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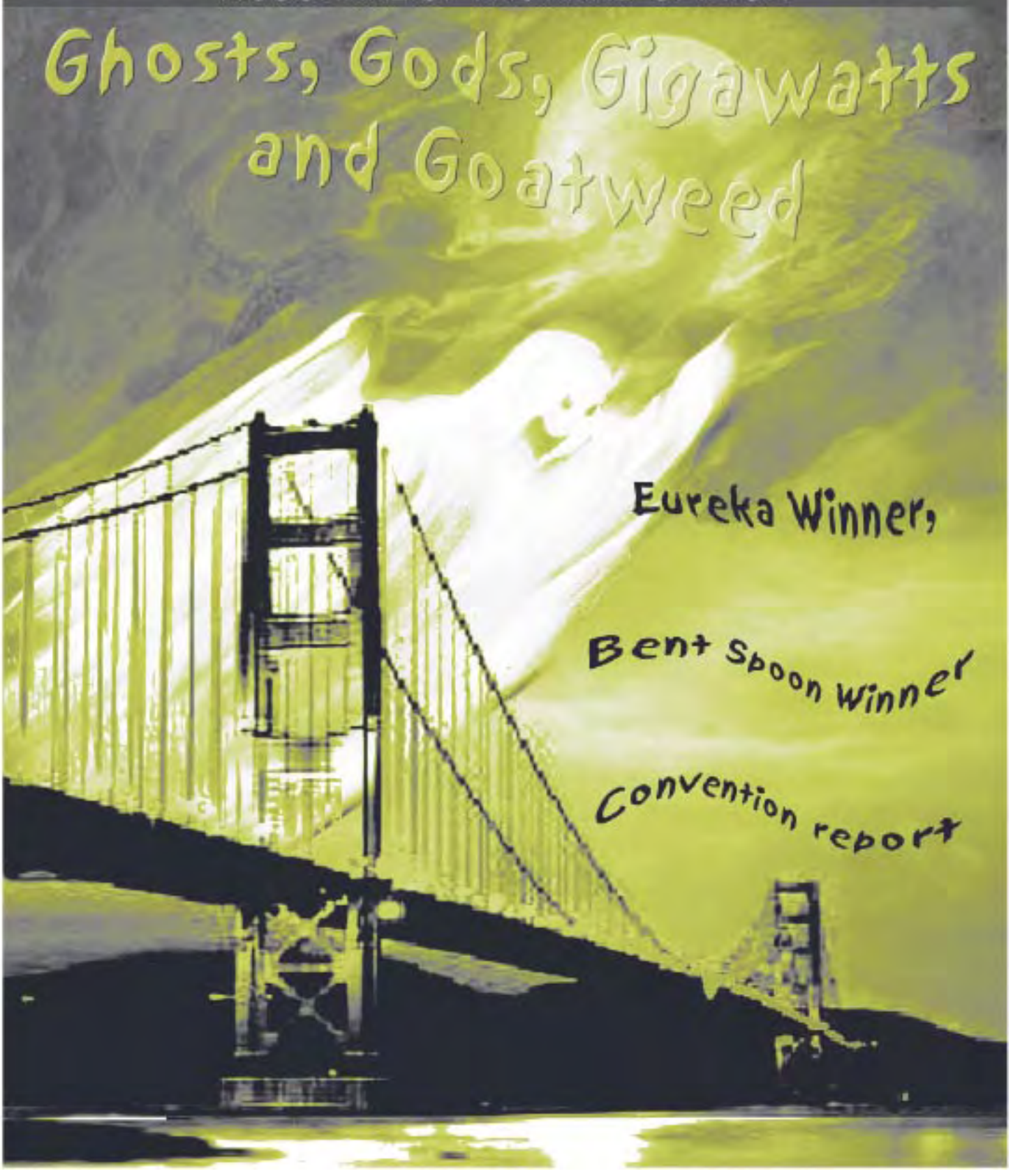
Ghosts, Gods, Gigawatts and Goatweed



Eureka Winner,

Bent Spoon Winner

Convention report

the Skeptic

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Massaging the Message

We frequently hear politicians of all stripes complaining about media bias and, by their lights, the complaints might well have some justification. That is not, however, what concerns *the Skeptic* about the media in general — our concerns lie with more fundamental problems.

It's not too clear when the various discrete information disseminating entities of the press, radio and television became subsumed under the generic term 'news media' (quickly contracted to 'media') but perhaps the Canadian communications educator, Marshall MacLuhan, had a hand in it. In the forty years since he coined the phrase "The medium is the message", the message has consistently been becoming more muddy and mangled with the passage of time.

What has become clear is that the concepts of 'news' and 'reporting' have fallen out of favour with the media — to be replaced with 'opinion' and 'commentating'. Objectivity has given way to advocacy, information has knuckled under to entertainment, fact to gossip, substance to sensation, worthiness to celebrity.

Any number of surveys have sought to find what the public want from their news sources, with stories about science and medical matters always rating near the top. Is this reflected in what is provided? Not even close. Ask any of the excellent science and medical writers who work in the media, just how difficult it is to get their stories into the daily mix. If is doesn't have a sensational or quirky twist, it goes nowhere. The current *Skeptic* has ample examples of this tendency.

The ABC is rightly held in high regard for its commitment to reporting good science and medical stories, with the *Science Show*, *Health Matters* and *Catalyst* featuring prominently. Yet the ABC is the winner of this year's Bent Spoon Award, for *Second Opinion*, a program that is little more than a free 30-minute commercial for untested quackery. Complaints about the program brought a reply that informed us that *"Second Opinion must adhere to the guidelines set out in the ABC's Editorial Policies and Code of Practice for factual programs. The ABC is committed to providing programs of great diversity that reflect a wide range of interests, beliefs and perspectives."* It seems that what the code does **not** require of "factual programs" are **facts**. We can scarcely contain our excitement as we await the first productions of *The Nazi Hour* and *Paedophilia Today* (purely in the interests of diversity, of course).

The ABC religious program *The Spirit of Things* also caused us concern, when it provided an uncritical platform for a visiting American psychic, who claimed she had helped US law enforcement agencies solve murders. When Ken McLeod (his story appears later) complained, he received a reply that said the show is *"... about matters of faith, which Allison Dubois clearly said her work requires"*. It also questioned why the Skeptics did not complain about other programs addressing matters of religious faith held by various people. The answer is quite simple. The Skeptics have no concerns at all with religious programs covering matters of religious faith — surely that is what religious programs are for. But claiming to solve crimes is not about faith, it is about facts and facts can, and should, be checked. It is not part of the ABC's role to give free publicity to anyone who knocks on their door with a fanciful tale.

More concerns are raised by *Media doctor*, the Skeptics Eureka Prize winner, which demonstrates that medical stories reported in popular current affairs programs are likely to be accurate only 25%-35% of the time, while even in the 'quality' media this rate barely rises above 50%. That is, more than half of what you see or hear about medical matters in the media is simply wrong.

The Eureka Prizes themselves testify to the media focus on sensation at the expense of substance. Rightly described as a showcase of scientific excellence, each year the Eurekas reward some remarkable scientific endeavours. This year's event, while it achieved better-than-usual coverage, the results were widely ignored by the media. As far as we have been able to determine not one outlet reported the full list of winners, and many of them did not report a single case. Compare this with the coverage afforded the annual Logies or Archibald Prize contests — science simply isn't in the event. We have nothing at all against the arts or the entertainment industry — they are very important parts of what makes our society worth living in. Science is at least as important for our wellbeing, and is certainly no less exciting or creative than the former endeavours, yet as far as the media is concerned, excellence in science simply does not rate. We are a poorer society for that lack of interest.

Discrimination is a word that has acquired a somewhat unsavoury reputation in recent years, largely through its misuse, yet the ability to discriminate between gold and dross is what stands between all of us and gullibile victimhood. If we are to continue to enjoy a worthwhile lifestyle, we need a far more discriminating media.

Barry Williams

Around the Traps

Unique?

Has the Unique Water story finally come to an end? It began some years ago with a vet named Russell Beckett, who claimed that magnesium-rich water in the Monaro region of NSW had led to increased numbers of multiple births among sheep, with the added benefit of increasing longevity.

After claiming to have conducted further research by introducing magnesium carbonate into water, he then entered into a commercial arrangement with Sydney company, Bert's Soft Drinks, to produce "Unique Water". Petroleum company, BP came to the party and began to sell the water through its network of service stations.

The story gained legs in April 2002 from a glowing testimonial written by senior Fairfax journalist, Paul Sheehan, in the *Good Weekend* magazine, in which he recounted his personal experience of recovering from serious illness after drinking the water. This started a media circus, with pictures of hundreds of people queuing up outside the soft drink factory to get supplies, all sorts of inflated claims being made, offers to subject the water to clinical trials by various institutions, and the edifying image of the Editor of *the Skeptic* consuming the water on a TV programme (who reports the flavour as a palatable tipple as lying somewhere between petrol and goat's urine — we are not sure where or how he did **his** research).

There the story might have petered out if it wasn't for a story by another Fairfax journalist, Ben Hills, in April 2005. It seems that Dr Beckett has departed our shores, never having taken up any of the offers of research by laboratories, nor having provided any data of his own to substantiate his claims. The soft drink company, which claims to have spent substantial sums in setting up a new bottling line, says it is still out-of-pocket from the venture; stacks of bottles of the water can still be seen in some BP stations, though sales seem to have diminished; and the ACCC (finally) caused Beckett to remove the therapeutic claims from his web site.

While Beckett cannot be found, Ben Hills discovered a company in Canada selling a very similar product, making very similar claims. The only regret the Skeptics have is that while Unique Water was a contender for our Bent Spoon Award a few years ago, it did not win.

Intelligent?

The pernicious dogma of 'Intelligent Design' has gained a deal of press coverage of late, as anti-science zealots try to come up with a marketing strategy that does not suffer from the risible flaws of the Young Earth Creation model. It has rightly drawn the scorn of all who recognise that neither claim comes within cooee of being a scientific explanation of anything.

We are, however, a bit nonplussed that some of the opponents of ID are saying that while it is not appropriate to be taught in science classes as it makes no scientific claims at all, it should (or could) be taught under some other subject.

Why? Not only is it not scientific, as a belief based purely on a sense of personal incredulity, it has no place in schools at all. Perhaps schools have some place in which to teach a wide variety of cultural creation myths, but we doubt if these would include such topics as Scientology's weird ideas about how we got here. Intelligent Design deserves no more consideration than that.

No link

The September 12 edition of *Four Corners* (ABCTV) showed a British *Horizon* programme about claims that there is a link between an increasing diagnosis of autism and MMR immunisation of children.

Briefly, the proposition, based on claims made by a British gastroenterologist, Dr Andrew Wakefield, was put that autism started increasing in various countries after MMR immunisation was introduced. A very large immunological study was conducted which showed that the increase in diagnosed autism started **before** MMR was introduced and the rate of increase did not change afterwards. A study of Danish children (where special tracking data was available)

showed no difference in autism between children with or without MMR.

Wakefield then changed his story to say that the measles component of MMR was the culprit that caused a 'new' bowel disease, which led to autism. A medical professor who specialised in bowel disorders, pointed out that such disorders were much more common in sufferers from **all** neurological ailments (not just autism) and that the connection was almost certainly the reverse of what Wakefield claimed, ie the neuro condition probably caused the bowel one, not the other way around.

Wakefield's supporters then responded that epidemiological studies were "only statistics" and that no clinical studies had been done. Further, that said they had evidence that autistic children had acquired their problem because of the measles virus was still active in their bodies. Medical researchers then set up a clinical study of the blood of 100 autistic children and a control group to search for traces of measles virus. In 99% of all cases there was **no trace**, and in the remainder, the presence of the virus was slightly higher in the non-autistic subjects.

Even that did not cause the slightest loss of faith in one of the most vocal supporters, the mother of an autistic child, who continued with her assertions that "we have loads of evidence of the connection". It is easy to understand the distress felt by a parent of an autistic child, but a GP (who had an autistic son) who also appeared on the programme, was right when he said that parents who had been blaming themselves for the condition, because they had let the kids have MMR could now be confident that it was not their fault.

Also on the programme was a young girl whose mother had suffered from undiagnosed rubella (the R in MMR) before her birth. This girl was born blind and deaf as a result. It is moot whether her condition was more distressing than autism.

The conclusions drawn by the programme were as uncompromising as it is possible to be about any scientific issue — there is **no** connection between MMR and autism.

After the show the ABC conducted its usual on-line talk-back segment, with a representative of the grossly misnamed Australian Vaccination Network taking one of the "expert" spots. Reading the responses from viewers (see www.abc.net.au/4corners/ and follow the links) gives one a good insight into just how insidious is the propaganda pumped out by this virulently anti-vaccination organisation (one would stand a far better chance of hearing the Pope agreeing that Satan would be a decent companion with whom to watch the cricket, than to hear any praise for vaccination of any kind from the AVN). It was wall-to-wall conspiracy theory, unrelieved by common sense.

