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

What is wellbeing?

The abuse of Vitamin C

The origins of bunk

Social media and pseudoscience

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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

Child cancer a battleground

IN Issue 100 of the *NZ Skeptic* I commented on how issues of concern to this society never seem to go away. A classic example of the moment is the case of Neon Roberts, the seven-year-old English boy whose New Zealand-born mother took him into hiding rather than have him subjected to radiotherapy along with chemotherapy to treat his aggressive brain tumour, and fought in the courts for her right to use alternative therapies instead.

The parallels with the story of Liam Williams-Holloway are obvious. Liam, from Lake Hawea, died in Mexico in 2000 after his parents fled a court order requiring his neuroblastoma to be treated with chemotherapy, instead opting for a range of alternative therapies which ultimately proved unsuccessful. Every case is, however, unique, and there are significant differences in the way Neon's story is playing out. Most obviously, his mother's flight was a more fleeting event than that of the Williams-Holloways. Neon is now receiving radiotherapy and according to his father, who has not supported his estranged wife's court battles, he is making good progress.

Sally Roberts, on the other hand, is saying her son has been "broken". But his treatment is, of course, ongoing, with all the temporary side-effects that entails, and his physical condition is likely to improve once it is completed. Neon has a long way to go, and his chances of long-term survival are reported to be 67 percent, though they would have been 86 percent without the delays to his care. We can all only hope that he does indeed come through this.

Another difference from the Williams-Holloway affair is that media coverage this time round has been far more balanced. Overwhelmingly, the Williams-Holloways were portrayed as gallant battlers against the monolithic and uncaring medical establishment, making an "informed decision" on the care of their child. While Mrs Roberts has generally been treated sympathetically, there has also been recognition that parents do not have the final say over medical care for their children, and that mainstream therapies, for all their downsides, offer the only realistic options for treating cancer.

It's not just that much of the coverage has been in the British, rather than the New Zealand media – the *Mirror*'s reporting was downright hysterical (and TV3's online coverage was lifted straight from it) – but nor is it likely that reporting of such cases has improved much over the past 13 years. It may simply be that in Neon's case the parents are pitted against one another, so that provides the conflict a good news story is perceived to require, and demonising the medical establishment is deemed unnecessary. Child cancer cases are fraught with emotion, and will doubtless continue to be a prolific source of media copy and a battleground for those with differing views on health care.

What is wellbeing?

Mark Ottley

Is wellbeing a subject that can be approached scientifically? The following article is a based on a presentation to the 2012 NZ Skeptics Conference.

WHY do we care about truth? Why do we attend conferences on skepticism and promote such ideas? One reason might be the simple beauty of the truth. A second reason might be that it enables us to live better lives. This second reason is particularly evident in skeptical activism challenging health-related pseudoscience and its associated dangers, as addressed in some of the other talks at the 2012 NZ Skeptics Conference. However, no matter what issue we deal with, we generally deal with it better if we see it more accurately.

'Wellbeing' is an overarching term for health and a good life, that is increasingly used in healthcare, education, economics, and government policy. In this article I offer some insight into differences between evidence-based and non-evidence-based models of wellbeing, and where some of the latest science and public policy is heading.

Skepticism about wellbeing and unwellness claims

It is evident from a quick google that health and wellbeing marketing is full of claims lacking in empirical support. Michael Edmonds and others did a great job discussing some of these at last year's conference (see *NZ Skeptic 206*). Also common though, are evidence-based claims marketed in a non-evidence-based way. I showed two examples at the conference – magazines with some evidence-based content, but with taglines such as "How to get everything done, ALWAYS", and "The most powerful relationship advice, EVER". Of course, in reality if you really did try to achieve 'everything' you will achieve precisely nothing except indecision and disaster – better to choose a small number of achievable tasks and actually achieve them. And what is helpful for a relationship depends on many contextual details; there is no cure-all.

These examples of limited and specific empirical claims being sold in a non-empirical way are unfortunately common and two effects often follow. Firstly, because the advertised expectations are overhyped and impossible to achieve, people can end up self-recriminating over their own failures,

and worse off than before. Secondly, it often leads to unhelpful cynicism rather than skepticism, as people can dismiss useful evidence because it has become tarnished by association with aggressive marketing or non-evidence-based ideas. Navigating this web can be complex, though all the usual skeptical skills of checking the source and reliability of the information is helpful.

A healthy dose of skepticism is also helpful when examining more official-looking claims, including some of the most common 'unwellness diagnoses'. There is a concern among many psychologists and psychiatrists that we have overly medicalised normal human function. At the conference I showed an example of an antidepressant advertisement that stated "Depression is a flaw in chemistry not character (call 0800…)". Despite the appearance of a possible attempt at de-stigmatising depression, arguably this approach is ultimately unhelpful. Chemistry, character and culture are three different levels of explanation (bio-, psycho-, and social), which cannot be properly considered except holistically. Character (the set of strengths and skills one possesses) is still chemistry from the level of biological analysis, that takes its form based upon the wider culture in which it develops.

Developing stronger cultural institutions via evidence-based public policy, and teaching stronger character via skills, is an approach with arguably more evidence for many of the wellbeing problems we face. Pills do of course have an important place in clinical practice, but pills don't teach skills. The American Psychological Association has just started an extensive advertising campaign that emphasises this point.

R.A.T.ing Wellbeing?

What is a useful way of understanding wellbeing then? The science is complex, but some generalisations can be made. I often use a model with patients, where I explain human wellbeing as the balancing of three core neural motivational systems, focused respectively upon *Resource*, *Affiliation,* and *Threat*, as shown in Figure 1. These are evolutionarily old systems, but elaborated in humans[1,2]. The model is of course a simplification, but a useful one.

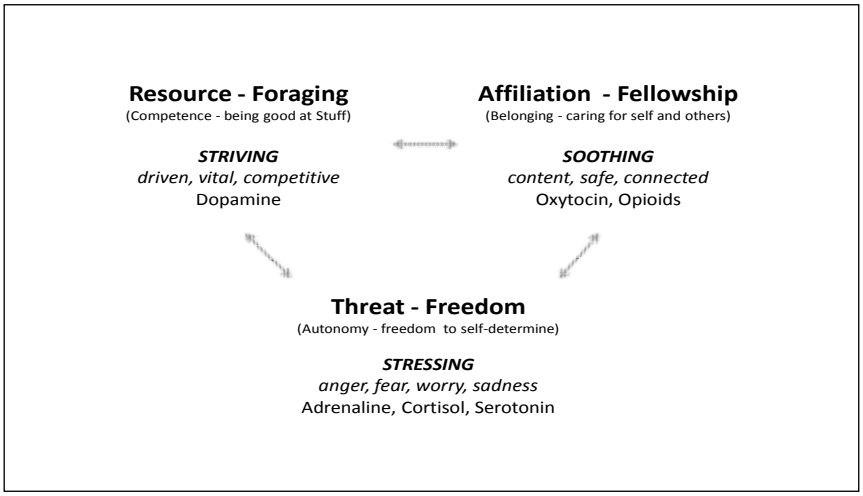

Figure 1: R.A.T.ing wellbeing

The *resource* and competence system motivates us to be involved in activities such as play, learning and work, perceiving the world adaptively, and being able to achieve in it. It is a development of the foraging instinct present in all animals, a drive to acquire knowledge of the environment, food and other resources. Dopamine is an important chemical involved in the physiology of this system. It creates the *striving* emotions of feeling driven, vital, energetic (and often competitive) that motivate us to pursue these goals.

