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How Science Works

Confessions of a Psychic Researcher

Reeling in the Fishermen

content

Contributions

Contributions are welcome and should be sent to:

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Deadline for next issue: 10 July 2002

Letters for the Forum may be edited as space requires - up to 250 words is preferred. Please indicate the publication and date of all clippings for the Newsfront.

Material supplied by email or IBM-compatible disk is appreciated.

editorial

Good Work All Round

With winter almost upon us, the time has come to curl up in front of a nice screen and browse the internet. Speaking of which, congratulations are in order to our chair-entity Vicki Hyde and media spokesman Denis Dutton for having their websites nominated in the sixth annual Webby Awards.

These are coming to be regarded as the web equivalents of the Oscars; Vicki's Sci-TechDaily Review (**SciTechDaily.com**) is up for an award in the science category against such luminaries as NASA, while Denis' Arts & Letters Daily (**aldaily.com**) is taking on the BBC and other heavyweights in the news category. The public is entitled to vote for these (at **www.webbyawards.com/peoplesvoice/**), so if you're reading this before the closing date of June 7, you know what to do.

It's been a busy time for us skeptics overall. The Auckland members, led by Felicity Goodyear-Smith, have combined with the Rationalists to hold two meetings, on GM foods and immunisation. These have been well attended, and have done a lot to raise the level of debate on these issues; hopefully more will follow.

And there's been the old possum peppering story, which the Greens were promoting as an environmentally benign means of pest control, despite a well-designed trial of this technique some years back showing it has no effect whatsoever. The society's press release in response to the matter got a fair bit of coverage.

There's plenty of variety this issue. We have a nice introduction to the philosophy of science in the lead article, some reflections of a former psychic researcher, and we re-examine last year's soy sauce scare.

And John Riddell's column, in which he confesses to being taken in by a scam, is a beaut. It all came about because of his weakness for fishing, he says...

Speaking about being active, the annual get-together is being planned once again and it's time to consider a trip to sunny Christchurch to take part in the Skeptics Conference 2002. More details are to be found tucked up on page 8, but circle it in your diary now and book your tickets.

Annette

That Eureka Moment: How Science Works

Andy Pratt

This article is drawn from interviews with Allan Coukell on the NZ National Radio science programme "Eureka!" in 2001.

WE LIVE in an era where science is universally needed but rarely appreciated, little understood and much misunderstood. This is not just a problem of the wider non-scientific community; science is increasingly specialised and even prestigious scientists may have little awareness of areas of science outside their specialised research niche. Science is typically learned by studying and working in a particular discipline, but often such narrow perspectives don't allow us to reflect on wider issues about science and appreciate its strengths and weaknesses. Furthermore, the specialized, abstract, nature of much science education all too often alienates many of its victims, while leaving the survivors blind to the limits and problems of their craft. There is irony in the way that science, the ultimate questioning activity, frequently fosters such unquestioning supporters and critics.

What is science?

Obviously science comes in many shapes and sizes and any attempt to provide a "one size fits all" description is bound to fail. Some scientists are engaged in an open-ended exploration of natural phenomena; some spend their lives developing and testing theories or models. Yet more scientists try to find out whether some theoretical entities like quarks are "real", whilst others are trying to measure properties of the world with greater and greater precision. What, if any, are the unifying features of such a diverse discipline?

Given that science is such a multifarious thing, is it even sensible to ask a question such as "what is science?" Richard Feynman was a brilliant scientist who thought it was. Feynman, winner of the Nobel Prize for Physics in 1965, was not only one of the most brilliant scientists and science teachers of the 20th Century, he also reflected on the nature of science and communicated his perspectives vividly to a wide audience. Here's how he addresses the question "What is science?"[1]:

> "The word is usually used to mean one of three things, or a mixture of them. ... Science means, sometimes, a special method of finding things out. Sometimes it means the body of knowledge arising from the things found out. It may also mean the new things you can do when you have found something out, or the actual doing of new things ... so the popular definition of science is partly technology too."

Science and technology are inextricably linked in the public's eye; it is technology that provides the gadgets to which society becomes addicted. The reliable and informative nature of scientific knowledge underpins modern technology, but science is not simply a means to technology. As Feynman points out, it is crucial to realise that science is an intellectual adventure, a cultural activity that should be undertaken for its own sake:

> "The things that have been found out [are] the gold. This is the ... pay you get for all the disciplined thinking and the hard work. The work is not done for the sake of an application. It is done for the excitement of what is found out. You cannot understand science and its relation to anything else unless you understand and appreciate the great adventure of our time."

Science is an adventure. It involves asking questions about the universe, coming up with theories about the way nature works, and testing those theories to see how valid they are. As any scientist knows, it is a challenging activity:

> "Trying to understand the way nature works involves a most terrible test of human reasoning ability. It involves subtle trickery, beautiful tightropes of logic on which one has to walk in order not to make a mistake in predicting what will happen."

Given the complexities of undertaking a scientific investigation, what is it about science that makes it such a powerful way of finding things out about the world? This is Feynman's view:

> "[S]cience as a method of finding out ... is based on the principle that observation is the judge of whether something is so or not. All other aspects and characteristics of science can be understood directly when we understand that observation is the ultimate and final judge of an idea. But 'prove' used in this way really means 'test' ... the idea should really be translated as 'The exception tests the rule.' Or, put another way, 'The exception proves that the rule is wrong.' That is the principle of science. If there is an exception to any rule, and if it can be proved by observation, that rule is wrong."

Fireworks at NASA

Given the variety and complexity of science, scrutinising illustrative episodes of science in action is a good way to understand more about science. Again Feynman provides a lead: he not only discussed science, he exemplified the whole philosophy of questioning the world and testing scientific ideas. Early in 1986, when he was fighting terminal cancer, Feynman was once again thrust into the public eye when he performed one of the most public demonstrations of science during the inquiry into the tragic accident of the space shuttle "Challenger". Feynman's role in this investigation provides an illuminating vignette into science.

