Skeptic
a person in a state of terminal caution
Margaret Mahy

Medical law and mad beliefs

The Natural Health Products Bill

Keeping the advertisers honest

The perils of untested treatments

Eye colour and personality

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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 CD is appreciated.

editorial

Making a difference

TWO of this issue's articles have a lot in common. Keith Garratt (p 7) and Michael Edmonds (p 13) both illustrate how individuals can make a difference through active skepticism, whether it be making a submission to a parliamentary select committee, or taking a complaint to the Advertising Standards Authority. And Darcy Cowan, who writes the Scepticon blog, has scored a major coup by setting in motion a process which led to the Immunisation Awareness Society losing its charitable status (Newsfront, p 11).

"Active skepticism" was the theme for the Australian Skeptics' 2012 National Convention, held in Melbourne recently (30 November to 2 December). In a panel discussion on this topic, as reported in Australia's *The Skeptic* magazine, one participant noted that skepticism is a public service, not a sport. "We can't win. Woo will recur, and we do our best, just as firemen are not deterred by knowing there will always be fire."

Not everyone will want to spend time sitting in a committee room, but there are many ways to be active. Another presenter at the Australian convention, Rebecca Watson, spoke on how to engage with social media as an active skeptic. She says opinions and misrepresentations can be perpetuated as verified facts at an alarming rate, but by applying critical thinking and other tools from the skeptics' kit this misinformation can be countered.

Rebecca is herself an embodiment of many of the ways a skeptic can engage with the wider community. She runs the Skepchick blog, is a host on the Skeptics' Guide to the Universe podcast and is a regular participant on Twitter. In December, following the Australian convention, the NZ Skeptics organised and supported a tour by her. She spoke at a series of well-attended and thought-provoking Skeptics in the Pub meetings in Auckland, Wellington and Christchurch ("How Girls Evolved to Shop, and Other Ways to Insult Women with 'Science'"), and was interviewed at length by Kim Hill on her radio programme.

As Martin Bridgstock wrote a few issues back (*NZ Skeptic 102*) the skeptical movement is undergoing rapid change. The society itself provides various means for like-minded individuals to keep in touch, as well as organising events such as the annual conference and tours by overseas skeptics, but there are many more ways to be a skeptic than there used to be, and many more opportunities for individuals to engage with the issues that concern them directly. Several of our members run blogs, and there is the locally produced Completely Unnecessary Skeptical Podcast ('The CUSP'). Even if it's only engaging in debates in the comments sections of websites, everyone can do their bit.

David

Money oil and angel powder: when medical law meets mad beliefs

Colin Gavaghan and Cait O'Donnell

This could be the shining hour
Based on all those mad beliefs
In the money oil and angel powder
In the new age magazine

– Grant Lee Buffalo, The Shining Hour *(1993)*

LAW and medicine have much in common. Both view themselves as rational disciplines. Both are informed by evidence. Both seek to apply general rules to specific situations in a consistent and explicable manner.

How, then, do law and medicine cope when they encounter irrational beliefs? How do practices that rely on logic and evidence deal with people who show scant regard for either? The answer, it turns out, depends – to a significant extent – on the context in which the encounter occurs. While some kinds of irrational healthcare decisions receive considerable legal protection, other kinds are readily ignored or overridden. To some extent, this differing treatment can be explained in terms of widely accepted legal principles. In some instances, though, it is harder to discern a clear rule, leading to a degree of suspicion that some sorts of irrational beliefs are granted a somewhat privileged status over others.

To understand this interaction between law, medicine, and the irrational, it is useful to distinguish several different situations.

Chemotherapy remains the best hope for many cancer patients, though some exercise their right to refuse it. Photo: rosiescancerfund.com

1. Refusing proven treatments

Declining medical treatment is a legal right. In New Zealand, this is contained in the Bill of Rights Act 1990, Section 11 of which provides that "Everyone has the right to refuse to undergo any medical treatment." The UK, US, Australia and almost all other democratic societies have similar provisions.

Like most legal rules, though, this is subject to a couple of conditions. For one thing, the right extends only to adults. Children below the legal age of consent (16 in New Zealand) will not be allowed to make such decisions unless they can demonstrate sufficient maturity; what in English law is called 'Gillick competence'[1].

This also means that parents are not allowed to refuse necessary treatments on behalf of their children. At the time of writing, an English High Court judge has just granted an order for a seven-year-old New Zealand boy to be placed in protective custody after his mother went on the run with him; the mother apparently wanted him to be treated with natural remedies for his brain tumour, rather than the radiotherapy favoured by his father and doctors[2]. Although parents have significant discretion in choosing for their children, this almost always reaches its limits at the point where medical professionals regard treatment as in the child's best interests.

A second condition is that the patient be legally competent to decline the treatment. Unlike children, adults are presumed to be competent, but this presumption can be rebutted by evidence to the contrary. Mental illness will sometimes, though not always, undermine competence. So too might the immediate aftermath of trauma, or drunkenness, or the effects of anaesthesia or blood loss.

Somewhat confusingly, although the refusal must be competent, there is no requirement for it to be rational. As Lord Donaldson put it in one famous English case, "it matters not whether the reasons for the refusal were rational or irrational, unknown or even non-existent."[3] So how does the law reconcile these rules? What does it mean for a decision to be competent but non-rational?

Case law has revealed that certain factors play a consistent part in these sorts of judgments. Being able to understand the nature of the proffered treatment, and the probable consequences of accepting or refusing it, is important. In one famous case[4], a schizophrenic man who was diagnosed as having gangrene refused amputation of his leg. Although his refusal was partly because of a delusion that he was a famous surgeon who knew better than the doctors, his refusal was ultimately respected, after he was able to consider the likely outcome if the doctors proved correct. He would, he clearly stated, rather die with two legs than live with one.

While competent refusals of treatment must be respected, healthcare professionals are under no obligation to comply with a patient's demand for a treatment.

Refusals on religious grounds are also routinely honoured, at least when they arise from consistently and clearly held religious views. Hence, Jehovah's Witnesses are permitted to refuse blood transfusions, and Christian Scientists to refuse all medical interventions, even if those are necessary to save their lives.

The mere possession of odd or unorthodox beliefs and values, then, will not ordinarily be enough on its own to rebut the presumption of competence. Or so goes the theory. In reality, courts have sometimes struggled with the distinction between competence and rationality, particularly when they are faced with idiosyncratic non-rational beliefs.

The Case of the Evil Blood[5]

As with the Jehovah's Witness cases, the patient here wished to refuse a life-saving blood transfusion. Unlike those cases, her refusal was not based on any recognised religion, but on a belief that her blood was "evil, carrying evil around [her] body." Although this premise may be considered bizarre, the patient's reasoning from it seemed to display a certain logic. When it was pointed out to her that a blood transfusion would involve someone else's blood rather than her own, she explained that while this was so, the clean blood would mix with her own, and thereby become contaminated with the evil carried by her own.

