

Skeptic

*a person who looks for the simplest explanation first,
but is willing to consider other possibilities in the light
of unambiguous evidence*

Immunisation

Evolution in schools

Toxicology – playing the numbers

Bent Spoon

new zealand
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The dangers of flying

I MUST make a point of never again flying while the All Blacks are playing in the World Cup. I was over the Atlantic for the 1995 final, and flying home from the South Island during this tournament's quarter-final. The conclusion is plain: if I'm flying, the All Blacks lose. I know this is nonsense, but the power of coincidence is such that when two rare events coincide twice, it's hard not to feel they must be linked. Even when the main reason for my trip south was to attend the 2007 New Zealand Skeptics' Conference, where the pitfalls of such superstitious thinking were repeatedly exposed. As always, the event was a hugely enjoyable occasion, with lots of good company, interesting presentations and fine food.

The conference kicked off on Friday evening with a competition to build the best Rife machine, from a pile of assorted components. All of the creations worked as well as the genuine article, an example of which one member had brought along.

Saturday dawned fine, calm and clear (despite a forecast from Ken Ring that the weekend would be "mostly dry, cloudy, and annoyingly windy"), and began with a history of magic from local magician Geoff Diggs, who explained why magicians have not come so far since the days they were rated only slightly above freak shows and the man who lifts steel anvils with his private parts. This was followed by a session on alternative medicine. After lunch came talks on psychic hotlines (see NZ Skeptic 84), creationism in Australasia, and a presentation on a recent documentary about big cats in Canterbury which was entertaining if not entirely persuasive. The day concluded with a discussion on the proposal to change the society's official name from the New Zealand Committee for the Scientific Investigation of Claims of the Paranormal (Inc.) to the simpler and more familiar NZ Skeptics. Then it was time for dinner, and the presentation of the annual Bent Spoon and Bravo Awards (see p18). The day finished as it began, with a magician, this time Michael Woolf, who baffled all with his prediction of that day's Christchurch Press headline several days in advance.

The name change proposal drew widespread support, and was duly actioned at the AGM the following morning. Full details in next issue. More illuminating presentations followed on economics, the dangers (or otherwise) of sodium in food, and the poor correlation between naturalness and goodness. Expect to see some of these items in the next few issues of the NZ Skeptic.

Then it was off to explore the wonders of the mainland. A highlight of the trip was Stuart Landsborough's Puzzling World in Wanaka. Stuart, a skeptic of long standing, has a challenge to psychics – see the details at www.psychicchallenge.co.nz

But it's good to be home. Now if only we could have avoided that flight.

David

Immunisation – why is it such a trendy anti-science target?

Nikki Turner

This is a transcript of a talk given at the 2007 Skeptics Conference. Parts of it were also published in the NZ Family Physician in early 2007. This paper can be found at www.rnzcgp.org.nz

WHY do immunisation programmes create such a vast amount of virulent anti-rhetoric? Clearly, the science behind the fact that national immunisation programmes have had such a significant effect on disease rates is overwhelming. “Vaccines have prevented more deaths, disability and suffering than any other medical discovery or intervention” (FE André, in Vaccine 19, 2001). When the US Center for Disease Control reviewed milestones for the millennium in 1999 they made a list of what they considered to be the 10 great public health achievements in the US in the 20th century. Vaccination was listed number one, ahead of motor vehicle safety; safer workplaces; control of infectious diseases; decline in deaths from coronary heart disease and strokes; safer and healthier foods; healthier mothers and babies; family planning; water fluoridation and recognition of tobacco use as a health hazard.

Despite the science there remains a loud anti-voice that has accused vaccines of causing practically any disease or disorder noted in the medical literature and then some. As an example, in a 1996 workshop on risk

communication and vaccination Barbara Loe Fisher, the co-founder and president of the National Vaccine Information Center, commented:

“And so the haunting question remains: just how many are being sacrificed? How many of the mentally retarded, epileptic, autistic, learning disabled, hyperactive, diabetic, asthmatic children in the inner cities and the suburbs and the big and small towns of America are part of that sacrifice?”



“...having looked at my long list of reasons why New Zealand is so suspicious of our immunisation programme I wonder if actually the overwhelming reason is a deep-rooted fear of needles.”

Having been involved in immunisation communication issues for more than 10 years I can see there are a range of reasons for this polarised response.

Firstly science comes a poor second to the emotions of personal experience. Barbara Loe Fisher again:

“You cannot be in the presence of a profoundly vaccine damaged child and not know that child could be your own.”

Horrendous pictures and stories of suffering and dying children purported to have vaccine damage are much more gripping and memorable than statistics, confidence intervals and graphs. I may personally weep at the sight of the New Zealand epidemiology graph showing the dramatic drop in Haemophilus influenza rates in NZ children following the introduction of the vaccine in 1994, but the majority of less-nerdy kiwis are much more captivated by a dramatic personal story in a magazine.

Secondly, there is the coincidence factor. When the majority of children in a population are vaccinated there will be a range of illnesses that arise coincidentally at

the same time as the vaccination by chance alone. If you or your family has a child who has a cot death, or a convulsion leading to brain damage in the day or two after a vaccine with no other known cause it is very difficult not to assume the vaccine is to blame. The World Health Organisation, in their guidelines for managers of immunisation programmes on reporting and investigating adverse events, tried to describe how powerful the coincidence factor can be. They noted that for a standard New Zealand birth rate we would by chance alone see three deaths in the day after an infant pertussis-containing vaccine was given, and 20 deaths in the week after the vaccine was given.

Thirdly, never underestimate the staying power of the anecdote. The most recent example is the MMR vaccine which was allegedly linked to autism in a press conference by a gastroenterologist, Dr Andrew Wakefield, in 1998. There was never any scientific evidence for his statement; it was purely his opinion at the time. Despite overwhelming evidence since from a large body of scientific evidence showing there is no link, this myth lives on in the minds of many people throughout the world. Rates of MMR vaccine have never recovered and the UK is now seeing outbreaks of measles as a result of a myth leading to the loss in confidence in this vaccine.

Fourth, immunisation is a lousy product to market. The product is actually the absence of disease – the better you do

with vaccine uptake, the less disease you have. The less disease people see the less convinced they are that the diseases were a problem, or that they really existed in the first place.

Immunisation grouches

There are a range of other reasons why New Zealanders in particular have a particular grouch with immunisation programmes.

In a world of great uncertainty, when we have very little control of the world around us, for our children or ourselves, the scientific method with all its uncertainties and all its lack of absolutes can be very hard to really believe in.

We are, on the whole, a pretty anti-establishment, anti-authority bunch. If you tell me the government wants me to do something I am very inclined to be suspicious of their motives. Maybe this is our pioneering spirit living on, and in many ways it is one of the joys of living here. However, it also has its down sides as we are more likely to criticise and be suspicious of, than have faith in the Ministry of Health when they come out with new public health programmes.

Further to this we tend to be on the side of the 'little guys'; the David versus Goliath approach to life. Maybe this comes from a small island mentality. While once again it is good to have the little guy fighting spirit in our psyche, it does at times extend

to giving a large amount of voice to charlatans and crackpots who have at times been given as much credibility and media space as the scientific basis to our vaccination decisions. I find it extraordinary that I can be asked on national television to debate the finer points of vaccine safety with someone who has no clear understanding of what a confidence interval is, or how a randomised controlled trial works. This is a bit like giving me credibility to be a spokesperson on nuclear physics, of which I have no qualified background at all.