It is salutary to sometimes reflect on the fallibility of science and the icons of technological sophistication. Yet science rose, phoenix-like, from the ashes, due almost exclusively to Feynman's scientific acumen

On January 28th 1986 the space shuttle Challenger was launched, and almost immediately exploded in a horrific fireball. It is salutary to sometimes reflect on the fallibility of science and the icons of technological sophistication. Yet science rose, phoenix-like, from the ashes, due almost exclusively to Feynman's scientific acumen.[2] Within a week of the accident, on February 4th, Feynman was appointed to a committee of inquiry. He immediately began quizzing the engineers at the Jet Propulsion Laboratory where much of the space shuttle technology was developed. On the first day he learned of well-known problems with the shuttle, including cracks in the turbine blades. Feynman also learned of problems with the O-rings – glorified rubber bands thinner than a pencil and more than 10 m long – that sealed the joins between sections of the solid-fuel rockets. A pair of O-rings had to expand to prevent the leak of hot gases during the burning of the solid fuel rockets. However, on some launches one of the O-rings was being scorched. Feynman jotted down some notes: *"Once a small hole burn thru generates a large hole very fast! Few seconds catastrophic failure."*

Feynman flew to Washington and quizzed NASA officials, especially about the effects of the unusually cold weather at the launch of the Challenger shuttle. Because the elasticity of the O-rings would decrease at low temperatures, the problems with the O-rings would be exacerbated. Over the weekend Feynman was hot on the O-ring trail and, when the committee reconvened on Monday 12th February, he was frustrated by the inconclusive and evasive testimony of Lawrence Mulloy, the project manager for the solid fuel rockets. That night at dinner, his eyes fell on a glass of iced water and he saw a way to test whether 0°C (the temperature of the Challenger launch) would affect the resilience of the O-rings.

The next day he bought a small C-clamp and pliers. At the hearing Feynman asked for iced water and then broke off a bit of O-ring material as a sample was passed round. He clamped the O-ring material in the C-clamp, then

after a short break in the proceedings, Feynman asked to speak to Mulloy. The rest has become a historic exchange captured by the TV cameras:

> "I took this stuff that I got out of your seal and I put it in ice-water, and I discovered that when you put some pressure on it for a while and then undo it, it doesn't stretch back ... In other words, for a few seconds at least ... there is no resilience in this particular material when it is at a temperature of 32 degrees [Fahrenheit]. I believe that has some significance for our problem."

Here, in a nutshell, was the heart of the scientific problem. As another great theoretical physicist, Freeman Dyson, commented:

> "The public saw with their own eyes how science is done, how a great scientist thinks with his hands, how nature gives a clear answer when a scientist asks her a clear question."

Stages of the scientific process illuminated by Feynman's experiment:

(i) Science starts with a problem: in this case the question of what caused the Challenger to explode.

(ii) There is background detective work: finding out what is already known (in most scientific investigations this involves extensive literature work; here it involved garnering various streams of evidence such as the previous O-ring problems, the observed puff of smoke from the solid booster after 0.5s of flight, the lower resilience of rubbers at lower temperatures etc).

(iii) Hypothesis formulation: that a momentary loss of resilience of the O-ring allowed hot gases to burn through the seal and caused the rocket to leak.

(iv) Hypothesis testing via experiment, or observation: testing that the elasticity of the O-ring material was indeed compromised under the conditions of the launch.

(v) Bringing the results into the public arena for critical scrutiny: committee hearings are an unusual forum for discussion; for most research investigations the academic literature is where scientific claims are subject to critical scrutiny.

What does the Challenger inquiry tell us about science?

Without Feynman's input, the committee of inquiry was likely to have been a whitewash. Most of the establishment would have liked to rubber stamp the worthiness of the shuttle programme. Scientists have to be careful about not falling into the trap of defending the work of a programme they believe in, rather than subjecting it to full critical scrutiny. Feynman, as the consummate scientist, shows that science is not about confirming your prejudices or defending your patch, it is about uncovering truths about the world.

Feynman's beautiful experiment did not absolutely *prove* that problems with the O-rings caused the Challenger disaster. However, together with the history of problems with the shuttle and the particular climatic conditions for the launch, the case was proved "beyond reasonable doubt." Scientific knowledge bears more than a passing resemblance to court proceedings: the more direct the experimental evidence, and the greater the accumulated weight of diverse lines of evidence, the more clear-cut scientific knowledge becomes.

Science is not a method of generating infallible truths about the world; only tyrants claim to do that. Neither is it simply a way of producing just another opinion about the world - no better or worse than any other (as many postmodern social scientists would have us believe). While science does not dispense absolute truths, it does produce the best knowledge we have in areas where we can subject our theories to rigorous tests. Although the theories that survive such tests can never be proved to be true, they are likely to be close to the truth if they survive detailed scientific scrutiny without being proved wrong.

Furthermore, in areas where theories have been well tested and flaws of the theory are exposed, it is often the case that the theory is not thrown out wholesale – instead the previous theory is often found to be a limiting situation for the theory that succeeds it. We are more confident in the predictions of Newtonian mechanics in the wake of Einsteinian mechanics than we were before, since we now clearly understand where it does and does not apply. Similarly we have not dispensed with atomic theory now we know that atoms are comprised of smaller entities.

So the heart of science is criticism, the use of observations and experiments to test our

theories and always being able to accept that we might be wrong. The ability to modify our views, in the face of evidence, is a keystone of science.

Perhaps the last word should go to Feynman[3]:

> "Science is a way to teach how something gets to be known, what is not known, to what extent things are known (for nothing is known absolutely), how to handle doubt and uncertainty, what the rules of evidence are, how to think about things so that judgments can be made, how to distinguish truth from fraud and from show."

References

[1] The quotations in this section are from Chapter 1 of *The Meaning of it All*, R. P. Feynman which is drawn from a public lecture that Feynman gave in April 1963.

[2] For a slightly more detailed chronology of Feynman's participation in the Challenger investigation see *Genius*, by J. Gleick, pp414-428.

[3] Quoted in *Genius*, by J. Gleick, p285.

Andy Pratt is a lecturer in the Department of Chemistry, University of Canterbury. This article originally appeared in Chem NZ No. 86.

