Skeptic

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

Data compression fraud

Chair-entity changeover

Veterinary homeopathy

The Cartwright Report revisited

new zealand Skeptic

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editorial

The end of an era

THIS year's NZ Skeptics conference in Auckland was the usual mix of stimulating presentations and good companionship, but it will go down in the society's history as the end of Vicki Hyde's term as chair-entity. In this issue of the NZ Skeptic we farewell Vicki and meet Gold, who is taking on the chair-entity role.

At the conference dinner, Paul Ashton invited founding member Warwick Don to present Vicki with a framed 'Skeptic trump' by British cartoonist Crispian Jago (**crispian-jago.blogspot.com**). These are highly sought after – the other 70 recipients include Richard Dawkins, Stephen Fry, James Randi and Susan Blackmore; Ricki Gervais wanted one but was declined. Vicki is the first Kiwi. To illustrate the length of time she has been in the chair Paul drew on a technique often used in describing geological time scales: if all of NZ Skeptics history occupied one day, then Vicki became chair-entity at 6:17 in the morning.

The event began with a relaxed Friday 13th evening spent tempting fate (breaking mirrors, walking under ladders etc), watching skeptical videos and partaking from Butterfly Creek's fine cafe and well-stocked bar. Then the conference proper got under way on Saturday morning with Robert Bartholomew, who lost a shouting match with the rain before resorting to electronic assistance. But his talk on mass delusions gave a solid historical perspective to much of what followed.

Though there was a strong medical focus this year, with talks on immunisation, the 'unfortunate experiment' (for another perspective see Michelle Coffey's article in this issue), and the demonisation of fat, there was also room for topics as varied as data compression software (see opposite), how to deal with 'wingnuts', basic techniques of mediumship, and some good old-fashioned debunking of the alleged apocalypse in 2012. YouTube has TV3's coverage – search for 'Skeptics conference 2010'. We'll be running more presentations in the NZ Skeptic over the coming year; if you missed the conference and can't wait, the Science Media Centre website has several of the talks as podcasts in its Reflections on Science section – posted 16 and 17 August.

Vicki leaves the chair-entity role with the society in good heart, as evidenced by the high level of attendance at the conference and the good proportion of younger faces there. The rapid changes in the so-called new media are providing new pathways for spreading the skeptical message, and these are fields that Gold has considerable expertise in. Interesting times to be a skeptic.

David.

NearZero Inc: A sadly prophetic company name

Paul Ashton

Many people lost a lot of money investing in non-existent data compression software because well-established principles of information theory were ignored. This article is based on a presentation to the 2010 NZ Skeptics conference.

IN THE late 1990s, Nelson man Philip Whitley claimed to have invented a new data compression technology worth billions of dollars. Over the next decade money was raised on a number of occasions to develop this technology, culminating in a company called NearZero Inc raising $5.3 million from shareholders. According to a well-established body of theory, Whitley's claims were obviously false. Unsurprisingly, within a few months of NearZero's formation, it was in liquidation, with its funds gone.

I thought the saga of NearZero could be of interest to skeptics as it involves claims that were clearly false according to well-established theory, and those claims cost investors a lot of money.

But first, a quick introduction to how data is stored by computers, and how that data can be compressed. Computers store data digitally, using the digits 0 and 1 in a binary code. A piece of storage capable of storing a 0 or a 1 is known as a bit (short for binary digit). With 1 bit we can store two values: 0 and 1. While this might be enough to store a simple data value (such as whether someone is male or female), for most pieces of data we need to store a larger range of values. With each bit we add, the number of possible values doubles; by the time we get to 8 bits we have 256 different values. The byte (a group of 8 bits) has proved to be a very useful unit of storage; storage sizes are usually quoted in bytes.

Compressed information: Paul Ashton addresses the NZ Skeptics conference.

Character data is usually stored 1 byte per character (in European languages). Lower case 'a' is represented as 01100001, for example. A picture is a grid of dots. Each dot is called a pixel, and usually 4 bytes are used to encode the colour of a pixel. Standards are needed so that everyone interprets bit patterns in the same way.

Data representation methods are often chosen based on how easy it is to process the data. Often, the same data can be stored more compactly at the cost of making it harder to process. The process of translating a piece of data into a more compact form (and back again!) is known as data compression. Compressing data allows us to put more data onto a data storage device, and

to send it more quickly across a communications link. The size ratio between the compressed version and the uncompressed version is known as the compression ratio.

In 'lossless' compression, the uncompressed data is always identical (bit for bit) to the original data we started with. A compression method designed to work with any type of data must be lossless.

In 'lossy' compression, we are willing to accept small differences between the original data and the uncompressed data. In some situations we do not want to risk data being changed by compression, and lossless methods must be used. With images and sound, small changes that are difficult for humans to detect are tolerable if they lead to big space savings. The JPG image format and mp3 video/audio format have lossy compression methods built in to them. Users can choose the tradeoff between quality and space.

A question of pattern

For it to be possible to compress data, there must be some pattern to the data for the compression method to exploit. Letter frequencies in English text are well known, and could be the basis for a text compression method. We can do better if we take context into account. The most frequent letter is 'e' (12.7 percent), but if we know the next letter is the first in a word then 't' is the most likely (16.7 percent). If we know the previous letter was 'q' then the next will almost certainly be 'u'. A compression method that takes context into account will do better than one that doesn't, as the context-based one will be a better predictor of the next symbol.

Likewise images are not random collections of coloured dots (pixels). Rather, pictures typically include large areas that have much the same colour. Sequences of frames in a movie often differ little from each other, and this can be exploited by compression methods.

If it was possible to compress any file to less than seven percent of its original size then it would be possible to compress any file down to 1 bit.

The effectiveness of a compression method depends on how predictable / random the data is, and how good the compression method is at exploiting whatever predictability exists. If data are random, then no compression is possible. In these cases compression methods can actually create a compressed file larger than the original, because the compression methods have some costs. A compressed file is much more random than the uncompressed version, because the compression method has removed patterns that were present in the original.

In many branches of computer science it is important to establish the best possible way in which something could be done, to serve as a benchmark for current methods. In information theory, Shannon's entropy is a measure of the underlying information content of a piece of data. A 1000-character extract from a book has more information content than 1000 letter 'x' characters, even though both might be represented using 1000 characters. To quote Wikipedia: "Shannon's entropy represents an absolute limit on the best possible lossless compression of any communication". Modern compression algorithms are so good that "The performance of existing data compression algorithms is often used as a rough estimate of the entropy of a block of data". In other words, it is not possible to achieve large improvements over current compression techniques.

The claims

It is time to have a look at Philip Whitley's claims. He claimed that he could compress (losslessly) any file to under seven percent of its original size, but this is not credible. Compression potential varies widely depending on patterns in the original file. Many files are already compressed, so have little potential for further compression. Even for uncompressed files, seven percent is achievable only in exceptional cases (English text entropy means the *best* achievable for English text is around 15 percent).

If it was possible to compress any file to less than seven percent of its original size then it would be possible to compress any file down to 1 bit. The first compression takes you down to under seven percent of the original file. Given that Whitley claimed his technique worked on *any* file, we could then compress the compressed file, reducing it to less than 0.5 percent of the original size, and so on.

Initial tests of Whitley's technology were done on one computer. This made it easy to cheat. The 'compression' program can easily save a copy of the original file somewhere on disk as well as producing the 'compressed' version. Then, when the compressed version is 'expanded', the hidden copy can be restored. Whitley remained in control of the equipment, ostensibly to prevent anybody from stealing his software.

Critical assessment

Philip Whitley's company Astute Software paid Tim Bell (an associate professor of computer science at the University of Canterbury) for an opinion on the technology. Tim Bell has an international reputation in the field of data compression; Microsoft has used him as an expert witness, and he has co-authored two well-known compression textbooks. An irony of the NearZero case is that New Zealand has more expertise in this field than you might expect for a small country (the co-authors of the two text books are New Zealand-born or live in New Zealand).

