking to the routine.

A video introduced Wynford Dore, who stated his daughter had learning problems, for which he searched for a solution. Then a mother and her son related how the son had dyslexia and behavioural problems at school which the mother was only made aware of after a few years when a teacher spoke to her. The child was already on a three-year programme with SPELD when the family discovered Dore; they followed this programme for a year concurrently with SPELD. They claimed significant improvement about three months after starting Dore.

The presentation went on to claim that approximately 16 percent of the New Zealand population had learning difficulties, with only four percent diagnosed; these were said to affect one in six New Zealanders. It was difficult to locate comparative figures, but SPELD estimates that seven percent of

children have a specific learning disability, which would equate to about 50,000 school children.

The Dore programme claimed to assist with dyslexia, ADD/ADHD, dyspraxia (motor skills) and Asperger's syndrome, and is targeted at people aged seven and over. The presenter briefly went over the typical feelings of those struggling with learning difficulties, and described how they thought these conditions manifest – as a multitude of literacy, numeracy, memory, attention, coordination, social and emotional problems. This was all claimed to be due to an inefficient cerebellum. Dore, they said, addresses underlying causes rather than symptoms (where have I heard that before I wonder?).

The conditions treated all allegedly have a physiological basis and nothing to do with other factors. Figures were presented, said to be from the Otago University longitudinal study and purporting to show that dyslexics were significantly disadvantaged compared with peers (with the consequent implication that treatment would help prevent this disadvantage).

Dyslexic students were more likely to leave school with no qualifications, much less likely to have a Bachelors degree, and none achieved Masters/Doctorate levels. Average income was more than $10,000 less than their peers. However, there was no word on whether this lack of achievement could be generalised to all people suffering dyslexia, given the long time period of the study and the considerable changes in educational services over that time.

In a further video presentation a Dr Sara Chamberlain claimed the cerebellum governs the automatic performance of simple tasks, and that this facility can be enhanced through exercise. We then heard about Dore's assessment process. Following an initial phone consultation, prospective clients fill out a questionnaire, and there are a variety of tests and a medical assessment. Posture and ocular-motor skills are tested, and then dyslexia is screened for, apparently using a standard tool. Other conditions such as ADD/ADHD are assessed using the DSM-IV manual; the whole initial appointment takes three to four hours. The programme, it appears, is not suitable for everyone. Clients then have 1.5-hour interviews at three-monthly intervals and on completion of the course.

**The idea that defects in the cerebellum cause learning difficulties would seem to be a classic case of correlation not necessarily equating with causation.**

It was claimed that many scientific papers link the cerebellum with learning, attention, etc; these can be found on their website. They say they have done research themselves and written papers, and will provide details on request. They mentioned ongoing studies into ADHD at Ohio State University and by another US office; the Ohio State University testing appears to be a pilot study, but I couldn't find any references to the other. A testimonial was introduced from a Dr Edward Hallowell, presented as an expert in ADD and ADHD. When I checked on this later, he appears to be involved with the Dore programme and would hardly be an unbiased commenter.

We were presented with figures from self-evaluation claiming to show 86.5 percent of children and 88.5 percent of adults showed progress in literacy and numeracy after taking the Dore programme. For coordination the respective figures were 81 percent and 75.4 percent, and for social skills 78.1 percent and 72.6 percent. The exercise programme was claimed to be individualised, unlike other programmes like 'Brain Gym' that aren't (for more information on Brain Gym see Ben Goldacre's Bad Science blog).

**The regime**

The exercises take 10 minutes twice daily, with a mandatory four-hour break between; they have 400 exercises and 16 levels that could be completed. These involve such things as using a wobble board, or an exercise ball, or throwing and catching mini bean bags. Again, the cerebellum was claimed to be receiving, processing and automating sensory information from somatosensory, visual and vestibular inputs. The cerebral cortex (the thinking part of the brain) is apparently supposed to integrate all of this but with the conditions Dore say they treat, it is claimed the cerebellum isn't working with the cerebral cortex.

The idea that defects in the cerebellum cause learning diffi-

culties would seem to be a classic case of correlation not necessarily equating with causation. As noted by Oxford University psychologist Dorothy Bishop in her 2007 paper "Curing dyslexia and ADHD by training motor coordination: Miracle or myth?", cause and effect would seem to be not so simple as presented at the session.

> "The notion that the cerebellum might be implicated in some children's learning difficulties is not unreasonable: both post-mortem and imaging studies have reported cerebellar abnormalities. Furthermore, some studies have reported behavioural deficits involving balance and automatisation of motor skills in a subset of people with dyslexia, consistent with a cerebellar deficit hypothesis. However, it is premature to conclude that abnormal cerebellar development is the cause of dyslexia, rather than an associated feature. Many people with dyslexia do not show any evidence of motor or balance problems. Furthermore, the cerebellum is a plastic structure which can be modified by training, raising the possibility that cerebellar abnormalities might be a consequence of limited experience in hand-writing in those with poor literacy."