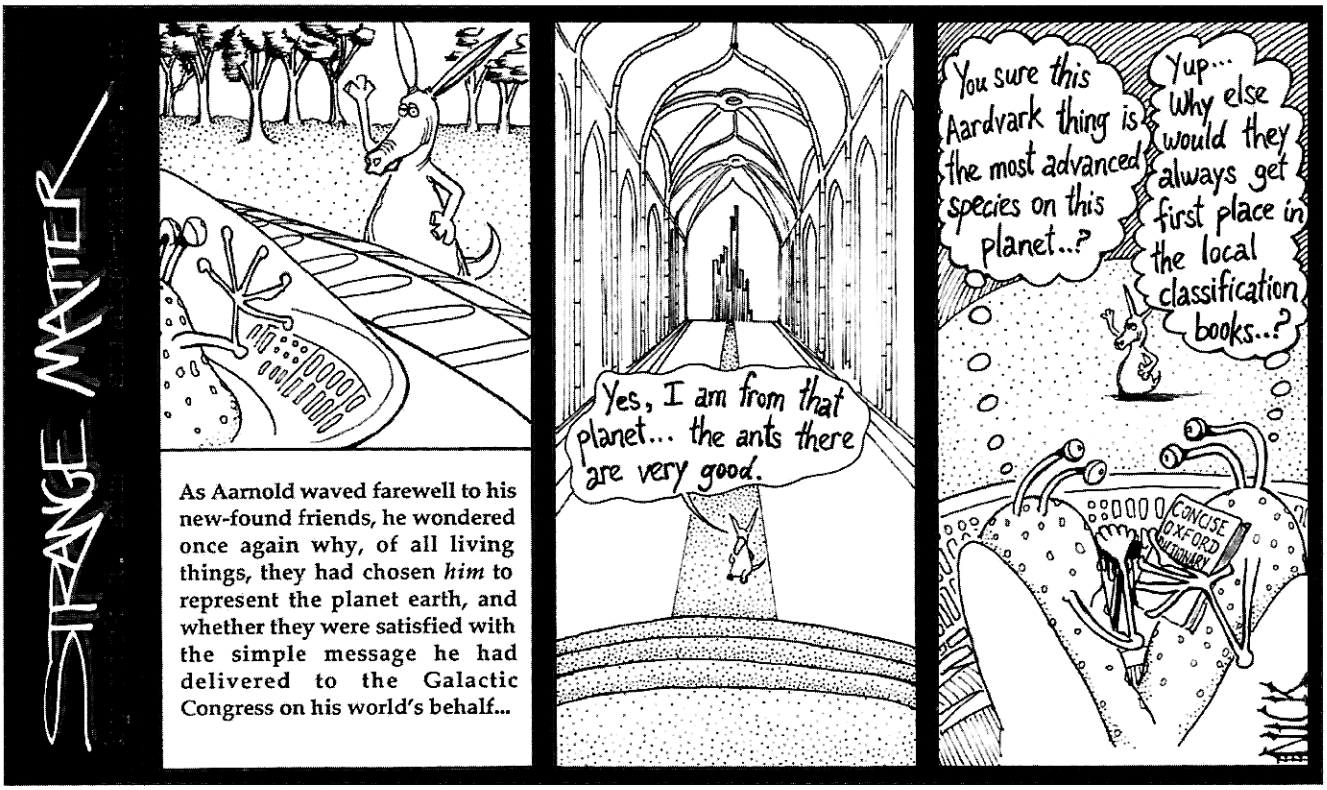
Man refused bail after Dick Smith food poison threat

A man charged with threatening to poison food produced by Dick Smith has been refused bail in the Rockhampton Magistrates Court in central Queensland. Graham Andrew Cooper, 30, is charged with trying to extort $100,000 from the Australian Skeptics Association.

Cooper appeared in court charged with stalking, extortion and sending threatening emails. The court was told Cooper sent emails to Barry Williams from the Australian Skeptics Association, which has offered $100,000 to anyone who can prove psychic powers. The police prosecutor said Cooper claimed the association refused to test him. It is alleged the emails said that Dick Smith owed him $100,000 and that he would put "rat sack" into as much Dick Smith food as he could lay his hands on. The court was told Cooper is a paranoid schizophrenic and police said the threats were not carried out.

Cooper will be held in custody until his next court appearance in May. He was not required to enter a plea.

From ABC On-Line News, March 8



Memoirs of a Psychic Researcher

Jonathon Harper

University days are a great time to explore new directions. But sometimes you may end up a long way from where you thought you were going.

BACK in 1969 I was a fresh-faced first year student at Auckland University. I had come there to bathe in the fountain of wisdom. I wanted to understand the deep mysteries of life, and learn how to think logically. Oh, and maybe learn how to speak Spanish fluently – you had to learn a language anyway, in those days, in order to get a BA. No real thoughts about how that might earn me a living – no big deal either in those days, as you were considered employable in a variety of professions with a BA. I did have an idea of eventually becoming really wise, and setting up in private practice as a clinical psychologist – I had heard of Freud and was yet to be disillusioned about his approach.

The first big event at Uni was "orientation". In 1969, (maybe still today?) each society splashed out (pun intended) on wine and cheese evenings, to attract new members. I guess a portion of each new member's funds were stashed away for next year's wine and cheese. Anyway, I attended about a dozen wine and cheeses and joined one club. That club offered to sort out some of the deepest mysteries - it was the Psychic Research Club. I still feel a wee frisson at the memory: those wonderful youthful yearnings for secret knowledge, the suggestion that the world had so many wonderful properties waiting for my eager and well-trained mind to discover. Even if these psychic possibilities were all bunkum, I and my new-found friends decided that we would then have a new and interesting phenomenon to investigate, ie why do so many believe? In those hippy happy days (and I was already calling myself a hippy), the idea that there were no real psychic phenomena was rather novel. Many believed in Uri Geller's psychic powers, and those guys at Duke University had apparently scientifically proved the existence of telepathy using specially designed cards in controlled experiments.

Our own investigations

Well, our motto was that we kept an open mind. We had not come to any definite conclusions, so, in true scientific fashion, we decided to carry out our own investigations.

I remember we did think that there were academics who seemed to be closed minded in rejecting psychic phenomena. Of course, they were also spoilsports – we had great fun going out on field trips to check out ghosts, and talking to eccentric colour therapists, "crystallologists", people who had had prescient dreams, and the like. The focus of our studies, however, was to try to replicate the only possible scientific proof we had come across, the Duke university studies, which were published in the seriously academic-looking *Journal of Parapsychology*.

Spoilsports

I recall that barely had we begun our serious work, when along came a couple of real spoil-sports from the Psychology Department. Professor Barry Kirkwood (now running a bed and breakfast on Waiheke Island I hear) gave a special talk - or it may have been a debate - on the validity of the Duke experiments, and a few other matters. He pointed out, I recall, a very serious methodological flaw. That is, the academics (in those days quite a few psychic experiments were conducted at universities) had admitted that psychic abilities could only be proved to manifest at some times and not others. Many attempts at replication (and to cut a long story short, also our own) failed. What factors turned "Psi" (the term for that ability) on and off were unknown. This problem is a classic one, and still slows down our scientific progress. The buggers, you see, only published their "successful" results, when probability calculations would "prove" Psi (telepathy, etc) was the most likely explanation. On the days the subjects failed –

well, that was just an off-day: Psi had gone away, so those results were thrown in the rubbish bin. Thanks to Prof Kirkwood, we kept all our results, and learnt quite a lot about what randomly generated results look like, how to do statistical analysis, and what are appropriate, acceptable p (probability) values to prove anything scientifically.

I seem to remember that my friend Brian Whitworth, who was our president, got excellent marks for the statistics section of psychology.