Tim Bell's views were blunt: "The claims they were making at the time defied what is mathematically possible, and were very similar to claims made by other companies around the world that had defrauded investors." One of his criticisms was that the tests were not two-computer tests. In such a test the compression is performed on one computer and the compressed file is transferred to a second computer, where it is decompressed. A two-computer test prevents the hidden-file form of cheating. It is reasonably easy to monitor the network cable between two computers, to check that the original file is not sent in addition to the compressed file (though the tester must be alert for other possible communication paths, such as wireless networks).

A two-computer test was subsequently conducted, and described in a 14-page report by Titus Kahu of Logical Networks. At first glance the report looks impressive, but on closer reading flaws quickly emerge. The two computers used were Whitley's. The major flaw was that Kahu was limited to testing a set of 24 files selected by Whitley. The obvious form of cheating this allows is that the set of files can be placed on the second computer before the tests. Then all that the first computer needs to do is to include in the 'compressed' data details of which file is required (a number between 1 and 24 would suffice). The receiving computer can then locate the required file in its hiding place.

Titus Kahu did check the receiving computer to see if files with the names of those used in the test were present, but you would expect that someone setting out to deceive would at the very least rename the files.

The report makes for interesting reading. The files were of a number of types, including text files, pictures in JPG and GIF formats, MP3 audio files, and tar files. A tar file is a way of collecting a number of files together into a single file (zip files in Windows serve the same purpose).

One would expect text files to compress well, but JPG, GIF and MP3 files to compress poorly (they are all compressed formats). How well a tar file will compress depends on the files that it contains.

A simple comparison

To get some data to compare with the results in the report, I ran some tests using gzip (a widely used lossless compression method) on some text, tar and JPG files. I managed to locate two of the tar files used in the Titus Kahu tests: Calgary.tar and Canterbury.tar. Gzip achieved savings of 67.24 percent and 73.80 percent (so Calgary.tar was compressed to about one third of its original size, and Canterbury.tar to about one quarter). I also located three text files that were later versions of text files used by Kahu: on these Gzip achieved savings of 63.08 percent, 62.05 percent, and 70.77 percent. I also compressed a JPG file using gzip, and achieved a saving of 2.34 percent.

There are no great surprises in my results. There was quite a variation in the compression achieved, even amongst files of the same data type (the three text files for example). Compressing a JPG file gave little extra compression (not enough to make it worth further compression with gzip).

By comparison, savings in the report were 93.52 percent for four files and 93.53 percent for the other 20. I suspect that the difference in the fourth significant figure is due to rounding the file size to the nearest byte. These results are not remotely believable. The compression achieved is too good to be true even for data that compresses

well (such as text), let alone for data formats that are already compressed. The incredible consistency of the compression achieved is also not credible.

Downfall

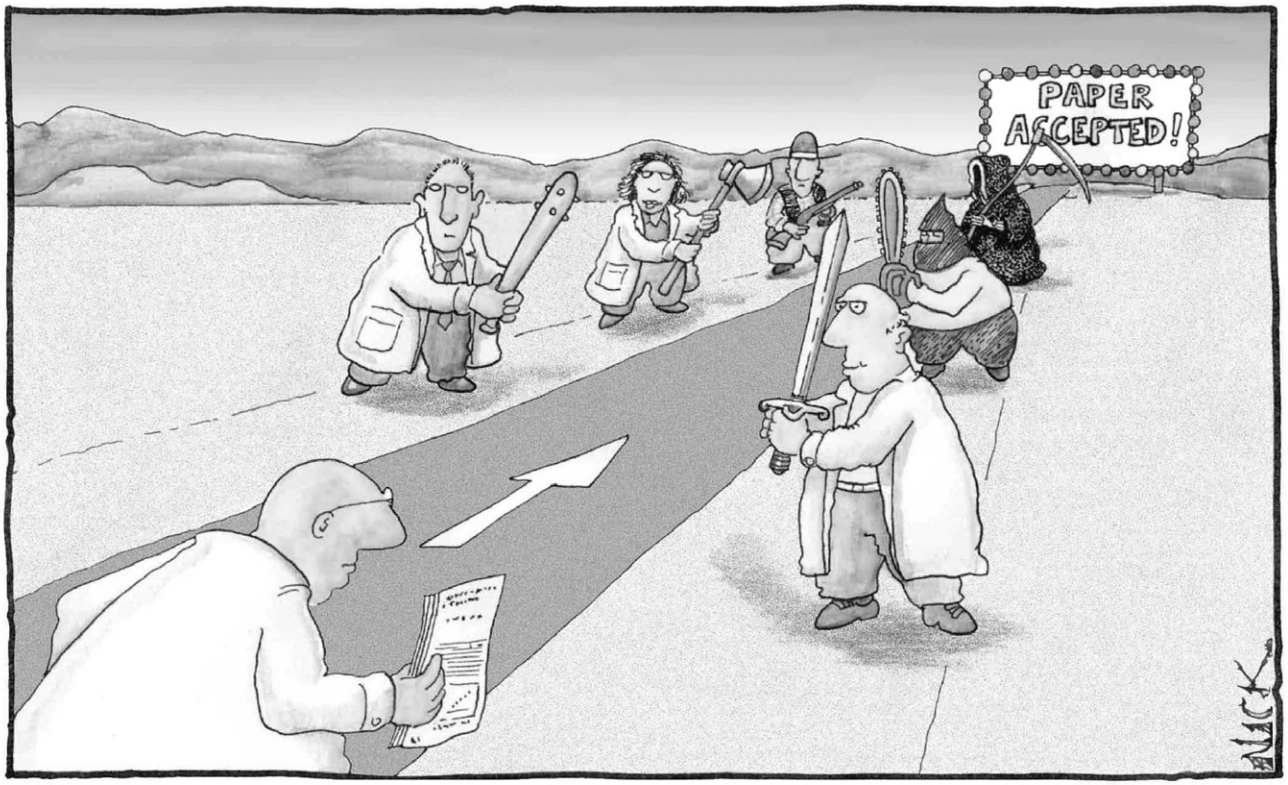
Having looked at some background, it is time to look at the chain of events that culminated in NearZero Inc's rise and fall. Philip Whitley's early forays into business were not promising. In 1995 he was adjudged bankrupt (discharged in 1998). In 1997 he became a shareholder in Nelic Computing Ltd, which went into liquidation in 1999, owing unsecured creditors $70,000.

In 1999 Philip Whitley formed a software company (Astute Software) with a number of Nelson investors (who put in $292,000). Astute worked on a number of projects, and developed the data compression technology. In early 2001 the 'one-computer' tests were done, and Tim Bell's opinion was sought. In mid 2001 the logical Networks 'two-computer' tests were done by Titus Kahu. In 2002, a Mr Cohen (an investor) asked for a (long-awaited) copy of the compression technology; he was told by Philip Whitley the only copies had been accidentally burnt when cleaning out his safe. Later in 2002 work stopped due to Whitley becoming ill.

In 2005 Whitley resumed work on the technology. Some of the original investors put in a further $125,000. On 10 July 2006, NearZero was incorporated in Nevada, with Philip Whitley as president, treasurer and sole director. Later in 2006 Titus Kahu became engineering director for Syntiro (a Philip Whitley company doing development work for NearZero) on the generous salary of $250,000 a year.

In February to April 2007 NearZero share purchase meetings were held in Auckland, Wellington and Christchurch. A total of 490 investors invested $5.3 million. The investment opportunity brochure forecast that the near-term NearZero market capitalisation would be US$482 billion to $780 billion, and was expected to exceed one trillion US dollars. Note that the largest company in the world, Petrochina, is a US$405 billion company, and the largest US companies, including Exxon Mobil, Apple and Microsoft, are in the 200 to 300 billion bracket.

Things quickly went wrong. In May 2007, the Securities Commission started investigating the legality of the NearZero share offer (there is no registered prospectus, for example). Also in May, Price Waterhouse Coopers (PWC) were appointed as inter-



Most scientists regarded the new streamlined peer-review process as "quite an improvement."

im liquidators for NearZero, and moved to sell houses and cars. In June, PWC said $218,000 went to Richmond City Football Club, $523,000 on vehicles, $852,000 on property, $683,000 to US-based company secretary Sherif Safwat, and $270,000 on household expenses. They found little evidence of money spent developing compression technology.