The judge faced with determining this case was faced with conflicting psychiatric evaluations. One of these saw the patient as suffering from a psychiatric disorder, and the refusal as a manifestation of that disorder. The other, while regarding the patient as harbouring very strange beliefs, regarded her reasoning process as fundamentally sound, concluding that her refusal should be accepted.

In the event, the judge opted to follow the recommendation of the first psychiatrist, holding that "this assertion and belief of Ms T is a misconception of reality which can more readily be accepted to be, and on the present evidence should be accepted to be, a disorder of the mind and further or alternatively symptoms or evidence of incompetence."

We are not psychiatrists, and it may well be that – in this instance – the correct decision was arrived at. Of some concern, though, is the contrast between this case and the Jehovah's Witness cases. On the one hand, a belief in "evil blood … carrying evil around my body" is the sort of belief from which a finding of incompetence can be drawn. On the other, an idiosyncratic interpretation of an Old Testament rule[6] is the sort of irrational but competent belief that must be respected. While each case must be approached on its own merits, it would be troubling if reasons for refusing were being evaluated on the basis of how many people share the belief. Sanity, as Orwell had his famous protagonist say, is not statistical. Since both beliefs seem to rely on metaphysical postulates that are not readily amenable to scientific (dis)proof, it isn't immediately obvious why they should be treated differently.

2. Demanding unproven treatments

In general, then, adult patients are allowed to decline treatment, unless it can be shown that they are incompetent to do so. Does it follow that the same applies to demands for treatment?

Although refusals and demands are both expressions of autonomy, courts throughout the English-speaking world have adopted very different positions to them. While competent refusals of treatment must be respected, healthcare professionals are under no obligation to comply with a patient's demand for a treatment. This is especially the case where the treatment is not considered to be in the patient's best interests; courts will not instruct a doctor to provide a treatment against her best clinical judgment.

On the other hand, a healthcare provider in New Zealand is required, under the Code of Patients' Rights, to treat all patients with respect. Under Right 1(3), "healthcare consumers" have a "right to be provided with services that take into account the needs, values and beliefs of different cultural, religious, social and ethnic groups, including the needs, values and beliefs of Maori."

Does this mean that healthcare providers are obliged to provide unconventional or unproven "services" at the demand of a patient, if those are part of that patient's cultural, religious, social or ethnic group? Could this extend to the devoutly religious demanding faith healing or prayers, or members of New Age communities insisting on being treated with crystals or homeopathy?

Fortunately, the Code is likely to be interpreted in a more sensible manner. As Professor Peter Skegg, the foremost authority on New Zealand medical law, has explained: "A provider is not required to provide a different level of service to a Pacific, Jewish, gay or Greek consumer, but the manner of provision should take into account the consumer's differing 'needs, values, and beliefs.'"[7] Hence, it is permissible for a provider to refuse to provide what s/he sees as a non-beneficial service, provided s/he does so in a respectful and courteous manner; the surgeon who informed his patient that her "thoughts [on obesity] were fucked" was, unsurprisingly, held to be in breach of the Right![8]

So, a healthcare provider will not be legally obliged to act in accordance with a patient's weird beliefs. But what of the ethical situation? *Should* the provider go along with a patient's preferred treatment, even when s/he is quite convinced that it has no clinical benefit?

In some situations, it is easy to see why the provision of non-conventional treatments can be problematic. Milan Brych, notoriously, defrauded the life-savings from desperate cancer patients, while also very possibly harming them in even more serious ways.[9] In a recent Health & Disability Commissioner case[10], a natural therapist and iridologist was censured for continuing to treat a woman's invasive tumour long after the point where it should have become obvious that the case was beyond her competence and required specialist attention.

In the latter case, the practitioner argued that the patient demanded the treatment, and steadfastly refused to seek a conventional consultation. This version of events was disputed by the patient and her family, but even if true, the practitioner was still under a duty to communicate the severity of the situation to the patient, a duty which, the commissioner held, she failed to discharge. (In fact, the HDC went a good deal further than that, concluding that the practitioner persuaded the patient not to seek conventional treatment.)

What, though, of the situation where alternative treatment is almost certainly not going to make

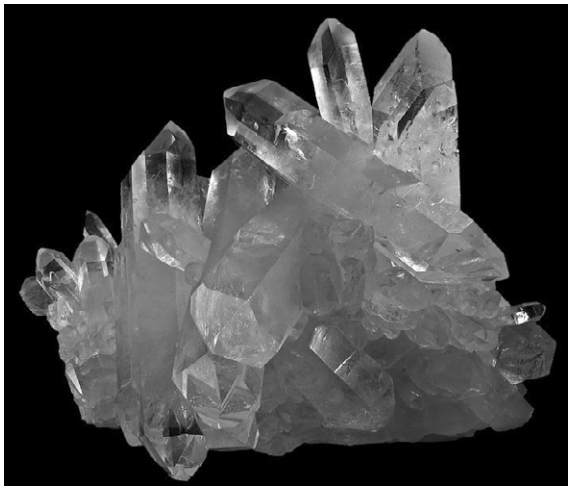
matters worse, either because the patient's situation is beyond the help of conventional medicine, or because the alternative treatment has no discernible effect at all? How could anyone object to providing, say, homeopathy or 'prayer therapy' for a dying cancer patient? Even if the only effect was psychosomatic, such effects are known to be more than trivial. And the possibility – however remote – should perhaps be acknowledged that a treatment currently thought to confer no benefit may in fact transpire to be very beneficial indeed. As bioethics professor and former neurosurgeon Grant Gillett says, "a certain humility in the light of the incompleteness of medical knowledge is always appropriate".[11]

Gillett's approach to such long-shot interventions is essentially to ask: What's the worst that can happen? As he argues, "where the patient's predicted clinical course is terminal, then desperate measures of unproven efficacy can be tried in that the balance of harm and benefit cannot be further worsened." In such a situation, there is a fairly compelling case to be made for acceding to the patient's wishes, however unorthodox, at least where the intervention has negligible cost – either to the patient's health, or the healthcare budget.

Before leaping to this conclusion, though, we should perhaps stop to consider whether there is another sort of cost involved when healthcare professionals reach (however reluctantly) for the 30C Arnica Montana, the New Age crystals or the prayer beads.

Why physicians shouldn't always comply with patient demands for treatment

Giving hope or comfort to a desperate patient or family may certainly be a worthwhile endeavour, and it may seem like an uncaring physician who would withhold such comforts. Furthermore, respecting the views and values of the patient, even if those are unorthodox or irrational, may seem respectful of autonomy. But a medical profession in which doctors provide 'treatments' simply to placate patients, or to make them feel like 'something' is being done, may be a very different form of profession. Arguably, it may not even deserve to be called a 'profession' at all. And the change may not be for the better.