In the end, as my now rather ancient memory goes, we tired of talking to "Psychics". I remember Brian saying something about what nutters some of them were. They certainly never seemed to come up with anything definite that could be investigated scientifically. Then the other spoilsport in the Psych Department, David Marks (and another colleague, Richard Kammann) happened to be in a restaurant or bar next to Uri Geller. (I guess it was planned). Anyway, he heard first hand what Uri really thought of his fans – or should that be suckers. About that time, a jeweller I think it was, appeared on TV and demonstrated how Uri's "psychic concentration of energy" – or whatever he called – it was effective in re-starting watches that had stopped. (You have to remember that back in those days, most of us wore wind-up watches.) Apparently, when you followed Uri's instructions of holding the watch in your hand, the oil thinned with the heat, freeing up the mechanism – for a while at least!

Finally, as I recall, we wound up our society, "for lack of evidence", and had a final extra big wine and cheese party. Marks and Kammann published the landmark Psychology of the Psychic, which (to me at least) convincingly explained how so many otherwise sane people come to believe in psychic phenomena. I didn't see Brian again after we graduated, although he did attend my (first) wedding, which occurred about seven months after I managed to get my girlfriend pregnant. It is a shame I didn't listen to good old Prof Kirkwood earlier, and start tuning in to the actual processes and effects of the real world!

I went on to training college (now known as Colleges of Education), where I was paid a wage to study, and only briefly (and much later) became a trainee clinical psychologist. I was very disillusioned and disappointed with that profession, but that's another story. For a while, I worked as a professional entertainer, as singer, guitarist, and magician with psychic abilities! I gave up the psychic act after a while, when I realized that the magician's code of not spoiling the fun by revealing your tricks was incompatible with my newly acquired distaste for seeing people refuse to relinquish their belief that I was psychic - no matter how many times I denied it.

Skeptics Conference 2002

Superstitious Skeptics? Naah...
Friday 13 September to Sunday 15 September
St Andrews College, Christchurch

OPENING with a Superstition Bash (bring your own mirror)

LISTEN to Lynley Hood, author of "A City Possessed", and other speakers covering areas as broad-ranging as the seldom-seen art of subliminal perception, the religion of alien abduction, the limits of human rights, the need for magic and mystery

LAUGH at Denis Dutton, Frank Haden and Peter Hyde as they try to defend the indefensible in the First Skeptics Quasi-Celebrity Debate: that women are more gullible than men

KEEP an eye on the website, or your next issue of the Skeptic, for programme information and registration forms:
http://skeptics.org.nz

Skeptical Surfing

Netsurfer Science (http://www.netsurf.com/nss/) is a website every skeptic should bookmark. It provides a good lead-in to many science and skeptic-related sites and issues on the web. Here are a couple of recent items.

Howling at the Moon

Do we believe everything the government tells us? Of course not. But, we think that some conspiracies would be so unmanageable that they'd implode faster than an empty soda can in the Marianas Trench. The fake moon landing is one of our favorite confabulations. Under this theory, NASA didn't land on the moon - and its own photos prove it. Now, to the extent that anyone cares, once we stop chuckling about how little the hoax proponents actually know about the science they claim to defend, this sort of nonsense also makes us angry, because it diminishes not only the breath-taking courage of people like the Armstrongs and Lovells of this world, but also the heart-breaking sacrifices of the Grissoms and McAuliffes. People (and television networks) who propagate this foolishness at least owe it to those pioneers to get their science right. Phil Plait, whose very admirable Bad Astronomy site has made Netsurfer lists before, tackles the so-called evidence point by point. Even if you don't care about the accusations, take a look at the science. It's instructional in reminding us how very alien even our own lunar environment is. In his personal pages, planetary scientist Jim Scotti covers much the same territory, though he deals equally with a hoax site.

Bad Astronomy:
http://www.badastronomy.com/bad/tv/foxapollo.html

Scotti:
http://pirlwww.lpl.arizona.edu/~jscotti/NOT_faked/

Marianas Trench:
http://www.geocities.com/thesciencefiles/marianas/trench.html

http://www.cnmi-guide.com/info/sketches/marianastrench.html

Evolution, Again

Before we hear from the creationist watchdogs, we'll tell you what our position is. Does Netsurfer Science (NSS) believe in the Biblical version of the origins of life? No. We do, however, believe in its illustrative grace and power. (The only subject to provoke more correspondence was the NSS error that misplaced a college hoops team in a rival conference. Now, that was brutal.) In Science and Creationism, the National Academy of Sciences puts forward an authoritative synthesis of the issues involved. In our experience, many of creationism's criticisms of evolution are either inaccurate or outdated. The NAS deals with the most frequently cited arguments and discusses the problems. More than that, though, the academy takes the very clear position that creationism "has no place in any science curriculum at any level". This site is the text of an academy booklet that explains the current scientific understanding of biological evolution. The National Center for Science Education is a nonprofit organisation with the sole mission of protecting the teaching of evolution against sectarian proponents of such propositions as scientific creationism. In addition to other services, the center tracks legislation relating to the teaching of science.

National Center for Science Education:
http://www.ncseweb.org/

National Academy of Science:
http://bob.nap.edu/html/creationism/

Kyoto Booboo?

Country-Wide magazine reports (May 2002) that each New Zealand cattle beast produces 2.9 tonnes of methane annually. This would be 8kg per day, which also happens to be the average total dry matter intake of said beasts, leaving no allowance for faecal production, physical growth or anything else. One hopes this is a journalistic error, and not the basis of government policy.

Compiled by Annette Taylor

Dummy pills just the trick

The best paper in New Zealand (Waikato Times, May 6 - and it's got nothing to do with the fact that I work there) reports that depressed patients tricked into thinking they are being treated have undergone healing brain changes.

The discovery is "conclusive proof of the power of the 'placebo effect' – the mind-over-body influence of believing that a drug will work."

Scientists at the University of Texas, San Antonio say patients given a dummy pill experienced brain changes remarkably like those attained by taking Prozac.

World's biggest ghost hunt

Hertfordshire's Dr Richard Wiseman involved 250 volunteers and an array of hi-tech equipment in what became the world's biggest ghost hunt, according to the Guinness Book of World Records.

The Evening Post (March 3) says despite a number of creepy tales from volunteers, no definite proof of the supernatural was found during the experiment conducted in Edinburgh early last year. Wiseman said it was truly fascinating but "...none of the stories convinced me ghosts exist ... I used to be a magician and I saw how easily people could be tricked."

The tour guide who worked in the underground vaults of the 18th Century chamber, was in no doubt of the presence of ghosts, the paper said. These included a little boy, a dog and "the spectre of a nasty man who whispers obscenities in people's ears.

"He has foul, stinky breath and he's really horrible ... The vaults ... have been closed for 180 years so I think all that paranormal energy has been bottled up and is only just now being released."