More or Less

Reported in *The Lancet* (August 26) is a review of 110 trials which found no convincing evidence that homeopathy works any better than a placebo. It went on to say that 'the time for more studies is over and doctors should be bold and honest with patients about homeopathy's lack of benefit'.

Skeptic readers will be unsurprised to hear that supporters of homeopathy were totally unconvinced and attacked the report in less than homeopathic language. Although the attacks were many, varied and not at all cohesive, the thrust seemed to be that patient reports of 'feeling better' should be seen as much more reliable than clinical trials.

Woe

A sad sight at Skeptics Central. The Editor has been spotted slouching mournfully around the place, garbed only in sackcloth. Seems his heroes recently mislaid The Ashes.

Bunyip

Things to See and Do on the Skeptics Web Site

From our on-line shop you can now buy:

Electronic media

The Great Skeptic CD2.
Three annual convention DVDs
2005 (2 discs) ; 2004 (2 discs); 2002 (1 disc)
The Water Divining (DVD and Video-tape)

Books

The Skeptic's Guide to the Paranormal — Lynne Kelly
Humbug — Jef Clark
Making Friends with Fossils — Helen Lawrence
Four Nuclear Energy booklets — Colin Keay
(And more books coming soon)

Plus

Lapel Badges, Skeptic Bags

We now have a podcast *The Skeptic Tank" at*:
www.skeptics.com.au/tank/index.html

The first programmes are interviews with Eugenie Scott, Executive Director of the National Center for Science Education in the USA, speaking about Intelligent Design and Phil Plait, the Bad Astronomer. We anticipate adding new programmes every two weeks.

So cast your pods in that direction and listen to these experts talking about many Skeptical issues. (For fellow Luddites, podcasting has nothing to do with catching whales with a fly-fishing rod, or so we have been led to believe.)

Convention an Outstanding Success

To those of us from southern climes, seduced by Queensland tourist propaganda, reaching the Gold Coast airport on August 12 proved to be something of a disappointment — it was raining and 14 degrees. That, however, proved to be the only disappointment of a wonderful weekend.

Max Clixby and students with Tim van Gelder

The Gold Coast Skeptics, our smallest branch, provided the audience of some 150 Skeptics from as far afield as North Queensland, Tasmania and South Australia (and many points between) with an excellent venue (Bond University), fine catering and a bouquet of speakers and topics the equal of any at the 20 previous annual National Conventions. The programme looked at many familiar issues, though in different ways, as well as others that have not hitherto been considered at Skeptics conventions. Chris Del Mar, Adrian Kelly, Geraldine Moses and Loretta Marron gave lively and thoughtful presentations on various aspects of health care and the dubious claims of promoters of 'alternative' or 'complementary' treatments. Robert Henry exposed many of the myths surrounding the debate on genetically modified foods and demonstrated where the truth can be found, while Jim Allan considered the rights and wrongs of human rights and Jeff Brand considered the effects of violent video games.

Hugh Crone looked at New Age beliefs and knowledge, while Colin Keay discussed the methods by which a modern society gets the energy it requires. The inimitable Peter Bowditch examined the entrails of various multi-level marketing schemes, while the Editor of the Skeptic convinced the audience of the reality of conspiracy theories by appearing to be a victim of a mind-control ray. Tim van Gelder, spoke of software technology he had developed (and which won him Skeptics Eureka Prize in 2001) to enhance the teaching of critical thinking. Tim was then joined by three self-assured young women from a local high school (students of Max Clixby, a GC Skeptic) who made presentations on the topic "Critical thinking is cool!"

It was a truly memorable experience, thoroughly enjoyed by all who attended. For Lilian Derrick, Mike Glajnaric and their team of willing Gold Coast helpers, no praise can be too high. Congratulations and the gratitude of all of us to them for their sterling efforts.

A couple of papers from speakers are included in this issue, with more to follow, however, those who were unable to attend can still see it all. The entire proceedings were video-taped and are now available on a 2- DVD set for $30, from our on-line shop or PO Box 268, Roseville 2069.

Far Northerners Veikko Tanner and Doug Irvin enjoying lunch

Loretta the 'Jelly Bean Lady', with freelance journalist Helen Chryssides

Bent Spoon Award

Australian Skeptics has been conferring the Bent Spoon Award (BSA), for 20 years and seldom has a candidate attracted as much (nearly unanimous, in fact) support as the 2005 winner. Presented annually to the "perpetrator of the most preposterous piece of paranormal or pseudoscientific piffle", the BSA has come as an unwelcome accolade for people across a wide range of occupations, many of whom should have known better.

Early this year the ABC decided to institute a series of nightly TV programmes in the 6.30pm slot. The one chosen for Tuesday was entitled *Second Opinion*, with an expressed aim to "inform viewers of the many and varied therapies available to treat or address common ailments within the community." Not a bad idea in itself, if the intention had been to critically examine what was on offer and to seek to find what (if any) health benefits could be obtained from this variety of therapies.

Sadly, that is far from what really happened. What emerged from the Tasmanian ABC studios amounted to an uncritical free 30-minute commercial for quackery in all its manifestations. While not every show focuses on untested or worthless procedures, in general the proponents of a variety of dubious 'modalities' are allowed to proselytise with barely a word of demur from the 'resident GP'. There is a complete absence of critical investigation of the claims being made, which remain largely unchallenged, while complaints from skeptics to the ABC web site tend to be treated dismissively. This from a segment that comes under the ABC category of "Factual Programmes".

The ABC really should (and can — eg, Dr Norman Swan's *Health Report* on Radio National) do better than to add its imprimatur to treatments with no factual basis. It should not use it undoubted prestige to encourage its viewers in the view that 'alternative', 'complementary' or 'natural' are acceptable synonyms for 'effective'.

Never has a Bent Spoon Award been more deserved than this one for *Second Opinion*, however it has energised the Skeptics into setting up its own evidence-based web page, *Third Opinion*, in which we issue the challenges the ABC should have thought of before transmission.

See:
www.skeptics.com.au/thirdopinion/index.html

Three Honoured

From time-to-time the Skeptics confer Honorary Life Membership on people who have performed special or long time dedicated service to the Skeptics cause. At the convention dinner at the Gold Coast three worthy recipients.

Laurie Eddie has been a member of the Skeptics since the very beginning and during most of that time he has been the stalwart of the South Australian Skeptics. Without Laurie's commitment it is likely the SA branch would have achieved far less than it has and might even have ceased to exist.

John Stear, from the Gold Coast, largely on his own initiative began the *No Answers in Genesis* web site as a counter to the misinformation produced by the anti-science Answers in Genesis organisation.

Fred Thornett is also a long-time Skeptic, who has dedicated a great deal of his time and energy to maintaining the Tasmanian Skeptics, all the while maintaining a cheerfully skeptical demeanour.

In thanking the recipients for their dedication and commitment *Skeptic* Editor, Barry Williams, observed that the recipients were not only highly worthy of the honour, but were also of sufficient gravity as to make him feel slim by comparison.

Barry Williams announces HLMs for, Laurie Eddie, John Stear and Fred Thornett

Eureka Winner

Australian Skeptics has been associated with the Australian Museum Eureka Prizes since 1997, when we became their sixth sponsor. Since then we have seen the Eurekas grow to become the major public awards event in the scientific field, with the current number of sponsors rising to 24 and the prizes increasing to more than $230,000.

On August 9, almost 1000 people, from government, science, industry, education, academia and the media attended the glittering galah presentation of the 2005 Eurekas at the Fox Studios in Sydney. They heard of some remarkable performances by people engaged in a wide range of scientific and educational endeavours as well as fine examples of reporting important stories in these fields.

Finalists for the Australian Skeptics Eureka Prize for Critical Thinking were:

Dr Martin Bridgstock

Senior Lecturer, School of Science

Griffith University

For *Skepticism, Science and the Paranormal*, a new tertiary course incorporating a novel approach to imparting skepticism. The approach requires students to understand and apply the key skeptical principles of Burden of Proof, Occam's Razor and Sagan's Balance, which gives them the tools to make judgment on the validity of paranormal claims. The course arouses great enthusiasm, interest and high standards of work with the ultimate judgment of the truth of paranormal claims being left to the students.

Martin Hadley presents the awards to Amanda Wilson and David Henry

Runners -up Helen Carberry and Martin Bridgstock

Dr Helen Carberry

Lecturer in Quantitative Medical Science

Queensland University of Technology

For examining how Semiotics, the science of signs, provides a powerful educational tool for addressing complexity, uncertainty and contradiction in 21st-century applied science knowledge.

Dr David Henry

Head of Clinical Pharmacology

University of Newcastle

Amanda Wilson

Research Officer

Newcastle Institute of Public Health

Jointly nominated for *Media doctor*, a web site aimed at improving the quality of medical news stories in the mainstream media. Its mission is to increase the accuracy in reporting scientific aspects of medical research and to expose pseudo-science, which is a common basis of spurious claims about new medical treatments.

Although the judging was close, the winners were named as Dr David Henry and Ms Amanda Wilson, whose web site addresses a real need to promote accuracy in news stories about medical issues.

David and Amanda explain their results on the following page.

Improving the Quality of Medical News Reporting:

early experience with *Media doctor*

Media doctor has taken on a small part of the challenge confronted by the Australian Skeptics for many years. The *Media doctor* team comprises a part-time researcher (Amanda Wilson) and twelve raters (mainly physicians and medical writers) who regularly review and critique medical news stories in the mainstream press. The stories we select typically make claims made about new medical treatments or diagnostic tests. There were two major influences behind the *Media doctor* project. The first was the work of Ray Moynihan, a well-known medical journalist and writer, who spent a year in the United States, with a Harkness Fellowship, studying medical news reporting. His work gave rise to a "tip sheet" for journalists listing the main elements of a balanced story about new treatments. A modification of this tip sheet became the basis of the rating form that we use (http://mediadoctor.org.au/content/ratinginformation.jsp).

The second influence was DH's membership of the Pharmaceutical Benefits Advisory Committee, watching the ways in which the major pharmaceutical manufacturers manipulated the lay press in order to present their new drug products in the best possible light. The PBAC at that time was unable to respond publicly to what was often misleading hype about new drugs, designed to put pressure on the committee to award a government subsidy.

Although we were influenced initially by our experience of 'Big Pharma', we also recognised the importance of misleading claims that are made by much smaller operators about a variety of 'miracle cures'. Major manufacturers have marketed few genuinely new drugs during the year that *Media doctor* has been active. Australian Skeptics will not be surprised to hear that there have been many more articles making spurious claims about 'magic water', 'slim patches', 'mesotherapy' for cellulite, and other miscellaneous nonsense.

All stories rated in *Media doctor* are given an overall score, with a maximum possible of 100%. At the time of writing the average score of Channel 7's *Today Tonight* is 25%, and Channel 9's *A Current Affair* is 35%. They are the main sources of really silly stories. Even the broadsheet print media do not perform particularly well; the Melbourne *Age*, *The Australian* and the *Sydney Morning Herald* have average scores between 53% and 59%. It is notable that the on-line news services score significantly worse than the print media (http://mediadoctor.org.au/content/sourceinfo.jsp), although *ninemsn* is superior to *ABC News online*. The ABC really is a mixed bag with some spectacularly good reporting of science and medicine (eg Dr Karl, Adam Spencer and Norman Swan) contrasting with some truly awful material, such as the Skeptics' current 'bête noir' *Second Opinion*. In the face of such heterogeneity we have concentrated on the medical stories in the ABC News on-line service. So the ABC's score does not apply to the whole organisation

At *Media doctor* we are careful not to try to tell journalists how to write good stories. In addition, we do not name journalists but aim our criticisms at the media outlets, as the sub-editors often seem to have more influence than the writers themselves. We lay out what we regard as the essential elements of balanced stories that make therapeutic claims, and do not deal directly with the quality of the writing, the headlines, etc. We are very realistic about our chances of improving the quality of stories, but we hope that a growing awareness of the need to challenge spurious claims and present essential facts about treatments will slowly change the culture of medical writing.

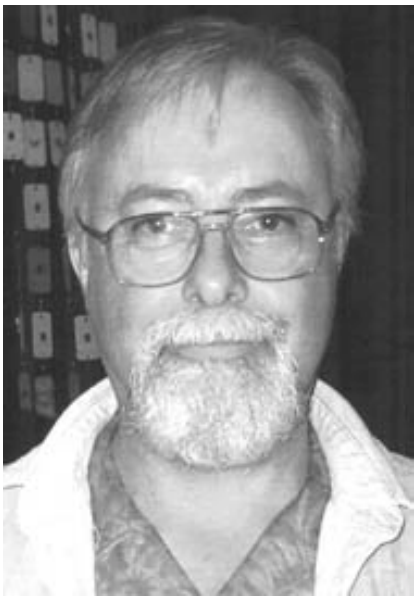
Media doctor has received a lot of attention and journalists have generally treated it rather fairly. They have seemed more open to criticism than doctors when their performance has been critiqued publicly. The awarding of the Australian Sceptics' Eureka Prize for Critical Thinking was a high spot for our hard working team and shoestring operation. In future we will be sending regular 'report cards' to major media outlets, and extending our coverage to a wider range of print and electronic media. The Eureka prize will assist us greatly as it has been difficult to find un-conflicted funding sources for this type of work. *Media Doctor Canada* is due to commence in September, 2005, and it is very likely that similar activities will commence in other countries.