Doctors have the right to refuse to provide unorthodox treatments. If you want crystal power, you may need to look elsewhere.

For one thing, the mere fact of a physician prescribing or providing a 'treatment' may be seen as in some way endorsing that 'treatment' as legitimate for the condition. Patients may assume that if the 'treatment' did not provide some kind of benefit – or at least offer the possibility of benefit – doctors would not provide it.[12] If the effect of this is to encourage reliance on practices and substances that have no known medical efficacy, by giving them a medical 'stamp of approval', then this may be worth taking into account.

A less tangible cost may lie in damage to the integrity of the medical profession. This could take the form of erosion of trust in doctors; if doctors provide treatments that not only do not work, but which they *know* do not work, is it possible that their reputation for honesty will be undermined?[13] And if patients cannot trust doctors to be honest with them, how will this impact on doctor-patient relationships?

A third threat may be to the idea of medicine as a rational, evidence-based practice. As Marcia Angell argues, "[t]here cannot be two kinds of medicine … There is only medicine that has been adequately tested and medicine that has not, medicine that may work and medicine that may not work."[14] In a similar vein, David Shaw has argued that official support for homeopathy "could weaken patient confidence in the organisation, and in science and medicine more generally".[15]

Patient autonomy has become an important – some would say *the* important – ethical value in contemporary medical practice. The days of 'doctor knows best' paternalism are long gone, and few who remember them are likely to miss them. But doctors are not merely shopkeepers, and

hospitals are not Starbucks outlets, handing over anything that patients are willing to pay for, whether or not it is likely to benefit them. It would be easy for doctors to hand over 'money oil and angel powder' on demand. It would make them popular with certain patients, and may even leave those patients feeling better. But if we value medicine as something more than a branch of the service sector – if we value it as an endeavour that is intrinsically bound up with reason and evidence – we should think carefully before requiring its practitioners to comply with demands for the unproven and the irrational.

Notes and references

1. A concept derived from the House of Lords decision in *Gillick v West Norfolk and Wisbech Area Health Authority* [1985] 3 All ER 402.
2. 'Police trace Kiwi mum, cancer boy', New Zealand Herald, 7 December 2012.
3. *Re* T [1993] 3 WLR 782
4. *In re C (Adult: Refusal of treatment)* [1994] WLR 290
5. *The NHS Trust v. Ms T* [2005] 1 All E.R. 387
6. Leviticus 17:10: And whatsoever man there be of the house of Israel, or of the strangers who sojourn among you, who eateth any manner of blood, I will even set My face against that soul who eateth blood and will cut him off from among his people.
7. Skegg, P.D.G. 'The Code of Patients' Rights', in Skegg and Paterson, eds. *Medical Law in New Zealand* (Wellington; Brookers, 2006), at p.37.
8. Case 09HDC01315, 22 January 2010
9. For a detailed description of these events, see 'Cancerman: The Milan Brych Affair' at **tvnz.co.nz/cancerman/milan-brych-affairs-s2012-ep1-video-5041560**
10. Case 10HDC00970, 29 June 2012
11. Gillett, G. 'Vitamin C: ascerbic ethical discussions.' *Journal of Law & Medicine* (2010); 18(2): 263-7.
12. Brody, H., Tomlinson, T. 'Futility and the Ethics of Resuscitation.' *Journal of the American Medical Association* (1990); 264(10): 1276-1280.
13. Brody, H., Miller, F.G. 'Professional Integrity and Physician Assisted Death.' *The Hastings Center Report* (1995); 25(3):8-17.
14. Angell, M., Kassirer, J.P. 'Alternative Medicine – the risks of untested and unregulated remedies.' *England Journal of Medicine* (1998); 339: 839-841.
15. Shaw, D. 'Homeopathy is where the harm is' *Journal of Medical Ethics* 2010; 36: 130-131.

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The good news and bad news: natural health products legislation

Keith Garratt

Making a submission to a parliamentary committee proved to be a worthwhile exercise.

WHEN the Natural Health Products Bill was introduced to Parliament in September 2011 with cross-party support it raised alarm among the natural health community. The Health Committee to which the Bill was referred received 870 submissions, of which only a handful supported it or made constructive suggestions to strengthen it. The vast majority were from users or manufacturers expressing varying levels of concern and outrage about the suggestion that natural health products should be under some form of control.

A notable exception was a personal submission from Sir Peter Gluckmanin in which he noted the Bill's title was misleading, drawing on the naturalistic fallacy that what is found in nature is somehow better, and using the word 'health' in a way which carried the presumption of proof of effect, which for many of these products would not exist.

In my own submission I applauded the intent of creating greater control and certainty regarding 'natural health products'. However, there are some features of the Bill that I found unsatisfactory or disturbing.

The hearing was an interesting experience. Sitting in the audience, I certainly did not feel that I was among friends. I had a very fair and attentive hearing

from the committee, and they asked several perceptive questions. This meant that I ran over my allotted ten minutes, a fact that was pointed out strongly by a later impassioned opponent of the Bill, when the chairman tried to bring her to a halt.

At the time of writing, the committee has reported back with its conclusions and its proposed amendments to the Bill. As the Bill has cross-party support, it seems likely that it will become law in essentially the form proposed by the committee.

The committee has proposed that the Bill be retitled "Natural Health and Supplementary Products Bill", reflecting "the fact that the range of products dealt with in this bill includes natural and synthetic, and that these products might also be encapsulated, and contain binding agents and other excipients." This of course does not address Sir Peter Gluckman's criticism of the title.

The Bill's main provisions are a Natural Health and Supplementary Products Regulatory Authority, an advisory committee, a database, a product notification process, identification of permitted and prohibited ingredients, a code of practice and licence requirements for manufacture, authority to charge fees, and a regime of offences, sanctions and penalties.

There are three key parts to the Bill which together set the foundation for the remainder. These are:

1: Principles

The Bill as reported back includes the following basic principles:

> "(a) that natural health and supplementary products should be fit for human consumption or use:
>
> (b) that the regulation of natural health and supplementary products should be proportionate to the risks associated with their use:
>
> (c) that natural health and supplementary products should be accompanied by information that –
>
> (i) is accurate; and
>
> (ii) tells consumers about any risks, side-effects, or benefits of using the product:
>
> (d) that health benefit claims made for natural health and supplementary products should be supported by scientific or traditional evidence."