Maybe the tour guide needs Scooby Doo to deal with the wee doggie.

Measles epidemic hits anti-vaccine town

A measles epidemic involving 700 children that ravaged a small German town is being blamed on two homeopathic doctors who denounced the MMR vaccine, says the Dominion on March 7.

Debate on the merits of the vaccine is reaching fever pitch and 30 children had been admitted to hospital where there were fears there could be deaths.

On one side are "alternative health enthusiasts" who dominate Coburg, an affluent Bavarian town. Two of the town's seven child health doctors fierceley oppose MMR. And then there are the public health experts, who "accuse a 'nest' of militant anti-MMR activists ... of putting children's lives in danger."

Germany, the paper reports, is becoming famous as a world leader in "exporting measles", according to leading specialists.

Dr Helmut Weiss, head of the state health office in Colburg, said the stronghold of the epidemic was the Waldorf School.

He's at it again

And the Evening Post (April 13) informs us that psychic Uri Geller is to look for the site of the battle featured in the movie Braveheart.

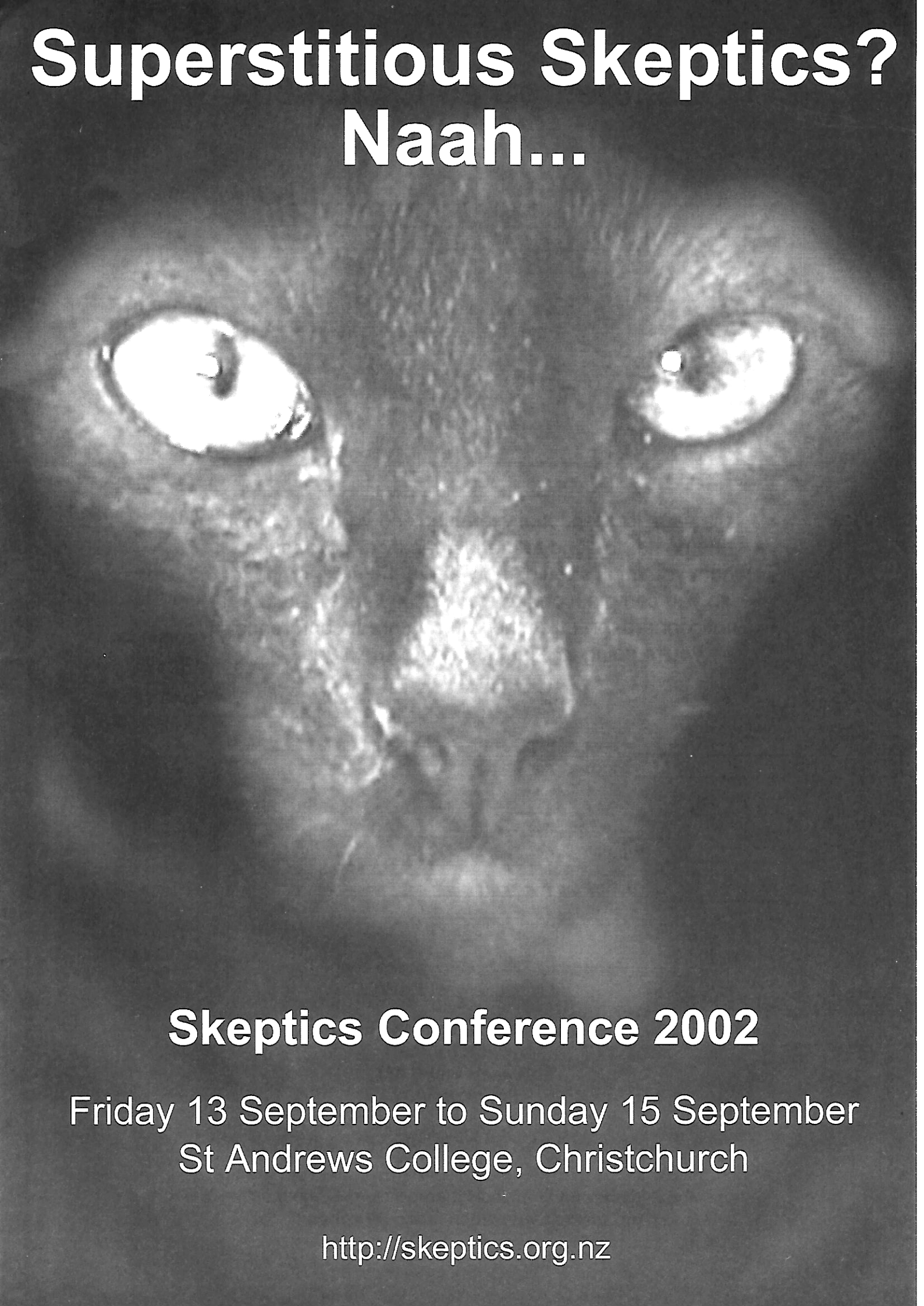
The "paranormal expert" has been called in by historian John Walker, to try to pinpoint the exact location of the Battle of Falkirk which was fought between King Edward I of England and William Wallace, in 1298. The location has been lost, and no bodies or artefacts ever found.

Mr Walker stumbled on to Uri Geller while on the internet one evening, and read how he'd helped discover the location of a wrecked submarine. Since, he said, conventional methods to discover the graves of the combatants had failed, "... we need to try the unconventional."

And Mr Geller said the battle was mysterious. "...the fact that very little was found could mean they have not been looking in the right place for the site."

As they say, watch this space. And, by the way, William Wallace was not a homespun-wearing, oatmeal-eating fighting man of the glens as depicted in that movie, but grew up in a genteel manor house where he probably had very good table manners. So there.

Superstitious Skeptics? Naah...



Skeptics Conference 2002

Friday 13 September to Sunday 15 September
St Andrews College, Christchurch

http://skeptics.org.nz

This page is intentionally left blank so you can rip out the poster to send to friends, family or colleagues whom you think should know about the conference, or so you can pin it on the work/faculty/centre/school noticeboard, or to remind you of a great conference you're going to miss (better luck next year...)

2002 Skeptics Conference

Registration Form

Name/s (for nametag):_____
Postal Address: _____

_____

Tel:_____ Email:_____

☐ I'd like my receipt mailed as confirmation of enrolment OR
☐ I'm happy to collect my receipt on the day (pick one)

Conference Fee (Full / unwaged) _____ @ $50/25 = _____
(Single-day registrations ($20) are available from the registration desk on the day - Fri 7:00 pm, Sat 8:00 am, Sun 8:00 am)

Conference Dinner (Sat September 14th) _____ @ $25.00 = _____

Lunch
Sat September 14th _____ @ $10.00 = _____
Sun September 15th _____ @ $10.00 = _____

Vegetarian food or other (state):_____
Please book meals by August 12th or go hungry!