English Expression:

is Their a Cause for Concern?

(Or is it's alledged "decline" one of the literally mind-blowing myth's in contemporary western societys)?

Communicating ideas is not helped by sloppy scholarship



Jef Clark, who teaches teachers how to teach, masquerades as an academic at Griffith University. Henceforth he will be contributing a regular column on a wide range of issues that tickle his sense of the ridiculous.

I have always had an abiding interest (spot the deliberate mistake) in my most important professional tool and one of my most important private delights — the English language. Left to itself, the language tends to look after itself. It evolves incrementally, and yet its intelligibility is preserved by a sensible inertia — an inertia which is husbanded carefully by editors of esteemed publications, and by open-minded and informed pedants such as myself. It is a delicate balance — easily upset by:

(a) annoying tinkerers such as language reformers;

(b) hazy users of English;

(c) lazy teachers of English; and

(d) crazy subverters of English such as postmodernists and their fellow-travellers (this category infests many humanities faculties in universities — particularly media, communications and cultural studies).

(a) Annoying tinkerers

Annoying tinkerers (language reformers) tend to be literate and well-meaning. However they lack a basic understanding of how a written language comes into being, how it functions and how it evolves. Their attempts at reform are no threat to the language as they are doomed to fail. Reformers are therefore of no real concern to lovers and defenders of English. While they are of no concern, they are worthy of some comment because they can be a source of amusement. In the early 70s I was an avid reader of the *Sunday Review* (later the better-known *Nation Review*). The then editor of the *Review*, Richard Walsh, and many of his editorial and in-house writing team were tinkerers. Two of their most bizarre and ill-fated attempts at reform (involving capitalization and apostrophes) were mocked (and ultimately subverted) by some of their readers. To his credit, Richard Walsh included some of the best reader-rebuttals to his silly editorial policies in his compilation of *Review* extracts (*Ferretabilia: Life and times of nation review*, 1993). (The citations in the examples below locate quotes in the original rather than the secondary source.)

On the 25th of April 1971, the Editor of the *Review* (Richard Walsh) articulated his new policy on capitalisation:

> *As from this week,* The Sunday Review *will employ a new principle for the capitalisation of words. In es-*

sence, capitalisation will be kept to a minimum. Most titles will not be capped. However, titles unfamiliar to readers will be capped as will a variety of words like Depression and Liberal which would have another meaning if they were uncapped. Although this innovation may at first appear strange we believe that an initial capital must either serve some useful function or else be condemned as an unjustified pomposity or an impediment to ease of reading.

Walsh was apparently unaware of his own "unjustified pomposity" and the "impediment to ease of reading" posed by his policy. A worthy rebuttal to the policy appeared in the *Review* (*Letters*, Andrew Johnson) on August 12, 1972. My recollection is that reader responses had the desired effect, and idiosyncratic capitalisation was dropped before the *Review* ultimately folded in 1975.

Sir — Your policy of typographical decapitalisation leads you up ambiguous paths. Consider the letter (of july 29) which scandalously asserted of John F. Kennedy that he "was so inept with congress that he would have been lucky to get a reaffirming support for mothers day", ie, his sexual inadequacy reduced his influence over his wife to nil. Presumably your writer meant Congress not congress.

As noted above, the *Review* also attempted to reform the use of apostrophes. Again, my recollection is that this attempt at reform met a similar fate. The following letter to the editor from Tim Fitzpatrick (December 16, 1972) is an exceptionally well-crafted piece of satire.

Sir — I note with pleasure the absence of the highly unnecessary apostrophe from Nation review *of november 25. I trust that this is only one phase of typographical radicalisation, and offer the following as a short dictation test to enable all steadfast* Review*-type people to initiate their charming* Review*-type child prodigies into the mysteries of these hallowed pages:*

"Hell, hell kill me," I could see her thinking as I moved towards her, "Ill be ill if you touch me," she said, "Well, well see about that," I thought. Id liberated her id and shed shed her virginity before wed wed, and I cant stand that sort of cant. "The wanton wench wont as is her wont," I thought despairingly. I wouldve killed her if I couldve, but if I hadve shedve stabbed me with one of her priceless... objet darts. So I didnt.

*I trust that you will not slacken in your remorseless radical economisations, and that in the near future you will purge the printed page of the filthy dots above the i and j, and will eliminate that other relic of the defecating fly-errant, the comma. University tests prove conclusively that over 98 percent of all sentences, deprived of their commas, are quite intelligible on the third or fourth reading. (*Tim Fitzpatrick, *Review Letters*, December 16, 1972)

(b) Hazy users of English

Without hard data it is not possible to demonstrate that there has been a decline in the standard of English usage in the Australian school system and beyond over the last several decades. However it is a widely held belief, and my close friends and colleagues who hold this belief tend to be respected, authoritative, credible, objective, dispassionate, reflective and well-informed. While I would not claim such virtues for myself, it should be noted that I happen to agree with them. It seems likely that the decline came later in Australia than it did in the Mother (Language) Country. Clive James asserts that it was a widely held opinion in the Britain of the early 60s that Australian expatriate teachers were better users of English than the native Britons. (In the second volume of his *Unreliable Memoirs - Falling Towards England*, 1985: p.167).

Though they never knew what school they would be teaching at tomorrow there was usually work... Australian supply teachers were in good repute, especially if they taught English, because among the natives the ability to spell and parse their own language was already becoming scarce.

If there was a widespread and accurate perception in that era that expatriate Australian teachers as a whole were a cut above their British counterparts, it might have been an artefact of some form of systematic selection bias. (In the aggregate, expatriate teachers could have been more competent than the stay-at-homes.) However I have a personal anecdote which suggests that there must have been some serious deficiencies in the training of Secondary English teachers in Britain in the late 70s. In the mid to late 80s I contributed an article to a canoeing club magazine. The article was typed, and the typescript was error-free. It wasn't a scintillating work of breathtaking prose, but it wasn't intended to be. It was a straightforward description of a four-day white water kayaking trip. The magazine was edited at the time by an English secondary English teacher trained in England in the late 70s. The teacher had the requisite UK credential, and had been working in Australia for a number of years as a high school teacher. He took my article and helpfully made some editorial changes before publishing it under my name. In particular, he removed my correctly placed possessive apostrophes altogether, or he moved them up or down a space or two to an incorrect position. He also added a possessive apostrophe to many of my simple plurals. Possessive apostrophes were not his only obsessive-compulsive illiteracies. He removed some of my words and replaced them with the corresponding homophone. The most startling example of this editorial technique was the frequent but unsystematic exchange of "there" for "their" (and *vice-versa*). His crowning achievement as editor of my piece was the exchange of "they're" in a direct speech passage

with "their". Needless to say I was delighted when the article was published under my name — not!

One case does not make the case. However in case the reader is not convinced, here is another case for consideration. Not so long ago I was asked to examine an honours thesis which was completed within a faculty other than education. As is my usual practice, I read it straight through at first before evaluating the work in detail. A read-through was as far as I got. I was stunned by the poor standard of written expression. I took the coward's way out and begged off the role of examiner on the grounds that I was unable to make substantive judgements on content and methodology. I couldn't get past the woeful standard of expression, which was substantially lower than I would accept from third year pass degree students in education. In an email to the Honours Committee I pointed out that the problem may not have been with the student, his or her supervisor, or with the committee itself — it may have been me. I might have had expectations which were substantially different from those operating in the faculty in which the candidate was registered. Perhaps an average of one grammatical or word-usage error per sentence was acceptable in an honours thesis. Who was I to judge? I just knew that if I had to read every sentence two or three times in order to decode the approximate meaning intended, I would have a bad attitude to the substantive elements of the work. This would be clearly unfair to the student. So I disqualified myself. To my relief, I was let off the hook. I don't know what the fate of the thesis was, but I would not be surprised if the candidate is already on a fast-track to a distinguished academic career.

Of course, as a skeptic and critical thinker, I know that I could never make my case with anecdotes, so I won't even try. However here's another compelling anecdote which I think puts the matter beyond question.

Earlier this year I was standing in front of a shared printer waiting for my document to be printed. Naturally, under such circumstances I can't help reading the print-outs of other academic staff. I idly perused an email from a sessional (casual, part-time) lecturer to one of my tenured colleagues. The sessional lecturer was complaining about the poor standard of the essays she had recently marked. One sentence in particular caught my eye, viz: "I've never seen such dribble." I chuckled to myself, and later emailed my tenured colleague. I confessed in that email to having seen the use of "dribble" for "drivel" in the original email, and pointed out that if someone who confused dribble with drivel found student assignments to be deficient, they must indeed be deficient. My tenured colleague sent an email back to me. She agreed with my point, and complained that it was difficult to staff courses with literate academics. She closed by saying how "appauling" this situation was (no irony was apparently intended)!

When secondary and tertiary teachers have literacy problems of their own, the standard of expression of their students will naturally be adversely affected. This can become a self-perpetuating downward spiral — a spiral which functions as an error-perpetuating feedback loop. At the present time, there are enough reasonably competent and conscientious teachers in English; teachers of English, and users of English to check this runaway process of deterioration. But a critical mass of incompetence and/or indifference to English expression is not far off. Not enough secondary and tertiary teachers are reading clear, high quality expository prose. Even fewer are producing it. Academics working in silly domains of enquiry such as cultural studies; media and communications; or postmodernism and critical literacy are the worst offenders. They tend to read each others' work rather than the publications of more competent writers.

Most academics also have an inescapable duty to read (or at least scan) a large number of student essays each semester. After reading a large number of student essays which contain consistent errors in word-usage and spelling, even highly literate academics can come to doubt their own usage. Or they can even begin to incorporate common errors in their own writing. This can have a devestating affect. (Barry please note — errors in the

preceding sentence are a deliberate attempt at irony).

Lest the view be formed that I am excessively picky about student writing, I am essentially modest in my expectations. I don't expect sparkling prose from my students, but it is my view that most sentences should not have to be re-read several times to extract the intended meaning. Further, I think it is reasonable to expect that the majority of sentences should be technically correct (grammar and spelling). Most students can meet these simple requirements if it is made plain to them that they should do so. Some students are simply unable to meet these requirements. Some of those who are unable to meet these requirements have done well in their previous written assignments in other courses. This is clearly a problem. One reason this can happen, I suspect, is that some academics choose to read and mark written assignments in the way that I am forced to read and mark exam papers — with indecent haste. They scan for ideas and only assess whether the ideas seem to be reasonable — not whether the ideas are both reasonable, and expressed with clarity.

I don't expect students to produce quality written expression under exam conditions. I see exam marking as akin to panning for gold. I scan-read for ideas pertinent to the question, and score hits (for gold dust) and misses (for gravel). This cursory approach is a necessity when marking exams, as they need to be bulk-processed in an extremely short time-frame. The same practice is highly questionable when applied to essay marking. Perhaps those anomalous students who claim they "always get good marks" for their error-prone essays have never had an essay closely read and carefully marked before. Perhaps their essays have just been panned for their glinting ideas, and the dross has escaped notice.

(c) Lazy teachers of English

Constructive correction of student written expression has always been one of the key professional responsibilities of teachers of English. Correction of written work can be extremely arduous and time-consuming. Hard work or not, I would have thought that this role could not have been avoided — even by incompetent and lazy teachers. However I think it sometimes is — and avoidance of this responsibility by some teachers of English is often couched in disreputable rationalisations and obfuscations. Laziness on the part of the teacher is hidden by self-serving claims that the teacher is focused on higher-order outcomes. Parental concerns with the ability of their offspring to read and write are disparaged and belittled — lazy teachers will claim that such concerns arise from ignorance about contemporary approaches which emphasise "literacies", or even "critical literacies" rather than mere literacy. I will give a heavily disguised example based on my own direct experience which will serve to illustrate my general point.