The programme used to use a book, but is now web-based. Exercises are carried out and then "marked" according to their criteria. They stressed that compliance was key, along with parental support. Times for completion vary, but are usually 12-14 months, with a weaning process at the end of the programme where the exercises are gradually wound down. The course is expensive, costing almost $5,400 or a little less for a one-off payment. They did say that they gave three "sponsored" places per month, but didn't describe what exactly this entailed, outside of mentioning that it was for low income families and that children with a medical diagnosis could apply for a disability allowance through WINZ which could be used to access their programme.

**A few questions**

During question time, they were asked how they could be sure the child in the video testimonial had improved because of Dore and not the other programme he was on. The answer was fudged: they said they didn't diagnose but looked for "sensory processing problems" and it was those they treated, which then enabled the person to learn. In other words, if there was improvement, it was Dore, not any other intervention specifically targeted at helping the person learn to overcome their disability and learn to read.

Another questioner asked why it was so costly given that the programme is mostly self-directed. They equivocated, talking about staffing costs, the website, and having support available. They said that braces cost much more and that that is basically cosmetic, when their programme "benefited a person for life" so was worth the investment. Yet another question was about the doctors – why wouldn't they use paediatricians and other suitably qualified professionals? They stated that for their purposes, the level of medical expertise was sufficient.

Dore has obviously learned from experience following actions taken by overseas advertising standards authorities, and no longer make claims of "100 percent cure" and "miracle cure" for the conditions they claim to treat. In fact they seemed to be reasonably realistic in introducing caveats such as "it doesn't work for everyone". Despite this, they still claim to be proven to help overcome learning difficulties even though the evidence base is weak to non-existent. Although they make many claims to be "scientific" and have an extensive list of papers on their website, when the UK Advertising Standards Authority considered a complaint against Dynevor, Dore's parent company, they assessed the studies submitted in support as poor, lacking control groups, and not supporting the treatment claims made:

> "The ASA noted Dynevor's interpretation of the ad. We considered, however, in the absence of any qualifying text to the contrary, that consumers were likely to understand the claim "Need help with Dyslexia, ADHD, Dyspraxia or Asperger's?" to mean that the DORE programme could help treat the named conditions. We also considered that we would need to see robust, scientific evidence to support the claim. We noted that the two studies provided by Dynevor assessed the effect of the exercise-based DORE programme on children with reading difficulties and children and adults with ADHD respectively...
>
> ".... As neither the first nor second study referred to Asperger's syndrome and only two participants in the first study had dyspraxia, we considered that the evidence was inadequate to support claims to treat those conditions. With regards to dyslexia

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*Compiled by David Riddell and Annette Taylor*

# PM seeks balance of power in wrong place

WHEN John Key modeled the 2011 Rugby World Cup volunteer's uniform, he raised a few eyebrows at the NZ Herald (4 February).

Journalists Katherine Irvine and Derek Cheng noted that as well as the snappy teal-blue shirt and cap, the PM was also sporting a Power Balance wristband. The band features a hologram that is claimed to store a "natural frequency" which interacts positively with "your body's energy field".

Power Balance is endorsed by several sports stars, despite a lack of evidence that their products actually do anything. In January Power Balance Australia was compelled to admit there was no "credible scientific evidence" to support its claim that the wristband improved strength, balance and flexibility. It had to apologise for its misleading promotions and offered purchasers a full refund.

John Key did not return calls about the story; a spokesman said the band was given to him as a present.

The bands cost $89.95 at the company's on-line shop – quite a mark-up from the $US0.99c wholesale price. If you really want to spend your money on a plastic wristband with a hologram on it, you might want to consider a Placebo Band, available from **skepticbros.com** for a mere Aus$2.00 – they make a profit at that price, which they give to charity. These use "two powerful, scientifically proven effects, the placebo effect and confirmation bias, that, combined with a subtle alteration in your own activities, help to strengthen your own personal desired outcomes and even desired outcomes in others! ... Its powers are, quite literally, up to your imagination!"

### Psychic 'channels' Scott Guy

During one of her shows in Palmerston North, touring British clairvoyant Lisa Williams claimed to channel the spirit of murdered Feilding farmer Scott Guy (Herald on Sunday, 27 March).

Guy told her, she said, that his killers were named "Mark and Joey". According to an audience member a cousin of Guy's, who was present, became upset and started crying during the show.

Another who attended the show declared: "What absolutely blew everyone off their seats was when the energy of Scott Guy came through, and you could've heard a penny drop, she knew specifics that nobody would've ever known, not even the police."

How this person could be sure the specifics were accurate wasn't made clear.

NZ Skeptics spokeswoman Vicki Hyde said mediums like Williams were exploiting the most vulnerable members of society.

"It's exploitainment. No psychic has ever produced any substantive information that wasn't already known or been blindingly obvious."

Police have since charged Guy's brother-in-law Ewen MacDonald with the murder (NZ Herald, 9 April). They must have the wrong bloke, obviously.

### No more Lourdes miracles

A Frenchman who regained use of his paralysed leg after a visit to Lourdes is the first "remarkable healing" announced by the Roman Catholic Church since it relaxed its rules (Stuff, 29 March).