In June Whitley invited investors to contribute money to fund legal action to prevent liquidation. Also in June PWC found no evidence of any compression technology. Whitley claimed to have wiped it; PWC found no evidence of use of wiping software.

Then in July Whitley made some rather curious statements in an affidavit sworn in relation to the liquidation: "I will however say that it isn't binary and therefore not subject to Shannon's Law of algorithmic limitation." If there was a real technology that was not based on binary it is hard to see it being of widespread use in computer and communication systems that store, transmit and process all data in binary. The affidavit continues: "Shannon's Law is attached to this affidavit as Annexure "Y" and it can be seen that this is a 1948 paper". Claude Shannon founded information theory, which is the basis of how digital computers represent data (according to one tribute, the digital revolution started with information theory). Shannon coined the term bit, and introduced the concept of information entropy referred to earlier. It is interesting that Shannon's fundamental research results are dismissed as being in "a 1948 paper".

He also stated: "In regard to the item 3/ I have never asserted that the technology is based on an algorithm". In computer science, an algorithm is simply a description of how to do something in a series of steps. A common analogy is to say that a cooking recipe is an algorithm for preparing food. If Philip Whitley's compression technology is not based on an algorithm then that implies it cannot be described as a sequence of steps, and therefore cannot actually be implemented!

In November, Associate Judge Christiansen ordered NearZero's liquidation, and ruled that the compression technology had no value. Then in August 2008 Whitley faced the much more serious charge of making fraudulent claims about his technology.

In September 2008 all shareholders were given the option of keeping their shares or getting their money back. They proved to be remarkably loyal: $3.1m voted to stay in; $2.2m voted for reimbursement. I'm not sure whether there was any money to reimburse those who voted that way (probably not). In August 2009 Philip Whitley was convicted and fined for making allotments without having a registered prospectus.

The trial

In February 2010 the fraud trial began in Nelson. Whitley was charged with making a false statement as a promoter between July 2006 and May 2007. There were many sad stories in the Nelson Mail about wasted money and time (and resulting stress). Some of the information to emerge in the trial:

- Philip Whitley hired a team of seven body guards headed by "Oz" (Oswald Van Leeuwen), who was on a salary of $300,000. This level of security was needed because of the (supposed) enormous value of the compression technology

- According to Sherif Safwat, Philip Whitley believed a Chechnyan hit team had arrived in New Zealand on a Russian fishing boat.

- Philip Whitley: "The [security guards] said that the Russians were trying to penetrate and we ended up with security guards living in my house, camped on the floor ... I couldn't go out of the house without having security ... it just built up inside me to the point where I just lost it from a point of paranoia."

In his summing up on May 27, the defence lawyer said:

- "Whitley had a distorted view of reality which led him to believe his data compression technology was real."

- "... [we are] not challenging the evidence of ... Prof Bell that Whitley's claimed invention was mathematically impossible."

In July Philip Whitley was found guilty on two counts of fraud (but maintains he still has his inventions).

On August 10, 2010, he was sentenced to five years and three months in prison.

The NearZero mess should not have happened. New Zealand has more researchers in this field than you would expect for a country of this size. One of the most prominent, Tim Bell, clearly stated in 2001 that the claims were false. However, investors still committed (and lost) millions of dollars over a number of years. Compression claims are easily tested (much more easily than medical claims, for example). Whitley refused to allow his technology to be independently tested using the excuse of protecting his intellectual property. Many people have been harmed, especially the investors. Moreover, this type of case is not good for the reputation of the IT industry, which struggles to attract investment.

I was asked at the conference how non-technical NearZero investors could have protected themselves. I had no answers at the time, but have given it some thought since. Some things they could have done:

- Google the names of the company principals.
- Check to see how the predicted market capitalisation compared to that of existing companies. Finding that the lowest estimate would make NearZero the biggest company in the world should have lead to some scepticism.
- Google the terms 'data compression' and 'scam'.

Much of the information in this article is based on the Nelson Mail's extensive reporting of the issue, for which they are to be congratulated. Another good source of information was **nearzero.bravehost.com**, a website set up by and for NearZero's shareholders in 2007 in response to the liquidation of NearZero. An article by Matt Philp on Philip Whitley and NearZero appeared in the October 2010 issue of North & South.

Paul Ashton was a lecturer in the Department of Computer Science at the University of Canterbury from 1987 to 2000. Since 2000 he has been a software developer in Christchurch. He is also secretary of the NZ Skeptics.

The changing of the guard

After 17 years as chair-entity of the NZ Skeptics, Vicki Hyde has stepped down. ***Annette Taylor*** *talks to her about life, the universe and taniwhas.*

VICKI Hyde can't quite remember who came up with the title. She's sure Hugh Young had a hand in it, and possibly Frank Haden as well.

"The question was should it be madam chair, or chair person, or what. This was at our AGM in 1992. Someone suggested chairbeing, but it was pointed out that didn't allow for the possibility there might be an incorporeal soul. Then we went for Chair-entity. It was a bit of light-hearted amusement that has served well over the years."

Some journalists stop dead in their tracks when hearing the title for the first time, she says.

"Many newspapers and TV won't use it; they don't seem to be able to cope with the term, and just say 'chair'. Ginette McDonald accused us of being politically correct. However it's a way of saying we're not completely po-faced about things, and that we don't take ourselves seriously all the time. Which is a good point to start from."

The standard charge she often hears is that skeptics are naysayers, boring or humourless. "I always say no, we're actually excited about the wonder and mystery of the universe. We just want to get rid of things that aren't real mysteries, so we can delight in those that are."

When it comes down to defining exactly what a skeptic is,

she points out the political attitudes of members are diverse, and there's a surprising range of religious diversity as well.

"We're not all hard-line atheists. Our brief is not to go after religious beliefs per se. If someone wants to believe in God, that's fine, it's a belief. Otherwise we just become blurred in with the rationalists and humanists. But if someone comes up with what they say is a piece of Noah's Ark, that's scientifically testable."

Coming up trumps: Vicki Hyde holds her Skeptic trump card, presented to her at the conference.

She was a little sad when the society's formal name, the New Zealand Committee for the Scientific Investigation of Claims of the Paranormal, was changed to the NZ Skeptics in 2007. "It was especially valuable in interviews; I was able to use it to point out what it was we did, and didn't do. As a consequence I'm still explaining to people that no, we don't go after capitalism, or religion, we're not sceptical about everything and anything under the sun."

Vicki's introduction to the Skeptics was as a freelance writer for Pacific Way magazine, covering the firewalk at the Christchurch conference in 1990.

"I got talking with Denis Dutton and others, over that weekend, and thought this is interesting."

She started helping with the magazine, and in 1992 was nominated for the chair, which had been held by Warwick Don.

"Denis raced off to The Dominion and said 'Look, look, we've got a new chairperson at the Skeptics. She's female, pregnant and of Maori descent; how much more politically correct can you get?'"

Vicki, who was 30, says it was like inheriting a whole group of aunts and uncles.

"We have changed from the early days, and particularly over the last few years. Back then the demographics of the group was late 50s, early 60s, and it remained that way for some time."

Now members are younger, and there are more women involved, which she puts down to the internet. "We're able to do more outreach; there are email groups and blogs, podcasts... We have 1500 people on our Skeptic Alert email list, three times more than paid members."

Then there are initiatives like Skeptics in the Pub, which has provided another place for like-minded people to meet. "I think we're still attracting the same kind of people, but through different ways. People who are interested in the world and how it works, and want to sit down and chat."

As for our fellow kiwis, she thinks we're a fairly down-to-earth bunch. "I don't know if it's our colonial heritage or the kiwi attitude of the proof is in the pudding, but in general we're a bit more pragmatic. What is interesting is we don't feel under siege from the religious right as much as Americans do."