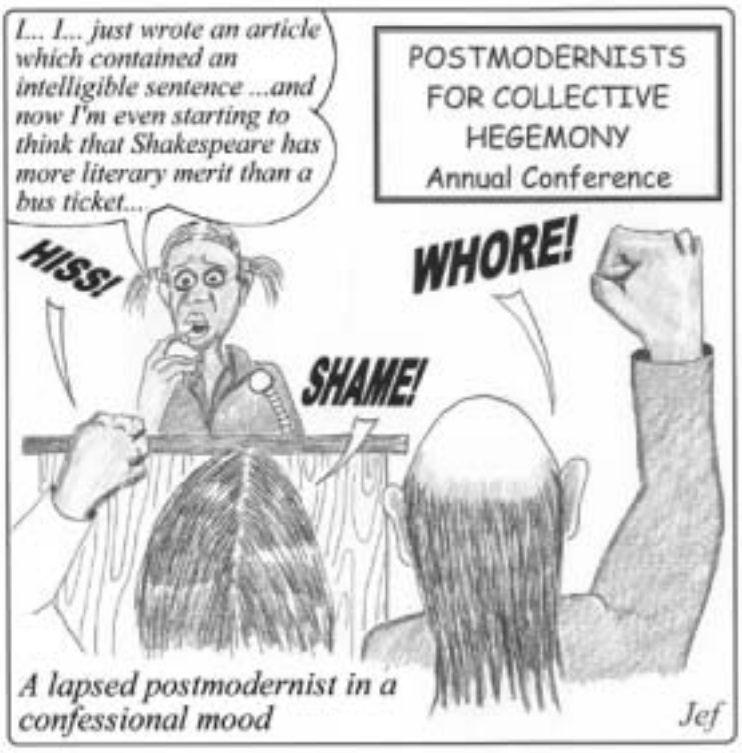
A number of years ago I was teaching in an education faculty at a provincial Australian university. For purposes of discussion I shall call the institution Feedlot University. One of my colleagues at Feedlot U, Hymie Comb-Over, came up with a nice little earner for himself. Through assiduous networking and shameless self-promotion he became the principal regional exponent and local guru for an innovative technique used in the teaching of written expression — chuck-writing. (I have labelled this technique chuck-writing so the reader will not know that I am in fact bagging an aspect of "whole language" learning called process-writing). Chuck-writing techniques were alleged by its proponents to increase the quality and quantity of student writing in middle school settings. On the face of it, the claim for increasing the quantity of writing seemed to have a degree of *prima facie* validity. After all, the initial stages of chuck-writing seemed to involve the spewing of semi-digested text loosely related to the assigned topic. Students were exhorted to engage in an indiscriminate outpouring of words without worrying too much about pesky trivialities like the actual meaning of the words, how they are spelt, and whether or not choices about some words could affect other words further along in the sentence (tense, number, word-order etc).

The children of some of my colleagues went to school in the local area and their teachers were recruited by Dr Comb-Over to his action-research program on chuck-writing. They certainly wrote a great deal. However an unintended consequence of the chuck-writing program ensued. Their spelling, grammar and word-usage deteriorated markedly. After some informal enquiries (made possible because I visited the schools as a practicum supervisor) I discovered the reason for this. Teachers recruited to chuck-writing were caught up in the creative pleasures of encouraging students to put pen to paper, but they tended to avoid the hard yakka. That is, the painstaking hard work of corrections and improving qualitative aspects of students' expression. To be fair to Dr Comb-Over, thorough teacher and student correction of drafts was part of his chuck-writing program. However this aspect was almost universally neglected — too much hard work. Teachers and students seemed to be of one mind. Keep generating text, don't look back. If you look back at what you have been writing you might be horrified. Best to keep writing... and writing... and writing. Comb-Over took no responsibility for this. He carried out his advocacy research in a few selected sites, garnered some positive results, published the results and took the credit. And then

moved on — taking his consultancy fees with him. Leaving in his wake teachers who felt less responsible for teaching students to write error-free expository prose, and students who valued quantity of writing over quality.

(d) Crazy subverters of English

In July of 2005, Luke Slattery wrote a series of articles in *The Australian* newspaper on the adverse impact of postmodernism and structuralism/literary theory on the teaching of English in the secondary school. In one of his articles (Fading theory has no place in schools July 23 2005) Slattery makes the following points.



POSTMODERNIST theory has had its day, and is now a waning force in intellectual life — except in our schools, where it has been belatedly, and inappropriately, introduced... But postmodernism's intellectual assumptions — truth is a matter of opinion, there is no real world outside of language and hence no facts independent of our descriptions of them — render it an entirely inappropriate teaching tool in an era of information excess...

Students are manifestly not doing well enough in the basics — comprehension, analysis and expression — to be asked to assimilate notions such as deconstruction that stem from a bewilderingly complex school of continental philosophy, or pseudo-philosophy, with traditions in structural linguistics and phenomenology... Academics report that students are entering university ill-equipped to write coherent sentences, let alone essays. The critical literacy theorists are asking them to run a hurdle race before they can walk with ease...

Nor are students well enough acquainted with their own cultural traditions for teachers to justify dumbing down the school curriculum by treating all forms of communication — literature, films, emails and even conversations — as texts equally worthy of their attention. This is one of the consequences of postmodernist influence over the university curriculum: King Lear is the pedagogical equivalent of King Kong...

Without the cultish activities of the crazy academic enablers of hazy-lazy-crazy English usage, English teaching in the primary and secondary schools may not have reached such a perilous state. The hazy-lazy-crazy English pathogen spreads outwards from its primary hosts (critlit-pomo academics) when those hosts mix with ordinary teachers of English (particularly at conferences). The carriers bring with them their infectious agents (half-baked ideological assertions masquerading as fully-baked, warranted conclusions). These pathogens are then promulgated through the corps of English teachers (soon perhaps to be more accurately known as the corpse of English teaching). The speakers' list at a recent such conference is indicative. The potted biographies of the keynote speakers incorporate every fatuous cliche in the book of incomprehensible jargon and undisciplined, speculative thought. The immunised hypothesis given free rein — or even perhaps free reign.

From their bios and declared interests, I assume that all the speakers would support the deconstruction of text, and reading in context. So I will have a go at interpreting their biographical notes.

The first general point to make is that in each case the biographical notes are full of praise for the speaker. They are also written as though the hosannas are the opinions of a third party — an objective observer. The perpendicular pronoun is entirely absent from the blurbs. However we all know that the common practice is for the speakers themselves to write and provide the biographical notes to the conference committee. Otherwise nauseating self-praise can thus be disguised as the disinterested opinion of the generalized other. An immodest act of self-aggrandizement masquerades as an objective assessment by a knowledgeable colleague. So much more credible when the blurb states "Professor Hubris is regarded as the world's foremost authority on... (Rather than *I* am regarded as the world's foremost authority on...). Note that the extracts below are faithful to the original, but the names have been changed for comic effect (oops — I should have said to preserve anonymity).

Professor Hiram T Barnum modestly claims to study *"language, learning and literacy in an integrated way in the full range of their cognitive, social, and cultural contexts"*. Their full range! No half-measures here. It hardly seems as though it would be worthwhile listening to the other speakers — they would clearly have nothing to add to the definitive treatment provided by Barnum.

Professor Malaprop admits to being director of undergraduate digital entertainment at the University of Waco. I do hope only consenting adults are involved, and that no bodily fluids are exchanged.

Professor Gene Idiotbox is the Director of a Centre for Critical and Cultural Studies and admits modestly to being the founder of media and cultural studies in Australia (the modesty is in the choice of pronouns — although he writes about himself, he uses "he" rather than "I").

Dr Winsome Monosyllable, a Senior Lecturer in Cultural and Language Studies in Education, makes what amounts to a paranormal claim. She says that she has a *"commitment to making poststructuralist literary and critical theory practicable"* in English classrooms. Later in her career I predict that she will move the discipline of poststructuralist theory out of its doldrums into post-poststructuralist theory. One can only hope she does not retire before she comes full circle and moves beyond postmodern post-poststructuralist theory through the preliterate and thence to the illiterate.

Professor Babs Hormone-Replacement indicates that her *"professional passions include pedagogy, critical literacy, social justice and teachers' work"*. She admits that a *"major professional pleasure"* is *"working with radical innovative teacher-researchers"*. Passions? Pleasure? Her spiel comes perilously close to admitting to an unhealthy erotic fixation on her slack-jawed acolytes. Perhaps she would be better off trying to eliminate hyperbole and mindless cliche from her writing.

Associate Professor Juliana Smith-Smith claims that her research *"interrogates questions"*. I presume after she interrogates questions she answers answers and engages in write ups of write-ups in order to disseminate disseminations in published publications. Perhaps she should try to eliminate redundant redundancies in her writing before she interrogates any more questions in her research.

For self-aggrandizing academics seeking to carve out a career in cultish and intellectually vacuous domains, the advocacy of an untested set of assumptions couched in obscurantist cant is a risk-free enterprise. However when half-baked ideas founded on rhetorical fluff affect teaching practices in the primary and secondary school, real damage is done. Often a generation of damage — until the pretensions of academe are finally challenged by hard-headed politicians and disgruntled parents. The cult of critical literacy and postmodernism can be expected to lash out at critics. It is after all, a cult. And it depends for its survival on unchallenged advocacy founded on bluff and bluster. Critlit-pomos can be depended on to employ every shallow trick in their rhetorical armoury to preserve their current hegemony. A hegemony and strict orthodoxy exercised with authoritarian zeal while they maintain an unconsciously ironic claim to be challenging authority, orthodoxy and hegemony.

What sorts of things can be done to redress this situation?

As an ex-teacher, I have to say that parents potentially have a great deal of power. It is rarely exercised, so the power often goes unrecognised by parents themselves. Try this simple experiment. If you are dissatisfied with the standard of written expression exhibited by your offspring, make an appointment with his or her English teacher. Take your offspring's work along to the appointment. Discuss the quality of work and the absence of corrections. Quiz the teacher on his or her attitude to corrections and his or her views about the importance of direct teaching of syntax, grammar, word usage, punctuation and spelling. If the teacher belittles your concerns, remind the teacher that you and your son or daughter are clients of the school and the teacher. As clients, you expect to receive a competent professional service. An appropriate response to an attempt to belittle your concerns might be to closely quiz the teacher on his or her understanding of syntax, grammar, word usage, punctuation and spelling. Perhaps these things are not being taught because the teacher doesn't have the requisite knowledge.

A fun activity is marking notes which are sent home by teachers and the administration of the school. Correct the errors, give a mark out of 10 and send them back. Offer to help in future by editing missives before they go out and cause misgivings. (In my last year of teaching, I did this to notes from the principal of the school to his staff — the best mark I ever gave was 7/10, with the comment "could do better").

Don't be bluffed by cant or cowed by browbeating. Calibrate your bullshit detector and take no prisoners. If the rationale for an educational practice is not convincing, take it from me as an educator, the fault lies with the practitioner — not you.

Haunted San Francisco?

Our Intrepid Investigator savours the spooky sights of SF

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Ghost tours are popular in San Francisco and the Bay Area and, like everything in the States, there are many to choose from. These include the Alcatraz Ghost Tour, the Chinatown Ghost Tour, the Vampire Tour of San Francisco and the Napa Ghost Winery Tour. However, The San Francisco Ghost Hunt is the only tour to guarantee a ghost sighting! (www.sfghosthunt.com/homepage.html) Our host, Jim Fassbinder, has been conducting this tour since 1998, promising his attendees will have an encounter with a San Franciscan ghost.

As we assembled at the meeting place, the sumptuously tacky lobby of the otherwise grand Queen Anne Hotel, I wondered if Jim would arrange a clichéd trick. Would an assistant, in period costume, leap out at an appropriate time? Would a plant utter a disembodied, bloodcurdling scream?

Then came the disclaimer, only ten minutes into the evening. "I can't really guarantee a ghost but many people have seen strange things on this tour and I hope that you too will meet a real ghost in a safe, supportive way".

Clearly, a ghost sighting is all in the broad definition. Jim told us to "open" our senses to the possibility of "ghosts in all their forms. A ghost is an extreme emotion stuck in time". We could witness an apparition or poltergeist activity. Perhaps our photographs would reveal orbs, "balls of energy". We might experience a mystical fragrance, such as the overwhelming aroma of flowers, yet not see any source. A ghost may visit us in the form of an emotion, "ghosts are formed from emotional events" and can generate strong feelings. We should be sensitive to "cold spots" in the hotel and on the tour. Then I smelled a 'hot reading' as he told us to listen carefully, "because if you heard people discussing you from a room that turned out to be empty, you'd want to investigate it, wouldn't you?"

If the Ghost Hunt couldn't guarantee a ghost, for US$20, it guaranteed three hours of history, story weaving and sightseeing. We would hear tales of the Voodoo Queen of San Francisco, a bordello turned church, a feminist romance writer, a wayward bride, a wealthy pig-farming family of feuding sisters whose story ends in murder, of earthquakes, fires, friendly ghosts and violent poltergeists. All in the exclusive Pacific Heights district of San Francisco, famous for its magnificent views and the 'Painted Ladies' Victorian houses of Postcard Row.

Before we could start the proceedings, Jim explained that he needed to perform a test to determine if the spirits were "willing to reveal themselves" that evening. In a style that

immediately reminded me of Rick Maue's Theatrical Séance (*the Skeptic*, 25:2), Jim performed a card trick but all the while vowed it was a "paranormal" exercise. Upon receiving a "positive response that the ghosts would be out tonight", we moved into the hotel dining room where Jim dimmed the lights and shared a few stories about the century old Queen Anne Hotel.