The *affiliation* and belonging system motivates us to have sharing and caring relationships with other people, and to care for ourselves also. It is an evolutionary development of the caregiving and fellowship instincts present in other social mammals, encouraging the seeking of social support and co-operation. Oxytocin and opioids are chemicals that create *soothing* emotions of feeling content, safe and connected, that motivate us to maintain these social bonds.

When successful functioning of resource or affiliation systems are endangered, the *threat* and autonomy system activates to defend against threats and transcend them, so that free action may continue. It does this using strategies of attacking and overcoming (fight), avoiding and escaping (flight), analysing and problem solving (freeze), or accepting and tolerating the threat

(forbearance). *Stressing* emotions of anger, fear, worry, and sadness motivate these respective responses, and chemicals such as adrenaline, cortisol and serotonin are involved physiologically. Common threats include change, loss, injury, relationship disputes and so on. Stressing emotions are painful, but that is the evolutionary point – they make you pay attention to problems and deal with them.

It is not possible or desirable to completely deactivate the stressing system, because this is necessary for survival. The important factor is whether or not stress response patterns of attack, avoidance, analysis, or acceptance are well matched to the life challenges one faces. Many wellbeing difficulties occur when people become fixed in a mismatched strategy. They might be fighting a lost cause (eg unable to accept a loss), avoiding a challenge they must face (eg too afraid of making a mistake or feeling an unpleasant emotion or sensation), over-analysing an intractable problem (eg requiring certainty in an uncertain world), or accepting something that is unacceptable (eg an abusive situation). Intense and chronic activation of the stress system can cause a range of problems, including immune deficiencies, cognitive impairment, damage to limbic brain regions, increased pain, and general maladjustment[3]. Individuals with a lack of social affiliation also suffer increased pain and health problems[4]. Other common wellbeing problems might occur when people focus too much upon striving for achievement at the expense of affiliation and self-care (eg a workaholic) or when they lack sufficiently meaningful competence-related activities (eg a lack of personal growth). These systems are also vulnerable to chemical hijacking, with drugs like methamphetamine and cocaine intensely stimulating the dopamine system, and ecstasy and heroin stimulating the oxytonic and opiate systems, often leading to dependence and seeking of these drugs rather than more sustainable paths to wellbeing.

Developing stronger cultural institutions via evidence-based public policy, and teaching stronger character via skills, is an approach with arguably more evidence for many of the wellbeing problems we face.

We need a balance of all three systems for optimal wellbeing, with evidence suggesting a ratio of 3:1 or greater of striving and soothing versus stressing emotions is an adaptive homeostatic state[5]. As suggested earlier, teaching adaptive skills and having adaptive public policy and culture are effective means towards this goal.

Public Policy and Wellbeing

Research has long shown the limitations of attempting to improve wellbeing via purely financial means[6], with benefits appearing to plateau once a fairly minimal level of income is reached (approximately US$15,000). The spectrum of political discourse increasingly recognises the importance of attending to wellbeing in an empirically supported way.

Two recent books[7,8] summarise some of the leading scholarship on this issue, where the ultimate goal is increasing the freedoms of individuals to lead lives they have substantive reason to choose. This work also forms the philosophical basis for the societal wellbeing framework, developed over a decade and newly implemented by the New Zealand Treasury in 2012[9]. This framework focuses upon five key areas: (1) economic achievement, (2) macroeconomic stability (3) sustainability of the environment, physical and human resources, (4) social trust and affiliation, and (5) equity of resource distribution. Each domain has one to three key measurement indicators, selected for their simplicity, ready availability and international comparability.

While this New Zealand framework is new and likely to evolve, the move beyond a primary focus upon economic growth is arguably a substantive policy innovation. The framework is assessed independently of political control, but outcomes are dependent upon political policy. It is hoped the framework will create greater public understanding of factors beyond just economic growth that are important to everyone's wellbeing, and bring a more empirically verifiable dimension to politics in New Zealand.

Conclusion

Since 1948, the World Health Organization has defined health

as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." While there is still much to be learned, scientific understanding of the factors influencing wellbeing has developed a great deal over the intervening decades. Such research was the focus of the first New Zealand Wellbeing and Public Policy conference, held at Victoria University in Wellington in June 2012. The ideas I have presented here are necessarily just a brief introduction to the richness of this research and its application, but hopefully it will encourage some further skeptical inquiry and development of these concepts.

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Natural product, unnatural practice

Martin Wallace

Vitamin C is essential to human health, but our understanding of its role has been perverted by practitioners of 'alternative' medicine.

THE 18th-century discovery that oral citrus juice can protect seafarers against the vicious disease of scurvy is well documented[1]. The identity of the responsible compound is established, as is its molecular structure. It can be synthesised in the laboratory, and its name is ascorbic acid or Vitamin C. It is essential for the maintenance of collagen structure. Humans are unable to synthetise it themselves, and must obtain it from their food. The daily requirement (RDI) in our diet to prevent scurvy is about 40 mg.

But there are those who are giving huge doses of this substance by intravenous injection to treat cancer, infections, and a great variety of other conditions. The doses can be up to a thousand times more than the recommended daily intake. The differences of opinion between these 'alternative' practitioners and those who practise evidence-based medicine can be full of rancour. They are the stuff of sensational press reporting.

Such an episode was the TV 3 documentary *Living Proof: Vitamin C, Miracle cure?* aired on 18 August 2010 and still available on-line.

I would like to examine in more detail the history of Vitamin C discovery and use, the origins of the 'alternative' practices, their dangers, and the danger of the acceptance of unproven material as 'fact'.

The discovery of vitamin C

Some 61 million years ago our anthropoid ancestors experienced a genetic mutation which took away their (and our) ability to synthesise Vitamin C[2]. Guinea pigs have also lost this capacity (14 million years ago) as have some varieties of fruit bats. The loss of ability to manufacture this substance was offset by the extensive dietary sources in plants. Thus, when human beings began their 'Out of Africa' migrations, this genetic change did not offer

any hindrance. Humans went on to inhabit deserts, Pacific islands and Arctic wastes, as well as forests. The genetic change did not offer any selective pressure, and is described as 'neutral'. However, human need for dietary Vitamin C became distressingly clear with the advent of long sea voyages by Europeans.

The toll of the deficiency state, scurvy, was huge. The potential rewards of exploration were equally large, and drove the seafaring. Competition at sea for those rewards led to the formation of naval forces, the competency of which was severely compromised by this scourge.

When Cartier and his men were forced to winter over in Canada in 1535 scurvy became a major problem. The local native Americans recognised the condition and showed Cartier how a tea made from white cedar needles was curative[1] (an early example of how effective medical practice can be based on experience, rather than formal experiment!).