Adding to our difficulty is that, in general, the population has a very poor understanding of the scientific method and how it is used to accumulate the body of evidence that is used to develop, implement and monitor the use of vaccines in the immunisation programme.

Numerous times I have been told that unvaccinated children are healthier than vaccinated because that is someone's personal experience. I have had angry mothers yelling at me that their unvaccinated children have never had antibiotics in their life. It does not help to reply that my fully vaccinated 12-year-old has also never had antibiotics in her life, and that this is somewhat irrelevant to the vaccination issue. To try and explain a population-based study is beyond many people's understanding. I suspect there is very little of this science taught at school level.

Scientific reliability

Contributing to our poor understanding of the scientific method is the popular expectation that science will be 100

percent accurate and effective at all times. Bit of a tall ask really. Vaccines will never be 100 percent effective or 100 percent safe, nor is any other aspect of life! In taking your child to the surgery the risk of being injured or killed in a road accident is much higher than the risk from the vaccination, but that has not yet stopped us putting kids in cars. Understanding risk ratios is a tricky communication exercise. Does anyone really grasp that a one in a million risk is minuscule. As one of our staff said, “that is all very well, but what if that one in a million is my child?”

The tools to help us in imparting the scientific method are somewhat overwhelmed in the modern media age. If you google immunisation you will get 14 million hits in 0.1 of a second. We don't lack material, but there is absolutely no quality control on vast amounts of it.

The media

The influence of the media in dictating what we are exposed to and what we absorb is also very powerful. A New Zealand study by T Jellyman and A Ure of health professionals' knowledge of immunisation in 2003 showed that very few health professionals thought they were influenced by the media, yet more than a third (36 percent) of the 236 surveyed were unsure if MMR was implicated as a cause of autism. Since the alleged MMR links to autism are not science-based at all, but media-related, the authors commented: “One can only suspect that even for ‘science-based’ providers the general media are more influential than may be given credence.”

To make communicating the science of public health somewhat more difficult the drivers for the media are very different from the drivers for public health. Media drivers are essentially the need to sell the story, and while many very credible journalists do a great job, they are primarily driven by the need to make a successful story that will interest a reader. Frequently dry public health issues will not do that. Large, sleep-inducing, population studies showing vaccines do *not* cause ... SIDS, asthma, diabetes, epilepsy ... are not stories that even make the small print.

Even with excellent articles on vaccines we have, at times, been hit by the subeditor's need to put a dramatic headline above a story, one that may have little resemblance to the real story. Vividly I remember the large headline in the NZ Herald on the day of the launch of the MeNZB vaccine for under five-year-old children in Auckland. “Dispute over vaccine risk goes on” – despite the actual article quoting the Health Research Council's Independent Safety Monitoring Board stating it “found no issues of concern...” The fear this inflammatory headline engendered in many Auckland parents, resulting in many delaying or refusing vaccines, was heartbreaking.

Powerlessness

Underlying many of the above concerns, however, I feel there is a bigger issue at stake here, and it is about power and powerlessness. This can take many forms. The first one is female powerlessness in a male-dominated world. For many years medicine has been

a male-dominated profession. Immunisation at times appears to be pigeon-holed into an artificial, male, nasty, drug company, money-dominated world versus the softer, female, natural, nurturing, caring, approach.

Powerlessness also comes in other forms. In a world of great uncertainty, when we have very little control of the world around us, for our children or ourselves, the scientific method with all its uncertainties and all its lack of absolutes can be very hard to really believe in. Pseudoscience with its quick fixes and its absolute confidences is a much more attractive option. I recently had an anti-immunisation lobbyist write to me “you may think you are right, but I know I am right.” I am stunned with his absolute confidence, and I daresay it makes the world a more secure place for him knowing he is right. I would love to believe in Harry Potter's magic (though only if I could be a magician not a muggle).

A sense of powerlessness in this big, ugly, out-of-control world also leads to paranoia and anti-establishment fear.

“In all the panic and hype, media hysteria and public fear over this disease, the truth has often been left behind. You may not be aware of some facts in this leaflet, but we think you need to know some of the things you haven't been told about meningococcal disease and the new vaccine.” (Immunisation Awareness Society, 2005.)

The anti-immunisation literature is packed with discourse such as this around the great conspiracies that governments are practising, often in cahoots

with drug companies and corrupt academics.

Finally, with our sense of powerlessness there is genuine well-placed fear, based on historical examples of science stuffing up, getting it wrong, making mistakes, and even at times trying to cover up their errors. We have examples in the history of vaccine development where errors have occurred – the most significant for the New Zealand population was a virus called SV40 that contaminated many batches of polio vaccines in the late 1950s and was given to many thousands of New Zealanders. This virus has been linked to cancers and, while it has not been shown that this ever occurred with these batches of polio vaccine, this was a valid fear. While science and quality control has improved light years in the past 50 years, issues such as this are still possible.

However, having looked at my long list of reasons why New Zealand is so suspicious of our immunisation programme I wonder if actually the overwhelming reason is a deep-rooted fear of needles. I always found it interesting that the vaccine that had the greatest adverse event concern was actually the oral polio vaccine. As New Zealand eradicated polio we had a risk from the vaccine (paralytic polio occurring in approximately one in 2.5 million cases), versus no risk from the disease. Ethically, therefore, I consider it was unacceptable to continue to use the oral vaccine when the risk of polio was controlled. Because of this issue New Zealand moved to use the inactivated polio vaccine, which does not have the same

risk. I never heard any anti-immunisation group demand the removal of the oral polio vaccine. Why not? Perhaps, simply because it was an oral vaccine.

Immunisation programmes are an incredible success story, they have made a huge difference to children's lives; we have fantastic science and the potential to do even better with vaccines.

However, there will be little gain in disease control and eradication if, despite the great science, the consumer does not want the product.

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evolution

Evolution in the NZ school curriculum



Alison Campbell

The teaching of evolution in New Zealand schools may seem secure, but it has faced many challenges, and these appear to be on the increase. This article is based on a presentation at the Evolution 2007 Conference, Christchurch.

MANY people feel the antagonism between evolution and creationism is an issue only in the United States. However, creationism is becoming more visible around the world. Even in New Zealand, creationism, and its opposition

to evolution, has a relatively long history and – as in many other countries – is currently increasing in prominence.

Evolution was first discussed in a New Zealand educational institution in 1871, when Otago

University professor Duncan MacGregor pushed for the teaching of evolutionary biology. This led to moves to have him removed from his Chair, though these were ultimately unsuccessful.

New Zealand's free, secular public education system was born in 1877. By 1881 there was some concern among the Protestant and Catholic churches that schoolteachers were being taught about evolution, thus supposedly losing the religious neutrality required of a secular system. However, school curricula contained no explicit mention of this worrying subject. New Zealanders appear to have viewed themselves as fairly open-minded in this area: Numbers & Stenhouse in 2000 noted that the NZ Herald, reporting on the 1925 Scopes trial in the US, "found it 'hard to take the anti-evolution movement seriously'".