These days the Church avoids the word 'miracle' because its doctors shy away from calling an illness incurable, but in 2006 it eased rules against declaring that a person was healed due to visiting the shrine. Serge François – whose left leg was mostly paralysed for years – is the first healing announced since then. Six million pilgrims visit Lourdes annually, so the Virgin doesn't have a terribly good hit rate.

François said he felt a sharp pain after touching water from the spring during a pilgrimage there and thought he would die. Minutes later, he said his left leg felt warm and he could use it again. This was reported to the Church's medical bureau in 2003, which declared it inexplicable after five years of study. The bureau is made up of 20 Catholic and agnostic doctors.

Lourdes Bishop Jacques Perrier said today's doctors hesitated to use the word "inexplicable," or at least qualified it by adding "according to the current state of scientific knowledge."

About 7000 have claimed to have been cured since records were kept in 1883, but only 67 were declared to be miracles.

### Deb does it again

Ken Ring is not the only person claiming to have predicted the Christchurch earthquakes. Another of those claiming a hit is *Sensing Murder*'s Deb Webber (Herald on Sunday, 6 March).

Webber said she had known of the Christchurch earthquake for at least a year but didn't publicise it for fear of provoking mass hysteria.

She gave a reading to Melbourne woman Carolyn Ronsberg on 19 February. According to Ronsberg's notes, Webber had said, "I'm so worried about New Zealand. There'll be a massive earthquake coming soon and it'll split the country in two."

At the time, Ronsberg said she found the comments irrelevant. But when she saw news reports of the 6.3 magnitude quake, she commented on Webber's Facebook page: "OMG! You are a modern day Nostradamus Deb! I had a telephone reading by you on Saturday just gone and during my reading you said that you feel New Zealand is about to have a massive earthquake and today it's here!"

Shortly after, Webber posted on her Facebook page that she felt this would not be the last of the devastation. She was going public with her warning of more to come, she said, because her previous prediction was so accurate. Perhaps someone should point out to her that the country was not split in two by the earthquake. Or possibly she didn't realise the country was already split in two.

### Yet another earthquake prediction

Wellington's Beehive will be "lying in the debris of the streets" following a devastating earthquake, a Maori elder has predicted (Stuff, 6 February).

The prophecy, by Kerei Tia Toa, was made near the end of a dawn ceremony at Waitangi. Wellington would be ravaged by the quake, and a tsunami, which would stretch to Kaikoura, would further devastate the capital.

"I've seen body bags lying in the streets of Wellington," he told a crowd of over 1000. Tia Toa didn't know what year this would take place but it would be sometime in June. He had waited 38 years to share the prediction.

Prime Minister John Key said he would "not be taking too much away from that last [speaker]."

### Buller the luckiest

The luckiest place to buy Lotto tickets is in the Buller District, says the NZ Herald (January 9.)

The average winnings per person from Lotto and Big Wednesday contests for Buller's 9700 residents is $1184.96. This was mostly due to a $10.6 million prize won in Reefton in September.

Buller also topped the average winnings per capita in 2008. Statistics, gotta love 'em.

### UFOs buzz Waikato

The Waikato has had a minor rash of UFO sightings recently (Waikato Times, 13 April). North Hamilton couple Adrian and Kathryn Kilpatrick say at 6.30pm on the night of 9 April they saw an object fly past their house from the north, then change direction towards the north-east.

Shift workers Suli Laomakei and Kelly Dixon also saw something odd at about 11pm on March 29, again in northern Hamilton. "It was huge, it looked like it had flames coming out of it," Ms Laomakei said.

Auckland Stardome Observatory astronomer Dr Grant Christie said one of the brightest fireballs observed in New Zealand since 1999 passed over New Zealand at about that time. Observatory spokeswoman Gina Dellabarca suggested the Kilpatrick's sighting was likely to be the International Space Station. However an update on the Stuff website (14 April) says the Times was contacted by a resident of the Kilpatrick's suburb who said he and his family had let off a sky lantern into the night sky around 6.30pm on 9 April.

The man said the lantern symbolised a family member who had died in 2009.

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> and ADHD, we did not consider that the studies were sufficiently robust to support the treatment claims for those conditions, and we therefore concluded that the claim was misleading....”

The average person would have trouble verifying claims about the role of the cerebellum and the ability of an exercise programme to improve function. If it really was that easy everyone would be using Dore’s exercises. Their claim that dyslexia, dyspraxia, ADD/ADHD and Asperger’s syndrome have one cause, one cure, is insufficient. The conditions they claim to treat are disparate and cause and effect is not established. There was little discussion of how cerebellar function or dysfunction is assessed, or of the relevance of their testing of such things as eye tracking, and no discussion at all of how the exercises impact on the cerebellum or how outcomes are measured. Bishop says:

> “The gaping hole in the rationale for the Dore Programme is a lack of evidence that training on motor-coordination can have any influence on higher-level skills mediated by the cerebellum. If training eye-hand co-ordination, motor skill and balance caused generalized cerebellar development, then one should find a low rate of dyslexia and ADHD in children who are good at skateboarding, gymnastics or juggling. Yet several of the celebrity endorsements of the Dore programme come from professional sportspeople.”