While attending the World Skeptics Conference in Burbank, California in 2002 she says there was a distinct feeling a war was being fought. "There's a strong overlap between the rationalists and skeptics there; they have very close ties. We're living in a country where, in the last election debate, both the then-prime minister and the leader of the opposition could both say, no, we

don't believe in God, on national TV, and it's no biggie."

She will continue as the society's media spokesperson. "This requires the ability to be rung at 6am on Friday the 13th by some morning radio journo who wants to talk about superstitions. And to be nice to them."

The job requires knowing a lot about all sorts of things. "Pseudoscience and the paranormal can present in all sorts of ways. Most of the time I have an idea what they're talking about but sometimes they'll ask a question about some obscure cult, or a multi-level marketing venture."

The issues have changed over the years, she says. The original focus was on psychics, UFOs and astrology, with the occasional taniwha thrown in.

"We've shifted more and more into questions of what's the potential harm of, say, an alternative medicine. While there is much we can laugh at, some things make you very sober, such as the Liam Williams-Holloway case. In addition to the wee boy dying, the fallout of this was that oncologists started getting parents asking about other cures for their child's cancer. It actually increased interest in these claimed cures and made it a lot harder for the doctors."

It was interesting, a few years later, to see the reaction to a Pacific Island family charged with manslaughter over their 14-year-old son's death. "He decided to remove himself from the cancer treatment. They were then put through the courts. The only differences I can see with what they were doing, and Liam's parents, is that this was a 14-year-old, who was able to make some form of informed decision on his own treatment. And they were doing it on religious grounds. We seem to have a lot less tolerance for that, oddly enough, than we do for people who are trying alternative health."

Tempting fate: Vicki Hyde and Gold break mirrors at the 2010 conference. The fact that both were caught up in the Christchurch earthquake three weeks later is surely a coincidence.

Another "lowlight" was the false memory fad of the 90s, with its offshoot claims of Satanic ritual abuse and organised abuse of young children.

"We knew it was coming; we'd seen it first in the US. I predicted we'd have something similar within six months and the Peter Ellis case broke several months afterwards."

The decision to donate funds from the Skeptics to Ellis's defence resulted in at least one member resigning, she remembers. "This step was taken not because we all felt implicitly he was innocent, but that there were sufficient questions which should have been raised and had not been. We felt we needed to take a stand. I wrote an article for the NZ Skeptic about why we were supporting a convicted child abuser, explaining the background. As the saying goes, 'for evil to succeed requires only that good people do nothing'. For people to be exploited by psychics or the latest would-be cancer cure, all it needs is for people not to ask 'where is the evidence?'"

The Skeptics are not here to castigate Granny for reading tea leaves, Hyde says. "But if a psychic bounces up on national TV, talking about a missing child case, and promotes their two-for-one ticket offer for their upcoming tour – you have to point out that people are being exploited."

The future looks good for the Skeptics, she unhesitatingly predicts. "There's a whole host of bloggers out there, and podcasts and the like, that are pulling in people and ideas. I think this can work really well with our more formal group. We are useful because we have established communication channels and long-term relationships with the media, as well as a small fighting fund. And the informal groups are great because they provide social connections, enthusiasm and new blood. Which," she says, "is one of the reasons why I'm looking forward to working with Gold; he's got all that."

And, sadly, there will always be a need for skeptics.

"It can be frustrating, but you just keep boxing on. If you can get one person to stop and think about something, it's worthwhile. That's all we try to do. To get people to think."

A new golden age?

His name is Gold, he describes himself as a post-goth Discordian web developer, and one day soon he hopes to be homeless. He's also the new chair entity of NZ Skeptics. ***Annette Taylor*** *finds out more.*

The phone is not the instrument of choice for Gold. The 39-year-old suggests Skype, although his webcam is not working; it's been a hectic few days in Christchurch, in the aftermath of the earthquake.

Under cover: Gold models an umbrella (indoors) at the 2010 Skeptics conference.

Flatting – temporarily – in Richmond, 2km north-east of the city, a chimney collapsed and things were "up and down and all over the place. We spent a day or so picking stuff up; otherwise it wasn't too bad."

While we're talking he pauses and waits for an aftershock to pass. Eris, the Greek Goddess of chaos, is having a grand old time.

"When anything goes wrong, when things don't got to plan, that's Eris," Gold says.

He discovered Discordianism while at Canterbury University and says it's all about chaos and destruction and a sense of humour.

"We worship Eris and have a Bible equivalent and tenets we follow, such as that one must eat a hot dog on a Friday, which insults almost every religion you can think of, including our own.

"It's a joke religion, which is one of the things that completely sold me on it. It's a fun thing, and nice to have someone to blame when things go wrong."

And "post-goth"?

"I used to be a goth. You know - black clothing, the make-up, piercings, tattoos, the great music. It was a phase, so now I refer to myself as post-goth. I've kept the dress sense; the piercings are not quite as obvious anymore. The tats are a little harder to get rid of. I still have the attitude, which is what it was all about, really. And the music is still great."

Apart from five years in Australia, Gold has lived in New Zealand all his life, much of it in Canterbury. And for most of that time, he has been a sceptic.

Currently an atheist, he didn't have a religious background of any sort. "And it wasn't until early 2000 that I sort of came

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Compiled by David Riddell

Fake bomb detector leads to deaths

One of the main reasons for the success Al Qaeda has had in getting bombs past checkpoints in Iraq is that the main device used to detect explosives is a uselss fake (NZ Herald, 24 July).

The Iraqi government paid large sums for the detector, originally produced in Britain by a company whose managing director, Jim McCormick, has been arrested on suspicion of fraud. Export of the device, formally known as the ADE-651 but called a 'sonar' in Iraq, has now been banned.

The detector, a black plastic grip with a silver-coloured wand out the front, supposedly receives its power from the operator, who shuffles his feet to generate static electricity. If explosives or firearms are present, the wand is meant to incline towards them, like a water diviner's rod.

The only electronic component is a small disc, similar to that attached to clothes in shops to stop people taking them without paying. Although each device costs US$50 ($68) to make, Iraq spent US$85 million on them in 2008 and 2009.

An Iraqi police chief said privately the police knew the detectors did not work but went on using them because they were ordered to. The presumption is that somebody was paid a bribe to buy them and does not want to admit they are junk. They remain in use today.

According to the Times Online (January 22), McCormick believes a lot of the opposition to the device is driven by its rather primitive appearance. "We are working on a new model that has flashing lights," he said.

'Lady Luck' has no favourites

Sports writer and poker devotee Ian Anderson had some very refreshing things to say about luck in his Waikato Times column (28 August).

"Many people will tell you," he writes, "that great teams create their own luck. Many people, of course, are idiots. Luck doesn't get created – it's a random act of variance – and it doesn't favour one team or the other, be they great, woeful or middling."

The All Blacks, in the middle of an unprecedented run of test match victories, had just squeaked home against the Springboks in Johannesburg, thanks to a try which the referee, on another day, might not have given. If it hadn't been awarded, the All Blacks would have been left licking their wounds – much as they were in the 2007 World Cup when the critical refereeing decisions went the other way.

Sports fans have very selective memories, Anderson says. While people tend to focus on incidents that happen late in a game, a wrongly awarded try in the sixth minute carries as much weight as one in the 76th.

"We can also instantly recall any gross misfortune that has befallen our favourite sides but struggle to dredge up any memories of decisions that go in our favour."

The same applies to poker players, who without exception think they're better at the game than they are, and who sincerely believe most losses are the result of incredibly bad luck while victories come simply through outplaying their opponents in the hand.

"Yet a trawl through hand histories will glaringly reveal that each player ... receives his fair share of bad beats and fortunate suck-outs." Presumably these are technical poker terms.

UFO 'Trick of the light'

A famous UFO filmed in the Australian desert in 1964 has been explained in recently released British Ministry of Defence (MOD) files as a trick of the light (Stuff, 5 August).

When footage of the Blue Streak rocket tests at Woomera were broadcast by the BBC, television viewers were "shocked" to see what appeared to be a flying saucer near the launch pad. Many wrote to the MOD asking for an explanation.