However, in 1928 the Education Department published an addition to the national science syllabus that said "in the higher classes the pupils should gain some definite idea of the principle of evolution". Though fundamentalist Christians were few in number they were extremely vocal: their immediate and heated response to the amended syllabus was so strong that the department backed down: students should not have to learn about human origins, but to "discover some part... of the great plan of nature". This could be regarded as a win for the creationist camp, and was followed by the establishment of anti-evolution societies such as the Evolution Protest Movement.

In 1947 the Department of Education broadcasts to schools included a series of BBC programmes on evolution, *How Things Began*. Protest was swift and vociferous and included Labour party supporters worried about losing the wavering voter, as well as conservative Christian groups. The Minister of Education first suspended and then cancelled the broadcasts, despite strong opposition to this from teacher unions and other educationalists. Flushed with success, the creationist lobby attempted to get the Ministry to publish creationist articles in the *School Journal*, but the Minister declined. As public interest waned so too did the creationist movement, so that by the 1970s it seemed to have disappeared completely.

But at the same time, creationism in the US was experiencing resurgence, with the popular writings and presentations of Youth Earth Creationists such as Henry Morris (*The Genesis Flood*). In 1972 New Zealander Tony Hanne read Morris' book and invited him on a tour of New Zealand. Visits by other US creationists followed, each generating considerable public interest in this country even though scientists in general rejected their claims. However, Numbers & Stenhouse (2000) also give the example of one university geologist who was so swayed by creationist rhetoric that he included works by Morris & Duane Gish in his own courses!

In 1982 the then Auckland Department of Education issued a creationist textbook for use in senior biology classes, a book which was widely distributed

by the then Auckland College of Education's Science Resource Centre. When questioned about the propriety of science teachers including creationism in their classes, a spokesman for the New Zealand Education Department responded that he found nothing wrong with science teachers including 'scientific creationism' in their classes, "as long as they're presenting it as one possible explanation and not the only explanation".

Scientists tended to feel that science, and evolution, had little to fear from creationism; it was viewed as a peculiarly American foible. Yet at the same time, the Creation Science Foundation (CSF) in Australia was expanding to become what was, by the 1990s, the world's second-largest creation science organisation. This found fertile ground among religious conservatives in New Zealand, and also among our Maori and Pasifika communities (eg Peddie, 1995), and in 1994 the CSF opened a New Zealand branch, Creation Science (NZ).

1993 saw the introduction of a new Science curriculum, and the associated 'specialist' science curricula, for New Zealand schools. Evolution is mentioned explicitly only at Level 8 (*Living World*) of this document, which gives as a learning objective "students can investigate and describe the diversity of scientific thought on the origins of humans". It goes on to say that students could be learning through "holding a debate about evolution and critically evaluating *the theories* relating to this biological issue" (my italics). This suggestion that there is more than one possible theory

explaining evolution has left the door open for teachers and institutions who wish to bring creationism into the science classroom. Thus, in 1995 Peddie could comment, "... in this country some private schools, and some teachers within the state school system and home schooling systems, continue to teach creationism and debunk evolution."

For example, in 2003 the Masters Institute, together with the organisation Focus on the Family, offered a workshop on intelligent design for teachers and parents, featuring speakers such as the Discovery Institute's William Dembski. The session was billed as "an excellent learning opportunity that offers both a professional development opportunity and a fresh look at some knotty problems in science and biology" (Education Gazette, 22 August 2003). Focus on the Family has also distributed CD-ROMs based on the creationist tract *Icons of Evolution* to every secondary school in the country.

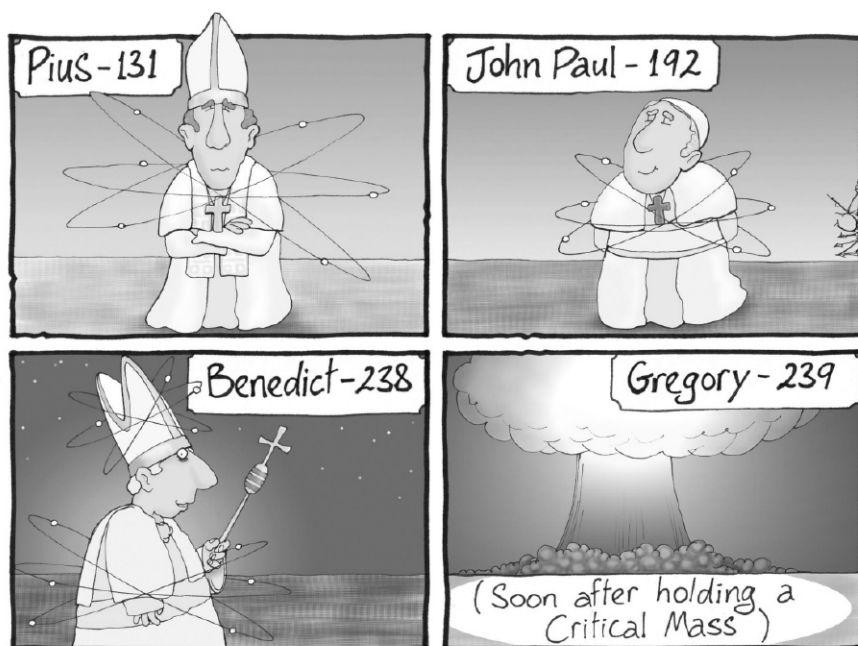
Concern from universities and the Royal Society was met by a response from the Ministry of Education stating that "it is not the intention of the science curriculum that the theory of evolution should be taught as the only way of explaining the complexity and diversity of life on Earth" – and that schools are free to decide their own approach to theories of the origins of life, within existing curriculum guidelines. Showing a lack of knowledge of evolution, the Ministry's representative continued: "The science curriculum does not require evolution to be taught as an uncontested fact at any level. The theory of evolution cannot be replicated in a laboratory and there are some phenomena that aren't well explained by it."

We are now developing a new draft Science curriculum. This document, as well as emphasising the importance of students developing an understanding of the nature of science, recognises evolution as one of the organising themes of modern biology

following Dobzhansky's 1973 dictum, "Nothing in biology makes sense except in the light of evolution." The curriculum document reads: "Students develop an understanding of the diversity of life and life processes. They learn about where and how life has evolved, about evolution as the link between life processes and ecology, and about the impact of humans on all forms of life". One significant difference from the existing curriculum is that the term *evolution* is introduced in primary school: students in years 1 and 2 will "recognise that there are lots of different living things in the world and that they can be grouped in different ways," and "explain how we know that some living things from the past are now extinct." By year 13 they will be exploring "the evolutionary processes that have resulted in the diversity of life on Earth."

The document was sent out for public consultation and the Biology component immediately drew the ire of conservative religious groups. Creation Ministries International (formerly the CSF) contacted members and supporters, asking them to lobby strongly for a reversion to the current status quo: "CMI does not suggest evolutionists be forced to teach about creation. What we do suggest is that freedom be retained for the presenting of both evolution-based and Creation-based frameworks of science. We support the teaching of evolution provided it is done accurately, 'warts and all', ie with open discussion of its many scientific problems included."

And a submission for a private school stated that "... there is



RADIOACTIVE ISOPOPEs

still no evidence to support the theory, [and]... to base [curriculum content] on an unproven theory is bizarre” (www.tki.org.nz/r/nzcurriculum/long_submissions_e.php). The writers went on to suggest that the curriculum would be better to speak of ‘diversity’, which they viewed as a much more suitable term.