Mary Lake's chair, sans Mary

Starting the tour

The building started its life in 1890 as boarding school, known as the Miss Mary Lake's School for Girls. Over the next few decades it transformed into the Cosmos Gentleman's Club before becoming the Episcopal Dioceses' Girls Friendly Society Lodge. The building would spend a period of 50 years of disuse, until 1980 when it was carefully renovated and finally reopened in 1995 as a 48-room hotel. Throughout the changing faces of the building, one resident has always remained. School mistress Miss Mary Lake reputedly wanders the stairs and halls of the hotel, occasionally playing the piano in the parlour or grooming herself before one of the hallway mirrors. The most curious phenomena takes place in her former bedroom, room 410, The Mary Lake Suite. Anecdotally, Mary Lake tightly 'tucks' her guests into their beds, every night! According to Jim, many guests report a "comforting presence" in the room. Other guests claim that they awoke to find her sitting on the bed, gazing at them. With the room booked out for months ahead and at $350 a night, this one will have to remain a mystery!

We were then granted ten minutes to explore the premises. Jim had told us about an unspecified chair that Mary Lake also haunts, her "spirit" caressing the arm of anyone who sits in the chair. A few of us deduced which chair Jim was referring to but after a sit, experienced nothing but a rather comfy cushion. I took a photograph of the ornate chair that captured a tiny dust 'orb', utterly convincing a few passers-by that I had "caught the ghost".

On the track of spooks

We then commenced our trek around the neighbourhood, up and down the famously steep streets of San Francisco. Jim had changed into a Dickensian-style cloak and hat and was carrying a kerosene lamp. We came upon a row of manicured Victorian houses where Jim uttered a truism, "people tell me the scariest part of the tour is finding out that these houses go for over $2 million dollars each!"

The Chambers mansion. No pigs in sight.

As we crossed California Street, Jim told us to be on the lookout for Flora. Every ghost in the Bay Area has an epithet and Flora is San Francisco's most reported ghost. A young girl from a wealthy family, Flora was betrothed to an older man. Knowing she could never go through with this arranged marriage, she fled the city, taking nothing with her but the bridal gown she wore. She was never seen alive again. Jim claims that many people have seen Flora's ghost, aimlessly wandering the street. No one on our tour saw a thing.

As we turned into Sacramento Street, an imposing mansion loomed ahead of us. Richard Craig Chambers, owner of several silver mines in Utah, built the palatial residence in 1887. He died in 1901, bequeathing his property to his two feuding nieces, who detested each other. Unable to live together, one sister moved into a house she had built beside the mansion. Claudia Chambers, a pig fancier, remained in the mansion. Claudia died a gruesome death. Her body was almost sawn in half in what her family reported as "a farm implementation accident". Jim has a different theory. Jim claims that the Chambers mansion housed an "insane male member of the family" who was confined to the attic. One day, he escaped from his confinement and attacked Claudia with a knife, chasing her throughout the house and brutally stabbing her to death. What proof does Jim have to support this theory? Apparently, numerous séances have been held in the house and he has "pieced together the truth from psychic's reports". Furthermore, in the days where the tour included a

walk through the mansion itself, one attendee, an "honest cop with the LAPD homicide unit", began "speaking in tongues". Although xenoglossia is usually meaningless gibberish, Jim claims that the cop "revealed the truth of Claudia's death". This was murder, not an "accident". Would this "proof" hold up in court? Jim claims that the mansion is now haunted by violent poltergeist activity. There is "lots of angry energy" with objects being hurled about, household items broken and people attacked!
Jim's web site promises that the attendee will have the opportunity to "touch eerie haunted artefacts that sometimes behave strangely". At this point, Jim produced an old key that he claimed was a "relic" from the Chambers house, and possibly the key to the room where Claudia was "murdered". He then performed a trick whereby the key appeared to move of its own accord. Later he also demonstrated 'automatic writing'. Obviously compelled to provide his guests with ghosts, Jim vehemently insisted that these were displays of the paranormal, not of magic.

Yo Ho Ho and a barrel of ...

We continued as the cold San Franciscan wind set in, arriving at Atherton Mansion, California's answer to the Amityville Horror. This is the former home of the beautiful and flirtatious "feminist romance writer" Gertrude Atherton. Gertrude lived with her husband George and mother-in-law. The two women were well known for berating George for being "ineffectual". In an effort to assert himself, George accepted an offer to journey to Chile with a group of sailors. A mere three days into the voyage, George died of kidney failure. The ship's captain preserved George's body in a barrel of rum and his remains were shipped back to his widow. His 'arrival' coincided with the start of some curious phenomena. The Atherton house was besieged by poltergeist activity, forcing the women to flee the home. The phenomena reputedly continue to this day and Gertrude is now also

Host Jim, appropriately garbed

one of the resident ghosts. Jim described Gertrude as "a ghost seen as a glowing ball and likes to play pranks on men". Sylvia Browne once conducted a séance at the Atherton mansion, claiming she could sense the presence of "women who don't like men" and "a frail man". I guess she'd heard this story too…

Our final stop was at a magnificent mansion on the corner of Bush and Octavia Streets and bordered by

The pleasant Miss Pleasant

a grove of eucalyptus trees (which are to be found everywhere in the SF Bay!). This was the home of Mary Ellen Pleasant, better known as the Voodoo Queen of San Francisco. Mary was born into slavery in Georgia in 1814. Her early years are undocumented but it is known that she was emancipated, received some schooling and eventually lived in New Orleans where she assisted in the dangerous work of freeing slaves. Here she met the infamous Marie Laveau, the original Voodoo Queen. Mary learned Marie's craft of acquiring 'sensitive' information and cleverly using this to blackmail the elite, to gain wealth and influence. In the mid C19th, Mary made a final move, to San Francisco, where she continued her mission of liberating the enslaved and is known today by yet another epithet, "The Mother of Civil Rights in California". Mary also employed her cunning to exploit the SF wealthy and amassed an incredible fortune of 30 million dollars! Later in life she was discredited after a disastrous lawsuit and lost her social influence. She died penniless and was buried in Napa. It is believed that Mary haunts the mansion and premises, and can be seen at night, amongst the eucalypt trees that she had actually planted herself. Others claim she is a mischievous ghost, who pelts disbelievers with gumnuts! The corner has become a spot where people visit to 'make a wish'. In keeping with this tale, Jim produced a small 'good luck voodoo doll' and allowed the tour members to make a wish. The bitter cold had set in and I simply wished the tour would end. In an event that I could only attribute to Mary, the tour was over.

Jim's website states that he shares "real ghost stories based on serious documented research" although this clearly involved a lot of anecdotal 'evidence', bias and dramatic embellishment. Did any of the (mostly believing) tour members witness the guaranteed ghost? No. But many interpreted Jim's magic tricks as displays of the paranormal, based on his misleading claims. This was a theatrical tour, presented with

great flair but no skepticism. Why, that would spoil the atmosphere!

Another tour

A month later, I attended yet another ghost tour in yet another district of San Francisco. This was the Haunted Haight Walking Tour (http://www.hauntedhaight.com), billed as the "best antidote to hippy nostalgia" by the *San Francisco Bay Guardian*. I would describe it as sex, drugs, rock 'n' roll…and ghosts. For $20 and two and a half hours we were to experience sightseeing, history and ghostlore. You can't travel far into the Haight-Ashbury district without encountering a landmark but would we encounter the paranormal?

The evening began with unexpected excitement, a bomb threat on the Muni. Fortunately, the threat wasn't fulfilled and I arrived unscathed. Our group assembled at the PlaNetweavers Treasure Store on Haight Street. Here we met with our host, local Tommy Netzband. Fashioning himself as a "ghost historian", Tommy is an active member of The American Ghost Society and researches the supernatural history of the area. We soon discovered the meeting premises are reputedly haunted. The shop has a resident ghost that makes its presence felt by moving the merchandise and occasionally assisting in general stock replenishment duties! Footsteps and the sound of typing, seemingly without a source, can often be heard late at night. Tommy revealed that many of his tour visitors feel "uneasy" in the store, one woman complaining that, because of this, she "didn't want to buy anything". Perhaps the owners should keep these unprofitable stories to themselves!

As we set off, an intimate band of eight, we could see the spires of the Jesuit University of San Francisco. We learned that the property lies on a former burial ground, one of thirteen that once serviced the city. This figure was reduced to a mere two cemeteries. During the C19th, numerous bodies were exhumed to be reinterred at the remaining cemeteries. Tommy's research has revealed that many bodies were left undisturbed and cited a friend who claims to have unearthed human remains in the back yard. He suggests this as the grounds for San Francisco's reputation as the "10th most haunted city in the US".

Magickal door

Foreshadowing a tragedy

Tommy then pointed out a former coven house, undetectable with its lead-light pentagram window. We walked along Page Street and approached a regal Victorian house. We had arrived at the 1970s residence of Jim Jones, notorious leader of the People's Temple cult and Jonestown Massacre. Jones started a church in the area and amassed a large congregation. He went on to establish various other churches before eventually creating his Jonestown 'community' in Guyana, a "utopia" of abuse and brainwashing that ended in the mass suicide of over 900 cult members, including 276 children.

In keeping up with the Jonses, the park across the street has its own tale. This is Panhandle Park which housed many people during the Gold rush days in the mid 19th Century and became a temporary dwelling to those displaced by the 1906 earthquake and subsequent fires. While 'panhandler' is associated with the gold rush in Australia, in the US it is also applied to the homeless who solicit passers-by for money. Perhaps its etymology lies here, but the park's ghost story lies with a more recent event. Many people claim to hear the disembodied voice of a man calling his dog, late at night. This is believed to be the voice of punk rocker Buck Naked, who was murdered in the early 1990s by a crazed pigeon-fancier, known as "Pigeon Man". Apparently, Buck had unwittingly disturbed Pigeon Man's flock and for this he paid the ultimate price. To this day, pigeons avoid the park.

We next visited the former home and Black Magick store of Uma, a Satan-worshipping witch. The once brightly coloured door, carved with magical symbols, is now painted a more family-oriented and safe sky blue. For twenty years, Uma practised her craft from this store, also offering the services of a Shaman, Voodoo master and other practitioners of the Black Arts. During the dot.com boom, while the hippies were ousted by the yuppies, Uma was evicted from her premises and moved back home to Connecticut. Locals believe that Uma cursed the store and in a true example of confirmation bias, the store hasn't been leased out since.

We then walked along Stanyan Street, the entrance to Golden Gate Park, a created park, built atop sand dunes. While the park seemed bustling with tourists, neo-Punks and homeless people, it is reputedly the home to two ghosts from another time. The Lady of Stow Lake is labelled as San Francisco's most famous ghost. Over 100 years ago, a tragic accident occurred where a baby drowned in the lake, reports claim that the baby's mother now haunts the lake itself, nearby Strawberry Hill and the children's fairground. With wet hair and wearing a stained white dress, the Lady of Stow Lake appears to passers-by, frantically searching for her lost baby, asking, "Have you seen my child?" The stories vary, some claiming the mother also drowned. The park has another resident, a ghostly

police officer who still thinks he is on duty. The officer reputedly issues various fines to park patrons and then vanishes. When the fined go to pay for their tickets, they discover the officer never existed!

As well as having several nice cafes, Cole Street also has several ghosts. In a three story building, only the second floor remains unhaunted. The first floor houses a mischievous poltergeist that is especially active at Christmas time and fond of placing festive ornaments in the freezer. The ghost is believed to be the spirit of a little girl and the residents placate her with presents. When you peer into the lounge room you can see her dolly on the mantelpiece! The third floor of the same building is home to two ghosts, one a shadowy figure and the other in the form of white mist. In conjunction with these sightings, the residents have heard eerie noises and unidentified footsteps. One of the ghosts seems to have a strange habit of "pressing on the body" of overnight guests. Tommy has been invited to spend the night to experience the phenomenon himself and promises to report back to us via his mailing list with an account of the event.

The Manson house

Haunts of the famous and deadly

We approached another house, unassuming except for its gaudy blue colour. Haight-Ashbury seems to be a lure for homicidal maniacs, as this was a former home of cult leader Charles Manson. In 1967, during the Summer of Love, Manson was released from prison, against his own expressed wish to remain incarcerated. He moved to the basement of this grim house, where he began recruiting his "Family". Manson remained there for a year before he and his commune moved to LA, bludged off Beach Boy Dennis Wilson, had a failed music career and, in 1969, committed the infamous Tate-La Bianca murders.

We then walked down Ashbury Street and in this district of the undead, saw the former home of the 1960s rock group the Grateful Dead. Directly opposite this house was the former residence of the Hell's Angels. And while George Harrison famously claimed that Haight-Ashbury was filled with "hideous, spotty little teenagers" who "were all terribly dirty and scruffy", it was good enough for Janis Joplin, who also lived on this street of celebrities. Her former residence is home to a ghost but it's not a spirit that shrieks out lyrics from "Piece of My Heart". The current residents hear the sound of heavy footsteps, perhaps boots, running away. Tommy researched this house, finding that a murder had taken place outside this building during the 1960s. He links this incident to the ghostly phenomenon. The tenants recently moved away and Tommy hopes to eventually visit the new tenants, to inquire without prompting, into any information they may have to corroborate this story.