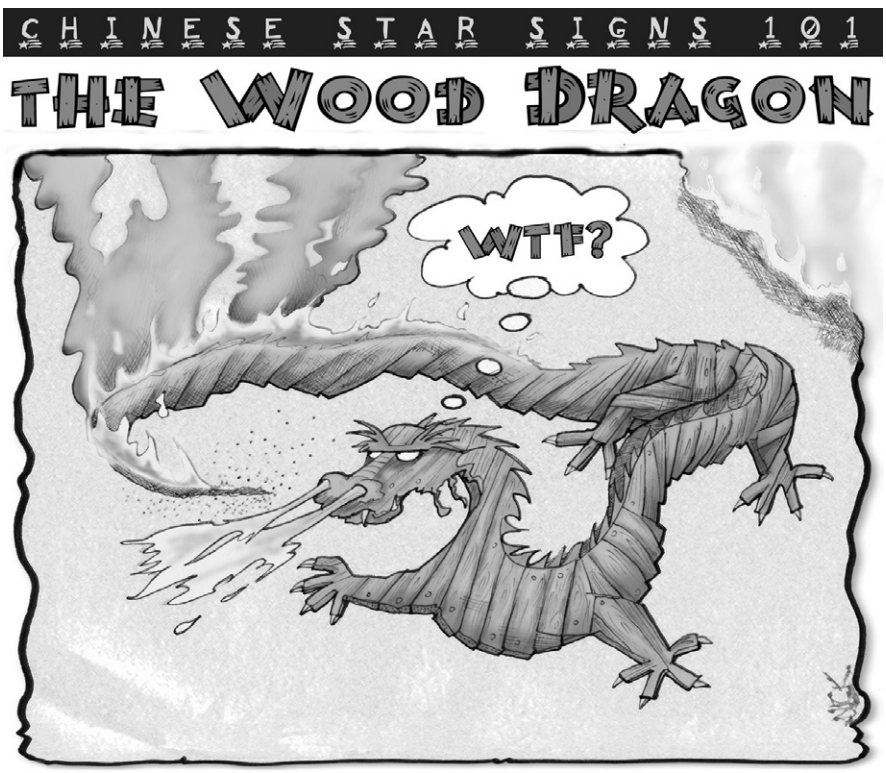
It is the last three words here that will no doubt raise eyebrows among skeptics. "Traditional evidence" is defined as "evidence of traditional use of a substance based on knowledge, beliefs, or practices passed down from generation to generation".

2: Definition of Natural Health and Supplementary Product

The main clauses of this definition in the Bill included:

> "In this Act, unless the context otherwise requires, a natural health product means a product –
>
> (a) that is intended by the sponsor of the product –
>
> (i) to be administered to a human being; and
>
> (ii) to bring about a health benefit to the person to whom the product is administered;"
>
> (b) that, subject to section 22(2)(b)(i), contains only natural health product ingredients."

My submission on this noted the definition of a natural health product as one intended by the sponsor to bring about a health benefit. The problem I see is that the very people who should be the prime target of the legislation, those who knowingly tout



useless medicines, have no intention of providing a health benefit, but only of relieving vulnerable people of hard-earned cash. The clause needs to be amended to clarify that it is a *claim* to provide a health benefit that is important, not an intention. It would be most unfortunate if a charlatan could escape the severe penalties in this Bill simply by admitting there was never any intention to provide a health benefit.

I also raised the need to ensure that homeopathic substances are captured by the legislation:

> "The preamble notes to the Bill state that natural health products include homeopathic remedies. However, I note from Hansard that Sue Kedgely stated that 'low-risk products like homeopathy products will be exempt'. I believe that they must be included. While I agree that they pose a low physical risk, they do pose serious risks in other ways. Homeopathic products are displayed, marketed and often verbally promoted by staff in many pharmacies, providing them with credibility, and encouraging people to rely on them rather than conventional medicine. The website **www.whatstheharm.net** documents many cases worldwide where people have suffered or died through reliance on homeopathic treatments.
>
> The definition of natural health products currently in the Bill may not capture homeopathic products. Homeopathic products are prepared by sequential 1:100 dilution of the original substance, routinely up to 30 iterations (referred to by homeopaths as potencies). In a press release on 30 January 2010, Mary Glaisyer, media spokesperson for the NZ Council of Homeopaths, admitted that: 'In homeopathic remedies above the 12th potency no molecule of the material substance remains.' (**maryglaisyer.com/2010/01/press-release-mass-overdose**). Homeopaths claim that, despite this, the water used retains a 'memory' of the original substance. The credibility of this claim is of course highly debatable, but for the purposes of the Bill the simple fact is that homeopathic remedies do not in fact contain the original substances in any material way. This means that homeopathic remedies contain no natural health product ingredients and are therefore not captured by the current definition."

I also raised the issue of deceptive presentation and marketing:

> "A feature of the natural healing sector is that products are often presented or marketed in a manner that skirts around the requirements of fair trading and truth in advertising requirements by vague and misleading implications of efficacy. Also, as mentioned above regarding homeopathy, natural health products are widely displayed and marketed in pharmacies without specific or actionable claims of therapeutic properties, but in a manner that in many cases gives a false credibility and a false impression of efficacy."

To address these three issues, I proposed some amendments, including widening the definition of natural health products to include products "prepared by dilution of one or more natural health product ingredients".

The committee's response on homeopathic products is disappointing. In a later section that specifies products that do not require product notification, they have included:

> "any natural health and supplementary product in which the active ingredient to be administered is in a concentration not more than 20 parts per million."

The committee has included clauses to clarify that the legislation does not cover food in its ordinary sense, or medicines registered under the Medicines Act.

3: Definition of 'Health Benefit'

The definition of 'health benefit' in the Bill as introduced was:

> "(a) the maintenance or promotion of health or wellness:
>
> (b) nutritional support:
>
> (c) vitamin or mineral supplementation:
>
> (d) affecting or maintaining the structure or function of the body:
>
> (e) relief of symptoms of any condition that is not a serious condition."

Here is what I had to say about this:

> "The definition of 'health benefit' is very puzzling. It includes '(b) nutritional support' and '(c) vitamin or mineral supplementation' as health benefits. These are not health benefits in themselves, but merely possible means to achieve a health benefit. In fact, many medical experts suggest that dietary, vitamin and mineral supplements are unnecessary to good health if a normal balanced diet is consumed.
>
> Also, the inclusion of 'nutritional support' is confusing and contradictory, given that Section 6 specifically excludes food from

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Twelve questions – and a gong

Compiled by David Riddell

SO the world didn't end on December 21. While the supposed Mayan Apocalypse attracted considerable media attention most of it, before and after, was light-hearted and tongue-in-cheek. The *NZ Herald* (20 December) marked the occasion by asking NZ Skeptics media contact Vicki Hyde 12 questions – part of a series involving "well-known faces".

Did Vicki have a place to hide post-December 21? "Considering I did, in the past two years, survive comet impacts, the rapture, asteroid fly-bys, an alien invasion, a super volcano eruption – because Yellowstone is about to go any day – and a global tsunami, I think it's business as usual. One strategy I do have sorted, in the event of a natural disaster, is a post-Armageddon survival kit which will last me three weeks instead of the three days Civil Defence recommends."

She had no list of essentials in the event of Planet X crashing into Earth, on the basis that if that happened it would be all over and nothing would be needed. "But I would really like to see the aliens... I'd stick a landing pad out for them."