The effect of citrus juice on scurvy was becoming apparent by the early 17th Century when James Lancaster of the East India Company wrote *Lemons help to prevent scurvy*[1] and citrus juice became part of the standard rations on the company's ships.

In 1740, James Lind, a Royal Naval surgeon, performed an early controlled clinical trial. He took 12 scurvy sufferers and divided them into six groups of two. He treated one pair with citrus, and the other five pairs each with a different alternative treatment. Only the citrus two were healed. This was conclusive evidence for the efficacy of citrus, but the Royal Navy Victualling Board did not react. No doubt, cost was a factor.

Reinforcement of the work by Lind and the experience of others occurred with the outstanding record of no loss of life from scurvy during Cook's first voyage. He introduced two dietary factors: citrus juice and wort, a fermented malt drink. Cook was not clear which factor was responsible, but clearly scurvy was preventable.

In 1795 the Royal Navy made citrus juice a standard part of rations. Brown[1] ascribes much of the British naval success in the Napoleonic War to this change,with the ensuing good health of the crews.

The active principle in citrus juice was identified in 1927 by a Hungarian chemist, Szent-Gyorgyi, working in Cambridge. The chemical was synthesised by another chemist, Haworth, working in Manchester in 1933.

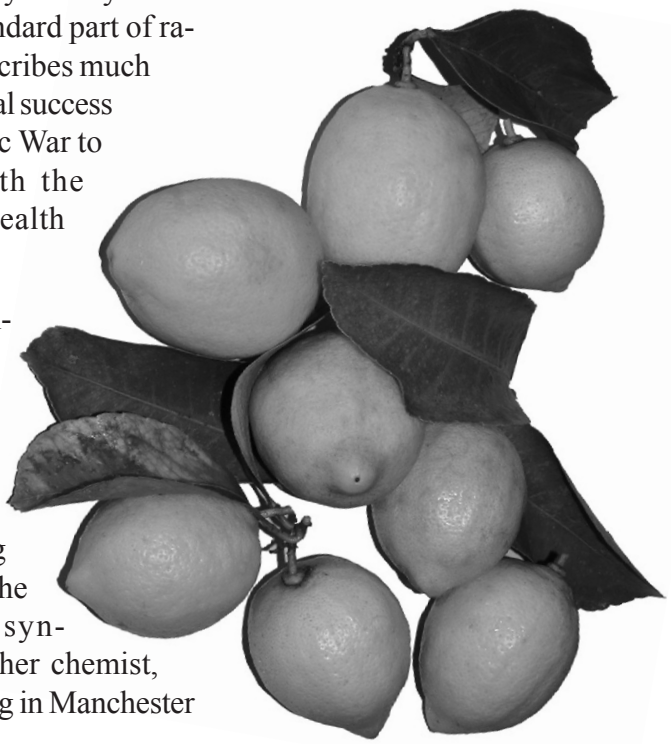
Subsequently, the paleogenetics have been determined[2], and the site of the genetic change which has rendered us susceptible to scurvy has been found.

A daily intake of Vitamin C necessary to prevent scurvy has been determined.

This story is an excellent example of the human ability to observe, remember, and compare, and to reason from the results. It also includes less laudable features of our natures, such as the driving force of the profit motive in trade, and controlling costs in public enterprises to the exclusion of the public good.

However, something else has happened. Over the last 60 years a vociferous body of opinion has emerged, which claims that Vitamin C is also a cure for cancer (among other things) and that practitioners of evidence-based medicine are deliberately withholding an effective treatment from cancer sufferers.

How can this be?



The alternatives

In 1954 and again in 1959, WJ McCormick advanced what he explicitly described as a hypothesis[3]. This was that cancer spread was caused by a degeneration of the basement membranes of epithelial tissues due to a deficiency of Vitamin C.

In 1966, Irwin Stone wrote a brief proposal that scurvy was

indeed a genetic disease and an in-born error of metabolism[4]. He went on to extrapolate findings about the Vitamin C synthesis rate in rats (which have retained this ability), to a 70 kg human, on a per kilogram basis, and said that the resultant 1.8 to 4.0 g of ascorbic acid per day was the real human requirement. He compared this to the then-accepted figure of 70 mg. He said there was room for investigation of the effect of Vitamin C in large doses on infectious diseases, cardiovascular disease, collagen diseases, cancer and the ageing process.

In 1969 a general surgeon working in Scotland, Ewan Cameron, put forward the theory that the invasive nature of cancers was due to the loss of integrity of basement membranes. He postulated that this was due to an abnormality in the hyaluronidase enzyme system, and that Vitamin C was involved.

In 1970, a world famous scientist, Linus Pauling, published a paper, *Evolution and the Need for Ascorbic Acid*[5]. He was an authority on the electronic structure of atoms and molecules, and had worked in the field of quantum mechanics. His laboratory work involved x-ray diffraction technology. He was a peace activist who incurred the wrath of the US State Department, which withdrew his passport 1952–1954. He was awarded the Nobel Prize in Chemistry in 1954, and the Nobel Peace Prize in 1963. He had impeccable credentials.

However, as Sam Harris says, when debating the validity of evidence and arguments, credentials just offer a rough indication of what a person is likely to know, or should know[6].

In his 1970 paper Pauling argued that Vitamin C is so abundant in plant foods that the loss of synthetic activity implied the need for huge amounts of an essential foodstuff. He calculated the total amount of Vitamin C in a variety of foods, if that food on its own were to provide a daily 2500-Calorie energy intake. He assumed that the huge difference between these results and the then-recommended daily intake of 70 mg, indicated a large deficiency in the human diet. He did not comment that the ability to absorb ingested Vitamin C might be limited. The association of his name with the ensuing arguments can lend weight to unproven contentions.

Cameron read this paper and realised he and Pauling had things in common. He wrote to Pauling and thus began a productive association. In 1976 Cameron and Pauling published a joint paper, *Supplemental ascorbate in the supportive treatment of cancer* [7]. In their summary they wrote:

> "The results clearly indicate that this simple and safe form of medication is of definite value in the treatment of patients with advanced cancer."

What did they do?

They treated 100 cancer patients with intravenous Vitamin C at a dose of 10 g a day for about 10 days, and then the same dose by mouth each day. Each patient's state was agreed, by at least two physicians, to be at that stage when continuing any conventional treatment would offer no further benefit. Some were chosen from a larger group by random selection but there was no formal randomisation process. By this definition, these patients may already have responded to conventional treatment and could have been in remission after treatment.

The control patients (n=1000) were treated by the same physicians at the same hospital, without Vitamin C, over the previous 10 years. They were selected by

NEARING ZERO by Nick Kim

"I've already told you Zark, there is nobody in this museum right now. It has no nutritional value. All you're doing is filling up on empty galleries."

a random search of the hospital records. There were 10 controls for each treated patient, matched for sex, age and tumour type. The definition of the date of untreatability was by a variety of indications, including the finding of inoperability at laparotomy, the abandonment of any definitive anti-cancer treatment, or the date of admission to hospital for terminal care.

It is clear that the dates of *presentation* for the controls would have included terminally ill patients with little life expectancy, while the treated group could have included patients much earlier in the course of their disease. There are good reasons for the longer survival of the treated patients other than Vitamin C treatment. The two groups were not comparable. One could be forgiven for thinking that terms such as *random selection* and *random search* are deliberately misleading.