There is also anecdotal evidence that many teachers also oppose the new curriculum in its present form – either because they feel uncomfortable or under pressure about it in the face of potential student, parent,

and community opposition, or because they themselves have a creationist worldview. At a time when biology in its various forms is set to play an important role in New Zealand’s scientific and economic development, this is something that should concern us all.

Selected references (full references available from editor)

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Playing the Numbers Game

Jay D Mann

Some risks in life are distributed throughout a population, others are all-or-nothing. There’s a big difference. This article is based on a presentation to last year’s Skeptics Conference.

MANY organisations, not excluding certain government agencies, rely heavily on public fear to influence public decisions and to provide their on-going funding. That provides strong motivation to generate fake fears even where there is no real public danger.

There are several methods in use:

1. The distinction between evenly distributed risks versus all-or-nothing risk is obscured.

2. Forecasts that should be written as fractions, are multiplied, unjustifiably, into a purported risk to individuals (“10 deaths per million”).

3. An obscure statistical trick is used to treat the most extreme possibility as though it is the most likely.

4. Numbers are reported with unjustifiable levels of precision to provide a reassuring air of scientific competency. A check of your foods cupboard will reveal boxes claiming, say, 798 mg of protein, where natural variations in ingredient composition can justify only “0.8 g”.

Kinds of risks

Imagine that a maniac injected a lethal dose of undetectable poison into one orange in a box of 1000 fruit. Would you willingly eat an orange from that

box? Surely the risk of dying is more important than the minor pleasure of a juicy fruit.

On the other hand, assume that these 1000 fruits are converted into juice. Everyone who drinks a portion of juice will ingest one-thousandth of a lethal dose. Aside from the yuk-factor, would you drink this beverage? I would, since a dose of 0.001 of the lethal dose will not, in the absence of any other negative factors, harm me. A critical enzyme that is blocked by 0.1 percent will still provide 99.9 percent functionality. In fact, most enzyme systems are down-regulated (throttled back) by our natural feedback controls. We

NZ UFOs get attention

THE call for UFO sightings from the Tauranga-based UFOCUS group caught the attention of the Waikato Times (July 28) which ran a two-page feature on alien visitations in this country.

Suzanne Hansen, who founded the group in 2000, recounted in detail an experience she had in 1978. She says she and her husband were driving late at night between Tokomaru Bay and Tolaga Bay, and saw the valley ahead of them bathed in bright white light. They stopped; Hansen began to notice her arms and legs were feeling numb and tingling, she heard a deep buzzing sound, felt dizzy and faint, and was unable to speak. Her next recollection was sitting in the dark. They drove on and reached their remote East Cape home. Next day she was extraordinarily tired, had nosebleeds and painfully sensitive ears. Her husband was reluctant to discuss the previous night.

UFOs seem to have followed Hansen around. She says she saw her first when she was eight; she and her family saw one over the Bombay Hills. While watching one south of Hastings she remembers feeling her car being lifted off the ground. Also in 1978 she recalls being terrified by buzzing and bright lights above their house at night. Then there was one she saw on the East Coast while riding a horse, and two together heading over the Kaimai Ranges and out to sea off Tauranga in 1995.

Hamilton senior traffic air controller Graeme Opie saw his UFO 12 days after this last pair. He describes it as having an orange tail, with edges that sparkled like a fireworks sparkler. It travelled across a 23 degree arc of the sky in one and a half seconds before disappearing behind clouds. A fairly typical fireball, in other words.

Towards the end of the article there were comments from a certain David Riddell, "editor of the New Zealand Sceptic" (sic). Among his perceptive and erudite comments he noted earlier phenomena such as the zeppelin panic of 1909 (NZ Sceptic 47), suggested sleep paralysis as an explanation for many alien abduction experiences, and expressed surprise at a new UFO group starting up when the phenomenon worldwide seems to be in decline.

Scientists simulate out-of-body experiences

Scientists in Switzerland and England have used virtual-reality goggles to induce out-of-body sensations in healthy volunteers (Chicago Tribune, August 24).

Test subjects looking at video images of themselves projected through the goggles reacted as if their bodies had been touched when their virtual selves were stroked or poked. Tricked by the illusion, participants reported feeling that their consciousness had drifted from their real bodies into their virtual ones.

The research helps explain the odd sense of floating outside their bodies that people sometimes experience after traumatic events, such as car accidents. Out-of-body experiences have also been reported in cases in which a critical area of the brain is damaged, either from stroke, epilepsy or cancer.

The studies, published in Science, "call into question the axiom that everything you are is anchored in your body," said Vilayanur Ramachandran, director of the center for the brain and cognition at the University of California, San Diego, who was not involved in the current research.

Instead, Ramachandran said, "what you regard as you is really a transient construct created by the brain from multiple sensory sources." When visual, tactile or other inputs don't line up, he said, the boundaries of self-perception shift.

'Adam' already fallen

It's not exactly one of the hottest news items in recent months, but anything that causes Ken Ham embarrassment is OK by me. It turns out the man who played Adam in a video at the Creation Museum in Kentucky (Newsfront, NZ Sceptic 84) had another life before entering the Garden of Eden, flaunting his sexual exploits online and modeling for a clothing line that promotes free love (Associated Press, June 7).

The actor, Eric Linden, owns a website called Bedroom Acrobat,

where he has been pictured, smiling alongside a drag queen, in a T-shirt brandishing the site's sexually suggestive logo. The site allows users to post explicit stories and photos.

He also sells clothing for SFX International, whose initials appear to spell "SEX" from afar.

Linden said he has great respect for the founders of the Creation Museum and their vision. "For the Creation Museum, I did what I did as an actor. It doesn't necessarily mean I believe in evolution or believe in creation. I'm hired to get a point across."

The 40-second video has now been pulled. "We are currently investigating the veracity of these serious claims of his participation in projects that don't align with the biblical standards and moral code upon which the ministry was founded," Answers in Genesis spokesman Mark Looy said in a written statement.

Mutilated raccoon lands 'high priestess' in hot water

Salem, it seems, still has a few witches left unburned. Self-styled Wiccan high priestess Sharon Graham, 46, has been arraigned, with a 22-year-old male follower, on charges of malicious destruction of property and littering following events on the night of May 26 (Salem News, August 23).

On that night her flatmate, Richard Watson, said he returned to their apartment to find Graham, dressed in black, surrounded by four young men, also all in black, standing around a jar containing

the eye of a raccoon. The rest of the dismembered animal was in the fridge.

Watson, who says he was intimidated by Graham, left with the others soon afterwards. Within hours, their handiwork would be discovered in the doorways of two Salem businesses — the head and entrails of a raccoon carefully arranged outside the door of Angelica of the Angels, and the body of the raccoon in front of the Goddess Treasure Chest, police said.

Graham is also charged with intimidating a witness, after allegedly demanding that Watson keep quiet, "or she would make him pay."

"What has been done here is not witchcraft," Watson, who describes himself as a witch, said outside Salem District Court, where he was seeking a restraining order against Graham. "In witchcraft, Rule Number One is to harm none."

Instead, Watson told police, Graham hoped to frame Christian Day, a local Wiccan and businessman, after he fired Graham from his psychic telephone business. Graham also had a disagreement with the owners of the two shops over proposed new regulations about the licensing of psychics, Watson said.