Our final stop was at the Trax bar on Haight Street. In a tale of spirits and spirits, the staff claim to witness an apparition of a man sitting at the rear of the bar, watching the patrons. A likely story or a few too many? Well, there's a sequel to this tale. The publican recently found an old photograph of party-goers celebrating the bar's first anniversary in the 1940s, when it was named "The Question Mark Cocktail Lounge". The photograph reminded the owner of "Jack Nicholson in The Shining when he saw the photo of the people that were haunting him"…he swears the conspicuous man in the picture, pointing at the camera, is the ghost that haunts the pub today.

Both tours were extremely entertaining and although the background research for the 'paranormal phenomena' consisted mostly of anecdotal evidence and whimsical newspaper articles, these stories are 'ripping yarns' and are historically significant from a folkloric perspective. And if there are ghosts in this city, who can blame them for hanging around? As Rudyard Kipling once said, "There's only one drawback of San Francisco. It's hard to leave".

The Trax bar.

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Naturopaths:

We're Dying to See Them

Your very good health – it's worth fighting for

Loretta Marron is a mild-mannered businesswoman with a science degree, who, in her secret identity as Jelly Bean Lady, fights for Truth, Health and Freedom from Quacks.

www.healthinformation.com.au

Naturopaths kill people. If you don't believe me, talk to the family of Vecko Krsteski, from Rockdale in New South Wales. He died on 26 February 2002 from chronic renal failure as a direct result of undertaking a health programme supervised by Oatley naturopaths Jeffery and June Dummett. He was allowed to waste away and was not provided with any professional traditional medical care for his condition. The Dummetts are in court now. Or you can talk to the parents of Mitchell Little, born 7 September 1999, whose 18-day old baby died after they took the advice of their naturopath, Reginald Fenn. He told them not to proceed with life-saving surgery that had a high chance of success. Fenn claimed he had a machine and some herbal medication that would cure the baby, so the parents cancelled the operation. The NSW Supreme Court found him guilty of manslaughter on 29 August 2003.

Naturopaths target the vulnerable and give them false hope. If you don't believe me, talk to my friend Ross who lives on the Queensland Sunshine Coast. His naturopath claims that wheatgrass could cure him of his cancer, so he works for her now and has learnt to grow it, and he admits that he tells people that his cancer is gone. He and his wife then sell the wheatgrass to other cancer patients. Oh, I forgot, you can't talk to Ross — he died last month of lung cancer. You can always talk to his widow. Maybe not; she made quite a lot of money out of the wheatgrass crops, and last I heard, she was still selling it.

Naturopaths harm people's health. If you don't believe me contact the AMA about liver disease (hepatitis and cirrhosis), irritable bowel syndrome, asthma and diarrhoea caused by de-toxification products. These products are still being sold. You can also ask David's daughter. She flew across two states to get her dad to a doctor. This elderly Lismore gentleman was emaciated and was showing symptoms of paranoia and aggressive behaviour. He had spent weeks on a stewed fruit diet with supplements of herbal pills that his failing memory meant he usually forgot to take. His $200 appointment with his Gold Coast based naturopath had given him the reassurance that he wanted to hear, that he would be restored to full health in six weeks, but by that time he had locked himself in his home to hide from the toxins attacking him from the outside world. I asked his family if they would take the naturopath to court and they said no because it was their dad's fault. They had warned him before and besides he was old. And whom could they com-

plain to anyway? Naturopaths don't take on patient responsibility; they don't even take a proper history or they would have known that he needed real medical attention, so 'buyers beware'. The family didn't want a long distance court case because it would cost too much and would be too much trouble. Besides, their dad was now able to go on a daily walk and he had even put on some weight. His GP sees him every week, so it's OK isn't it?

Naturopaths tell lies. If you don't believe me, ask the widower of Christine, a fellow breast cancer patient, who died in April this year. Her naturopath told her she had to change her diet to 75% raw food and to drink a daily glass of raw liver juice. Her naturopath also told her to give herself herbal and vitamin injections and regular coffee enemas, because this change in lifestyle would prolong her life. She was given instructions on how to give herself injections and how to make the coffee solution at home. Every night Christine would lie on an old towel on her hard, cold bathroom floor, her daughter helping her to push a rubber hose four inches into her rectum, so she could pump in the warm dark-coloured coffee juice that hung suspended in a plastic container from the bathroom doorknob. Weak and emaciated, she died two months later, much sooner than expected. According to my research, there is "no convincing data in support of this hypothesis" that this diet would help her. The research shows that the body fails more quickly because of weight loss and poor nutrition. Her daughter told me they were desperate and would try anything to keep their mother alive. Was it lies, or did the naturopath simply ignore the research?

Naturopaths are deluded. If you don't believe me, ask Susan, the little girl next door who is dying of an inoperable brain tumour. Naturopath philosophy is based on the assumption that all health conditions are caused by lifestyle, and can be cured by lifestyle changes. Susan's single mother spends $90 per week because her naturopath tells her it may cure her daughter. Common sense would tell you that this beautiful little child did not cause her own cancer. Only someone deluded would say so: perhaps someone who had untested remedies to sell to make money out of the desperation of a loving mother.

You can also ask my other neighbour Linda. She was continually feeling tired, so she went to an iridologist who told her she was healthy and just needed some vitamins. That was just a few weeks before Linda collapsed at work as a result of being an insulin-dependent diabetic, a diagnosis her GP would have made immediately if Linda had gone to see him. Linda never complained because she blamed herself. She knew she should have gone to see her GP, but she didn't. So she knows it's her fault because she'd been warned. So Linda says nothing. Her Prozac keeps her happy, so it doesn't really matter, does it?

Naturopaths work on guilt. If you don't believe me, then why did my friend John tell me that he was sorry he hadn't seen a naturopath sooner? He was told that he had left it too late. He was told he should have come when he was first diagnosed. Now John is dead and his family tell me the same story: if only they had gone to the naturopath sooner — the guilt is still with them. The cost was over $400 and the books and pills were extra, but John's family told me that conventional medicine could do nothing more for him, so they had to try everything to save John, didn't they? So what did the cost matter?
Why are people encouraged to take all those pills? Herbal remedies and vitamins are not lollies: they can be powerful drugs, and they can have tragic side effects. If you don't believe me, contact the Adverse Events Hotline and ask the pharmacologists who man the phones. They'll tell you the truth: they hear it all the time. They are there to help us, but very few of us let them know when these pills make us ill — best just to push the bottles to the back of the kitchen cupboard and try something else. There are plenty of pills to choose from, with new ones available every week, and natural means safe, doesn't it?

Advice from the pharmacist

I asked a pharmacist why he was reluctant to remove homeopathic remedies from his shelves. These pills are guaranteed by homeopaths, by up to a 30-fold dilution ('less is more'), to contain nothing but 'vital force' and 'memory' of the original natural substance. If you believe the homeopath, then water must have a short memory, because each and every water molecule has been around for billions of years and during that time has been recycled a billion times with every natural and, in more recent times, unnatural substance on the planet. So what does water remember, and what does water forget? Molecules can be seen under electron microscopes and they can split the atom, we all know that, so why has no one reported seeing anything extra — just what does this 'memory' look like, anyway, and why can't they measure that 'vital force'?

If you believe the homeopath, you can take one grain of salt diluted in a swimming pool, a few drops before meals for up to six weeks, and it will cure your stress; likewise, one grain of caffeine in the same dilution will help you sleep. 'Like cures like' is their philosophy, so why don't they want any of the original substance to remain in their final remedy? They will admit that is true. When you realize the natural substance they use as a base could be faecal matter, cat fur, anthrax, arsenic, mercury, scabies pus, metal, rocks and magnets, a wide range of acids and poisons, perhaps it's just as well. If you don't believe me, read it for yourself on the Internet: there are thousands of homeopathy sites that will sell you anything you want to cure anything you name. There's a substance for every complaint and health condition. Don't forget to add the cost of freight and the GST; express delivery anywhere, any time, any

amount; credit cards and PAYPAL accepted.

The pharmacist also told me that the hard-working men and women of his profession are fighting to keep their businesses "in the black" and will sell anything that their customers want. But it's all right, he said. There is nothing in the pills, so they can't possibly do any harm, and if a customer asks, and they usually don't, he will tell them "some people say it works for them". He told me that they have enough to do keeping up with the information and problems of prescribed medication, so they hire naturopaths to sell products from the multi-layered shelves that sit under emotive health signs, bulging with brightly coloured bottles of herbs and vitamins quoting convincing anecdotes from smiling famous faces.

They tell you that naturopaths are trained in herbal remedies, and they know all about them, don't they? Having a naturopath in the doorway means that they don't need to be involved. Everyone benefits, isn't that so? The pills and potions are a good source of income, and besides, if he doesn't sell them, other stores will. Besides, no one wants to listen: they would rather believe the continually repeated messages they are subjected to in magazines and newspapers, on the radio and on television. They would rather listen to people they barely know whom they bump into at parties, who whisper the wonders of amazing cures into willing ears. He told me that when he was younger, he had tried to help them by telling them that magnets, linseed oil and copper bracelets didn't work, but nobody ever listened, so why bother trying any more? It's a free world, and everything he sells is legal. He misses the profits from the cigarettes he used to sell so he has to make up the shortfall somehow. And besides, the Therapeutic Goods Administration, which monitors health products, doesn't require efficacy of products, so why should he?

He told me that the major chains of pharmacies, including ChemmartR, Terry White ChemistsR and The Medicine ShoppeR and Healthsense Pharmacies R come under the Mayne Group umbrella, and so do most of the non-prescription brands such as Nature's Own™, Cenovis®, Golden Glow®, Bio-Organics™, Natural Nutrition™ and Vitelle®. They also have Faulding® and the Betadine® range of antiseptic products, which are widely used in hospitals and households.. Mayne own or have owned hospitals, medical centres, pathology, diagnostic imaging and more. With Mayne's huge umbrella ensuring that they get the best deals for their own pharmacies, no wonder the other pharmacies are having difficulty competing.

If you don't believe me, look in the white pages under 'Mayne'.

Medical opinion

I asked a general practitioner (GP) why do doctors seem so reluctant to tell people that naturopathy is based on unproven and unprovable science, and that every iridology and homeopathy clinical trial has failed to perform better than guesswork. I wanted to know why the medical professionals are losing the battle against these poorly educated and ignorant charlatans. I am astounded by her reply.

It seems that GP's, after six years as undergraduates and three years as interns, are taught 'not to have an opinion'. Senior hospital staff make it clear that their opinion means nothing, and may even get them 'struck off' — so they say nothing. Could this explain why so few of them spoke up against Dr Patel at the Bundaberg Hospital? Toni Hoffman, the nurse who complained for two years, should get a medal for breaking the silence and stopping the carnage. Funny, isn't it, we all hear about doctors who kill people, but I have yet to see a front page headline against a naturopath.

Senior cancer support staff state that their patients are entitled to use whatever complementary and alternative medicines may help them. That sounds quite reasonable, until you realize that when it comes to taking non-prescribed remedies, the truth is often not available, or is withheld. As a cancer patient myself, I can't ever remember seeing a list of clinical trials on natural remedies showing those that succeeded and those that failed to perform better than placebo. I have never seen a list of those that can harm you. If you don't believe me, then why was I refused permission to include an article in a newsletter to my cancer support group as pre-reading to my 'Natural Therapies' presentation? The *Readers Digest* article on 'The Truth about Natural Therapists' is a well-researched paper by Helen Chryssides. I wanted an open and honest discussion on natural therapies, and I was denied this opportunity. It seems that cancer patients can't handle the truth or don't want it, so they tell me. Why not let them hear it anyway, why hide it from them?

During my presentation I don't give my opinion. I'm not medical. I'm a physics graduate and a researcher. I talk about the history, philosophy, physics, physiology and clinical trials for a wide range of natural therapies. I give the science and the facts, and the facts are that *some naturopaths kill people*.

Naturopathy again

Naturopaths are trained in homeopathy. We know that doesn't work, ask any chemistry student. They also learn iridology and other bizarre diagnostic tools that came out of the pre-scientific ignorance of past centuries. We know they couldn't work — ask any physiology student. From the 20th Century they learn about flower essences, whereby the warmth of the sun transfers the 'life force' of a flower into the early morning dewdrops. We know that isn't true — ask any physics student.

Naturopaths also learn about herbal remedies, but not about clinical trials it would seem, because no one seems to ask them if their remedies help or hurt you and why would they ask? The naturopaths wouldn't know. They never bother to

find out for themselves: they just read the labels. How can they understand? They are not required to know chemistry or physics, and none of their courses includes discussions with these scientists, so it's deliberately omitted as part of their training. I'd like to know why they are denied this knowledge: is it because it would show them the truth?