As Pooh-Bah said: Merely corroborative detail, intended to give artistic verisimilitude to an otherwise bald and unconvincing narrative[8].

In 1979 Cameron and Pauling, together with Brian Leibovitz of the Oregon Medical School, published *Ascorbic acid and cancer: a review*[9]. The paper describes factors which cause resistance to tumour growth and spread, and the role of Vitamin C in many of these mechanisms. They suggest that the antioxidant properties of Vitamin C might contribute to any anti-cancer effect.

In their summary they state:

> "No properly designed prospective clinical trial has as yet been carried out to assess the value of *supplemental* [my emphasis] ascorbate in general cancer management."

Including their 1976 article of course! This article cites 358 references.

In 1991, Gladys Block from the National Cancer Institute, USA, published a paper entitled *Vitamin C and Cancer Prevention: the Epidemiological Evidence*[10]. She wrote that the epidemiological evidence for a protective effect of vitamin C against some cancers is strong.

> "It is likely that ascorbic acid, carotenoids and other factors in fruit and vegetables act jointly. Increased consumption of fruit and vegetables should be encouraged."

This paper had nothing to do with the treatment of cancer.

The question of the safety of Vitamin C is often taken for granted by those who advocate its use in cancer treatment.

Back to science

Criticism of papers supporting the use of very high dose oral or intravenous Vitamin C in the treatment of cancer has led to important further work. In 2004, Padayatty and others showed that oral Vitamin C quickly reached a maximum plasma level despite increasing doses[11]. Intravenous doses achieved very high plasma levels, of the sort said to inhibit tumour cell growth *in vitro*. This paper made the point that studies where the ascorbate was given in high dose by mouth should be re-evaluated.

Hoffer and others (including Padayatty) published in 2008 an account of the tumour response to high dose intravenous Vitamin C in 24 patients with cancer[12]. Despite high serum levels of Vitamin C, no patient had an objective anti-cancer response. They wrote:

> "The likelihood of an objective anti-cancer response to IV ascorbic acid alone is slight in unselected patients with multiply treated advanced cancer."

The question of the safety of Vitamin C is often taken for granted by those who advocate its use in cancer treatment. However, in 2005 Massey et al showed that oral Vitamin C intake of 1000 mg twice a day increased urinary oxalate excretion[13], which is a risk factor for kidney stone formation[14]. Wong and others reported a case of acute oxalate nephropathy after a massive intravenous dose of Vitamin C[15].

In 2010, Padayatty and others published an account of the experience of adverse effects of intravenous use of Vitamin C by alternative medicine practitioners[16]. They agreed that in those with depressed renal function, to an unspecified degree, or with glucose-6-phosphate dehydrogenase deficiency, there is a risk of adverse effects. In other situations, high dose Vitamin C seems remarkably safe. However, one should look at the way they gained the information on which they based their conclusion.

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Compiled by David Riddell

Homeopathic 'hormone' drops under review

A HOMEOPATHIC preparation of human chorionic gonadotropin (hCG) is gaining popularity in New Zealand (*NZ Herald*, 2 March), despite costing upwards of $3000 per litre.

The preparation is taken as drops along with a diet that restricts intake to 500 calories per day. Given that most people require about 2-2500 calories per day there's little doubt this would achieve weight loss if adhered to, though what it may do to the immune system and general metabolism over a prolonged period is anybody's guess.

The hCG, being homeopathic, probably won't do any direct harm, even though the hormone in clinical concentrations is approved by the US Food and Drug Administration only as a prescription injection drug to treat infertility and some other conditions. It will hurt the bank account though, with costs listed on the HCG New Zealand website starting at $55 for 15 ml, up to $180 for a 60 ml bottle – quite a lot considering it's basically water.

The Commerce Commission has now received a complaint about one of the products, alleging misleading claims, and the Ministry of Health is also checking that the drops are within the law governing the sales of medicines.

Medsafe compliance manager Derek Fitzgerald said some homeopathic remedies contained so little of the active ingredient that they were not regarded as being any risk, but making a product look as if it contained a prescription-only medicine, or making therapeutic claims about a product, could still put it outside the law.

The diet starts with a two-day 'loading' phase eating a very high-fat diet three times daily, followed by 19 or 40 days on 500 calories, taking the drops all the while. This is followed by a 'maintenance' phase where calorie intake is slowly increased to stabilise the new weight, without the drops.

Although many companies claim hCG can curb appetite and speed up metabolism, numerous studies have found no scientific evidence that the hormone causes weight loss.

Wake-up call for 'hippies'

The father of a seven-year-old tetanus victim say he and his wife behaved like hippies when it came to their son's health (*Sunday Star-Times*, 20 January).

Ian Williams told of watching his son Alijah convulsing in a hospital bed. "Blood is dripping from his mouth and he is saying 'save me daddy'," said Williams. "I was holding the hand of my kid who had an arched back, the muscles could break his bones at any second, and his heart could stop."

Williams, who has a science degree and has successfully invented and developed a homebrew machine, said he and his wife Linda believed they'd done their research in deciding not to vaccinate Alijah, but now admits they were out of their depth.

"When it came to my kid's health, I let the hippie win. I should have let the science win."

He says they fell for the myths and conspiracies that pepper the internet, and underestimated the diseases while over-estimating the risks of vaccine reactions.

Alijah was discharged in a wheelchair on 8 January after 26 days in hospital. He faces a 12-month recovery including having to learn to eat and walk again.

Scientologists hope to clear up misconceptions

The Church of Scientology in New Zealand has released a media guide it says it hopes will clear up misconceptions about the group (*NZ Herald*, 7 February).

The Workings of Scientology: A guide for media, was released following a million-dollar Super Bowl commercial the same week which bore the tagline: "The one thing that's true is what's true for you." But Mike Ferris, the spokesman for Scientology in Auckland, said there was no real connection between the two.

The church was an easy target, he added. "People reject new ideas. They really do. Does it ever bother me? Well, I guess it did once. But not really any more."

Asked about Xenu – the galactic overlord described by Scientology founder L Ron Hubbard – Ferris said such beliefs were no different from the esoterica of angels and demons in Christianity, or Hindu mythology, with "strange beings of human crossed with animals".

The media guide said Scientology's key beliefs include that a person is an immortal being, whose experience extends "well beyond" a single lifetime, and that people's "capabilities are unlimited, even if not presently realised".

Fewer than 400 people in New Zealand declared their religion as Scientology in the most recent (2006) census.

Australian psychics in crowded market

No wonder so many Australian mediums do the circuit this side of the Tasman – it sounds like there's plenty of competition in the field over there.

The *Sydney Morning Herald* (16 February) has taken a rather tongue-in-cheek look at the crowded medium market in and around Sydney, where Australian Psychics Association president Simon Turnbull plies his trade, along with many others. The association has close to 1600 members, he says, of whom a third speak to dead people.

As well as interviewing several practising mediums the paper canvases a range of sceptical views, from the likes of the University of London's Chris French, Krissy Wilson from Charles Sturt University, James Randi, and Australian Skeptics president Richard Saunders, who says mediums are not so much getting answers as asking questions, fishing for information and using flattery.