There is little real involvement from the company once the programme has commenced, with only a few appointments to follow up after the initial assessment. Many who join the programme don’t apparently have a formal diagnosis of the conditions Dore claims to treat, and they won’t get that from the company, as they state they don’t diagnose anything other than the alleged cerebellar problems.

It’s not surprising that some would see benefits though – the commitment and parental support required to do the programme would alone benefit some children. Then there is regression to the mean, the Hawthorne effect (subjects modify an aspect of their behaviour being experimentally measured simply in response to being studied) and natural improvements with growing maturity. On retesting later, there may appear to be improvements due to the client having done the test before and being aware of what is required. Many would concurrently use other services such as reading recovery, and Dore themselves recommend that if the child has spare time, that it is spent practising reading and writing. That extra practice reading could be extremely beneficial.

The high cost of the programme is concerning, especially when they acknowledge that not everyone will benefit. Despite this, they had parents travelling from the Wellington region to undertake assessments in Auckland – hence the opening of an office in the region. There may also be a financial risk to participants; Dore UK and Australia have both failed, leaving clients out of pocket. In New Zealand Dore was placed in liquidation in 2009 and the Companies Office states: “This Company currently has Liquidators, Receivers or Voluntary Administrators appointed” with the liquidators due to report again in May 2011.

**Michelle Coffey is a Wellington Registered Nurse and treasurer of the NZ Skeptics.**

earthquakes

# Ones for the history books

*In the aftermath of the Christchurch earthquakes, Ken Ring’s predictions were widely, though often inaccurately, reported.* ***David Riddell*** *looks at Ring’s writings, and compares them with actual events.*

OF THE many stories coming out of the Christchurch earthquake, the claims and counter-claims surrounding long-range weather forecaster Ken Ring’s alleged quake predictions gained a surprising amount of media coverage.

Ring claims earthquakes are more likely to occur at times of New and Full Moons, with solar

activity also playing a part in triggering tremors. The basic idea of tidal forces setting off quakes is not unreasonable, but has been thoroughly investigated by seismologists and found to be invalid. The forces involved are just too weak to have an effect, and there is no correlation between the timing of quakes and the position of the moon.

Skeptics should have no trouble recognising the perceived link between Ring's predictions and actual events as a case of subjective validation, sometimes referred to as the Barnum Effect. Humans are terribly good at detecting correlations between events, even where there is no direct linkage. Ring predicted many things, most of which did not eventuate. He missed other, major events. Those who were predisposed to believe him remembered the times his predictions bore a resemblance to later occurrences (in fact often misremembering the prediction as more accurate than it was), while forgetting the misses.

Ken Ring's website (**www.predictweather.com**) records his predictions, so it is a fairly straightforward process to check what he actually said, rather than relying on media reports. Here, then, is a timeline of events over the past few months, with edited highlights from Ring's writings.

**September 4, 4.35am:** a 7.1 magnitude earthquake strikes Canterbury, 40km west of Christchurch.

**7 September:** Ring states: "...the next full moon [24 September] may present as an earthquake potential time ... for New Zealand only N Cant/Marl may be in the zone." Although: "... nothing would eventuate if the 24 Sept tremors occur about 100kms down." He continues: "... a potential for earthquakes on the evening of the 1st". And: "Next year, the morning of 20 March 2011 sees the South island again in a big earthquake risk ... As that date coincides with lunar equinox this will probably be an east/west faultline event this time, and therefore should be more confined to a narrower band of latitude. The only east/west fault lines in NZ are in Marlborough and N Canterbury. All factors should come together for a moon-shot straight through the centre of the earth and targeting NZ. The time will be just before noon. It could be another for the history books."

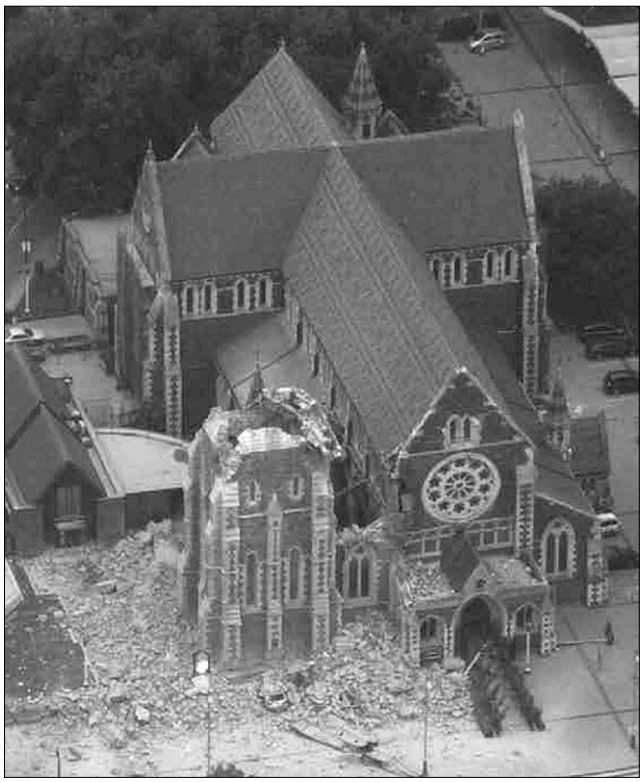


Photo: New Zealand Defence Force

**24 September:** With magnitude 4+ aftershocks striking the Canterbury region at a rate of more than one per day (18 between September 16 and September 30), Ring claims a 4.6 aftershock near Rolleston as confirmation of the above prediction for this date.