A police search of Graham's apartment found items including a wolf pelt, owl wings, bird claws and a stuffed coyote on a totem pole. The Environmental Police are investigating.

Graham's lawyer said his client collects Social Security for a mental disability he did not specify.

Scientology on trial

A Belgian prosecutor has recommended that the Church of Scientology stand trial for fraud and extortion, following a 10-year investigation that concluded the group should be labeled a criminal organisation (Associated Press, September 5).

Scientology said it would fight the criminal charges recommended by investigating prosecutor Jean-Claude Van Espen, who said up to 12 unidentified people should face charges.

Van Espen's probe also concluded that Scientology's Brussels-based Europe office and its Belgian missions conducted unlawful practices in medicine, violated privacy laws and used illegal business contracts, said Lieve Pellens, a spokeswoman at the Federal Prosecutors Office.

An administrative court will decide whether to press charges against the Scientologists.

Scientology has been active in Belgium for nearly three decades. In 2003, it opened an international office near the headquarters of the European Union to lobby for its right to be recognised as an official religious group, a status it does not enjoy in Belgium.

A Belgian parliamentary committee report in 1997 labeled Scientology a sect and investigations were launched into the group's finances and practices, such as the personality tests conducted on new members.

From Page 9

routinely consume significant but harmless amounts of natural poisons such as cyanide.

Our bodies are rugged; we are not delicate mechanisms. We can function despite losing half our lungs, half our kidneys, most of our liver, and even parts of our brains. Most critical parts of metabolism are backed up by duplicate mechanisms. The key term here is 'biological threshold'. To speak of a 'low dose of poison' is to mouth a meaningless collection of sounds: only high doses of poisons are poisonous.

**Evenly distributed risk
versus all-or-nothing
distribution**

Returning to my example of the poisoned oranges, the risk factor is one in a thousand for an individual fruit and for a glass of juice. The difference between the two is that risk is lumped all-or-nothing in one case, and distributed uniformly in the other case. The maths may be the same but the practical conclusions are different.

Here is another example: the Bonus Bond Lottery. My \$10 bond receives four percent interest a year, 40 cents annually, about three cents per month. Please don't clutter my letter box with bank statements reporting another three cents! No Bonus Bond holder wants his or her earnings to be distributed uniformly. Obliging, the bank turns all these tiny individual earnings into a single monthly prize of \$300,000 going to just one lucky person. Three cents

is trivial, but \$300,000 is life-changing. No wonder people hold onto Bonus Bonds.

**Injury from damaging
chemicals or conditions is not
random**

The standard way to evaluate toxicity is to treat a number of animals with increasing amounts of chemical (or radiation, etc). The LD50 is the dosage where

**Three cents is trivial, but
\$300,000 is life-changing.
No wonder people hold on
to Bonus Bonds**

half the animals die (or develop cancer, etc.) Is the LD50 an example of all-or-nothing risk? In fact, it is a distributed risk applied over a heterogeneous population. *All* the animals given the LD50 dose were seriously ill but only half of them succumbed. Perhaps they had been fighting, or simply were genetically weaker. It's hard to tell. Presumably the healthiest animals were most likely to survive.

Examine a lower dosage, where only 10 percent of the animals succumbed. The survivors didn't go off to play golf! All were affected, but one in 10 was too weak to survive. If you imagine a bell-shaped curve where 'health' is on the x-axis, then a low dosage shifts all the animals to the left; those who started on the low-health side of the curve were likely to drop off the mortality cliff.

We can apply this logic to episodes of severe air pollution. We can predict, *in advance*, who is likely to die and who is likely

to survive. There might be, say, 20 deaths per 100,000, but that does not mean an otherwise healthy man or woman has 20 chances in 100,000 of dying. It's the people with pre-existing respiratory problems who are at risk, not everyone.

Groups that forecast a certain number of deaths per million, from a particular environmental contaminant, should be challenged to describe in advance the characteristics of the victims. Purported victims of tiny doses of chemicals will be abnormally inept at detoxification, perhaps because of liver disease. They are probably hypersensitive to many chemicals in addition to one particular man-made chemical. One may wonder how such people have survived to adulthood.

**Turning 100 rats into millions
of people**

The rules for long-term testing of potential carcinogens are:

1. 100 rodents per concentration (x 2 for both males and females).
2. At least three dose levels.
3. Highest dose levels such that animal growth is inhibited about five or 10 percent (ie, partly toxic doses).
4. Lowest dose is one-tenth of highest. (Very narrow range).
5. Attempt to minimise number of animals for both humanitarian and economic reasons (US\$600,000 per study).

Successful experiments are those where, at high doses,

death or cancer rates of 10 to 90 percent occur. For statistical and practical reasons, responses below 10 percent are difficult to measure. (A massive \$3 million 'mega-mouse' effort failed to confirm a forecast of one percent cancer caused by low levels of a known carcinogen.) So estimates for risk at low doses can only be done by extrapolating high-dose results.

per 100 rats at a certain dosage. The meaning of this number is obscure. What is one-thousandth of a cancer?

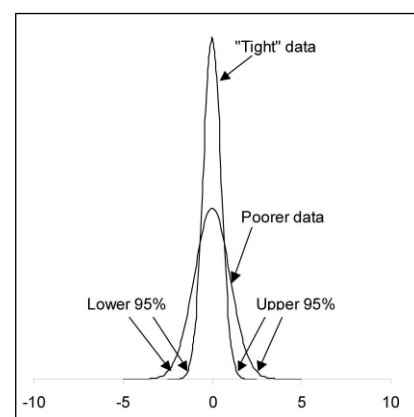
Obedient computers, run by scientific spin doctors, multiply the numbers by 1000. So now the prediction is one cancer per 100,000 rats. Better yet, "10 cancers per million rats", or perhaps "9.8 cancers per million", to simulate spurious precision. We

survived longer. In fact, at low doses the animals died of old age!

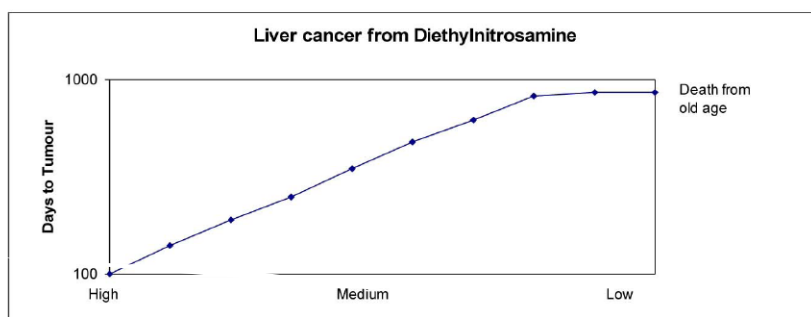
Toxicologists using this approach could estimate "time-to-damage" with considerable reliability. (Converting rodent risk to human risk would remain problematical.) The results would be reported as, for example, "At this low dosage, our data predict onset of cancer in individuals with more than three centuries of exposure at the permitted level." This kind of reassuring forecast would not, unfortunately, inspire larger budgets for the testing agency.

The 'upper boundary scam'

The bell-shaped normal curve offers another way to fool the public. At the standard threshold of '95 percent confidence level', there is an upper limit point and a corresponding lower limit point. We expect the 'real answer' to lie between those points, but the most likely value is around the middle of the range. An honest report of our results should include both the mean (middle) value together with some indication of how broad our estimate is.