"If a person cannot think of somebody who had a little black dog or played the piano or had a red car, it doesn't matter. A psychic might say, 'Well, you do, somebody you know has. Now go home and ask your family.' Now the audience thinks, 'Wow, this psychic knows something about this person they don't even know themselves.' If that person goes home and still can't find any information, who cares? The show's over."

Herald slams mediums

Shelley Bridgeman of the *NZ Herald* (12 March) has taken some well-directed swipes at these psychic parasites, after reading a piece by Deb Webber in *Woman's Day*.

A reader had supplied a photo of her slender, grey-haired late husband, and asked whether her prayers for his safety and happiness had been answered. Webber replied: "There is a gentleman, slender, with grey hair ... I'm seeing a wedding ring – it's your husband."

"It certainly didn't take a clairvoyant, psychic or medium to regurgitate this blindingly obvious fact," Bridgeman comments.

Bridgeman notes that like many such practitioners, Webber's response contained generic statements that could apply to most people, as well as educated guesses.

"In seeing 'a small lounge room and three bedrooms', Webber described the average Kiwi house."

Duping a vulnerable and bereaved person into thinking they've received messages from beyond the grave is callous and opportunistic, she says.

As for *Sensing Murder*, on which Webber appears regularly, she endorses the view of skeptical site **immortality.co.nz** that the show is "cynically exploiting the families of the victims for ratings and profits".

Gish and Swann gone

A couple of giants from the world of pseudoscience have departed this life in the last couple of months.

Duane Gish, a long-time stalwart of the creationist movement, died on 5 March, aged 92 (*National Center for Science Education*, 6 March). One of the few creationists with a *bona fide* PhD (in chemistry), he wrote numerous books, of which the most famous was *Evolution? The Fossils Say No!* He gained notoriety for his debates with scientists, and his rapid-fire delivery of unsuppported claims, known as the 'Gish gallop'.

And Ingo Swann, psychic detective, ufologist, author, and participant in numerous paranormal experiments, died on 31 January aged 79 (*Doubtful News*, 1 February). He was best known for his collaborations with Russell Targ and Harold Puthoff in the US Government's unsuccessful Stargate Project on remote viewing.

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They distributed questionnaires to attendees at conferences of complementary and alternative medicine practitioners. In 2006, 106 of 300 (35 percent) answered. In 2008, 93 of 250 (37 percent) answered. Of these 93, 22 had responded in 2006. The conclusion from this small responding number is of course strongly biased by the unwillingness of any practitioner who had had adverse effects from this use of Vitamin C to go on record, particularly in the US!

This paper quotes the annual sales of Vitamin C in the US in 2007 to be worth $884 million.

For critically ill patients on artificial respiration, immobility increases urine calcium excretion[17]. Intravenous Vitamin C would accentuate the danger of acute renal stone formation under these circumstances.

In January, 2013, James Watson published in *Open Biology* a paper summarising established data about the sequence of events when cells become cancerous[18].The biology is complicated. However, one point he makes is:

> "In light of the recent data strongly hinting that much of late-stage cancer's untreatability may arise from its possession of too many antioxidants, the time has come to seriously ask whether antioxidant use much more likely causes, than prevents, cancer."

Recent events in NZ

In 2008, the *New Zealand Family Physician* (now called the *Journal of Primary Health Care*) published a large paper on this subject[19]**.** The authors all had close associations with the Centre for Advanced Medicine Ltd, itself a subsidiary of Master Projects Pte Ltd, of Singapore. The Singapore company has subsidiaries in the fields of osteopathy, acupuncture, and iridology.

Coming soon: The 2013 NZ Skeptics Conference

Date: September 6 – 8

Venue: Hunter Lounge, 1 Kelburn Parade, Wellington.

Put in your diary: registration details in the next issue of *NZ Skeptic*.

Among the authors, one was a literature reviewer for Feedback Research Ltd Auckland, and another was chief scientific adviser for the same company. Feedback Research Ltd states on its website:

> "Our primary ongoing project is supporting the work of the doctors, nurses and team at the Centre for Advanced Medicine."

Feedback Research Ltd is a subsidiary of Master Projects Pte Ltd.

The paper recommends investigating the role of Vitamin C in disease intervention at doses higher than previously considered relevant, and rehearses many of the arguments outlined above. For example, that the daily intake in the diet is a measure of need among wild animals.

There is also a section on palliation for terminal cancer patients by the use of intravenous Vitamin C, and reference to scavenging free radicals and carcinogens without evidence of any cancer response. There is a reference to haemodialysis patients, whose anaemia does not respond to erythropoietin, responding to Vitamin C. There is no comment about the possibility of iron deficiency anaemia responding to Vitamin C by increased iron absorption, an established response. There are 112 references cited, but many of them are from the same authors.

While labelled as an original scientific paper this article is a review of papers which support the authors' contentions. I have devised a measurement which serves to outline the tenor of this process. It is called The May Poll and is a count of the number of times the word *may* is used. There are 17 such episodes in this paper. We can be more exacting, with the May Poll Index, which relates the number of uses of the word *may* to the number of pages of writing. In this case 17 / 4.3 (= 3.95). Compare this with any scientific writing!

The last line of the abstract appears to acknowledge that there are no thorough investigations in the clinical setting of the role of high-dose Vitamin C.

There are 53 varieties of oral vitamin C preparations currently on the NZ market: a lot of business.

The Centre for Advanced Medicine in Remuera uses an intravenous preparation manufactured in the US by McGuff Pharmaceuticals. The package insert suggests a maximum dose

of 2 g daily. CAM recommends up to 50 g IV three times a day.

The *NZ Herald* published a leader, *Opinions of the Ignorant Can't Beat Research* on 20 October, 2012. Here are some excerpts.

> "Enthusiastic amateurs are entitled to disagree with experts, but they must produce convincing evidence to back their claims.
>
> "When people claim something unexpected, and contrary to expert opinion on a subject, the burden of proof falls on them.
>
> "[Experts' views] deserve to be given more value than views motivated by the unpleasant consequences of a scientific consensus or the failure of a conventional practice to offer a satisfactory outcome."

The leader was commenting on the views of Patrick Stokes, of Melbourne's Deakin University Department of Philosophy, recently published as an opinion piece in the *Herald* (9 October, 2012, in the Business Section, *You're not entitled to your opinion*).

They are views which all press publications should respect.

The Vitamin C saga illustrates the dangers of the perversion of normal physiology in terms of the gross distortion of baseline needs. It is based on the adage that if a little is helpful, more must be better. A whole lot more must be a whole lot better. There is nothing *natural* about these practices.

This story also illustrates the need for fundamental science education to prevent unscrupulous exploitation of those in need. I can respect a right to a belief, but I reserve respect for those beliefs which stand up to scientific examination.

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Martin Wallace is a retired renal physician living in Hamilton.

Climate 'science' predictions fail

REAL science operates by collecting data, inventing theories, developing models and making predictions that can be tested. If predictions fail, theories must be modified or discarded.

At the University of East Anglia (which lacked a physics department) climate science produced models that predicted global dangers so severe that immediate action was required.