**27 September:** Ring says the moon's position on September 30 indicates a "potent time" for earthquakes. "And that will cover 1-3 Oct. If we get whales coming ashore somewhere around our coastline we can assume quakes near to NZ. Then we have 6-8 October which is when the moon is in new moon..."

**7 October:** Ring begins to withdraw from the 20 March 2011 prediction, while playing down the possibility of another large quake for Christchurch: "...it is again more likely than not that a significant shake may affect the South Island in March next year... We have not said an earthquake is certain on 20 March 2011, but there is potential for possible activity on an E/W fault line around the time and likely to be in the upper half of the South Island... But I don't think we should live our lives in fear – we have to accept sometime that earthquake damage has always been a reality living in NZ and Christchurch got its turn recently. No doubt somewhere else will cop it next time. Yet we can observe in hindsight that the Napier earthquake didn't come back to buzz Napier, nor have the Murchison and the Edgecumbe shakes returned to the same place. In fact we can

confidently say quite the opposite, like the measles once you have had it you probably won't get it again in your lifetime. So on the basis of historical probability, next March Christchurch might well be one of the safest places."

Ring also predicts the Hokitika Wildfoods Festival will be hit by extreme weather: "Gale westerlies and much rain is expected..."

**12 October:** "...the next lot [of quakes] expected around the 13th."

**18 October:** Ring repeats: "I would still not consider that another massive earthquake is certain, in fact I think it's more likely not to be the case in Christchurch." Then he hedges: "For another disastrous event, Christchurch may or may not be in the firing line again; it could be Wellington or anywhere, and it may not even happen."

**20 October:** "... on the 27th, if there are cluster-shakes ... they may be less close to Christchurch ... these aftershocks will end soon for Christchurch, probably around the end of November."

**27 October:** "After tomorrow, the 28th, once the northern declination has passed, the numbers of shakes should decrease again, but should return with **some of higher magnitude in the first week of November.**" (Emphasis in original.)

**13 November:** "... it is reasonable to relax and asume that another devastating shake is unlikely to repeat anytime soon, despite a seismology-department knee-jerk reaction that a 6+ mag. earthquake aftershock could be arriving in the district at any time."

**22 November:** "There is no reason to suppose any aftershocks of significance will occur until [solar] flares climb again..."

**26 December:** Christchurch is rattled by a series of strong aftershocks, up to 4.9.

**26 December:** Ring writes: "**Today is the perigee**, ... Perigees bring earthquakes" (Emphasis in original.)

**27 December:** "... the Christchurch shake is not part of some lasting new development, reaffirming that the activity of the past couple of days has probably been just remnants of general global disturbance due to the recent lunar eclipse. The main hits seem to have been to Vanuatu and Japan, and possibly NZ copped something because we share similar longitude. In a day or so things should be back to normal."

**14 February:** "[the] area of the sun that corresponds to NZ is again seeing some activation. The window of 15-25 February should be potent for all types of tidal action, not only kingtides but cyclone development and ground movement. The 18th may be especially prone. The possible earthquake risk areas are N/S faults until after 16 February, then E/W faults until 23rd. The moon will be full on the 18th and in perigee on the 19th. This perigee will be the fifth closest for the year. The 15th will be nodal for the moon. On the 20th the moon crosses the equator heading south. Strong winds and swells may arrive around 22nd to NZ shorelines. ... For an earthquake to occur many factors have to come together, but sun activity, full moon and perigee are arguably the most potent, and they are all starting to chime now. Over the next 10 days a 7+ earthquake somewhere is very likely. This could also be a time for auroras in the northern hemisphere and in the southern tip of NZ. It may also be a time for whale strandings because of increases in underwater earthquakes. The 7+ is sure to be somewhere in the "Ring of Fire", where 80% of all major earthquakes seem to occur, and NZ is at the lower left of this Ring. The range of risk may be within 500kms of the Alpine Fault." Note that this prediction does not mention Christchurch.

**22 February:** Christchurch is struck by a destructive 6.3 aftershock. Several claim it as confirmation of Ring's 14 February prediction.

**11 March:** A magnitude 9.0 earthquake strikes northern Japan. The moon is a week away from full, and mid-way between apogee and perigee, one of the safest times for earthquakes by Ring's prediction method.

**12 March:** The Hokitika Wildfoods Festival goes ahead in warm, sunny weather.

**20 March:** As thousands flee the city in advance of Ring's predicted "one for the history books", a lunch to mark the occasion is held at the Sign of the Kiwi on the Port Hills. Journalist Sean Plunket is master of ceremonies, with MP Nick Smith and several Skeptics in attendance. The largest of the aftershocks, still occurring daily in the city, comes at 9.47pm, with a magnitude of 5.1. Some claim this confirms Ring's prediction.