Normal curves may have the same mean but cover different ranges.



O.G.Raabe. 1989, Scaling of Fatal Cancer Risks from Laboratory Animals to Man. *Health Physics* 57, Sup. 1, pp 419-432.

There are different ways to calculate hypothetical response to doses lower than tested. These are:

- quadratic
- linear
- power
- non-linear transition
- threshold

Do we really care which extrapolation equation is used? Arguments between log-linear, probit, or threshold models are no better than discussions about whether the angels dancing on the head of a pin are doing the waltz or the two-step. It's the unjustified extrapolation that's at fault.

Remember, the number of rodents used is in the hundreds. Extrapolations give rise to predictions of, say, 0.001 cancers

can now perform the brainless arithmetic of multiplying "10 per million" by the population of New Zealand, resulting in newspaper headlines of "40 cancer cases" per year. All this from fewer than one thousand rats!

Something is seriously wrong with this approach to toxicity testing. It predicts, with unjustifiable precision, death or cancer rates that are forever unverifiable. Moreover, high-dose tests can overwhelm natural defences, falsely suggesting damage from lower doses, damage that is never observed.

An alternative way to handle toxicological data is to see how long it takes for chronic doses to cause damage. An important paper by Raabe (1989) did this for both a chemical carcinogen and for radiation damage. His plots show, logically, that as the dosage was lowered, the animals

I have a homoeopathic weight-loss elixir to market. I have run simulated tests on 30 women using Resampling Statistics. (This is a low-budget business and I don't want to waste my advertising budget on real experiments.) The mean result was, of course, zero change, but there was an upper-bound of 2 kg weight loss. (There was also a corresponding figure of *minus* 2 kg weight loss, ie, *gain*, but we won't worry about that!).

Am I entitled to advertise 'Lose up to 2 kg'? After all, 2 kg loss was a possibility, even though it's right at the edge of statistical believability. My proposed advertisement is sharp practice, probably fraudulent. Surely no reputable organisation would distort their results this way!

Such considerations do not seem to bother US and NZ environmental agencies, which happily quote 'upper bound' forecasts. The US Environmental Protection Agency (EPA) wrote:

"We were quite certain any actual risk would not exceed that [upper bound] and would be a very conservative application and be quite protective. It does not necessarily have scientific basis, but rather a regulatory basis.... EPA considers the use of the upper 95 percentile as a conservative estimate."

Problems

One problem with the upper bound estimate of risk is that the worse the underlying data, the more extreme the upper bound, and hence the greater the forecast risk! Some people might think this might motivate the EPA not

to refine and expand its experimental database, but I couldn't possibly comment.

There is nothing inherently wrong with using the upper bound; it does indeed offer reasonable confidence that no damage will occur. But it is dishonest if the central prediction, the mean (average) is not also given. The difference between the mean and the upper-bound tells the public whether or not the estimates are too crude to believe. Unfortunately both numbers are rarely given. One EPA spokesman stated that "*The upper bound and maximum dose estimate is usually within two orders of magnitude*" (my italics).

That's an error margin of 100-fold!

A revealing example of how this works was given by EPA in a now-defunct web page devoted to estimating risks from chlorine residues in swimming pool water. That page seems to have been withdrawn, but my own copy of it is at www.saferfoods.co.nz/EPA_drinking_water.html

This amazing document considered the health risk if drinking water were contaminated by swimming pool water. The upper-bound risk was 24 bladder cancer cases per year (for the entire American population). Precautions against this happening would cost \$701 million (note the convincing precision here). This would save \$45 million of medical and other losses. Many people would have considered that such poor payback would be sufficient reason to drop the proposal.

The "24 cases" of bladder cancer represented the upper-bound estimate. The most likely estimate was, however, 0.2 cases per year. This agrees with their admission of 100-fold discrepancy between upper-bound and most-likely. The most likely outcome of spending \$700 million would be to avert one case of bladder cancer every five years! Is that what EPA considers "conservative" and "protective"?

Incidentally, the US has more than 60 thousand new cases of bladder cancer every year. An effective anti-smoking campaign would halve that number. What the EPA described as a "conservative" approach turns out to be a proposal to waste millions of dollars for little or no benefit.

There is a further consequence of the EPA mathematics. Since low doses of toxins can sometimes improve health ('hormesis'), EPA's figures imply a lower-bound estimate that two dozen cases of bladder cancer could be *prevented* by drinking dilute swimming pool water.

When the American Council on Science and Health petitioned the EPA to eliminate 'junk science' from its administrative process, EPA eventually announced that "Risk Assessment Guidelines are not statements of scientific fact ... but merely statements of EPA policy."

We might expect such behaviour from the EPA. After all, it has 18 thousand employees and a budget of more than US\$6 billion. You don't get that kind of money by telling the American public that they need not worry.

Meanwhile in NZ...

Surely our New Zealand government agencies won't stoop to the dubious flim-flam of the EPA? Consider the NZ Ministry for the Environment report entitled in part, "Evaluation of the toxicity of dioxins ... a health risk appraisal".

www.mfe.govt.nz/publications/hazardous/dioxin-evaluation-feb01.pdf

"The current appraisal has estimated that the upper bound lifetime risk for background intake of dioxin-like compounds for the New Zealand population may exceed one additional cancer per 1000 individuals.

This cancer risk estimate is 100 times higher than the value of 1 in 100,000 often used in New Zealand to regulate carcinogenic exposure from environmental sources. Of course, if there were a threshold above current exposures the actual risks would be zero. Alternatively, they could lie in a range from zero to the estimate of 1 in 1000 or more."

This confusing prose says, I think, that the likelihood of risk from dioxin-like compounds is much less than one per 1000. It might be zero, but the Ministry has not provided enough vitally important data. Should public policy be made on the basis of unlikely, unprovable, worst-case guestimates?

The upper boundary scam is, I believe, a despicable misapplication of 'science'. It's junk science. Should a government agency be allowed to misinterpret data in a way that would lead of a false-advertising claim if tried on by private merchandisers? I think not.

Our brains are not wired to handle low probabilities. We jump to conclusions on the basis of inadequate information. It's in our genes. Cave men or women who waited around for more information were eaten by sabre-tooth tigers and didn't pass their cautionary genes on to us. The cave woman who ran at the slightest unusual sound or smell passed her quick-to-act genes on to us. This is not a good recipe for evaluating subtle statistical issues.

In today's world, there are many people and organisations ready to push their narrow point of view. We need to be as suspicious about groups claiming to 'protect' us or the Earth as we are about time-share salesmen and politicians.

Jay Mann is a plant biochemist and the author of *How to Poison Your Spouse the Natural Way*.

forum

Minority retort

ELIZABETH Rata's article *Ethnic Fundamentalism in New Zealand* is a series of extraordinary assertions, supported not with reason and evidence but emotionalism and error.

Rata defines ethnicity as "a combination of culture ... and genetic inheritance." So the idea which is so obviously false is a truism: that people are primarily shaped by their genes and social environment.

Her approach to questions of nature and nurture is that both are overcome by free will, if you are modern. If this doesn't seem silly to you, try being a few inches shorter, or speaking a language you haven't learnt. Rata is confusing politics with science. Social and political freedoms do not change scientific facts, nor should they be dependent on them.