Other groups joined, particularly NASA, GISS and NOAA – government agencies in the US. James Hansen of GISS testified before Congress in 1988 (with the air-conditioning secretly turned off for dramatic effect) predicting the flooding of New York 'within 40 years'. Twenty-five years ago he predicted that the West Side Highway would be permanently underwater by 2028. Obviously this is not going to happen.

Climate 'scientists' claimed that humans were increasing Earth's temperature by releasing CO_2; if this was not stopped, Earth's temperature would increase catastrophically. There was no time to waste on experiments. Models were sufficient proof.

Climate 'scientists' tried to avoid criticism by preventing critics having access to data, or publishing in climate journals.

It all unravelled in 2009 when emails were unwillingly released from UEA. Unbiased people should read the climate scientists' emails; in private these 'scientists' did not believe their public claims. Here is a tiny selection:

"YOUR EYES ONLY. Delete after reading"; their emails read like spy stories.

When temperatures generated from tree ring data (which form the basis for much of the "Hockey Stick Graph" and other efforts at historical temperature reconstructions) conflicted with measured temperatures, a "trick" was used to "hide the decline" in reconstructed temperature.

"The scientific community would come down on me in no uncertain terms if I said the world had cooled from 1998. OK, it has …" Jones, head of department and later stood down by the University of East Anglia, one of the top 'Climate Scientists'.

Some politicians were sensible; the experiment has been done. CO_2 levels have increased steadily. But the earth has not warmed. Even the alarmists agree, there has been no warming for about 16 years. Further they now predict no warming in the near future.

Sceptics – libelled as 'denialists' – were right. Time for some real science.

Jim Ring
Nelson

Safe and unsafe skeptics

I have been a member of the Skeptics for over 30 years and I regard them as the SAFE Sceptics. You are people who are only sceptical about things that most people already agree to.

You expose cranks, fraudsters, quacks, psychics, ghosts, clairvoyants, astrologers, occultists, exorcists, and you do a good job, as we are surrounded by attempts to promote unidentified flying objects, the activities of aliens in our TV programmes and movies.

I have been an unsafe sceptic all of my life. I am a lapsed Catholic, lapsed communist. lapsed member of several political parties, and almost a lapsed scientist, as I am horrified at what passes for science today to the extent that I no longer dare admit to my Cambridge PhD in chemistry because of the sort of knowledge that can qualify nowadays and the special pleading that always goes with letters claiming to be from 'Doctors'.

I had the distinction in 1992 for you to publish my article *The Skeptical Environmentalist* on your front page. That was in the days when the late Owen McShane was Editor, and he went on to declare his status as an 'unsafe sceptic' when he helped to found the NZ Climate Science Coalition. The title of my article was adopted by Bjorn Lomborg some years later.

I have been a commentator to every single one of the Reports of the Intergovernmental Panel on Climate Change and not one of them has provided any evidence that our climate is exclusively determined by human emissions of greenhouse gases, a proposition which your correspondent Richard Hart of Tauranga accepts.

He would categorise me as a "denier" but I am unsure what it is that I am supposed to deny, apart from the statement I have just made. He would seem to be an 'affirmer' in which case I would be interested to know if he can present any evidence for this.

It is no use talking about 'Global Warming'. There is no way that we could possibly measure the average temperature of the earth's surface, and the botched up "Mean Global Surface Temperature Anomaly Record" does not qualify. But even this imperfect record has hardly changed for the past 15 years.

The UK Met Office is currently reeling once again as the UK has been hit by the fifth severe winter in a row after predicting the opposite every time.

You will doubtless be horrified by this letter and, at the very least it will be drastically abridged, but if you allow Mr Hart to disturb your 'Safe' sceptical status, you have asked for it.

Vincent Gray
Wellington

Climate change hypothesis supported by evidence

In *NZ Skeptic 106*, Richard Hart asks "do you believe in climate change?", then reminds us that this is not quite the right question for a skeptic to ask.

I believe that there is more than sufficient evidence to accept the hypothesis that climate change is occurring, and that human actions are playing a significant role in this. This is based on the following observations.

- Verifiable changes in the environment are occurring (temperature rises, shrinking ice caps, increasing ocean acidity).

• The basic mechanism is clear – increased carbon dioxide in the atmosphere traps more heat.

• Although the global ecosystem is dynamic and can adapt to changes such as increased carbon dioxide levels, with any dynamic system there are always limits beyond which the system cannot absorb changes without a significant "re-adjustment" (eg the ocean may absorb carbon dioxide from the atmosphere to compensate for the higher concentrations but 1) there is a limit to how much can be absorbed, and 2) resulting changes in pH will affect sea life).

• The vast majority of climate change experts concur that anthropogenic climate change is real. Opponents have glibly argued that "science is not about consensus" but this is a flawed argument. The core of science *is* about consensus – this is why science provides the most reliable way of examining the world around us. The consensus is always open to challenge, provided this is backed with sufficient evidence to show it is a better hypothesis.

• Richard asks "How long did plate tectonics or evolution take to be accepted?" Plate tectonics was accepted by scientists within 50 years of it being proposed by Alfred Wegener in 1915. Evolution was also reasonably accepted by the scientific community once appropriate evidence was demonstrated (of course, large proportions of the non-scientific community still struggle with the idea and consequences of evolution; a useful analogy for anthropogenic climate change perhaps?).

• The idea of anthropogenic climate change was first mooted in the 1950s and 60s. At the time there was significant debate in the scientific community about the validity of this idea but it was eventually accepted by the scientific community. To overturn the current consensus would require extraordinary evidence, none of which I am aware.

There will of course be members of New Zealand Skeptics who disagree with me that there is abundant evidence to support anthropogenic climate change. There will also be those who agree with me, but disagree with my reasons for doing so. It is everyone's right to believe what they want to. But as skeptics we should be confident that we have reached our own conclusions based on evidence and making all attempts to avoid bias where possible. We also need to be able to change our opinions if new evidence requires us to do so.

There is one thing that I hope all of our members will agree with, however. This debate has been lengthened and polluted by those who have used irrelevant, emotive and unscientific arguments; who have purposely tried to confuse the public understanding. This includes arguments such as "carbon dioxide helps plants grow so it can't be bad", "a concentration change of 80 ppm isn't significant" and "scientists are on a climate change gravy train". Even if we disagree about climate change, if we should all make an effort to challenge any type of bogus argument, no matter which 'side' is making it.