Places that offer naturopathy education seem to let anyone enrol in the courses — Grade 10 not required. A basic knowledge of science is not a prerequisite. It even costs less for you to study if you do it by video or correspondence, but no one seems to check their qualifications anyway, so what does it matter?

So the cancer support networks don't want to upset cancer patients who swear by natural therapies. I'm sorry, but I'm a cancer patient and I'm upset. I'm sorry, but scientists, medical professionals and other people who understand the flawed basic principles of these therapies, some created centuries ago when the existence of bacteria and germs was unknown, are undoubtedly also upset. I'm sure these physicians of days gone by, these good hard-working people, were just trying to find a better way to cure people than those offered in the barbarous times they lived in, but they got it wrong.

Take a stand scientists and medical professionals: get quality information out to the people about these anti-science so-called 'natural' therapies. Go to your local pharmacies and ask them to stop using iridologists and naturopaths; ask them to remove off-the-shelf medications that they know don't work and they many even suspect can harm people. Write to your medical magazines and journals and write to theirs as well. Get support from your local members of parliament, your local newspaper or any other media that will listen.

When did you ever hear a naturopath take a Hippocratic oath? When where you last given a written referral from a naturopath? Why don't naturopaths have insurance? What do you think happens to patients with treatable illnesses who are not given access to available orthodox treatments? Do they suffer or even die as a result of inadequate or delayed medical treatment?

Plea to medical practitioners

Doctors out there, you know they do. If you do nothing else, educate your patients to demand information on all their medications, both prescription and non-prescription, before they take them. Explain to them what questions they should be asking. I know your days are long and difficult, I sense your frustration and concern when you admit you don't know all the answers but you are the only ones who can protect us. I also know you really care, because you have shown me so much compassion and support during my own illness. You are brilliant people with very difficult jobs, and you are certainly unappreciated by many, but we need your help. Perhaps you fear reprisal, perhaps you are just too overwhelmed with your day-to-day lives, but we need you to speak out. Please don't abandon us. Your silence is harming us. Do what you can, it will make a difference.

Did I mention that naturopaths kill people? Not all of them do. In fact the ones I have met are very nice people. Some conditions are certainly caused by lifestyle, and changing your lifestyle does work for these people, so for reasonably healthy people they sometimes get it right. But if they believe in their own naturopathic 18th Century philosophy, they may kill people. Look at the facts and then decide if it is just my opinion. Think about that next time you invite them in. That dying person may be someone close to you.

Visit Loretta's site: www.healthinformation.com.au

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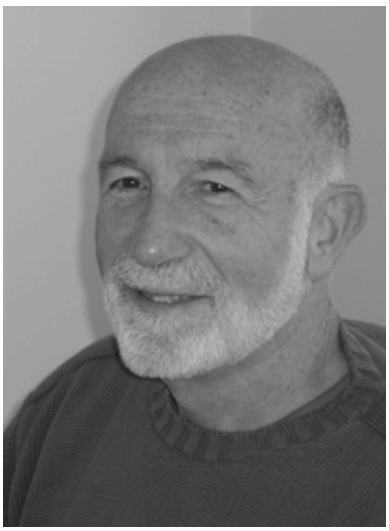
The Hydrogen Economy

It seems like a simple solution, but is it?



Tom Biegler grew up and was educated in Sydney. After several years of post-doctoral study abroad, he joined the CSIRO in Melbourne as a research scientist. He published widely on fuel cell and mineral chemistry before appointment as Divisional Chief. Since retiring he has consulted on fuel cell commercialisation. He is a Fellow of the Australian Academy of Technological Sciences and Engineering and of the professional institutes for chemists and metallurgists. Tom lives in Melbourne.

The 'hydrogen economy' will one day revolutionise the way we use energy. Or so its proponents claim. Why should a sceptic be interested? Is it reasonable to be sceptical about a technological innovation whose time has simply not yet arrived? Isn't this kind of thing rather obscure and hard for the average sceptic to understand? Shouldn't we sceptics just stick to our usual targets, like superstitions, miracles, New Age nostrums, alternative medicine, elusive monsters and the like?

These are all fair questions. But I think the 'hydrogen economy' is special. Its promises of clean, boundless energy, of a future cure for global climate change, look too good to be true. As well as this traditional signal for triggering sceptical arousal, there are other aspects of the hydrogen economy that ought to concern sceptics, as I hope to make clear.

What is it?

The hydrogen economy is a term for a new way of delivering and using energy. In brief, it describes a future energy scenario where the gas hydrogen will take the place of fossil fuels like oil, natural gas and coal in our energy systems. Hydrogen would be reticulated like natural gas, and vehicles would refuel with hydrogen at something like our present petrol stations.

Once you're aware of it, the hydrogen economy seems to pop up everywhere. Popular articles on the subject are regularly seen in newspapers and magazines. Hydrogen-powered fuel cells get frequent mentions. Governments and environmentalists love it and a great deal of public money, billions of dollars in fact, is being thrown at the technological obstacles standing in the way of a practical hydrogen economy.

What are its promises?

This is typically what you will see in articles on the hydrogen economy:

- Oil and gas (fossil fuels) are running out and we need something to replace them.
- Hydrogen is a wonderfully clean and energetic fuel, which burns to give pure water.
- The sources of hydrogen are inexhaustible and secure — no more reliance on the oil cartels of the Middle East etc.
- Fuel cells running on hydrogen will drive electric vehicles quietly and cleanly.
- Hydrogen will end the atmos-

pheric pollution caused by fossil fuel combustion.

- The threat of global climate change will be defeated.

These are all very attractive propositions. No wonder billions of dollars are going towards making it all happen.

Sounds great – what's the catch?

Let's start by putting hydrogen into its chemical context. School students will know that hydrogen is a chemical element, number one on the chemical Periodic Table, a gas that arrives in the laboratory in a brightly marked red cylinder to warn of its combustible, and therefore rather dangerous, nature. That it burns to give water is also an elementary chemical fact known to any school student.

Hydrogen gas has a low density, is difficult to liquefy and is chemically reactive with many materials. So the design of an energy system around hydrogen presents many engineering and other technical challenges regarding storage, transport, reticulation and end usage.

Those are some of the catches. But the main one is much more fundamental and serious. It is that isolated hydrogen doesn't exist in nature. It has to be made, manufactured, produced, synthesised — however you want to put it. And to make it we have to use energy, which must come from somewhere else. So hydrogen can't replace oil and gas, because it's simply not a fuel in the sense we normally use the word. Coal, oil and gas come out of the ground as ready-to-use sources of energy, energy that originally came from the sun and, through photosynthesis, was accumulated and stored in plant matter over many millions of years while geological processes converted it to our present fossil fuels.

Sure, once it's been manufactured, hydrogen can be used like a fuel. But it really is more like electricity, a carrier of energy from one place to another. And, exactly like electricity, it is indeed very clean at the point where you use it. Unfortunately, that has absolutely nothing to do with how clean or dirty the processes are at its source, and therefore how much overall pollution it causes, which also makes it just like electricity.

So, let's get cracking and make some hydrogen. How is it done? This is where things get interesting. Hydrogen is presently a common industrial chemical, produced in quantities of tens of millions of tonnes annually, largely for use in the fertiliser, petrochemical and food industries. Most of the world's hydrogen (upwards of 90%) is made from fossil fuels. The rest is synthesised in electrolysis plants, mainly using hydroelectricity (because it's cheap). Only that last 10% is made without generating the greenhouse gas carbon dioxide (CO_2).

So, the vast majority of today's hydrogen comes from processes that turn out the same pollutants we are supposed to be trying to avoid!

Even worse, the thermodynamic laws of the universe make it quite certain that the available energy in the processed hydrogen will be less than in the primary energy source, whether it be fossil fuel or hydroelectricity. When you make hydrogen from, say, oil, you must lose some of that fuel's energy content during the production process. The end result is that, for a given amount of energy ultimately generated by burning that hydrogen, you will be creating more pollution than if you had burned the fossil fuel itself. This is hardly what we are after.

What about abundance? Here the doublespeak really cuts in. The rhetoric says that hydrogen is abundant, even 'inexhaustible', but this is only in the form of water (H_2O). As we saw above, isolated hydrogen does not exist in nature. It is completely misleading to promote the abundance of hydrogen in H_2O to justify hydrogen's role in future energy supplies. One could equally say that oxygen is 'abundant' in water. Try telling that to a drowning man.

As for security, the hydrogen supply can only ever be as secure as the supplies of energy needed to make it. Just how the hydrogen economy makes future energy supplies more secure is never made clear.

To analyse its effect on greenhouse emissions and global warming, one always has to go back to the energy used in making the hydrogen. If the source is a fossil fuel and generates CO_2 then globally we can only be worse off because, as pointed out above, unavoidable energy losses mean that more CO_2 in total gets released per unit of final energy consumed.

The inescapable conclusion is that fully eliminating greenhouse emissions will require that all the hydrogen in the hypothetical hydrogen economy must be made using non-fossil fuel sources. Naturally this is the Holy Grail for the hydrogen economy. The prospects of finding it are discussed below.

The story is not entirely negative. There may sometimes be worthwhile local benefits from using hydrogen, even though the net result is greater total pollution. For example, the environmental benefits of an emission-free vehicle on a city route might justify a hydrogen production plant that pollutes the distant countryside. This kind of argument is much the same whether the vehicle runs on hydrogen or electricity.

And, unlike electricity, hydrogen can, at a price, be physically stored in a tank or reservoir. An energy economy that primarily generated electrical power (eg, from nuclear, solar, or wind energy sources) might therefore benefit from converting and storing some of its energy output as hydrogen. Electricity can be stored too, for example in a large battery system, so there needs to be a sound technical and economic comparison between the alternative carriers and storage methods.

One proposed way of dealing with fossil fuel emissions of CO_2 is to

capture them by methods such as sequestration in underground storages. Sequestration of CO_2 by-product, controversial as it is, would undoubtedly be more effective at a large fossil-fuelled hydrogen plant than at numerous smaller, distributed engines (as in motor cars) or generators running on fossil fuels. Once again, this reasoning also applies to the CO_2 emitted from a large power station, so a choice still needs to be made between hydrogen- and electric-powered transport, etc.

Thus, there certainly could be some benefits from using hydrogen. It's just that the spiels for the hydrogen economy go well beyond these benefits. And the spiels are not simply over-enthusiastic. They are full of half truths and loose science. Arguably, there has not been enough scepticism.

Where did it all start?

The Hydrogen Economy is a phrase with a smooth and seductive ring to it. Perhaps it was coined by some marketing guru? No, it wasn't. Mentioned as far back as 1923, the concept received its first real promotion in the 1975 book *Energy: The Solar-hydrogen Alternative* by an internationally renowned academic electrochemist, Professor John O'M Bockris. At the time, Bockris was in Australia as Professor of Chemistry at Flinders University, Adelaide, but he spent the next 30 years or so at Texas A & M University.

His book on hydrogen makes it clear that Bockris was driven almost entirely by his view that fossil fuels would soon be exhausted. He was unconcerned about carbon dioxide, which was not even considered as a pollutant in those days. And fears of global warming/climate change were still decades away.

Despite the book's title, Bockris saw the future primary sources of hydrogen energy as both nuclear and solar. His central argument for the hydrogen economy was that either of those energy sources would have to be located at great distances from end-users (nuclear near ocean cooling water, solar in the desert), that transmitting electricity over such distances would be costly and that converting the energy into hydrogen and piping it to users was the way to go.

That's it. Bockris, the foremost champion of the hydrogen economy, said nothing about hydrogen as an inexhaustible source of energy to replace fossil fuels (which it isn't) and it was too early for him to be concerned about climate change. His whole proposition rested on engineering calculations, now more than 40 years old, of the relative costs of cable and pipeline transmission of energy. Those calculations, incidentally, are not at all supported by more recent work.

Since Bockris' book, climate change has risen to be the most critical environmental concern of our times and has clearly become the major driver of the recent interest in hydrogen. But there has also been an element of 'technology pull' from the end of the chain, that is, where the hydrogen is to be finally used. The idea of much of our road transport being driven by pollution-free, hydrogen-powered fuel cells has gained huge appeal. Fuel cells are battery-like devices that convert certain chemicals, including hydrogen, directly into electricity, without combustion in the usual sense. They have a reputation for exceptionally high efficiencies, which adds to their attraction. More about that below.

The real meaning of the 'hydrogen economy'

It should now be clear that, to make any sense as a saviour of the planet, the hydrogen economy must actually work as either a renewable energy economy or a nuclear economy. Its prospects therefore depend, as things stand, on the prospects that renewable (solar, wind, tide, biomass etc) or nuclear energy will be able to replace the energy we now get from fossil fuels.