# Science on the Mount

**Mark Carlisle Ottley**

*This is an edited transcript of a speech to the NZ Skeptics, Minister of the Environment Nick Smith, and associated healthcare, engineering and other science professionals, at the Sign of the Kiwi, Port Hills, Christchurch, 20 March 2011.*

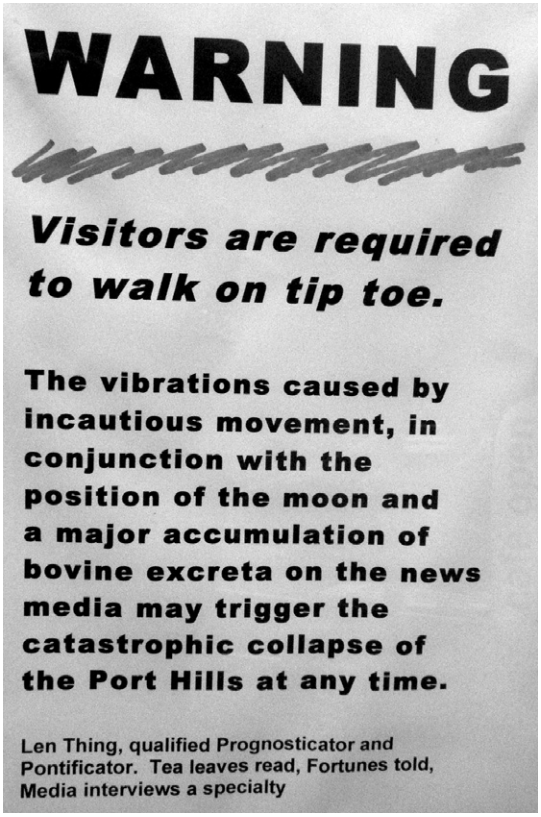
I AM a clinical psychologist at St Georges Hospital. We are now moving towards longer term intervention and recovery, and getting a steady stream of patients from the February 22nd earthquake. People with amputations, spinal injuries, brain injuries. People who have lost loved ones, or witnessed people close to them injured or killed. People who were trapped – not knowing if they would live or die. Loss, distress, and some quite horrendous stories. Our mission is to help these people recover psychological wellbeing, to re-engage in social, vocational, and recreational areas of life.

I've been asked to say a few words about the importance of science and reason in this process, and about the importance of taking a stand for science and reason at a time like this. There are many factors involved in psychological recovery from trauma and loss. One of the most important is simply having other people to stand beside you. Thank you to everyone doing that right now. Here, I would like to describe two more processes that are often important: gratitude, and post-traumatic growth.

Gratitude? This may sound like a very strange thing to say, given that we have just had one of the worst disasters in this country's history. However, many of my patients spontaneously mention gratitude, and it is important to them. They realise that if it was not for the scientific building codes, crisis response and preparedness that we did have,


**Unrocked: (l to r:) Nicky Wagner, Peter Hyde, Vicki Hyde, Sean Plunket and Nick Smith outside the Sign of the Kiwi on 22 March.**

things would have been much worse. Hundreds of times worse. The comparison to countries with less scientifically informed cultures who suffer such events is telling and obvious. Many also mention the Art Gallery, a counter-intuitively strong tower of glass, a diamond-tough command centre at the heart of the city, and a powerful example of scientific progress. As has been mentioned, the death rate in the 1931 Napier earthquake was one in 100. Eighty years of scientific research later, the death rate here in Christchurch was 1 in 2000.




Yet, we still expect and aim to do better. Growth in our understanding will occur. Many people are not as psychologically attached to old buildings anymore, instead associating them with danger and death. Much expensive restoration that might otherwise have occurred, will be seen as inhumane given other priorities, and limitations on economic resources. Fair enough. After all, if heritage was something we did not constantly invent anew, we would still be living in grass huts. I support what others have said; this is an opportunity to create a high-tech, safe city, leading the world in modernity and beauty. This will be a powerful source of healing for many of my patients. It says their loss was not in vain, but led to growth in our understanding, in our capacity to reduce future suffering.

So that is our physical environment: the buildings. What about our psychological environment – in particular our beliefs and justification systems? Once again, there is much to be grateful for. We have frequently seen the strength of calm science and reason, that so boosts the practical effect of our compassion and courage. Kia Kaha, rather than blind superstitious panic. Amongst my patients, the most common response to doomsayers crying wolf (beyond indifference, and I avoid bringing the issue up unless they mention it), has been what I would term altruistic anger. This is really quite beautiful, in that, despite their own losses, they are motivated by concern for others they perceive as more vulnerable. For unfortunately, we do also have some people who are more vulnerable to the distress caused by such scaremongering, especially children.

Amongst those alarmed, there are also those who fail to consider 'the evidence against', and those who have a strong psychological intolerance to uncertainty. Including, if I was to be kind, doomsayers who see patterns where there are none – in the sequence of earthquakes, *and* fail to appreciate patterns where there definitely are some – the unnecessary distress they cause to people who have suffered so much already.