Rata's definitions are unnecessarily vague and weak. Ethnicity refers to race alone, culture alone, or both together, depending on context. A race is

a section of humanity identified by appearance, or by descent from such a group. Although culture is not simply caused by genes, it is obviously connected. James Belich has written, "You are unlikely to see yourself as Irish, be seen by others to be Irish, and to maintain a degree of Irish culture ... if you have no Irish descent."

What way of defining ethnic groups we use, if any, depends on the context. To some extent Rata is correct that we should be free to identify as we please; and thus as a matter of courtesy, descriptive terms should be acceptable to those to whom they apply. However, we should not always expect others to recognise our personal identity choices; try insisting that you are the prime minister. International law defines indigenous people as people descended from the inhabitants of a region at the time of colonisation. This is the definition the Crown signed up to in the Treaty of Waitangi, referring to "the Chiefs and Tribes of

New Zealand and to the respective families and individuals thereof.”

In law, the borderlines of ethnic groups may seem arbitrary and unfair in some cases. This is also true of means testing, tax brackets and age restrictions. Imperfectly defined categories are a prerequisite for understanding and for social organisation. How and whether we define particular groups thus depends on how we view the consequences.

Rata is agitated by the misconception that if someone has an ethnicity, it must be his or her “primary identity”. She states repeatedly that official recognition of ethnicity replaces “the individual citizen with the ethnic person as the political subject”. Practically all New Zealanders have had their ethnicity recorded and thus their citizenship altered. How, except in an emotional sense for lip-quivering fervent nationalists? Ethnicity is only one aspect of a person that a government recognises. Why treat it as a special case? The government funds schools for boys or girls only that are strictly exclusive. In what way is sex thus prioritised, replacing the individual citizen with the sexual person as the political subject?

The objections Rata raises against the concept of ethnicity are also true of citizenship, which is primarily held by inheritance. The genetic element is so strong that persons born overseas who remain there still inherit citizenship from their parents, whereas people can be born and live here their whole lives but be denied citizenship if their parents did not have it.

The second ethnic fundamentalist belief is that “the ethnic or racial group is primordial ... that the group is distinctive and separate”. Who believes this? Maori myths say they are Polynesians who migrated here 700 to 1000 years ago, as historians confirm. Nearly all Maori have mixed tribal ancestry, and Pakeha ancestry. Being part of more than one group is regarded as a good thing, like dual citizenship. The most valued skill in powhiri speech-making is finding connections between the hosts and the guests, to show that the groups are not ultimately distinct and separate.

Third on Rata’s list is the belief that “Who we are in terms of the ancestral genetic group causes what we do and the meaning we give to our actions”. Rata calls this cultural determinism, although it would actually be genetic determinism; she equates genes with culture, the stance which she condemns. She writes that determinism underlies such things as Kaupapa Maori Research (KMR) but doesn’t say how. There is no reference to a connection in the recent article on KMR in the NZ Skeptic, which identifies the bases as philosophical relativism and political control.

Fourth in the ethnic fundamentalists’ creed is “that an ethnic group indigenous to an area is autochthonous, ... ‘of the land’ in a way that is qualitatively different from those who arrive later”. Rata identifies the problem with a group being autochthonous as that it “claims a particular political status with entitlements not available to others.” This is the same as her fifth fundamentalist

belief, that ethnic groups “be the bearer of political rights and be recognised in the public and political sphere”. She calls this “blood and soil” ideology, located in mythological origins, and seductive in its mystical appeal”. She can’t be talking about Maori, who have rights under the Treaty of Waitangi, not on the basis of “autochthony”, unless 1840 was the time of “mythological origins”.

Rata writes that “the process of ethnic politicisation is one driven by small well-educated elites ... intellectuals”. If raising high levels of education as a danger were not ludicrous enough, Rata ends her list of genocides with Pol Pot, who “began his killing campaigns immediately on his return from study in Paris”. As an example of high education leading to ethno-nationalism, she gives a perpetrator of massacres that were not ethnically based, and who studied in a country that doesn’t recognise ethnicity.

She also writes that New Zealand has recognised ethnicity and undertaken “ethnic prioritisation” only in the last few decades. In fact, schools for Maori were opened by early missionaries; in 1847 the government subsidised the schools, which taught in Maori, on the condition that they taught in English. Governor Grey expressed the hope that the schools would remove children from “the demoralising influences of their villages”, “speedily assimilating the Maori to the habits and usages of the European”. In 1867 this ethnicisation was further entrenched with the Native Schools Act; the Native Schools were disestablished in

1969. A few years later, according to Rata, the “politicisation of ethnicity”, “particularly and most dangerously in education” began.

It has long been recognised that New Zealand has a complex history of race relations, and is working through difficult constitutional issues. Rata’s article is a poor contribution. It is surprising that unsubstantiated allegations of destroying the country, directed at those identified only as well-educated, have found a home in the NZ Skeptic. Let’s stick to reason, evidence, and clarity. (Abridged.)

Nicholas Drake
Kaikohe

Media beat-ups out of control

While the questions surrounding the tragic death of Folole Muliaga are gradually answered it is timely to pose some questions about the role of the media in the whole matter. The furore was symptomatic of the new role of reporters and presenters of current affairs in our marketplace-oriented society. News and comment on it is now a commodity to attract subscribers, listeners and viewers. What we receive is value added information. The addition is guidance towards an attitude of high emotional arousal, usually outrage.

There can be no doubt that the tragic death of Mrs Muliaga did highlight some important issues

about the policies, accessibility and accountability of Mercury Energy and similar large organisations. Labour’s earlier denial of the existence of an underclass and downplaying the problems associated with living in poverty was exposed for the unreal view that it is. There remain a number of questions about where the responsibility for the tragedy lies. What needs to be also asked is whether the role the media played in the saga was wholly beneficial. It may seem obvious that the publicity led to action and movement toward accountability but it is also possible that more than a touch of mob hysteria occurred because of the ‘name and shame’ aspect of the reporting. The issue is whether the whole panorama of news and current affairs presentations are developing a method of dealing with current affairs which is socially beneficial.

Certainly incidents of significance are brought to public attention and that is part of media’s responsibility. But these events are increasingly headlined, analysed and sensationalised before the full picture has been obtained. By the time there is a clearer picture feelings are running high and any downgrading of the shock value by new facts is not welcome.

To caricature the situation, we are in danger of following the media wherever it leads us, and believing that civilisation is crumbling. Considering we are living in one of the safest countries in the world this a ludicrous and dysfunctional belief. (Abridged.)

Ian McKissack

Skeptics through the ages

... In conclusion, a few words must be said on the professional fortune-tellers. That they are, genrally speaking, wilful impostors is perhaps true.

Yet, paradoxical though it may appear, the writer feels bound to assert that those ‘card-cutters’ whose practice lies among the lowest classes of society, really do a great deal of good. Few know what the lowest classes in our large towns suffer when assailed by mental affliction. They are, in most instances, utterly destitute of the consolations of religion, and incapable of sustained thought. Accustomed to live from hand to mouth, their whole existence is bound up in the present, and they have no idea of the healing effects of time. Their ill-regulated passions brook no self-denial, and a predominant clement of self rules their confused minds. They know of no future, they think no other human being ever suffered as they do. As they term it themselves, ‘they are upset.’