Michael Edmonds
Christchurch

The origins of bunk

Martin Bridgstock

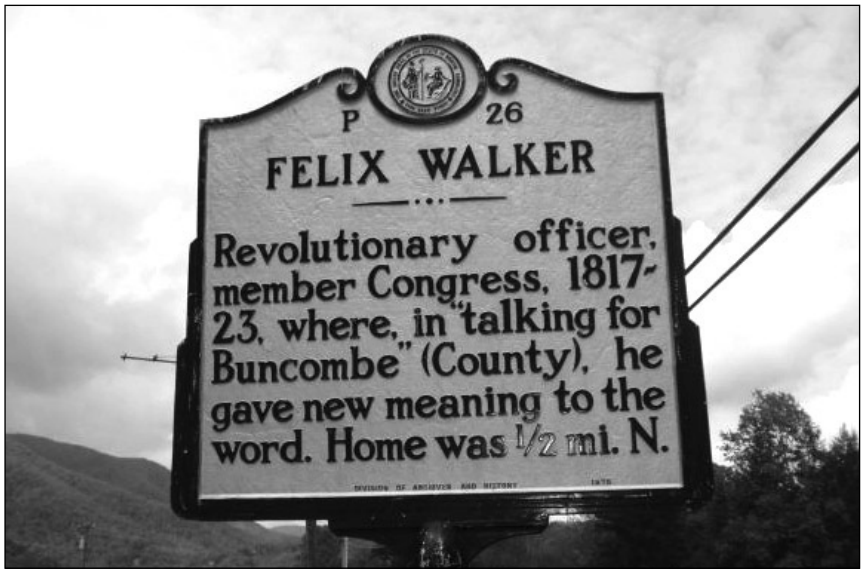
The history of a word which is very familiar to skeptics carries some important lessons.

MOST skeptics are familiar with the term 'bunk', (or perhaps 'bunkum') with its associated skeptical activity of debunking. The Oxford English Dictionary tells us that it means 'Humbug, nonsense'. And of, course, Henry Ford told us that history is bunk.

But why bunk? The word has several perfectly legitimate uses. It can be a type of bed, or a plant from which drugs can be made, and also it refers to part of a sled. None of these meanings has any obvious connection to empty claptrap, so how did nonsense come to be termed 'bunk?'

The answer lies in politics and slavery, and goes back nearly 200 years. Let us go back, in imagination, to the US Congress of February1820. The Representatives were nearly exhausted. A

highly contentious issue was being discussed, and had been the subject of argument for about a month. This was the status of the proposed state of Missouri, the first new state which would be west of the great Mississippi River. The question was, should Missouri be allowed to have slaves, or must it be free?



A great deal hung on the outcome of questions like this. The US began as a string of colonies down the east coast of America. After independence the Americans moved inland, setting up new states as they went. The southern states had become wedded to a slave economy, while many northerners regarded slavery with horror. As a result, the entry of each new state was watched closely by both sides. If too many slave or non-slave states entered the union, then partisans might be able to force legislation through Congress. An uneasy balance ensued, with slave and free states being admitted in roughly equal numbers.

The congressmen of 1820 were weary. They had been arguing and yelling for about a month on this 'Missouri Question'. Eventually, they forged the Missouri Compromise; the compromise allowed slavery in Missouri and some southwestern territories, but not in a huge swathe of northwestern land. The compromise, with additions, held for about 40 years before it collapsed and war ensued. It was an ugly political measure, but it was the best that either side could obtain.

Right at the end of this debate, Representative Felix Walker, of Buncombe in North Carolina, rose to speak. He did not complete his speech. According to legend, his words were so empty of meaning, so worthless, that other congressmen began to shout him down. He persisted, replying that he had to speak 'For Buncombe!" The cries grew louder and eventually he was persuaded to sit down. The *City of Washington Gazette* – whether out of kindness or cruelty – printed his speech in full the next day.

The legend grew that Felix Walker had made an utterly worthless speech, simply seeking to fool the people of Buncombe into thinking that he was working hard at representing them. So the custom developed that, when someone was speaking simply for the sake of appearances, he was described – perhaps with a wink – as speaking 'for Buncombe', and then 'Bunkum,' and finally 'Bunk.' So the name of a southern US town became the label for nonsense.

The town of Buncombe has put the best face on this it can. Outside the town is a sign commemorating the way that Representative Walker gave a whole new meaning to the term 'Buncombe'. The exact meaning, naturally, is not explained.

The quintessence of bunk

When I learned about the word's origins, I became curious about the original speech. What, I wondered, was so awful about Walker's words that he was howled down by his fellow congressmen? What would the quintessence of bunk look like? So I located Walker's original speech and read it.

Rather to my astonishment, Walker's speech is not bunk. The original piece of 'bunkum' does not conform to the definition at all. Indeed, if you want a summary of the arguments advanced by one side in the debate, Walker's speech does a good job of making the key points.

I should make two important points before moving on. I suspect most skeptics would agree with my stance that slavery is a total evil, and that the northern anti-slavers like Abraham Lincoln and William Lloyd Garrison were completely in the right. Therefore, we might

feel unsympathetic to Walker. Still, we should remember that millions of people supported slavery, and it was his job to represent them. And, of course, a speech can support a bad cause without being vacuous: the two are not logically linked. Second, the speech is appallingly long-winded. It is just under 5000 words long, and at a guess, its entire content could probably be stated in about a fifth of that length. Its stance and its wordiness can prejudice us against the fact that it makes about a dozen important points.

What sort of things does Walker say? He freely concedes that slavery is an evil, arguing only that abolition is probably more evil yet. He makes the point that the current slave-owners did not originate slavery, and that the people they brought from Africa were not free originally. They might well, he thinks, be better off in the US even as slaves. Preventing slavery from spreading across the Mississippi River will not free a single slave. He also points out that the 'family' of American states is likely to be torn apart by conflict over this issue, the most terrible conflict imaginable. He regards Americans from states in the North and East as his brethren, and is appalled that they don't regard him in the same way.

The value of Walker's speech

Skeptics can exercise their critical faculties by reading Walker's speech. It provides good practice in cutting through verbiage to see the key points beneath. In addition, it is useful practice to refute the different arguments. For example, it is perfectly true that current (ie 19th century) American slaveowners did not originate slavery. On the other hand, those who perpetuate an evil, and benefit from it, must acknowledge some responsibility for that evil. In addition, they must not be surprised if they are regarded badly by those who seek to eliminate the evil. The other points can be addressed in a similar way.

On one point, though, Walker is completely correct. He points to the dangers of conflict within the union, and goes on to predict terrible consequences if antislavery legislation is forced through. The last paragraph of his speech goes like this:

> "Sir in the last war we lost our thousands, but if you will force upon us this restriction, you may, in the end, in the course of your mistaken policy, which if persisted in, go on with increasing rapidity, at last compel us take leave of each other, and lead to an event that may prostrate the lives of the ten thousands of your choice citizens and fatally terminate in the dissolution of our confederated government."

Walker was exactly right, though he did not live to see his prediction confirmed. The Missouri Compromise and its successors held for 40 years. When compromises finally came apart, the American Civil War claimed not tens of thousands but hundreds of thousands of lives, and left large parts of the country in ruins. On this point Walker was terribly, hideously right.

So why bunk?

I hope that I have justified my argument that Walker's speech, although mediocre, is by no means empty claptrap. It certainly does not justify the appellation of 'bunk'. Why, then, has it acquired such a bad reputation? I suspect the context explains this. The politicians had been struggling for a month to come up with a solution. Undoubtedly there had been hours of bargaining and debate in offices, bars and corridors. These discussions would not be concerned with general principles, but with hard facts and questions about what each side might find acceptable. Therefore, when Walker spoke to exhausted congressmen, his general points fell upon deaf ears.