Accommodation
St Andrews College, 347 Papanui Road, Christchurch

Please book by August 12th
Friday night/Saturday breakfast
_____@ $28 twin share = _____
_____@ $47 single room = _____

Saturday night/Sunday breakfast
_____@ $28 twin share = _____
_____@ $47 single room = _____

GRAND TOTAL:_____

Cheques are payable to "**NZ Skeptics**".
Print this form and mail to:

NZ Skeptics Conference,
Bernard Howard,
150 Dyers Pass Rd,
Christchurch

with your fee.

For late registrations, e-mail: Bernard Howard - bhoward@paradise.net.nz
NZ Skeptics Website: http://www.skeptics.org.nz

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you can cut out the form and send it in
RIGHT AWAY!

The people who believe that Satanists might eat your baby.

Damian Thompson *argues that a tangle of folklore and urban legend, allied to a particular horror of paedophilia, has blinded many to the scientific facts*

RITUAL satanic abuse is back. In March, a private meeting at Westminster, chaired by Lord Alton, discussed assaults on children by hooded, chanting Satanists. "You may be aware," the organisers said, "that, for several years, there have been reports of the ritual abuse of children and in some cases ritual murder. The rituals reportedly often involve the Black Mass and the wearing of robes. Adult survivors of ritual abuse are divulging important evidence regarding the large scale of this problem in the UK."

One of the organisers, Wilfred Wong, an evangelical Christian, is campaigning for ritual abuse to be made a specific crime, so that the Satanists - responsible for "hundreds, if not thousands" of sexual assaults and murders - can be brought to justice. "But so far little has been done," he says plaintively. That is a matter of opinion. In the early 1990s, far too much was done. In Rochdale, 20 children were removed from their homes after a 6-year-old boy told teachers he had seen babies murdered; the claims were dismissed by the High Court. In the Orkney islands, village gossip about satanic practices led to the removal of nine children from their homes; after a £6 million inquiry, all charges were dismissed and social workers criticised for planting ideas in children's heads. In 1994, a 3-year Department of Health inquiry by the anthropologist Prof Jean La Fontaine into 84 alleged cases of ritual abuse found no evidence of Satanism in any of them.

What the inquiry did expose, however, was the tangle of folklore and urban legend that produced the scare. The ingredients included stories of baby sacrifice borrowed from 19th Century anti-Catholic propaganda (many Satan-hunters are anti-Catholic fundamentalists), the anti-Semitic blood libel, corny images of devil-worshippers owing more to The Wicker Man than to any real occult rubric, television cartoons (the Orkney allegations featured adults dressed as Ninja Turtles), and the scatological rambling of small children.

As Prof La Fontaine points out, paedophilia is the most potent representation of evil in modern society; it is not surprising that it should become conflated with older folk devils, or that groups with a distrust of the Establishment - fundamentalists, feminists, social workers - should prove receptive to such a myth. What is surprising is that they have been able to sustain their belief in the face of the empirical demolition of their claims.

They have done so by retreating into the time-honoured logic of the conspiracy theorist: the absence of evidence proves the effectiveness of the conspiracy. The resourceful Satanists dispose of bodies by feeding them into mincing machines, dissolving them in acid baths, burning them in furnaces or just eating them. How do they get away with it? Dr Joan Coleman, a psychiatrist who spoke at the meeting, says the abusers have "Masonic connections", though an American campaigner, Professor Cory Hammond, thinks they are part of a Nazi conspiracy led by a renegade Jew.

The anti-Satan lobby has also seized opportunistically on isolated crimes. Last September, the torso of a 5-year-old black boy was found in the Thames. Valerie Sinason, a psychotherapist at St George's Hospital in London, told the press that the case bore all the hallmarks of a ritual murder. "Sadly, I do not think this is a one-off," she said.

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Budget Science

Owen McShane examines last year's Great Soya Sauce Scare

THERE'S a lot of Budget Science going on.

Budget Science is not low cost science. It's certainly not amateur science driven solely by the noble search for truth. Budget Science is state-funded science which jacks up next year's funding.

The great soya sauce scare was a fine example. The Ministry of Health (MoH), with the enthusiastic support of our tabloid media, panicked the nation into believing that Soya Sauce would strike us down with cancer. The health police swooped on supermarkets and hauled away the stuff of healthy stir-fries, while leaving cigarettes safely on the shelves above the check-out.

How did this happen?

The story begins when some lab somewhere carried out the notoriously unreliable rodent test on a group of chemicals known as chloropropanols. Sure enough these chemically-overloaded lab rats got cancer. We should remember that just about all foods - organic, GM or whatever - contain scores of chemicals which have failed the rodent test. There are at least 12 of them in your morning cup of coffee.

Anyhow, one of these chloropropanols, known as 3-MCPD, occurs in foods which have used acid hydrolysis, roasting, and similar processes to enhance their flavour.

A laboratory in England soon announced a test to detect 3-MCPDs down to one part in a million or lower. The European Food Safety Agency then decided that this detectable level should establish the safe level.

You can be sure that "safe" levels set by "detectable levels" are unsupported by any epidemiological evidence whatever. But such standards sell a lot of tests and keep lots of lab-workers busy.

And so the EU bureaucrats set the labs to work testing soya sauce, which was suitably foreign and known to contain 3-MCPDS. Lo and behold, several brands failed the test.

The news spread rapidly round the world. Scaring the hell out of people is a shortcut to fame for both young scientists and even younger media hacks.

However, not everyone knee-jerked into action. The Canadian Cancer Society reached the following measured conclusions:

- 3-MCPD is a member of the chloropropanol group of chemicals and is a *possible* carcinogen in humans.

- Health Canada has reviewed the situation and has found there is no health risk to Canadians from existing stocks of soy and oyster sauces.

- Continuous lifetime exposure to high levels of 3-MCPD could pose a health risk to Canadians, but future imported stocks will be below the legal tolerance limit of 1.0 ppm. The Canadian authorities saw no point in raiding their supermarkets.

So why did we wage war on soya sauce? After all, the European Food Agency found quantifiable levels of 3-MCPD in breads, savoury crackers, toasted biscuits, toasted cereals, cheeses, doughnuts, burgers and salamis.

The survey also found 3-MCPD in a long list of food ingredients, including bread-crumbs, meat extracts, modified starches (used in glazes, yoghurt, soups and ready-made meals), malt and malt-based ingredients (used in confectionery, cereal products, sauces, bakery products, snack seasonings, beers and malted drinks).