They perceive no resource, no other remedy than a leap from the nearest bridge, or a dose of arsenic from the first chemist’s shop. Haply some friend or neighbour, one who has already suffered and been relieved, takes the wretched creature to a fortune-teller. The seeress at once perceives that her client is in distress, and, shrewdly guessing the cause, pretends that she sees it all in the cards. Having thus asserted her superior intelligence, she affords her sympathy and consolation, and points to hope and a happy future: blessed hope! though in the form of a greasy playing card. The sufferer, if not cured, is relieved. The lacerated wounds, if not healed, are at least dressed: and, in all probability, a suicide or a murder is prevented.

From www.thebookofdays.com/months/feb/21.htm#THE_FOLK-LORE_OF_PLAYING_CARDS – a 19th century book of days.

TV3 - the best of news, the worst of news

Vicki Hyde

It's Bent Spoon time again - the time when the Skeptics highlight the worst – and best – of the year's media.

IN THE first double-header of its kind, one organisation has won both brickbats and plaudits from the NZ Skeptics Society in its 2007 Bent Spoon and Bravo Awards for gullibility and critical thinking respectively – TV3 News and Current Affairs.

TV3's Campbell Live programme took the Bent Spoon award for Carol Hirschfeld's August 31 interview with self-proclaimed energy healer and clairvoyant Simone Simmons, who claims to be visited regularly by the spirit of Diana, 10 years after the death of the Princess of Wales.

Promotional material provided by Simmons's publicist cites her appearance on television in New Zealand and elsewhere as endorsing her claim to be a "global psychic and personality". Less complimentary was one reaction to Simmons's Diana 'tell all' book, when Guardian columnist Mark Lawson called it "rubbish even in a genre that has redefined the meaning of garbage".

Her appearance on the Campbell Live programme did nothing to cement TV3's claim to offer 'leading news journalism'. It's a shame really because we know Campbell Live can do quality current affairs, but they certainly didn't live up to any standards

of excellence in reporting, story telling or research with this one.

It is important to strongly challenge psychics regarding their claims, because it's an industry like any other and should be called to account. Otherwise



Magician Michael Woolf at the NZ Skeptics' Conference dinner displays the headline from the Weekend Press, which he had predicted several days previously.

you end up with people believing they are getting value-for-money when they ring psychic hotlines, like the Victoria University Students Association Women's Rights Officer who spent thousands of dollars of student union money ringing psychic 0900 numbers earlier this year.

Research on how women, in particular, are preyed upon economically and psychologically by the psychic industry was covered at the recent Skeptics Conference, in Christchurch,

and a news item covering local research into this has won TV3 reporter Tristram Clayton a Bravo commendation.

Clayton's Psych Addictive item (July 17) gained praise for providing a seldom-seen critical look at the million-dollar 0900 psychic phoneline business. A recent study by Auckland University psychologist Dr Robin Shepherd revealed women who became psychologically dependent on the psychic hotlines were spending more than \$7000 annually each, and not for entertainment purposes either. Shepherd gains a Bravo Award for her study, which is seen as providing hard-to-get data on the exploitation involved in the psychic phoneline industry.

Clayton also won plaudits for items on the establishment of a UFO database and reporting on the Therapeutic Products and Medicines Bill.

We'll be watching his future career with interest. Perhaps he can teach the old hands at Campbell Live a thing or two about story selection and follow-up. If TV3 feels it must fill its news programming with such soft items, the least they can do is bring some journalistic integrity to it.

The controversy over the Therapeutic Products and Medicines Bill provided multiple nominations for the Skeptics to consider. The attempt to provide standards and accountability in this lucrative trade saw Minister Annette King and industry group Natural Products New Zealand gain Bravo Awards.

We don't often give awards to politicians, and we don't often see vested interests providing leadership of this nature, so it's good to recognise good work when it does happen even if, in this case, it was ultimately unsuccessful.

It is important for complementary and alternative medicines in New Zealand to be appropriately regulated to provide broad consumer protection, whether quality control in product manufacture, truth in advertising, or evidence-based comparisons of the effectiveness of outcomes against other treatments.

The Bent Spoon is named after the infamous symbol of self-proclaimed psychic Uri Geller, and was formally confirmed telepathically by the assembled Skeptics at their annual conference, along with Bravo Awards recognising critical thinking in the media.

Many thanks to Raymond Richards who has contributed regularly to this publication in recent issues but is now concentrating on other commitments.

Hokum Locum is taking a temporary break while John Welch explores India, but we hope he and the column will be back in time for the next issue.

Life – not so implausible

The Plausibility of Life - resolving Darwin's dilemma, by Marc Kirschner and John Gerhart. Yale University Press, 2005. ISBN 0-300-10865-6. Reviewed by Louette McInnes.

This book was written for the general public with an interest in evolution, and also for people working in fields connected with evolutionary biology – geneticists, palaeontologists, biochemists, cell biologists, developmental biologists. In short, anyone who wants an overview and integrated picture would find something of interest. Language has been kept less technical, and explanations and glossary are more than sufficient.

The book at first almost appeared to be an 'intelligent design' ploy. That was partly from the name, facilitated variation, the authors give to their theory. Fortunately, the back flap tells who the authors are – Kirschner is chair of the Department of Systems Biology, Harvard, while John Gerhart is a graduate school professor at UC Berkeley. The real purpose of the book was to attempt to sort out the three main strands of Darwin's theory – natural selection, inheritance, and variation. They felt variation was the main area being attacked by creation scientists and those proposing intelligent design.

For someone who is not a biologist but has tried to keep up with developments relating to evolution, the book was quite a revelation in terms of how much of biology is concerned with evolution or explaining variation. The cytoskeleton and how it forms, the ways that nerves form and interconnect, and the

how, when and why of capillary formation – all this was made relevant to the ways in which a relatively small genetic change can produce major structural changes.

Hox genes, the major 'switches' that do things like turn on or off teeth in dinosaurs and birds, are explained; there is also a good bit of detail on how the embryo is segmented and why cells in certain areas develop in certain ways.

Some nice examples were given. Nerves were likened to an electrical outlet – you can plug any sort of equipment into the outlet and have it work. The outlet doesn't care what is attached, it just delivers the signal. So the basic nerve cell, once it attaches an axon to a target, is really a multipurpose structure, giving the organism an opportunity for putting new types of sensors in place. The authors also showed how new, repaired or growing tissues induce the growth of new blood vessels – low oxygen causing the cells to put out a chemical that causes capillary cells to reproduce and migrate to those areas. This system allows a newly 'enlarged' structure to develop the necessary blood supply without requiring a major change in the genes related to blood vessels.

The book isn't always an easy read, but it certainly was a fascinating one.

If undelivered, return to:

NZ Skeptics
PO Box 29-492
Christchurch 8540

New Zealand
Permit No. 3357

Permit



Another skeptical New Zealand website

www.sillybeliefs.com is a New Zealand-based website that, as the name suggests, tackles silly beliefs. These include telepathic healers, the shroud of Turin, television mediums, graphology and magnetic therapy.

The latest posting is a detailed review of the Bent Spoon-nominated Sensing Murder episode, featuring the conversion of “die-hard skeptic” Nigel Latta.

Worth a read!

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