This shows that context is an important factor in getting your viewpoint across. If your message isn't appropriate for a particular audience, it probably won't be heard. Sometimes you can tailor your message so that it will be heard but sometimes – as with Felix Walker – it is impossible.

Another important point is directly related to skepticism. Popular perception is not always right. Walker's speech was not empty claptrap, but it has gone down in history as exactly that. There is always value in examining the evidence for popular myths and beliefs and finding out how much truth is in them.

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You can read Felix Walker's speech at: **en.wikisource.org/wiki/Missouri_Question:_Speech_of_Mr._Walker,_of_N.C.**

An account of the incident can be found at: **www.appalachianhistory.net/2012/02/north-carolina-politician-gives-us-word.html**

Martin Bridgstock is a senior lecturer in the School of Biomolecular and Physical Sciences at Griffith University, Brisbane.

Social media and pseudoscience

__Alison Campbell__ has been spending time on Facebook recently.

I QUITE enjoy Facebook. It's an enjoyable way to catch up with what friends and family are up to, and I follow a number of good science pages (which provide some nice topics for blogging, from time to time).

But Facebook can also cause considerable aggravation, through its habit of running 'targeted' advertising on one's page and now, it seems, 'suggesting' pages. I mean, I'm very sure I never 'liked' the Earthing Oz page! Yet it crops up on my feed. Apparently we need to be Earthed, ie directly connected with the Earth and its electrical field, in order to avoid the nasty side effects of electromagnetic radiation. It's as simple as walking barefoot on the grass (I always thought it was a simple pleasure to do that; who'da thunk it was healing as well) – but (as I rather expected) you can buy products to help Earth yourself while inside.

The cynic in me wonders how on Earth (no pun intended) those believing in this stuff manage to use the internet to access all this information...

Proponents claim that 'Earthing' will:

> "... reduce pain and inflammation, think blood and improve blood pressure and flow, improve sleep, reduce stress, increases energy, relieves muscle tension and headaches, lessons [sic] hormonal and menstrual symptoms, dramatically speed healing, reduce or eliminate jet lag, protect the body against potentially harmful electromagnetic fields (EMF's), accelerates recovery from intense athletic activity."

Won't their 'grounding' block them from the Earth's magnetic field? Not to mention the effects of being bathed in EM rays while walking outside on the grass. Oh, wait...

And then there's the spam ads about 55-year-old women looking 27 by using a couple of simple tricks and leaving "botox doctors furious" (oh really?). And ads about green coffee bean extract being the latest weight-loss trick (the 'evidence' in support comes from a trial – funded by a company that makes and markets the extract – with just 16 participants and poor statistical treatment of its results).

But the one that spurred me to begin writing this piece was an image posted by a Facebook friend of mine: one which purports to be of a 12-week-old human foetus. (I would have liked to make a comment to the contrary on the page where my friend found it, but couldn't. Funny how some sites block comments.)

I suspect I will shortly be 'unfriended', for I added a comment (which was later deleted) to my friend's post to the effect that the picture was definitely not of a 12-week-old foetus. A foetus of that age is about 30mm long (head-to-rump length).

No surprises that the original image is being circulated by groups opposed to abortion, with a caption that begins: "This is what we all looked like at 12 weeks in the womb."

Not sure how telling falsehoods helps strengthen one's argument.

Alison Campbell is a lecturer in the Biological Sciences Department at Waikato University.

Moa Mania

Denis Dutton

SOME Skeptics have been surprised that our organisation has been so restrained in its response to the purported moa sighting near Cragieburn. As we see it, the whole issue is fraught with difficulty.

The notion of a colony of large moas escaping detection till now, despite its location in the Southern Alps accessible to Christchurch, almost defies the imagination. Almost, but not entirely: there is a lot of dense country out there, and the notion of a surviving moa – or two, or twenty – cannot be classed with Bigfoot or UFO abductions.

To this, we have to add the perceived credibility of the witnesses. The Press reporter who broke the story, Dave Wilson, is a previous winner of one of the Skeptics' "excellence in journalism" awards. He's an intelligent, persistent, hard-headed bloke who has spent a lot of time interviewing the trio who saw the beast, and he's strongly inclined to the view that they are at least sincere. Wilson is a world away, for instance, from the cynical, exploitative Australian journalists who a few years ago got their hands on a family that had seen a blinding light in the sky over the Nullarbor desert. Wilson has, to the contrary, been careful and measured in his approach.

The New Zealand Skeptics, it seems to me, cannot simply disregard Wilson's convictions on this issue. If the trio is lying, it's a particularly skillful and cruel hoax on Wilson personally, not to mention the rest of us. Still, for my part, I found the watery "footprint" of the beast, a photograph of which the three trampers produced at the very beginning of the flap, cause for the most skepticism. It was all wrong for a print left by a running bird, or a standing moa. The fuzzy photograph of the bird itself was plausible; the footprint looked outright fake.

If the sighting is not a hoax, then something like a loose emu still is far more likely than a moa. Nevertheless, hope springs eternal in the hearts of most skeptics that something as wondrous as the recovery of the moa might just turn out to be true. Wouldn't we all cheer?

When I was musing on this the other day, Vicki Hyde brought me back down to earth with a stern lecture on the real, numerical probabilities of there being large, undetected moas in one of our more accessible parks. She was right, of course. But then I never claimed to have a skeptic's soul. If anything, I more-and-more consider myself temperamentally gullible, and in need of occasional dressings-down by more tough-minded types like Vicki. Nevertheless, if the Skeptics are to err in this case or any other, better perhaps to be slightly on the side of a splendid possibility, than to dismiss without any consideration some extraordinary claim.

– From NZ Skeptic 27, Autumn 1993.

Want to join NZ Skeptics or renew your membership?

An on-line subscription/renewal form (internet banking and credit card options) is available on the New Zealand Skeptics website (**www.skeptics.org.nz)** – click on 'Join us'.

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The Treasurer, NZ Skeptics Inc., PO Box 30501, Lower Hutt 5040. Membership is for a calendar year.

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Ben Goldacre – coming to Auckland!

Author of *Bad Science* and *Bad Pharma*, *Guardian* columnist and blogger, Ben Goldacre is coming to the Auckland Writers & Readers Festival. On a mission to teach the public about good science by talking about bad science, Dr Goldacre is giving two presentations.

CLINICAL TRIALS, THE WHOLE TRUTH AND NOTHING BUT THE TRUTH?

A lecture for medical specialists, Ben Goldacre will address how health professionals and regulators should respond to those pharmaceutical companies driven by marketing rather than best practice imperatives.

Date: Wednesday 15 May 2013 Time: 12:30 pm - 01:30 pm
Venue: ROOM: 505-011 - LECTURE THEATRE ONE, THE UNIVERSITY OF AUCKLAND
Price: $20 EARLYBIRD $25 STANDARD

BAD SCIENCE, BAD PHARMA

In this session Ben Goldacre will deliver a presentation and then discuss with Sean Plunket the perils and pitfalls of current scientific communication.

Date: Saturday 18 May 2013 Time: 05:30 pm - 06:45 pm
Venue: ASB THEATRE, AOTEA CENTRE Price: $20 EARLYBIRD $25 STANDARD

Booking details at www.writersfestival.co.nz