Funny that. I don't remember our health police clearing the shelves of cheddar, Weet-Bix, yoghurt and beer.

Surely the cancer risk will be determined by the total volume of foods containing 3-MCPD we ingest regularly over long periods - not the level within a single sauce used occasionally at best.

So what was going on here? Why did our ever-so-caring Ministry of Health decide to scare the hell out of us, when their peers in other countries found more useful things to do? How much extra risk did soya sauce

pose to our biscuit, cereal, cheese and cracker-chomping population?

The answer is simple - Budget Science ruled.

While the Europeans were demonising soya sauce, our own MoH was being criticised for failing to develop a rational, risk-based, food safety policy. The Cabinet was debating whether to shift responsibility for the Food Act from the MoH to the Ministry of Agriculture and Forestry (Maf) under a new Food Assurance Authority. MoH officials saw millions of dollars disappearing into the maws of Maf. So they raided the supermarkets to show their determination to protect us from Asian imports.

It didn't work - the funds were transferred to Maf anyway.

But what about our health? There is no epidemiological evidence connecting soya sauce to cancer rates. Indeed Asians have low rates of digestive tract cancer.

We do know that New Zealand's high rate of bowel and stomach cancer is caused by our low intake of dietary fibre. We eat too much meat and too few vegetables.

Those New Zealanders who found no soya sauce on the shelves were probably going to make a stir-fry for dinner. Stir fries are low in meat and high in fibre. Budget Science probably persuaded lots of them that sausages and chips are safer.

A few more New Zealanders may die of cancer.

Budget Science is like that.

Continued from page 11

Of course she doesn't. Miss Sinason, the main speaker at the meeting, is on the record as saying that Satanists are breeding babies for ritual murder, a practice she described to the Catholic Herald as "an Auschwitz in peacetime". Until now, not one body has surfaced to corroborate this theory, which explains why the ritual abuse lobby is so eager to claim the Thames torso for Satanism. But this, too, is nonsense. The little boy may have been ritually killed - but by an African witchdoctor harvesting body parts for the magical medicine known as muti. It has nothing to do with suburban devil-worship.

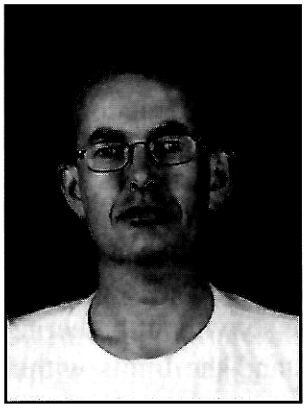
Prof La Fontaine's verdict on Valerie Sinason goes to the heart of the problem. "It's depressing to find someone who has a position at leading London hospitals who is so cut off from what research methodology is, and what rational evidence is," she says. When Miss Sinason announces that she has "clinical evidence" of infanticide and cannibalism, she means that her patients have told her stories about them. The implication is that, because the suffering of these people is real, their "memories" must be accurate.

Miss Sinason's claims are so implausible that they are unlikely to win much of an audience this time. The real cause for concern is the influence on our thinking about a range of social problems: chronic fatigue, cot death, post-battlefield stress, autism. In each case, it is more emotionally satisfying to identify a single cause - an undiscovered virus, chemical warfare, the MMR jab - than to accept that nasty things happen randomly, or are produced by a mixture of causes.

It is not just that we have lost faith in science: it is also that we have done so without bothering to understand the limits within which science must operate. Statistical probabilities are hard to grasp; we prefer to encounter our evidence in the form of human interest stories. Proper research, which is fundamentally about measurement, lacks entertainment value: Prof La Fontaine's report cannot compete with the Hammer Horror scenario of satanic abuse, just as the painstaking work of real archaeologists pales in comparison with the tales of "lost civilisations" that television companies, to their shame, still commission.

Fortunately, inconvenient facts have a way of fighting to the surface. Lord Alton – who says he is keeping an "open mind" on satanic abuse – might want to consider the following story. Last year, Jeremy Laurance, the health editor of the Independent, was alerted by a well-known psychotherapist to the existence of pictures on the internet of a man eating a dismembered baby. The paper ran the story. A week later it apologised. "Let's not beat about the bush. I've been had," said Laurance. It turned out that the photographs were a hoax by a Chinese performance artist. And the gullible psychotherapist? Valerie Sinason, of course.

From The Daily Telegraph (London), March 22, 2002



Alternatives to Evidence Based Medicine

I WILL detail these seven alternatives in forthcoming issues of the magazine. For now here is *Eminence based medicine*: The more senior the colleague, the less importance he or she places on the need for anything as mundane as evidence. Experience, it seems, is worth any amount of evidence. These colleagues have a touching faith in clinical experience, which has been defined as "making the same mistakes with increasing confidence over an impressive number of years." *New Zealand Medical Journal Vol 113 No 1122 p479*

Homeopathy Flunks

It's most unusual to see published trials showing that homeopathy is ineffective. The common term for this is "publication bias" where trials tend to be published only when they show something positive. One of the authors is GT Lewith, a long time apologist for homeopathy and that makes it even more remarkable. Should we give them one of our awards?

A double blind, randomised trial evaluated the efficacy of homeopathic immunotherapy on lung function. The conclusion: homeopathic immunotherapy is not effective in the treatment of patients with asthma. *BMJ 2002;324:520-3*

An accompanying editorial comments: "we believe that new trials of homeopathic medicines against placebo are no longer a research priority."

All responsible health professionals must ensure that homeopathy is never funded by the health system. It would be grossly irresponsible to waste public money on "dilutions of grandeur".

Ministerial Advisory Committee on Complimentary and Alternative Medicine (MACCAH)

Have a look at their website: **www.newhealth.govt.nz/MACCAH/**. I have been visiting from time to time in keen anticipation of the result of their deliberations and to see what quackery will be introduced into our failing health system. The committee comprises a sociologist (chairperson), iridologist, doctor of medicine, naturopath, acupuncturist, paediatric nurse (and massage therapist), and teacher. The iridologist is David Holden who organised the International Iridology and Sclerology Conference that I mentioned in an earlier column.

Certain members of the committee have asterisks alongside their names as a reflection of a possible conflict of interest. Readers will recall that our organisation was unsuccessful in getting any skeptics on this committee. Would such a putative member have warranted an especially large asterisk?

There is a similar committee in the USA. It has become a scandal that the National Institute of Health (NIH) has distributed (wasted?) hundreds of millions of dollars on testing what Americans refer to as CAM, or complimentary and alternative medicine. They spent $1 million testing "magnet therapy". The majority of the studies have been inconclusive and have led to the need for more tests. This has tended to give such quackery a spurious degree of acceptability. As critics point out, how many studies have been published showing that CAM doesn't work? Read a very good critique of this area at **www.washingtonmonthly.com/features/2001/0204.mooney.html**

It is quite clear, given the US experience, that the MACCAH will produce nothing of any value and furthermore I predict that they will never publish a single article stating that any CAM modality is useless. I sincerely hope to be proved wrong.