In schools, families, and the media, we teach ways of preventing physical injury in earthquakes. I think we can also do more in these institutions, to reduce the numbers of people affected by this sort of psychological vulnerability to maladaptive belief. For example, we can do more to teach the principles of paying attention to disconfirming evidence, and tolerating uncertainty. These are processes often utilised in psychological therapy by the way.

To mention the word 'heritage' again, this is the city of Professor of Science, Sir Karl Popper, and the scientific principle of falsifiability – paying attention to disconfirming evidence. This is also the city of Professor of Art, Denis Dutton, a world leader in understanding human nature, beauty, and a founder of the NZ Skeptics. This is the sort of formidable intellectual heritage we may draw upon as we rebuild this city. We have an opportunity to improve the levels of understanding of such principles and we should do so.

We have experienced a tragedy, yet there still exists gratitude for the resilience of our physical and psychological environment.

At the same time, in my position where I am dealing with the sharp end of human suffering, I say let's do better. Science and reason, stronger buildings, stronger ideas. Together a stronger culture, that nurtures the human spirit and wellbeing, better than before. I also believe that is really the best sort of memorial, and long term source of healing we can create for those that have lost so much.



# The natural origins of morality

**The Moral Landscape: How Science can Determine Human Values.**
**Sam Harris. 2010. Free Press, New York. ISBN 978-1-4391-7121-9**
**Reviewed by Martin Wallace.**

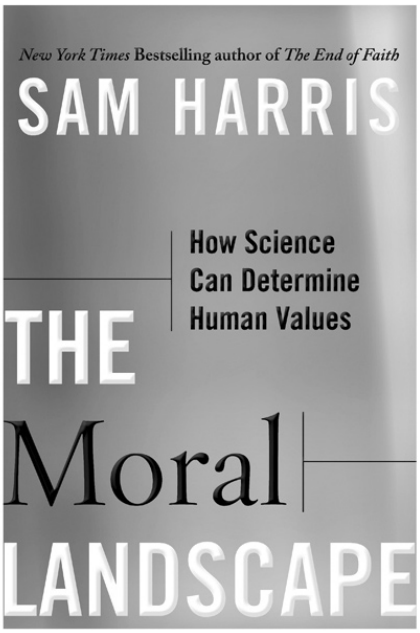
IF FAITH is belief without evidence, then it is not open to scientific enquiry by a weighing of evidence. This attitude was supported and promulgated by Stephen Jay Gould. He claimed that there are "non-overlapping magisteria" of science and religion (NOMA).

However, what if it could be shown that there are events in the world of human brain physiology which can account for such "religious" activity as a sense of moral values?

This question is discussed brilliantly in this new book by Sam Harris. He says: "Questions about values are questions about the well-being of conscious creatures." A sense of well-being is dependant in sentient beings like us on cerebral events and is therefore open to scientific investigation.

Well-being is engendered for example, by happiness, kindness, and compassion.

Harris is a neuroscientist and has studied brain function by magnetic resonance imaging




while subjects consider propositions. He has shown that the same part of the brain is active when considering scientific suggestions as when considering moral or religious precepts. The process of belief is the same, irrespective of content.

The part of the brain involved is that where activity can be seen with the placebo effect.

Harris makes interesting comments about the damaging effects of religion and politics on our sense of well-being. Given his past writing, we can expect some acerbic comments:

> "For nearly a century the moral relativism of science has given faith-based religion—that great engine of ignorance and bigotry—a nearly uncontested claim to being the only universal framework for moral wisdom."

He dismisses "cultural relativism" as a creation of academics. Well-being is shared by all members of all human cultures given the same conducive surroundings, as is our shared physiology.

He also is very firm about "scientific relativism" and the inhibitory effect it has had on human well-being. There can be no such thing as Christian physics or Muslim algebra!

The text of this book is accompanied by an expansion of the arguments in extensive Notes which are listed in the Index. There is also an extensive list of references.

This book answers the question my mother put to me 60 years ago. "It is all very well to talk about your lack of belief in religion, but what will you put in its place?"

# Resistance to science

***Alison Campbell** reviews a study of why so many struggle with scientific concepts.*

ONE of the topics that comes up for discussion with my Sciblogs colleagues is the issue of 'resistance to science' – the tendency to prefer alternative explanations for various phenomena over science-based explanations for the same observations. It's a topic that has interested me for ages, as teaching any subject requires you to be aware of students' existing concepts about it, and coming up with ways to work with their misconceptions. So I was interested to read a review paper by Paul Bloom and Deena Weisberg, looking at just this question.

Bloom and Weisberg conclude there are two key reasons why people can be resistant to particular ideas in science. One is that we all have "common-sense intuitions" about how the world works, and when scientific explanations conflict with these, often it's the science that loses out. The other lies with the source(s) of the information you receive. They suggest that "some resistance to scientific ideas is a human universal" – one that begins in childhood and which relates to both what students know and how they learn.

Before they ever encounter science as a subject, children have developed their own understandings about how the world works. This means they may be more resistant to an idea if it's an abstract concept and not one that they have experienced – or can experience – on the personal level. Bloom and Weisberg cite research showing that the knowledge that objects are solid, don't vanish just because they're out of sight, fall if you drop them, and don't move unless you push them, is developed when we are very young children. And we develop similar understandings about how people operate (eg, that we're autonomous beings whose actions are influenced by our goals) equally early.