Then, when documentary maker Jenny Randles went to investigate the footage she found

it was missing from the National Archives. An MP who saw the documentary then launched an inquiry.

The newly released files, however, show that the people who made the film at the time were clear that the 'UFO' was an internal camera fault. The 'missing' canister of film had been stored at the Imperial War Museum, rather than the National Archives.

The incident is just one of thousands of UFO sightings investigated by the MOD. The latest bunch of files covers more than 5000 pages of correspondence on them.

David Clarke, author of *The UFO Files* and a senior lecturer in journalism at Sheffield Hallam University, said people who believe in UFOs were unlikely to be convinced.

"The truth is that people see things in the sky that they can't explain, but the vast majority have got simple explanations. That is the truth, but they won't accept that."

Massey to study NDEs

If you've ever had a Near Death Experience, Massey University researchers would like to talk to you (Dominion Post, 27 August).

Psychologist Natasha Tassell and sociologist Mary Murray are carrying out New Zealand's first large-scale study of the phenomenon. They estimate up to a quarter of those who have come close to dying may recall a form of near-death experience. "It's a known phenomenon, but we don't know how it occurs and exactly how prevalent it is," Dr Tassell said.

They also wanted to know what variations existed and whether there were cultural dimensions. About 15 people had already shared their experiences, but they were hoping to attract about 100 participants 21 years and older for the two-year study.

Dr Tassell's interest was sparked after an experience of her own, when she lay down after feeling unwell, and recalled travelling down a tunnel with a bright light at the end.

Alt med scrutinised

It was good to see Victoria University's Professor Shaun Holt giving a public lecture on the potential dangers of alternative cancer therapies recently (Dominion Post, 1 September).

Chiropractors were good at helping people with bad backs but would not help cancer, reiki was "chanting mumbo jumbo", reflexology was "absolute nonsense", and colonic irrigation was dangerous, he said.

Professor Holt was however reported as stating that yoga could be effective for breast cancer patients, though the article didn't say how. Taking ginger was as effective as pharmaceutical drugs for patients experiencing nausea and vomiting.

He also said acupuncture, massage therapy, aromatherapy and art therapy could help alleviate symptoms such as stress, anxiety, pain and depression. He might perhaps have mentioned that it doesn't matter where you stick the needles to get a response from acupuncture – it's more about stimulating endorphin release than directing energy flows.

Toxic slugs create panic

Reports of toxic sea slugs on beaches around Auckland are taking on an almost hysterical flavour with news items about them and their 'spread' appearing almost daily (eg TV3 News, 3 September, NZ Herald, 9 September, Radio New Zealand News, 25 September).

The animal in question, *Pleurobranchaea maculata*, is perhaps the most common and widespread sea slug in the country. It is found all around the coast, in many habitats from low tide to a depth of 250 metres. It gained notoriety in 2009 after some dogs on an Auckland beach were poisoned after eating some that had washed up.

It has always been known that the slugs are toxic – that's how they can survive without a shell – but it's since been learned that the toxicity is due to tetrodotoxin, which is originally produced by bacteria, and known from several marine animals including fugu (Japanese puffer fish) and blue-ringed octopus.

It appears that the toxicity levels vary in different areas, and there's now quite a bit of work going on to learn more about these fascinating animals (Rodney Times, 28 September). It's a pity it appears to take a certain level of hype to get some basic research done on even the most common of the animals that live in and around this country.

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across skepticism as a movement, or way of thinking. Up until then I was one of those people who didn't really know there was a label for it."

He was living in Sydney at the time, and a close friend was a full-on, practising witch.

"While it was kind of cool, I thought that yeah, no, this may be interesting, but it's not real. It just didn't gel."

What galvanised his thinking more were skeptical podcasts and blogs, which he started to "passively consume" while overseas.

He returned to New Zealand in 2005, and headed straight back to Christchurch where he now works developing websites. And, last year, started the first Skeptics in the Pub meetings. "I came across this while in Sydney. It an idea that started in the UK, about 11 years ago, as a lecture series. Afterwards, people wanted more of them, so they continued. It became a very social thing and started to spread across the UK, into the US and Australia."

But not in New Zealand. "I was working in the central city, away from my previous social group, and thought bugger it, I'd give it a go. I paid some money and set up the first meeting, at the Twisted Hop. We got about 35 people along and it's kept going since then. It's a nice way to get together with like-minded people and have a drink."

Now there are meetings in Auckland, Wellington and Dunedin as well, but he would like to see more.

Which is a good reason to be intentionally without a home.

"One of the things about the job I'm doing is that all I need is a laptop and net access. I can work anywhere. I can travel around, and pop up somewhere. My plan is to stay in backpackers, and maybe build them a website instead of paying for a room. So, I can be a roving catalyst for getting Skeptics in the Pub meetings set up all over the country."

He was aware of the NZ Skeptics when he arrived back in New Zealand. "Yes, I'd come across the website, and I knew Vicki. I joined, but it didn't seem terribly active in a social sense."

Skeptics in the Pub and the NZ Skeptics will continue to remain separate from each other. "Obviously they have similar agendas, but they serve different purposes. In the pub you have a place where you can say whatever you want, about anything and not worry about libel. The society has assets that can be taken off it, so has to be more cautious."

As chair-entity, there are a few areas he wants to focus on, and one revolves around, little surprise, computers.

He'd like to work on the members area of the current website, so details can be added.

"Take the case of homeopathy, one of my pet peeves. Someone might find a paper touting the latest proof for it. We can put a link to that paper up, but at the same time we can add other sites that might have done research debunking it. And members can list if they have any special interests or skills on a subject, so they may be a medical doctor, or a lawyer, and have something to add. They can also flag if they are active or passive skeptics, whether they want to be involved in particular issues."

One issue he would like the society to focus on this year is ACC's priorities. "As everyone knows, they're looking at making various cutbacks but on, I think, the wrong things. They still subsidise acupuncture, but are cutting back on hearing aids for elderly people. It's something the society could have rather a large impact on, if we can get it done right."

He'd also like to see more use made of social microblogging tools like Twitter.

"Recently I was involved with the Australian Skeptics' campaign with the Australian Vaccination Network, who should really be called the anti-vaccination network. They're getting a real hammering over there. By using Twitter, a whole bunch of us were able to join in, in real time, and make a difference. It's powerful crowd-sourcing stuff."

Similarly, the homeopathic overdose utilised the net to good advantage. "This was started by the Merseyside Skeptics, in the UK, and it pretty much went around the world. We got to kick it off, in Christchurch, because of the time zones. And that led to the NZ Council of Homeopaths admitting on national TV that there is no active ingredient in their so-called medicines. But that campaign was run online as well."

He acknowledges Vicki's rat-like cunning. "She's a clever one, no doubt. I found out recently she spent some time grooming me for this role."

There is another connection between the two. Vicki started KAOS, Killing As an Organised Sport (in which participants are given contracts to assassinate one another with toy guns), while at university in the 1980s. "Then she picked up the chair role. I was Dictator of Kaos at Canterbury University in 1996. Now I've picked up the chair."

Coincidence? He thinks so. "But it's very cool. And maybe it means I have the right qualifications for the job."

As to the name Gold, there's a story there which he's happy to talk about, but he tends to save it for face-to-face.

So, if he pops up at a pub in your town go and have a yarn with the new incarnation of the Skeptics' chair-entity. It's bound to be illuminating.

Annette Taylor is a freelance writer and former editor of the NZ Skeptic.