Upsides for the end of the world included the demise of reality television and Fox TV. "I'm worried that with the slowly expanding broadcasts flowing out into the galaxy, our kudos and credibility will be seriously damaged. Intelligent life? Go figure."

Vicki confessed to an unsupported belief that there was life somewhere out there in the universe. "Any card-carrying sceptic will agree. We have no evidence but we're looking for it."

But there was a dark side to apocalyptic prophecies, she said. "The problem, as we've seen in the past, is that people quit jobs, sell houses, uproot their families and euthanise their pets. There have been suicides based on apocalyptic prophecies... When we had 12.12.12 someone carved a pentagram into the back of a 6-year-old. We might laugh but there are negative outcomes: 50,000 people left Christchurch with Ken Ring's earthquake predictions."

And what abiding wisdom does she hold dear? "There is a golden rule, and the basis of all philosophies and religions, and it's from Shakespeare. Love all, trust a few and harm none."

Good to see one Vicki Cathryn Hyde among the Members of the New Zealand Order of Merit in the New Year Honours list (*NZ Herald*, 31 December). The award was for services to science, a significant part of which was her involvement with the NZ Skeptics. Congratulations Vicki.

UFO buzzes Northland

This publication first reported the decline in reported UFO sightings back in issue *77*, and again in *NZ Skeptic 82*. The *Telegraph* (4 November) has more recently covered the ongoing trend. UFO conventions these days, it reports, have mostly been raking over old accounts like Roswell, with very few major developments in the field in recent decades. A sighting in the Bay of Islands (*Northern Advocate*, 8 January) is about as good as it gets these days.

Te Haumi resident Rob Clarke says he and his wife saw a pair of bright lights travelling slowly across a clear sky at about 9.40pm on 6 January. He says they were not from a plane because there was no sound, nor did he believe it was a satellite, because there were two lights which at one stage moved closer together.

"I don't believe in little green men, and the strongest thing I'd had was a cup of tea. I'm just interested to know what they were," he said.

Ring wrong again

Anyone relying on Ken Ring's 2013 weather almanac to plan their South Island New Year's holiday will probably be tearing the publication up after only only a week. The *Greymouth Star* (8 January) reports his predictions were "wildly astray" – though he had written that "the driest regions for the South Island for January may be the hydro lakes", rain amounting to 500mm in the Waitaki and Rangitata catchments were probably the heaviest summer falls in several decades.

Ring also failed to mention the torrential downpours on the West Coast that caused severe flooding and slips which closed road and rail links, instead predicting a fine day on 2 January when the storm was at its peak.

The *Greymouth Star* received a Bravo Award from the NZ Skeptics in 2011 for reporting that that Ring's prediction of an Alpine Fault rupture and/or extreme weather event to coincide with Hokitika's Wildfoods Festival failed to eventuate. Instead the festival was blessed with warm, sunny weather.

Anti-immunisation group loses charitable status

The Charities Commission has deregistered the Immunisation Awareness Society, meaning it can no longer claim tax exemption as a charity (*Dominion Post*, 7 November).

The society, which has accused the Health Ministry and district health boards of using "fraud", "discrimination" and "coercion" to push immunisation on children and parents, has been deemed to be primarily a political, rather than a charitable organisation. The society argued it was educating people about immunisation, but the commission disagreed, finding its information was not balanced or neutral.

Hamilton science blogger Darcy Cowan (featured in *NZ Skeptic 100* and *104*) was instrumental in initiating the process which led to the deregistration. He said he was "aghast" to find the society passing itself off as an educational charity.

"It is effectively publicly subsidised speaking when you become a charity, and that does come with strings attached."

The society will now have to pay income tax, and any donations will not be tax-deductible.

Immunisation Advisory Centre spokesman Theo Brandt said the society relied on thoroughly discredited pseudo-science to support its claims.

"While they say they are there to promote informed choice, everything they say is anti- vaccination."

Iridology gets a plug

The *NZ Herald* (13 November) is once again promoting dodgy alternative health practices. Last summer (*NZ Skeptic 102*) it was a course of leeches (sorry, 'hirudotherapy'); this time round it's iridology.

"Whatever stays in your body rules your life," it gushes. Then follows an entirely uncritical profile on Waiheke naturopath Peter Riddering (contact details at the end of the article). He explains how the iris, made up of muscles and nerves, is connected to the brain and anything that happens in the body is reflected in the eye.

According to the article irises are either blue or brown and any other colours between are a corruption of what happens in our life. "For instance if our digestive system is not eliminating all toxins, these will accumulate in the body and show in the iris."

Now you know.

Groping healer loses appeal

A spiritual healer who touched a girl's breasts and called them "beautiful" while treating her for stomach cramps has had his appeal rejected (Stuff, 7 November).

Pranic healer Suresh Gobindlal, 57, was convicted of indecent assault on the 16-year-old while treating her for stomach cramps at her house on Christmas Day 2010. Gobindlal's wife and son testified at the trial that despite the 'no-touch' Pranic philosophy, "when practised at higher level the technique can involve touching". Oddly enough, the jury didn't buy it.

No pyramid for Hamilton

Plans to build a 15-metre-high pyramid on the outskirts of Hamilton have been rejected by a Waikato District Council-appointed commissioner (*Waikato Times*, 8 January).

The "meditation pyramid and community facility" was the brainchild of Morrinsville dentist Rakesh Jogla. It was to be built in three stages, with the pyramid constructed in the first stage.

The 435 sq metre pyramid was to have the same proportions as the Great Pyramid of Giza, intended to provide a restful, contemplative environment for meditation.

Eight of the nine public submissions opposed the plan, but the council did not comment further about why it was rejected. Actually, in a city with little in the way of distinctive architecture, it could have been quite a landmark.

From Page 9

the ambit of the Bill, and the definition of 'food' in Section 5 specifically mentions 'any ingredient or nutrient' and appears to clearly include dietary supplements. It is hard to conceive how nutritional support can be offered without the use of food.

(d) lists '*affecting* or maintaining the structure or function of the body' as a health benefit. This seems ludicrous. If I drink a pint a day of whiskey (a natural product) for a long period, I will certainly affect the structure and function of my liver to the point where I will die."

I had no success with this. The only change proposed is to delete "of any condition that is not a serious condition" from (e).

The net result of this appears to be that vitamins, minerals and supplements will not be required to show evidence of health benefits as they are defined per se as health benefits.

The committee saw a need to clearly distinguish the substances covered by this Bill from food on the one hand and medicines on the other. They used honey as an example to illustrate the point. At one extreme, honey is clearly a food. However if, for example, a type of honey or an extract from it is shown by sufficient evidence to have genuine medicinal properties, it may become necessary to register it as a medicine under the Medicines Act. Between these extremes, there is a plethora of honey and honey products that are used as treatments for various purposes.