Laying on of Hands

Every doctor of medicine knows the importance of properly examining patients even when they do not expect to find anything wrong. The act of touching people in a therapeutic context carries a very powerful placebo effect. This is a

legitimate part of the "art" of medicine and when coupled with good communication leads to a good outcome. This effect is sometimes referred to as the "laying on of hands", itself derived from the concept of mediated divine healing. For example, the King's touch was supposed to cure scrofula, a cutaneous form of tuberculosis.

The extreme version of this is the absurd delusion of therapeutic touch where the patient is not actually touched but their energy fields are "corrected". Don't laugh; this is part of mainstream nursing at Wellington Hospital!

The laying on of hands effect explains the apparent success of many physical treatment modalities such as osteopathy and chiropractic. They all do exceptionally well out of ACC-provided funding and it is no wonder that a recent provider survey found a high level of satisfaction from chiropractors (79%) and physiotherapists (76%). I once asked an ACC Colleague why they funded quackery such as osteopathy and chiropractic and his reply was that ACC didn't care about anything except getting people back to work. Applying that logic I could set up a military consultancy (Boot Camp Rehabilitation Inc) and get people back to work by threatening them with military-style discipline.

Here is an extract from an advertisement from my local paper: "cranial osteopathy for babies and children to help with poor sleeping patterns, restlessness, crying and poor concentration". This quackery involves allegedly manipulating the bones of the skull to regulate the flow of cerebrospinal fluid. It is complete and utter nonsense that relies for its effect on the touching, a plausible patter and a gullible consumer.

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Bye, Bye, Bivalve

Trials of green-lipped mussel extract have been stopped after it was found that "the extract didn't work." (Marlborough Express March 11, 2002). Green-lipped mussel extract was marketed in NZ as *Lyprinol* and more than $1 million of the product was sold after it was claimed that it was a cure for cancer. Successful prosecutions were taken against those responsible for the scam.

The media frenzy showed that journalists had learned nothing from the Milan Brych affair.

I feed our cat (Gilgamesh) on green-lipped mussels, and as well as a lustrous coat he has shown no sign of developing cancer. I rest my case. In order to satisfy the most sceptical of journalists I enclose this picture as proof as he and Claire read the Lyprinol story.

Gilgamesh digests the offending story.

Healthy Options

This is the title of a magazine that contains some of the most nonsensical rubbish I have ever seen. The editor is the woman responsible for promoting the Hoxsey quackery in Tauranga, which led to dozens of desperate cancer suffers taking one-way trips to Mexico to receive treatment. Tauranga travel agents made a killing in every sense of the word. This magazine should be read by all Skeptics in order to get a taste of what could be inflicted on the health system by the MACCAH. One ray of hope however—they mentioned **www.quackwatch.com** and stated that "this leads the public to believe that natural medicines are a fraud." Well-enough said!

Possum Peppering

Is this delusion never going to go away? How many trials does it take to show that burnt possum testicles do not deter possums from eating vegetation sprinkled with said preparation? The Green party are already a bit of a joke and this latest nonsense makes me wonder whether they have all been partaking of ganja while worshipping with Nachos Tandoori. However, there is more to this than meets the eye, or testicle. I tried sprinkling some of a late relative's ashes around our garden and I haven't seen the mother-in-law for months. I rest my case. It must also be horribly lonely for all of those people living downwind of a crematorium – they never get any visitors at all!

John Welch is a doctor with the Royal New Zealand Air Force

Children & Quackery

It is hard to be sure what Mike Houlding is on about in his rather opaque letter but I gather that he is lumping the use of clairvoyants, homoeopathic remedies and ADHD under some collective rubric of quackery.

He seems to be some kind of medical practitioner in which case he should have received or known about the Ministry of Health's publication on ADHD – its diagnosis and treatment published in August last year (available on the web under MOH publications). This publication, which is an evidential distillate of knowledge in the area shows first of all, that ADHD is a bona fide medical taxon that requires the same kind of professional diagnosis as does any other disorder in medicine and second, that its treatment with methylphenidate (which he calls Ritalin despite the fact that Pharmac no longer pays for that brand name) has more support in terms of efficacy and safety than many other treatments in medicine. The publication also sets out the standards by which this treatment is to be used and its effect monitored.

I take strong exception to his comment lumping the diagnosis and stimulant treatment of ADHD as "institutionalized child abuse". This does little credit to the 40 years systematic research in the disorder and the care with which most medical specialists in paediatrics and child psychiatry in NZ take with children so affected.

If Houlding is a medical professional, then he needs to take some time properly to inform himself about this topic than shooting from the hip without the benefit of any intervening cognition.

JS Werry
Emeritus Professor
Child and Youth Psychiatrist

Bookshop Caters for Skeptical Tastes

Aristotle's Books in Auckland has started a skeptics section of titles. Books debunking the New Age and religion in general are found there.

It is at 167 Symonds St, Newton, Auckland, and is open Tuesday through Saturday, 10am to 7pm, and also features a small coffee shop.

The shop manager is Sally O'Brien, sallydeb@xtra.co.nz

Global Warming

Pious thoughts from wise fools, by P J O'Rourke

Mom says, "Global warming or no global warming, it's still winter. Wear a hat."

Regards,
Robin Capper

Two Views of the World Trade Centre Attack

1. From Editorial in 'Skeptical Inquirer' Jan/Feb, 2002.

Brian Farha, a professor of education at Oklahoma City University and member of CSICOP's astrology sub-committee, wrote to me to propose we run a Forum column with this introduction: "Following are detailed summaries of documented psychic predictions—to this author's knowledge—regarding the September 11, 2001, terrorist attack on America." That would be followed by a blank page.

2. From the newsletter of the American Society for Psychical Research, December, 2001.

Through our website, we have initiated a survey of pre-cognitive experiences specifically related to the terrorist attack.

Submitted without comment by
Bernard Howard.

Not quite hot off the press

Three or four years ago Ralph Marinelli, a researcher at the Rudolf Steiner Research Institute in Michigan, made a great discovery. The heart is not a pump. Blood is self-propulsive, energised by the primary force of cosmic levity it is self-levitating. Scientists have been confused by mis-understanding the concept of centrifugal force. The research institute is very concerned that this major development in physiology has been almost totally ignored. If anybody can channel William Harvey [1578-1657] it would be very interesting to get his comments.

Jim Ring