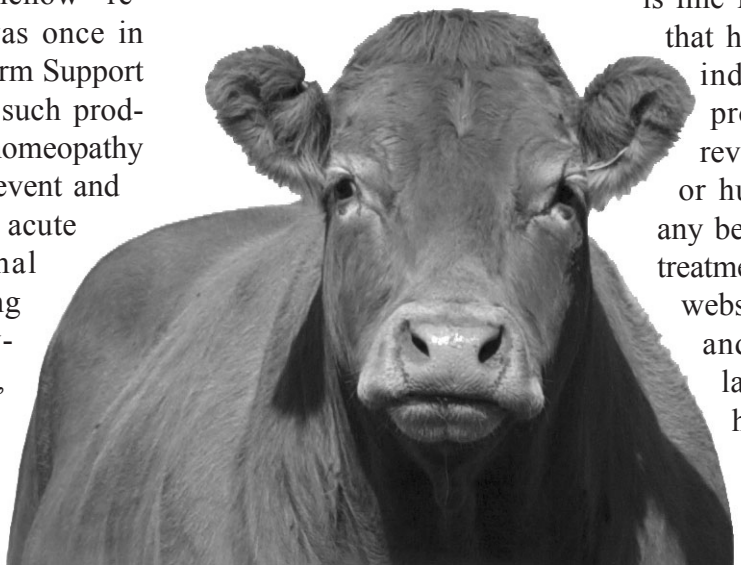
Animal welfare issues whacked with Bent Spoon

Vicki Hyde

CONCERNS over animal welfare issues on farms have seen Rural Women New Zealand and Fonterra rapped with the Bent Spoon, the annual recognition of gullibility and a lack of critical thinking awarded by the NZ Skeptics.

Rural Women New Zealand gave the Supreme prize in its Enterprising Rural Women Award to Homeopathic Farm Support, a company which follows the homeopathic practice of diluting substances until there is no active material left and then claiming that the water somehow "remembers" what was once in it. Homeopathic Farm Support provides a line of such products, claiming that homeopathy can be used to "prevent and treat symptoms of acute and chronic animal ailments" including mastitis, post-calving haemorrhage, pinkeye, scours, first aid and even emotional problems in livestock.

We had lots of members, including a number of vets, contact us very concerned that Rural Women New Zealand has applauded the use of magic water for treating serious cattle ailments, and that this potentially dangerous practice is apparently supported by a third of farmers supplying Fonterra. Rather than lauding the determination of the business owner to succeed in the face of little belief in alternative methods of healing, Rural Women New Zealand should be calling on their members to think long and hard about the welfare issues for their animals, and show that women can succeed in the hard graft of real farming. Fonterra should publicly distance itself from this or it will cop more criticism for tacitly supporting unacceptable New Zealand farm practices.



There have been many studies of homeopathy, but the only ones which show any convincing results are those produced by homeopathic businesses and other vested interests. This is akin to reading tobacco company journals which say that smoking is fine for your health. Studies that have been conducted by independent parties with proper controls and peer review, whether on animals or humans, have not found any benefit from homeopathic treatments. **whatstheharm.net**, a website tracking the physical and economic harm of a lack of critical thinking, has over 400 case studies of people who have died or been harmed by a belief in homeopathy.

We know that animals respond to human contact, and that this can certainly play a role in the stories of response to alternative treatments, in much the same way that people respond to such. But we can´t afford to let treatment of serious health issues reply on wishful thinking or the placebo effect. That´s clearly unethical.

A discussion paper on the ethics of homeopathics in veterinary use noted that "it would also seem clearly unethical to employ an unproven therapy such as homeopathy in cases where an acceptable and effective treatment already exists or where the patient is at risk for greater suffering if the unproven therapy fails."

Others have raised the concern that the use of any substance, homeopathic or otherwise, without any actual data or evidence-based diagnostics, is a form of unapproved animal experimentation.

Fonterra has stated publicly that nearly 3000 of its 10,500 farmer shareholders are Homeopathic Farm Support customers, and Fonterra has worked with the company on organic programmes. Fonterra did not respond to repeated inquiries from the NZ Skeptics regarding their level of support for alternative treatments and the animal welfare issues that result.

Organic farmers don´t have to buy into the wishful thinking of homeopathy in order to be successful. And if they want to build a serious export market, they can´t afford to ignore the welfare issues involved in treating suffering animals with nothing but water. Let´s hope that if there´s a foot-and-mouth outbreak we don´t have calls to treat it homeopathically – that could very well kill our country´s agricultural reputation for good.

A central principle of homeopathy is that every being is unique and the treatment must be tailored to the individual on all levels, physical, emotional and mental. The NZ Skeptics have previously called upon the New Zealand Council of Homeopaths to join them in criticising pharmacies for selling homeopathic products. NZHC did not respond to the request.

The Homeopathic Council should be concerned at products being flogged off over the counter with no questions asked other than `do you want vitamins with that?' We´re appalled that you can sell water for $10 a teaspoon, and it´s distressing that this sort of exploitation is also being practised in our farming sector.

In addition to the Bent Spoon, the NZ Skeptics have praise for a number of attempts to encourage critical thinking over the past year.

Lynley Boniface gains a Bravo Award for her Dominion Post column, "Why psychics should butt out of the Aisling Symes case", castigating TVNZ for giving airtime to self-proclaimed psychic Deb Webber to promote her national tour and speculate on the then-unfolding tragedy of the missing Auckland toddler.

We see distraught families exploited regularly by the psychic industry. It just adds insult to injury to see such exploitainment supported by our state-funded television.

3 News reporter Jane Luscombe gets a Bravo for her informative look at the belief that amber teething necklaces leach a substance to help babies with pain and depression.

All too often we see television reporters take the easy option and swallow claims with nary a raised eyebrow. It was great to see a report where some research had been undertaken to show the claims were unfounded and a clear warning that the practice itself was a dangerous one.

Kate Newton of the Dominion Post also gained a Bravo for her item on Victoria University´s embarrassment over the homeopathy course it was offering in its distance education programme. The NZ Skeptics have been concerned at the increasing willingness of universities to provide facilities for the promotion of touring psychics, neuro-linguistic programmers and other purveyors of dubious services.

Kate Newton also took the trouble to point out that homeopathic products are watered down to the point where no molecules of active ingredients remain. The homeopathic industry is very careful to downplay that aspect in their products and services, and it´s an important point to get across to the general public. Most homeopathic users think they are getting something in the expensive sugar pills and water drops they are buying, but they aren´t.

The awards were psychically conferred at this year's conference dinner.

Scenes from a conference

Rayna Ramsay *produced a photographic record of this year's NZ Skeptics conference. More images (and colour!) at* ***www.skeptics.org.nz***

Clockwise from top left: Siouxsie Wiles with the raffle book; Chicane the magician at the Saturday dinner; Taking it all in at a conference session; Bad luck – Robert Taylor wears a hat (!) indoors; The rain finally stops; Start 'em young – Evie spills the salt.

The Unfortunate Experiment: Revisiting the Cartwright Report

Michelle Coffey

This article is a response to 'Truth is the daughter of time, and not of authority': Aspects of the Cartwright Affair *by Martin Wallace, NZ Skeptic 96.*

THE CARTWRIGHT Inquiry[1] was held after the publication of "An Unfortunate Experiment at National Women's" in Metro magazine in June 1987. The events leading up to the publication of the article and the findings of the subsequent inquiry have been contested ever since.

The inquiry heard from 67 witnesses, many doctors, 84 patients and relatives, and four nurses. In addition, 1200 patient records were reviewed, with 226 used as exhibits. The final report released in August 1988 has had a long-lasting impact. It recommended many changes in the practice of medicine and research, including measures designed to protect patients' rights and a national cervical screening programme. These have since been implemented. The Medical Council announced in 1990 that four doctors were to face disciplinary charges resulting from the inquiry's findings of disgraceful conduct and conduct unbecoming a medical practitioner. Charges against Dr Herbert Green were dropped due to ill health.

The report of the Committee of Inquiry has withstood many challenges, including judicial reviews and many articles alleging its findings to be flawed. Yet there have been allegations of a miscarriage of justice, charges of a witch-hunt, even a feminist conspiracy.

Where does this leave Dr McIndoe and others who had mounting concerns for so many years? Why did so many women develop cancer? In this article I will explore the findings of the Cartwright Inquiry, its context, the research and the criticisms, and attempt to find a more nuanced understanding of the "unfortunate experiment" and its ongoing effects. Page numbers in parentheses refer to pages in the Cartwright Report. CIN3 and CIS are interchangeable terms for a lesion of the cervical epithelium which can be a precursor to invasive cancer.