This raises the issue of the type of evidence that is acceptable for this 'grey area' category of products. The Bill requires a product's sponsor to hold evidence to support the health benefit claims made for it. Such evidence can be "based on traditional use of a substance or product". Brief consideration demonstrates that this is in fact ridiculous. If we look only in Western culture, we can find many examples of

traditional uses that have been discarded in the light of modern knowledge. In my own childhood, the traditional treatment for burns was butter, and traditional treatments for wounds were mercurochrome or pure iodine. These are all now recognised as ineffective and potentially harmful. For this reason I urged that the Bill should specify that the only acceptable evidence for efficacy is double-blinded placebo-controlled scientific research.

"I should note also that alternative health providers frequently provide anecdotal accounts as supposed evidence of efficacy. This is also unacceptable. The body is a self-healing mechanism, so there will always be examples of apparent cures that are in fact not a result of treatment, whether alternative or conventional."

The committee's decision to include traditional evidence is, on first reaction, disappointing. However, the committee was faced with some 99 percent of submissions being opposed to rigid controls, and an attempt to require scientific proof only would not be politically possible. Also, on reflection, if only substances with sufficient scientific evidence of efficacy were to be brought under the ambit of the legislation, we would still be left with thousands of unproven quack remedies outside of its control.

A saving grace is that the nature of the evidence will be required to be disclosed. Also, the limiting of traditional evidence to "knowledge, beliefs, or practices passed down from generation to generation" should at least make life difficult for purveyors of New Age quack remedies such as detox foot patches.

Products prepared by practitioners

The Bill specifies that "any natural health and supplementary product that is made by a practitioner to be administered to a particular person after being requested by or on behalf of that person to use the practitioner's own judgement as to the treatment required", do not require notification.

This seemed illogical. Such products are less likely to be prepared under controlled conditions and less likely to be of proven effectiveness. I had no success with this, and the provision remains in the Bill. This is concerning, as it seems to leave a very wide loophole for back-

yard practitioners selling direct to customers.

The Authority and the Advisory Committee

The Bill provides for the establishment of a grandly titled Natural Health and Supplementary Products Regulatory Authority. However, the Authority is merely the Director-General of Health. Depending on the individual concerned, this could be a worry for people on either side of the fence.

The Bill as introduced provided for a Natural Health Products Advisory Committee. It is implied that members of this committee will be natural health products practitioners or producers. I commented that this is somewhat akin to having an advisory committee on drug abuse made up of drug producers and sellers. It would seem important that the committee includes people with the scientific and medical skills required to objectively assess the efficacy of products and the accuracy of any claims for their health benefits. I proposed that extending the functions of the Medicines Classification Committee would be a more effective and efficient solution.

The committee has introduced a change requiring "that there is at least one member with experience, expertise, and depth of knowledge in science." This is an improvement, but it would have been much better if the requirement was for specific expertise in medical science.

Conclusion

It is encouraging that there is a political consensus to impose some degree of control on unproven products. My submission focused on some serious anomalies, loopholes and weaknesses, but there is much in the Bill that is positive. We can only hope that if and when problems become apparent, there will be a commitment to make the necessary legislative amendments.

Submissions processes inevitably become a numbers game. Faced with an overwhelming majority of submissions opposing control, I believe that the committee is to be commended for holding the line as well as it has. The lesson for skeptics is that we need to join in these processes to help ensure the best possible outcomes.

Following a 30-year career in the public service, Keith Garratt spent some 10 years as an international environmental management consultant. He is now semi-retired in Rotorua.

Being a thorn in the side of pseudoscience

Michael Edmonds

The Advertising Standards Authority provides an accessible platform for members of the public to take on the merchants of woo. This article is based on a presentation to the 2012 NZ Skeptics Conference.

IN *Bad Pharma*, Ben Goldacre describes marketing as existing "for no reason other than to pervert evidence-based decision making...". I am in complete agreement. Marketing and advertising now thoroughly permeate our society, using various psychological ploys to encourage us to buy whatever they are selling. However, there are limits to how extravagant or manipulative advertisements can be, and these are outlined in the rules of the Advertising Standards Authority (ASA).

However, for the ASA to act on an infringing advertisement a complaint must first be laid. Fortunately this is fairly easy to do.

Laying a Complaint – the Process

Laying an ASA complaint can take as little as 15 minutes and the process can be completed online via the ASA website (**www.asa.co.nz/complaint_form.php**). You must include your contact details, identify the advertisement you think has breached

ASA standards and then outline the details of your complaint. There is also the facility to attach a picture or screenshot (if it is web-based) of the advertisement, which I would recommend doing where possible.

A week or two after submitting the complaint you will receive a letter from the ASA which will state whether they consider your complaint reasonable and within their jurisdiction. If it is, they then notify the advertiser of your complaint, requesting a response.

Once the advertiser has provided a response, the Advertising Standards Complaints Board (ASCB) will then consider the arguments provided by both the complainant and the advertiser. If at this point the advertiser agrees to address the issues criticised by the complainant, the complaint is deemed *settled*. If the ASCB considers there has been a breach, the complaint is *upheld* and the advertiser is directed to correct or remove the advertisement. If the advertiser is able to show the board there is no breach the complaint is *not upheld*.

Once a decision has been made, details of the full decision are released, and are readily accessible on the ASA website. Such decisions are worth reading to help understand what makes a good complaint and what doesn't. If you lay a complaint you will also receive a full copy of the complaint, including the response of the advertiser which can be most revealing.

Laying a Successful Complaint – Tips and Tricks

At the time of writing I have had seven of my ASA complaints settled and seven upheld out of a total of 14 submitted complaints. This success is the result of a carefully thought-out approach in laying my complaints which includes:

Purveyors of pseudoscience use advertising to spread their message and attract new customers

- Having a good understanding of ASA advertising principles and rules (see discussion below);
- Presenting my complaints in a neutral and friendly tone;
- Clearly and concisely outlining where I think the advertisement breaches ASA principles;
- Providing evidence to support my complaint and/or challenge the content of the advertisement;
- Anticipating and addressing possible responses by the advertiser;
- Explaining basic science where relevant (ASCB members are intelligent people but do not necessarily have a scientific background);
- Not being too pedantic or petty in laying complaints – pointing out spelling mistakes and poor grammar is unlikely to enhance your complaint (unless it is relevant, eg misspelling or misuse of scientific terminology).

One key point to remember is that the complainant is usually in a strong position. It is not up to us to attempt to *disprove* the claims an advertisement has made – it is up to them to *provide* evidence that what they have said is true.

ASA Principles and Rules

My complaints to the ASA have been against various pseudoscientific health treatments and products, and hence have focused on specific ASA principles and rules in the ASA codes associated with the therapeutics products and services (see below). For those interested in challenging other types of products or services all of the ASA codes are readily accessible via the ASA website and well worth reading if you intend to lay a complaint.

Principle 2

Advertisements must be truthful, balanced and not misleading. Claims must be valid and have been substantiated.