Unfortunately for science educators, these understandings can become so ingrained that if they clash with scientific understandings, those particular science facts can be very hard to learn. It's not a lack of knowledge, but the fact that students have "alternative conceptual frameworks for understanding [these] phenomena" that can make it difficult to move them to a more scientific viewpoint. The authors give an example based on the common-sense understanding that an unsupported object will fall down – for many young children, this can result in difficulty seeing the world as a sphere, because people on the 'downwards' side should just fall right off. This idea can persist until the age of eight or nine.

And it seems that psychology also affects how receptive people are to scientific explanations. When you're four, you tend to view things "in terms of design and purpose", which means (among other things) that young children will provide and accept creationist explanations about life's origins and diversity. Plus there's dualism: "the belief that the mind is fundamentally different from the brain", which leads to claims that the brain is responsible for "deliberative mental work" but not for emotional, imaginative, or basic everyday actions. This in turn can mean that adults can be very resistant to the idea that the things that make us who and what we are can emerge from basic physical processes. And that shapes how we react to topics such as abortion and stem cell research.

In other words, those who resist the scientific view on given phenomena do so because the latter is counterintuitive, although this doesn't really explain the fact that there are cultural

differences in willingness to accept scientific explanations. For example, about 40 percent of US citizens accept the theory of evolution – below every country surveyed with the exception of Turkey (Miller et al. 2006). Part of the problem seems to lie with the nature of 'common knowlege': if everyone regularly and consistently uses such concepts, children will pick them up and internalise them (believing in the existence of electricity, for example, even though it's something they've never seen). For other concepts, the source of information is important. Take evolution again: parents may say one thing about evolution, and teachers, another. Who do you believe? It seems, according to Bloom and Weisberg, that it all depends on how much you trust the source.

The authors conclude:

> "These developmental data suggest that resistance to science will arise in children when scientific claims clash with early emerging, intuitive expectations. This resistance will persist through adulthood if the scientific claims are contested within a society, and it will be especially strong if there is a nonscientific alternative that is rooted in common sense and championed by people who are thought of as reliable and trustworthy."

Yet we live in a society where 'alternative' explanations are routinely presented by media in a desire to present 'balance' where there isn't any, or indeed, without any attempt at balance at all. And the internet makes it even easier to present non-scientific views of the world in an accessible, authoritative and reasonable way. As science communicators and educators, my colleagues and I really are up against it, and I would say there's a need for Bloom and Weisberg's findings to be much more widely read.

Bloom, P; Weisberg, DS (2007): Childhood origins of adult resistance to science. *Science 316 (5827), 996-7.*

Miller, JD; Scott, EC; Okamoto, S 2006: Public acceptance of evolution. *Science 313: 765 - 766.*

**Alison Campbell is a lecturer in the Biological Sciences Department at Waikato University. She writes Bioblog as a way of encouraging critical thinking, looking at scientific papers that are relevant to the Level 3 curriculum and Scholarship, and fielding questions from readers.**



# Even Psychics Can Only Be Medium

**Gordon McLauchlan**

ENGLISHWOMAN Doris Stokes was a medium – by which I don't mean her dress size was between small and large. She claimed she spoke to people "on the other side," to use the euphemistic jargon of the darkened drawing room. She was a sort of cosmic Telecom operator, only I suspect her charges were a good deal higher than 99c a minute plus GST.

I use the past tense because Doris herself has moved on into the spirit world with which she had so long claimed to communicate. Nothing has been heard from her since she died, which I think is pretty contemptuous of her fellow media (the plural of medium).

Doris became world famous and made a lot of money travelling around linking people up with restless ghosts, using what often sounded like an old country-town party-line system. You could never be quite sure who would answer the call or whether some celestial storm had brought the line down.

Doris Stokes was a professional name. She was born Marilyn Dashing in London but her first manager pointed out that if she wanted to make money bringing messages back from the other side to suckers on Earth, most of the clients would be ordinary and wouldn't trust anyone who looked and sounded smart or had intellectual pretensions. So Doris changed her name, burned her grammar school diploma, threw away her tight skirts and blouses and bought half a dozen cardies and several strings of paste pearls.

... I remember some years ago when Doris was in New Zealand promoting a book, a radio interviewer asked her if anyone on the other side had described in detail for her what heaven was really like. Doris shocked me to the very soul by verbally painting a setting and ambience almost exactly identical to an inner suburb of Christchurch on a fine Sunday morning. I was gripped by a deep spiritual crisis, wondering if trying to be a good bloke was worth it after all.

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**Extra On-line Content**

The previous three issues of the NZ Skeptic have contained articles presenting different viewpoints on the 'Unfortunate Experiment' at National Women's Hospital and its aftermath. Wellington registered nurse and NZ Skeptics treasurer Michelle Coffey continues the discussion on the NZ Skeptics website with her article, *Orthodoxy? - Revisiting The Cartwright Report (part 2).*

Visit **www.skeptics.org.nz** and follow the link to the Latest Issue.

While you're there, don't forget to register for the conference!