The Findings of the Inquiry

The report found that Green, rather than developing a hypothesis, aimed to prove a point (p 21) that even at the time was known not to be the case. **A** 1961 compilation of studies from Paris, Copenhagen, Stockholm, Warsaw, and New York showed CIS progressed to invasive cancer in 28.3 percent of cases (p 23). As at 1958 the official policy was "... treatment of carcinoma of the cervix Stage 0, [CIS] should be adequate cone biopsy ... provided the immediate follow-up is negative and ... the pathologist is satisfied that the cone biopsy has included all the carcinomatous tissue" (p 26). Standard treatment of the time involved excising all affected tissue and the 'conservative' treatment of conisation was in use well prior to 1966.

Green's initial proposal stated "... It is considered that the time has come to diagnose and treat by lesser procedures than hitherto, a selected group of patients with positive (A3-A5) smears. Including the four 1965 cases, there are at present under clinical, colposcopic, and cytological observation, 8 patients who have not had a cone or ring biopsy. All of these continue to have positive smears in which there is no clinical or colposcopic evidence of invasive cancer"...

The minutes then record that "... Professor Green said his aim was to attempt to prove that carcinoma-in-situ (CIS) is not a premalignant disease"... (p 22). This appeared to come about because of concern about unnecessarily extensive surgery for CIS between 1949 and 1962. During this period, some centres were beginning to use cone biopsy as effective treatment; however there were limitations to its use (p 27).

There were some questions over whether the work was a research project. The inquiry concluded this was the case and that a research protocol, however flawed, was put in place (p 69). Green published in peer-reviewed journals on his hypothesis and findings. By 1969, three cases of invasive disease had occurred in patients with positive cytology monitored for more than a year, and this should have made it clear that following patients with persistent CIS was unsafe (p 52).

Green then explained those patients by concluding that they'd had invasive cancer that was missed at the outset. The report contends this was dangerous to the patients as it demonstrated that the proposal was incapable of testing the hypothesis. These patients were reclassified by Green and the patients removed from the study (p 55). In addition, patients over the age of 35 were included in the research in breach of the protocol (p 49).

There were many subsequent issues, including lack of patient consent (p 136). Patients also had to return for repeated tests and other invasive procedures, often receiving general anaesthetics in the process (p 42-49). A collection of cervices from foetuses and stillborn infants and another of baby uteri in wax were collected by Green for research which was later abandoned. This did not appear to comply with the Human Tissue Act (1964) as no consent was obtained from the parents of the stillborn infants (p 141).

As part of an earlier 1963 trial to test whether abnormal cytology in women later developing CIS or invasive cancer was present at birth (pp 34 & 140), 2,244 new-born babies had their vaginas swabbed without formal consent from the parents (there was a decision to abandon this trial soon after it started but this wasn't communicated to nursing staff until 1966).

Procedures such as vaginal examinations and IUD insertions/removals on hysterectomy cases were performed by students without patient knowledge or consent while they were under anaesthetic (p 172). There was a further study on carcinoma of the cervix treatment, where patients either had radiotherapy alone or hysterectomy and radiation (p 170). The method of randomisation was by coin toss.

The Research

The idea that patients were divided into two experimental groups arose from McIndoe et al (1984)[2]. The patients were divided retrospectively into two groups which overlapped strongly but not completely with groups defined by Green, that he called "special series". In his 1969 paper, cited in the report (p 40-41) he stated: "The only way to settle the question as to what happens to carcinoma in situ is to follow adequately diagnosed but untreated lesions indefinitely ... it is being attempted at NWH by means of 2 series of cases. (I) A group of 27 women ... are being followed, without 'treatment', by clinical, colposcopic, and cytologic examination after initial histological diagnosis of carcinoma in situ ... has been established by punch biopsy ... (II) A group of 25 women who have had a hysterectomy (4 for cervical carcinoma in situ) and who now have histologically-proven vaginal carcinoma in situ, has been accumulated ..." This was done semi-randomly, with cases presenting themselves fortuitously.

The outcome for the group of 25 who were included in the punch biopsy "special series" was summarised in the McIndoe et al (1984) paper. Nine out of 10 women who were monitored with continuing positive smears developed invasive cancer. Only one out of 15 women who had normal follow-up cytology later developed invasive cancer. While Coney and Bunkle may have made a mistake, it's clear the judge didn't. The report states: "Green's 1966 proposal was not a randomised control trial, but it was experimental research combined with patient care" (p 63).

Green's interpretation of the data in his 1974 paper is suspect, having concluded that the progression rate was 7-10/750 (0.9 to 1.3 percent) or 6/96 (6.3 percent) of 'incompletely treated' lesions (p 54). These were explained by suggesting that either invasive cancer was missed at

the start, or over-diagnosed at the end. Dr Jordan (expert witness) deemed this interpretation incorrect as of the 750 cases, 96 had continuing positive cytology, meaning that the other 654 patients could be considered free of disease. Of that 96, 52 patients had not been assessed further, making it impossible to know whether or not this group already had unsuspected invasion. Of the 44 patients remaining with ongoing carcinoma in situ who had more investigations, seven were found with invasive carcinoma. The incidence of known progression was therefore 7/44 (16 percent), which approximates McIndoe et al (1984) findings. This means that the proportion of invasive cancer cases in those inadequately treated was much higher compared with those who had returned to negative cytology, even before any cases where slides were re-read and excluded are considered.

McIndoe et al (1984) covered the follow-up data for 948 patients with a histological diagnosis of CIS patients who had been followed for a minimum of five years (Figure 1); there was a further paper in 1986 regarding CIS of the vulva. The same method used by Dr Green to group women by cytology after diagnosis and treatment was used, but using the correct denominators and the original diagnosis. Patients who were diagnosed with invasive cancer within one year were excluded to avoid the possibility the cancer had been missed initially. The management was cone biopsy or amputation of the cervix in 673 patients, with 250 managed by hysterectomy. The only biopsies in 25 women were punch biopsy (11), wedge preceded by punch biopsy (7) and wedge biopsy alone (7). Twelve out of 817 (1.5 percent) of group 1 patients developed invasive cancer. Given the lengthy follow-up with negative cytology for group 1 patients, the authors concluded these represented the development of new carcinoma. There were marked differences in the completeness of excision between the two groups and the second group shows markedly different results, with 29/131 (22 percent or 24.8-fold higher chance) with positive cytology developing invasive cancer. At 10 years this was 18 percent rising to 36 percent after 20 years, irrespective of the initial management or histologic completeness of excision. This needs to be explained, as those figures strongly suggest the progression of CIS to invasion when it is and was a totally curable lesion. The answer is that a prospective

Management	Group 1 No. of patients	Group 1 Development invasion	Group 2 No. of patients	Group 2 Development invasion
Cone biopsy and amputation cervix				
Punch and/or wedge, later cone biopsy	131	2	53	4
Cone biopsy	448	7	35	10
Amputation cervix	6			
Total hysterectomy				
Punch and/or wedge biopsy, later TH	34		4	
Cone, later TH	156	2	29	6
Primary TH	27			
Other				
Outpatient punch biopsy only	6	1	5	5
Punch, later wedge biopsy	4		3	2
Wedge biopsy only	5		2	2
Total	**817**	**12**	**131**	**29**

Figure 1: Detailed Patient Management Source: Mcindoe et al. (1984). (TH = Total hysterectomy)

investigation, as done by Green, has to establish that invasive disease is not present, while conserving affected tissue that is required for later study. The argument has been posed that women in the second group did get cone biopsies and hysterectomies. This ignores the fact that while many women were treated with various procedures, there was evidence of continuing disease, demonstrating that the intervention was inadequate. This was not followed up, posing a high risk of development of invasive disease.

This differs from group 1 patients, who were successfully treated at the outset. It's pertinent to point out that the Cartwright Report did not rely on this study (or the Metro article) to reach its conclusions, but on review of patient records.