Note that claims must be *substantiated*. If you believe an advertisement is making a dubious claim which they can't provide evidence for, then challenge them on it.

Requirement 4

Advertisements must not directly nor by implication, omission, ambiguity, exaggerated claim or comparison:

(a) mislead or deceive, or be likely to mislead or deceive; or

(b) abuse trust, or exploit lack of knowledge; or

(c) exploit the superstitious or, without justifiable reason, play on fear or cause distress.

Pseudoscientific products often use science terminology inappropriately and incorrectly, which provides grounds to challenge them as "exploiting lack of knowledge". Such products may also play on unfounded fears of disease, allowing them to be challenged using section (c).

Dodgy advertisements have always been with us and probably always will – but laying a complaint with the ASA helps keep a lid on them.

Requirement 4.1
An advertisement must not:

(i) contain any claim, statement or implication that the products are safe or that their use cannot cause harm or that they have no side effects or risks associated with use;

(ii) contain any claim, statement or implication that the product is effective in all cases of a condition;

(iii) contain any claim, statement or implication that it is infallible, unfailing, magical, miraculous, or that it is a certain, guaranteed or sure cure;

(iv) contain any matter which is likely to lead persons to believe that they are suffering from a serious ailment, or harmful consequences may result from the therapeutic product not being used.

Pseudoscientific services and products may make several claims which contravene the requirements listed above. A good complaint will outline each and every breach.

The ASA codes specify how scientific information may be used. Sellers of pseudoscience often use scientific terminology inappropriately providing more evidence for a complaint:

Scientific information within an advertisement must be presented in an accurate manner.

Scientific terminology must be appropriate, clearly communicated and able to be readily understood by the audience to whom it is directed.

Publication of research results in an advertisement must identify the researcher and the financial sponsor of the research.

Responses from Advertisers

The responses from advertisers to the ASA can be quite varied. Large companies with many products may simply settle the complaint. Other responses may include:

- Personal attacks, or questioning the motivation and expertise of the complainant. Some will do a Google search on the complainant to find out your background;
- Providing 'evidence' in the form of magazine articles, quoting unqualified 'experts' and using anecdotes;
- Criticising conventional medicine;
- Making excuses – eg mistakes were made in translating foreign literature, or by the typist;
- Petulance and additional erroneous comments (eg refusing to acknowledge the authority of the ASA).

However, as these responses come via the ASA they can be readily ignored as the product of ignorance. Sometimes they are even quite amusing!

Why *you* should lay a complaint

Purveyors of pseudoscience use advertising to spread their message and attract new customers. By challenging them through the ASA not only do we limit what they can say in their advertisements, we also remind them that we are watching them. Successful complaints often carry a cost for the advertiser. This may involve having their advertising material removed or redesigned, making them think more carefully before they prepare a new advertisement. And all this can be done in less than half an hour.

Michael Edmonds has spent the last decade as a chemistry lecturer, researcher, and more recently as manager of programmes at Christchurch Polytechnic Institute of Technology (CPIT).

Castanets in your eyes?

Siouxsie Wiles *explains why animal testing is still necessary despite recent controversy, and why stem cells may not be a panacea.*

LOTS of people were frothing at the mouth back in December over suggestions by Associate Health Minister Peter Dunne that the manufacturers of 'legal highs' should be required to provide safety information on their products before they are allowed on New Zealand shelves.

What really upset people was the suggestion that dogs and rats would be force-fed 'legal highs' until half of them die (the so-called LD50 assay [the lethal dose at which 50 percent of animals are killed]) in an effort to provide some information on the 'safety' of legal highs. Putting aside the LD50 assay and what is meant by 'safety', one thing that really struck me about the whole story was this: there are products for sale which have never been tested on people or animals. Do these products have any warnings on them to indicate that they are essentially experimental? And if they did have such a warning, how would people feel about using them?

Soon afterwards I read an article online at Scientific American by Ferris Jabr which gives a really good example of the potential consequences of using 'experimental' products. Jabr's article, *In the Flesh: The Embedded Dangers of Untested Stem Cell Cosmetics* (**bit.ly/Wtf4mF**) recounts the tale of a woman who paid $20,000 for a new face-lift procedure. The procedure is relatively straightforward. It starts with the patient having liposuction to remove some abdominal fat, from which their own mesenchymal stem cells (MSC) are then isolated. These stem cells are then injected back into the patient's face. Such face-lifts are presumably sold on the promise that they will rejuvenate the skin because stem cells have the capacity to turn into new tissue as well as being able to release chemicals that help 'heal' aging cells. In fact, MSC can turn into bone, cartilage or fat, among other tissues, usually in response to the presence of particular chemical signals in their surroundings.

Three months after her 'stem cell' face-lift the woman went to see Dr Allan Wu at the Morrow Institute in California because, as Jabr describes, "she could not open her right eye without considerable pain and that every time she forced it open, she heard a strange click—a sharp sound, like a tiny castanet snapping shut". Six and a half hours of surgery later, Dr Wu and his colleagues had dug out small chunks of bone from the woman's eyelid and the tissue surrounding her eye. The snapping castanet sound was the bone fragments grinding against one another. What happened in this case was that the cosmetic surgeon injected dermal filler alongside the stem cells, which has been safely used to reduce the appearance of wrinkles for many years. Unfortunately such fillers contain calcium hydroxylapatite, which is used by cell biologists to encourage MSCs to turn into bone. Ah, the regenerative power of stem cells!

While stem cells are the focus of intense interest by the medical community for their potential to treat everything from cancer to Alzheimer's Disease, the fact that they can be isolated from fat, combined with the buzz around their regenerative properties, means it was only a matter of time before those in search of the fountain of youth started to

take an interest. But it is only by performing strictly regulated and ethically approved clinical trials that we can find out which stem cells are safe to use, and what side effects can be expected, nevermind whether they are actually effective. In fact, there are currently over 250 clinical trials testing the therapeutic potential of MSCs listed on the **ClinicalTrials.gov** registry, a database of trials conducted in the US and around the world. None of those listed relate to the cosmetic use of stem cells that I could find.

Stem cell biologist Dr Paul Knoepfler, from the University of California, Davis, puts it very nicely: "These aren't your typical drugs. You can stop taking a pill and the chemicals go away. But if you get stem cells, most likely you will have some of those cells or their effects for the rest of your life. And we simply don't know everything they are going to do." Definitely a case of buyer beware!

Siouxsie Wiles is a microbiologist and bioluminescence enthusiast who heads the Bioluminescent Superbugs Group at the University of Auckland.

Climate change – opinions?

DO you believe in climate change? Based on my past readings of *NZ Skeptic* of course not. After all this is the skeptic's magazine.