There have been two follow-up studies. McCredie et al (2008)[3] examined medical records, cytology and histopathology for all women diagnosed with CIN3 between 1955 and 1976, whose treatment was reviewed by judicial inquiry. This paper gave a direct estimate of the rate of progression from CIN3 to invasive cancer. For 143 women that were managed by only punch or wedge biopsy the cumulative incidence was 31.3 percent at 30 years and 50.3 percent in a subgroup who had persistent disease at 24 months.

The cancer risk for 593 women who received adequate treatment and who were treated conventionally for recurrent disease was 0.7 percent at 30 years. These findings support McIndoe et al (1984) and extend the period of follow-up.

McCredie et al (2010)[4] described the management and outcomes for women during the period 1965-74 and makes comparisons with women diagnosed 1955-64 and 1975-76. This showed that women diagnosed with CIN3 in 1965-74 were less likely to have treatment with curative intent (51 percent vs 95 percent and 85 percent), had more follow-up biopsies, were more likely to have positive cytology during follow-up and positive smears that were not followed by curative treatment within six months, as well as a higher risk of cancer of the cervix or vaginal vault.

Those women initially managed by punch or wedge biopsy alone in the period 1965-74 had a cancer risk 10 times higher that women treated with intention to cure. This was despite the 1955-64 group being largely unscreened, which would have delayed diagnosis. This study is important as it shows the medical experience of the women, where they were subjected to many interventions that were not meant to treat but rather to monitor.

Whistle blowing

Scientific misconduct happens, and for those trying to address it the risks are high. Brian Martin[5] looked at several cases, and stated: "In each case it was hard to mobilize institutions to take action against prestigious figures. Formal procedures, even when invoked, were slow and often indecisive."

McIndoe and others encountered similar difficulties and ultimately failed to get Green's proposal reviewed. The concept of "clinical freedom" (p 127), where the doctor was the arbiter of the best course of action for the patient, was one major issue to emerge from the report. Colleagues tended to be very reluctant to intrude upon this, and this meant that the proposal could continue with little oversight or intervention. McIndoe had mounting concerns, particularly after 1969, which were disregarded or treated lightly.

These concerns were shared by pathologist-in-charge Dr McLean, and were raised internally with Medical Superintendent Dr Warren, who consulted with the Superintendent-in-Chief, Dr Moody and an internal working party set up to look at the issue in 1975. Twenty-nine cases that had developed invasive disease were referred to it; however only 13 were examined, and having set up its own terms of reference it only considered whether the protocol had been adhered to and disregarded concerns about patient safety (p 83).

The 1966 proposal effectively ceased when McIndoe withdrew colposcopic services and Green reverted to cone biopsy in most new cases (p 88), but it was never formally terminated. While Green himself did not take any steps to prevent the review of records by McIndoe and colleagues, Bonham did, and wrote a letter to the Medical Superintendent (p 92).

There are some important lessons to be learned from this, including that those with the authority to deal with the situation should make the best effort to achieve a balanced view of the situation and assess it fairly to allow the claimant a fair hearing.

Conclusions

The potential risks of Green's proposal outweighed any benefits such as avoiding hysterectomy or cone biopsy. Invasive cancer could not be ruled out because there were poor safeguards against the risk of progression. This was unethical from the outset, regardless of the issue of informed consent. In addition, patients that developed invasive disease had their slides reclassified and were removed by Dr Green from the study. This would be considered research misconduct then and now as it manipulated the data.

It does not matter if the initial motivations were sincere; they ultimately fail on these points. This proposal had a very human cost. Moreover Green's views had long-term effects, including influence on undergraduate and postgraduate medical students, and support for the attitude that cervical screening was not worthwhile. This 'atypical' viewpoint was also promoted in the scientific literature and in the press, creating confusion within the medical scene and with the public.

It can be incredibly hard to admit our failings and let go of old loyalties. In the aftermath of the report many doctors objected to cervical screening, 'unworkable' consent forms and the intrusion of lay committees on practice[6]. It's true this had negative effects on the perception of doctors overall, particularly in regard to practices that were widespread in hospitals at the time, and there were times that unfair criticisms were aired. This impacted on the nursing profession as well, for nurses are meant to be patient advocates.

This was also about power. The really unfortunate thing is that medical responsibilities to patients are almost totally ignored in the midst of the argument, when they should be brought to the forefront. Likewise respect, justice and beneficence were lacking for the patients involved. No doctor raised concerns about the lack of consent, even though from the 1950s there was the growing expectation that this be sought, particularly with participants in research.

The potential risks of Green's proposal outweighed any benefits...

The Medical Association working party that examined this stated that it was "regrettable that the trial deteriorated scientifically and ethically and did not change as scientific knowledge advanced or as adverse results were observed"[7]. They found it deplorable that patients involved did not know they were part of a trial, and that it took a magazine article for it to be investigated.

Unfortunately, instead of addressing this and examining whether Dr Green made any errors or misinterpretations himself, the findings in McIndoe et al (1984) and other papers were not accepted. There is the unfortunate implication that, rather than there being mounting and valid concerns over decades, that Green was unfairly toppled and the resulting inquiry was a whitewash.

The report couldn't have been written without the assistance of the medical community as expert witnesses and advisors. It's not surprising that there would be loyalty for a colleague, but perhaps instead of attempting to rehabilitate Green it's time McIndoe and his colleagues were vindicated. Morality did not totally fail and attempts were made to prevent patients being harmed[8].

Acknowledgements: many thanks to Dr. Margaret McCredie of Otago University who assisted me with my research.

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

1. The Cartwright Report: **www.nsu.govt.nz/current-nsu-programmes/3233.asp**

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Oxygenated food for the brain?

***Alison Campbell** finds some claims about raw foods hard to swallow.*

I WAS reading a couple of articles about 'raw foods' today. This is 'raw foods' as in 'foods that you don't heat above 40°C in processing them.' It's also as in, a vegetarian diet. (I do rather enjoy vegetarian food, but I don't think I could eat nothing but, all the time; I like meat too much.) Anyway, what caught my eye wasn't so much the diet programme itself but the mis-use of science to promote it. That did rather get my goat broccoli.

Apparently you should get your kids to eat their greens (along with the rest of the diet) by telling them that plants do this wonderful thing: they turn sunlight into chlorophyll and – when you eat it – it will give you extra oxygen. Sigh... This concept was repeated in the second article, which told me that raw (but not cooked) foods are 'oxygenated' and thus better for your brain, which needs to be fully oxygenated to work properly.

Well, yes, and so do all your other bits and pieces, and they don't get the oxygen from food. As Ben Goldacre once said, even if chlorophyll were to survive the digestive process and make it through to the intestine, it needs light in order to photosynthesise, quite apart from the fact that you don't normally absorb oxygen across the gut wall. And it's kind of dark inside you.

The second shaky claim related to digestive enzymes. Because raw foods are 'alive' then they are full of enzymes. And so we're told that eating them will help you to digest your meals better.

Er, no. First, because when said enzymes – being proteins – hit the low pH environment of your stomach they are highly likely to be denatured. This change in shape means that they lose the ability to function as they should, and in fact they'll be chopped up into amino acids like any other protein in your food, before being absorbed and then used by your cells to make their own enzymes.

And second – the raw foods diet is plant-based. Yes, plants and animals are going to have some enzymes in common. I'd expect that those involved in cellular respiration and DNA replication/protein synthesis would be very similar, for example, because these are crucial processes in any cell's life and any deviations in form and function are likely to be severely punished by natural selection. But we already have those enzymes; they're manufactured in situ as required. In other words, even if the plant enzymes somehow made it into cells intact and capable of functioning, they'd be redundant.

However, with a very few exceptions, plants aren't in the habit of consuming other organisms so, in regard to plant cells being a good source of the digestive enzymes required for the proper functioning of an omnivore's gut – no, I don't think so. No.

Some might ask, why on earth do I bother about this stuff? After all, it's not doing any harm. But the thing is – science is so cool, so exciting; it tells us so much about the world – why do people have to prostitute it in this way? Kids (and others) are fascinated by the way their bodies' organ systems work, and I can't see why there seems to be a need to provide 'simple' – and wrong! – alternative 'explanations' when the real thing is so wonderful.

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

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