I consider whether you believe in climate change is the wrong question. This particular letter is written because of my own interest in climate change, and my concerns about how I should conduct my own life as a result. Climate change is not about belief, though what we believe does affect our behaviour. Even climate sceptics accept the climate is changing, but question whether it is caused by human actions, and more explicitly excessive use of fossil fuels. Climate change is not some laboratory experiment with a highly controlled environment, but rather an immensely complex system influenced by chaos and the dreaded unknown unknowns. Climate change is unlikely to be proven one way or the other any time soon, but the case appears to be getting stronger and stronger. It is the trends over generations and millennia that count. Humanity has a poor record with long time frames. How long did plate tectonics or evolution take to be accepted. I consider climate change denial is no longer a valid position. So what should a good skeptic do about the climate and what behaviours should skeptics promote about climate change?

Read lots of course, make your own interpretations of the data, and build your own view without prejudice. Some of my reading has included the following:

Gareth Morgan and John McCrystal's *Poles Apart: Beyond the shouting who's right about climate change*. Fairly balanced and NZ local, but in the end inconclusive. It does suggest a probable link with human fossil fuel use and climate change. Morgan now warns about temperature rise of greater than two degrees and atmospheric CO_2 exceeding of 400ppm.

James Lovelock, *The Vanishing Face of Gaia: A final warning*. Makes for grim reading on climate change, but concludes the earth will survive and be fine. Not so for humans. The ability of humanity to adapt to the change without war and widespread misery is his big challenge for readers and politicians. You may not believe in Gaia, but Lovelock was a respected scientist and writes well. Worth a look even to see what the other side says.

Richard Heinberg, *The End of Growth*. This author is from the green corner but has some good data and links to raw data you can use and adapt. I found his case compelling but check out the data for yourself. Check his presentation to a Tauranga audience at (especially pg 39-40) **www.envirohub.org.nz/site/files/6213/4924/0211/Heinberg_Presentation.pdf**

Some good raw material is available at **www.esrl.noaa.gov/gmd/ccgg/trends**, also **www.epa.gov/climatechange/ghgemissions/global.html**, and **cdiac.ornl.gov**

I consider the climate change deniers are becoming increasingly marginalised. I hope skeptics can remain vigilant protectors of science, and point out when belief gets in the way of reason whatever our perspective. I'm interested in what reading others recommend on the subject.

Richard Hart
Tauranga

Letting a good story get in the way of a few facts?

***Alison Campbell** casts her eye over some research that draws conclusions well beyond its data.*

RECENTLY in the *NZ Herald* (19 September 2012) I learned that eye colour can reflect personality.

> "Researchers from the University of Queensland and the University of NSW analysed the eye colour of 336 Australians – most with a northern European background. They answered a series of questionnaires measuring aspects of their personality like agreeableness, conscientiousness and neuroticism."

The story went on to say that blue eyes were linked to competitiveness, and that this would be useful in acquiring a mate during the extreme conditions in northern Europe during the last Ice Age. Along with its own, slightly different version of the story, *Medical Daily* helpfully provides a link to the original paper (which is a couple of years old). The abstract (Gardiner & Jackson, 2010) tells us that:

> "The current study investigates whether eye color provides a marker of Agreeableness in North Europeans. Extrapolating from Frost's (2006) research uncovering an unusually diverse range of hair and eye color in northern Europe, we tested the hypothesis that light eyed individuals of North European descent would be less agreeable (a personality marker for competitiveness) when compared to their dark eyed counterparts, whereas there would be no such effect for people of European descent in general. The hypothesis was tested in Australia to provide consistent environmental conditions for both groups of people. Results support the hypothesis. Implications and conclusions are discussed."

My first thought was – in extreme environments, when the whole group has to work together to survive, would a strong competitive streak really be that useful, or would cooperative behaviour be favoured?

The survey participants were university students, and the way they were classified was interesting:

> "Participants of White UK origin were classified as North European in origin (63.1%) and all other white Europeans were classified as being of Non-UK White European descent. Our designation of participants from the UK as being classified as North European and subject to the effects of the Ice Age is in-line with Frost's (2006) theoretical account... We chose UK participants as being representative of North Europeans because we thought that its relative isolation as an island would be more likely to have led to less migration than other parts of Europe which might be more commonly defined as being part of North Europe such as the Scandinavian countries."

Yet the British Isles have a long history of migrations from Europe (going well back into prehistoric times).

The researchers found that:

> "light-eyed Europeans are less agreeable than their dark eyed counterparts"

who tended to see themselves as more altruistic and helpful. *Medical Daily* reported that the researchers "believe the link has evolutionary roots", and the journal article bears this out. Oh goody – evolutionary psychology. I do like a good story. According to the research article,

> "sexual selection was stronger in ancestral Northern and Eastern Europeans because the steppe-tundra environment of the last ice age skewed the operational sex ratio towards a male shortage. There were two causes for this shortage of males: firstly, men had to hunt over large distances in search for herds thereby often incurring injuries and dying younger; secondly, women had

> fewer opportunities to gather food and thus required more male provisioning, resulting in less polygyny.

Evidence, please. Evidence that men 20,000 years ago were dying off at a higher rate than women. Are sex ratios skewed in the skeletal remains we have available from this time period? (Sex ratios tend to be slightly skewed in favour of males in modern hunter-gatherer populations such as Inuit and Australian Aborigines.)

Also, what was that Ice Age environment really like? Up close to the kilometre-thick glaciers that pushed down from the north, conditions would have been severe, but further south? OK, there were periods when the average temperature was rather colder than now: these are the 'glacial' periods. And glacial periods were separated by 'interglacials', lasting thousands or tens of thousands of years, when things were more temperate and in fact temperatures approximated those we experience now. The 'Ice Age' wasn't one long spell of unremitting cold. Would there really have been sufficiently strong selection, for sufficiently long periods of time, to generate the eye-colour frequencies observed in modern populations? Or are we looking at the result of a bottleneck event, for example?

The article goes on to say that the supposed skewed sex ratio would have generated strong competition between women for the available men, and goes further: that because blue-eyed women are supposedly more competitive, they'd have won out and achieved more matings, spreading their genes around.

Again, evidence, please. If this proposed mechanism shaped our behaviour so strongly, well, we're only 12,000 years or so out of the last glacial period, so there would presumably still be evidence of similar sexual selection in today's populations. In fact, Gardiner and Jackson comment that:

> "blue eyes are still much rarer than brown and thus selection based on rare color advantage, even in the present time, may still exist in North Europe."

Somehow I doubt it: 99 percent of Estonians, 75 percent of Germans, and 90 percent of Danes have blue eyes. Rare colour selection, if it exists, should be in favour of brown-eyed people, in those Northern European populations.

E.Gardiner & C.J. Jackson (2010) Current Psychology 29: 1-9 doi: 10.1007/s12144-009-9070-1

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What do I do next?

Inside this issue are several inspiring accounts of skeptics who have made a difference through direct individual action.

If you want more ideas on what you can do personally to promote skepticism read *What Do I Do Next?*

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