So why is the 'hydrogen economy' terminology so much more popular than a 'renewable energy economy' (no need to mention a 'nuclear energy economy', which comes last in the popularity stakes)? Well, it sure sounds sexier. And it gets around the problem that everyone knows how long we have been waiting for renewable energy to become economic; we might perhaps be getting impatient with, or even sceptical about, its unfulfilled promise. Hydrogen is new and, well, obscure.

With hydrogen, cynicism and scepticism can now go happily hand in hand.

Is there any hope for hydrogen?

It is unscientific to claim that something like the hydrogen economy can't and won't happen. But surely we can apply a suitably sceptical test to indicate what the real prospects are.

Hydrogen was discovered in 1766. The nature of its combustion with oxygen to form water was interpreted correctly over the next decade or so. It's been around for a long time and is now an industrial chemical produced from fossil fuels in huge quantities by technologically advanced industries. As discussed above, if it were being produced for its energy content, it would be causing more greenhouse emissions than by burning the original fossil fuel. Of course, until now at least, it has never been intended for use as a fuel, so no-one has worried about those extra emissions.

Now there is a new concern, that burning fossil fuels is causing global climate change. We could fix this if only we had new technology to make hydrogen much more cheaply than at present and without any greenhouse emissions – the Holy Grail mentioned above.

So let's spend a lot of money and if we try hard enough surely we will discover such new technology! Never mind hydrogen's long history. Never mind that the wholly desirable goal of clean renewable energy has remained elusive for decades, despite huge investment, because

renewable sources just don't have the continuity and intensity to be adequate fossil fuel substitutes. Suddenly, somehow, merely because we want it to be so, new ways of making cheap hydrogen will be discovered and renewable energy will start to look economic.

Let's apply the sceptical test. Exceptional propositions require exceptional evidence. The proposition is that hydrogen, which has been around for over two centuries, is going to replace fossil fuels and save the planet. But the evidence is not there, only wishful thinking. It does not pass the test.

This does not mean, of course, that all research and development related to hydrogen ought to stop. Scientists and engineers should continue their search. But the investment must be tailored to the prospects of success.

What about fuel cells?

For most of its proponents, the hydrogen economy goes hand in hand with devices known as fuel cells; fuel cells running on hydrogen will, they say, be the engines of the future, generating our electric power and driving electric vehicles.

Fuel cells are simply refuelable batteries. Like the familiar kinds of household and car batteries, they generate electricity from chemical reactions going on inside them. But in ordinary batteries, the ingredients of those reactions are built into the battery. Once they run out, your phone or iPod stops until those chemical ingredients are regenerated by charging (or replacing) the battery. In a fuel cell the ingredients are continuously replenished. It keeps making electricity as long as it is fed with fuel and air (or breaks down!).

Hydrogen is definitely one of the best fuels for a fuel cell. However, don't forget that it can also be a reasonable fuel for an ordinary internal combustion engine. Once engine technologists were asked (in the past they would have regarded it as a silly idea), they had no trouble in modifying a petrol engine to run on hydrogen – just look at the Ford web site for example.

Unfortunately, the faith in fuel cells as the engines of the future rests on rocky foundations. They have the reputation of being simple, cheap and, most of all, highly efficient, that is, they convert more of the energy contained in a fuel into useful output than do conventional engines.

The reality is different. They are not simple or cheap. As for efficiency, Professor Bockris was a great promoter of their superiority. His argument, adopted by many since, is abstrusely scientific, but goes something like this. All combustion engines have theoretical limitations to their efficiency attributable to the famous Carnot thermodynamic cycle. Fuel cells do not have those limitations. Therefore they are more efficient.

Stripped thus to its essentials, the fallacious reasoning is clear; it ignores all the other factors that might limit fuel cell efficiencies, and there are many. Nevertheless, the fallacy still has huge currency.

Electrochemists are familiar with the causes of inefficiency in a fuel cell battery. They include overpotential (which, despite the name, actually decreases the cell voltage as the current increases), internal resistance, partial fuel utilisation and fuel crossover. None of these is easily amenable to theoretical calculation; they need to be measured in practice.

The facts are that neither combustion engines nor fuel cells perform close to their theoretical efficiencies. The theories are pretty much academic curiosities as far as real performance is concerned. In practice, most fuel cells are not particularly efficient and barely competitive with combustion engines.

There are some niche applications where fuel cells might be superior. If the combined heat and electric power generated are usable (the CHP concept), then fuel cells have some attractions. And it might be argued that it is early days for fuel cells and their efficiency potential is not yet fully tapped. Maybe. They were famously invented in 1838 (that's not a misprint) and have been intensively developed ever since the late 1950s, initially for powering early space missions, so one could equally argue that fuel cells have had plenty of time to show their mettle.

In short, fuel cells cannot in themselves provide the kind of justification needed to go chasing after the hydrogen economy.

Does any of this really matter?

If this were just a debate between scientists or engineers, who cares? I think there are a few reasons for us to be concerned.

The first should be a principle close to the hearts of sceptics. If the truth is being bent, if we are being deluded, then that alone should arouse our interest.

Then there's the matter of money. By far the greater part of the total multi-billion dollar expenditure is from the public purse. OK, the money is actually being spent on a worthy cause, or at least a cause driven by worthy motives. The problem is that a combination of misunderstanding, ignorance and the seemingly intentional peddling of exaggerations and myths is more likely than not to result in money being wasted.

(Some of the public expenditure is here in Australia. A recent report on Australian hydrogen activity lists around 120 projects, mostly in the public sector. While the costs are not given, the total public commitment here must be in the tens of millions of dollars.)

There is private money too. Many companies are being built with private investment based on the attractions of hydrogen and fuel cells. If those attractions are imaginary, then those funds are at risk and eventually the private investors may well lose.

But there is something deeper at stake here than money and the

truth. If the public and government believe that our environment will eventually be saved by the hydrogen economy, there is a risk of becoming complacent about the real threats of the future, with serious consequences.

If, as I believe the case is strong, there is not going to be a technical fix (nuclear power being a possible exception) for our future energy woes, then our whole thinking has to change. Our generation, and several before us, inherited and proceeded to consume a fossil fuel bonanza, which drove huge economic growth. Our descendents won't have it so easy. Energy will become scarcer and more expensive. Climate change concerns may well increase the costs further. The chances are that our economies, which depend heavily on energy (GDP and energy consumption are closely related), will shrink.

While many of us might approve, even welcome, simpler lifestyles and a retreat from consumerism, there's a serious problem. In our economies, even a tiny shrinkage of only a fraction of a per cent, has, historically, wreaked havoc on employment and wellbeing. Recession and depression have always hit a small minority disproportionately and caused major social disruption. This is the number one problem of the shrinking economy, not the limit to growth in itself.

If I am right, the big challenge is to accept the inevitability of energy shortages and rising energy prices and adapt our economic system so as to absorb the effects of the resulting shrinking economy and spread those effects equitably.

Hydrogen is a distraction, and an expensive one. So it does matter.

Who is Australia's Best Psychic?

At last, we have uncovered Australia's Best Psychic! In the end it wasn't at all hard — we Google searched (GS), read lots of women's magazines (WM) and watching tabloid TV (TT). However, we found that we were far too successful with many people claiming, directly and indirectly, the same title.

It's nice to know all these superlative operators are in the market, but how is the poor consumer to determine who among them is worth the money?

The following list is incomplete — we are sure there are many others making similar claims. If you find any, please let us know.

[Thanks to Dr Tracy Reynolds for this idea.]

- *'Daniel': Australia's leading psychic medium. TT*
- *Amanda De Warren: Australia's foremost psychic medium. TT*
- *'Bridget': is known as Australia's best loved psychic. GS*
- *Garry Wiseman: Australia's leading psychic all-rounder. GS*
- *Michael Wheeler: Australia's most accurate psychic. GS*
- *Michael Wheeler: Australia's leading psychic medium. GS*
- *Tahillia: The best, most accurate psychic in the world! TT*
- *Scott Russell Hill: The world's most accurate psychic. WM, TT*
- *Scott Russell Hill Australia's most accurate psychic. WM*
- *Scott Russell Hill: Australia's leading authority on the paranormal. TT*
- *Scott Russell Hill: Australia's most renowned psychic. WM*
- *Jacquelene Close Moore: Australia's leading psychic. GS*
- *'Gabrielle': acknowledged as Australia's most incredible clairvoyant. GS*
- *Rhondda Stewart-Garfield: Australia's leading psychic. GS*
- *Mitchell Coombes: Australia's leading psychic witch! GS*
- *Milton Black: Australia's most respected astrologer. GS*
- *Milton Black: Australia's leading psychic. TT*
- *Milton Black: Australia's leading Astrologer. TT*
- *Alison Moroney: Australia's most renowned Astrologist. GS*
- *Pia Shannon Forbes: Australia's best astrologer. GS*
- *Judith Collins: Recognised as Australia's leading authority on the human aura. GS*
- *Margaret Dent* (now deceased)*: Australia's most gifted medium. GS*
- *Margaret Dent: Australia's most renowned psychic. GS*
- *Margaret Dent: Australia's most renowned psychic. GS*
- *Kerry Kulkens* (now deceased)*: Australia's most famous psychic. GS*
- *Kerry Kulkens: Australia's most respected psychic. GS*
- *Kerry Kulkens: Australia's leading psychic astrologer. GS*
- *Athena Starwoman* (now deceased)*: Australia's most famous astrologer. TT, GS*
- *Athena Starwoman: Australia's most popular astrologer. GS*
- *Fiona McCallum (now deceased): Australia's favourite and most accurate clairvoyant. GS*

Richard Saunders

Theism:

Why, How and Wherefore?

Asking, and answering, the big questions

David Brookman teaches doctors how to be doctors at Newcastle Uni. He was recently appointed Supremo of the Hunter Skeptics.

Why are there so many religions? Why do we humans find the need to have a deity to explain what we cannot otherwise explain? Does it matter?

This essay is full of conjecture; hypotheses which can never be verified, but which have greater evidentiary support than most theistic belief systems. My arguments must be brief — I do not have the luxury of minuscule qualification of all my assertions.

The absolute

I will first begin with a discussion of 'the absolute'; Charles Dodgson as Lewis Carrol provided the best satire of the search for the absolute world in *The Hunting of the Snark*, with the realisation that human diversity necessitated that only one human could be 'perfect' and such a world could not contain anyone other than Dodgson's belief in Jesus Christ, and I can do no better. J.L. Austin has also discussed in detail the mis-application of words in degree. People have in the past, and continue to, regard the dictionary meaning of a word as being fixed and immutable in meaning and in degree. Austen uses the example of 'losing control' and taking an extra helping of ice cream and compares this with Plato's definition of losing control and giving in to 'base' desires. There is a vast difference in the degree of the 'sin' but absolutists regard them as equal. Absolutism is a state in which words are considered to have a fixed meaning around which the reality of the world revolves

I will not resort to the English arrogance of citing the "ordinary man", but all of us in our daily lives use words in different contexts, with different emphasis understanding the changes in meaning that occur. Yet when these words are written, translated, interpreted and reinterpreted they acquire, for some, the force of absolute meaning — though clearly their context may well have been lost on the many minds through which they have passed. Rene Descartes proposed a "perfect world" to which we aim, and this is the process that Dodgson was satirising — the tendentiousness of anthropocentric theism.

Evidence

Next let us first examine what people mean by 'evidence'. The word evidence depends of the context in which it is used, and the concept of evidence has a range of meanings, for some it approximates the absolute, such people may be prepared to engage in extreme acts such as murder in the light of their 'absolute' evidence, others may regard the evidence as strong, but not conclusive, and for others the evidence is weak, and would be discounted. In other words our application of evidence depends on what we do with it.

We can examine evidence the narrow legal sense, rules are set out to define the weighting that allows the admission of certain evidence in cer-

tain courts (for example hearsay is prohibited in western criminal law). Expert evidence (an opinion) may be provided by scientific witnesses and may paradoxically carry more weight in deliberation than scientific evidence based on good research. Each piece of evidence is given different weight in deliberations depending on corroboration, internal consistency, "trustworthiness" of the person providing the evidence, and external validity. Despite the rules the credulity of the judge and jury is open to manipulation — evidence is devalued by denigrating witnesses, or finding minor points of inconsistency — this is what a good barrister will do; there is an understanding that truth is relative and subjective.

In medicine we are subjected to our own biases, misinterpretation of observations and deliberate disinformation from those who seek to exploit the system for profit. To counter this, a system of grading evidence has developed over the past 20 years. In clinical epidemiology we have developed a system which allows us to rank the weight we place on medical information, at the top is a meta analysis of a series of well constructed randomised controlled trials, and at the bottom expert opinion. We do not discriminate in the lower ranks according to vested interest because it is so difficult to track. In the higher ranks funding of the research by vested interest devalues the importance of the research. The weighting we place on the evidence depends on the consequences — the greater the potential for serious adverse outcome the greater should be the search for evidence of high grade or quality.

For those who believe in an absolute; what is written in their historical tomes is evidence enough — a sort of ontological self perpetuation of belief. All "evidence" has a weighting of 1, there is no attempt to analyse the assertions for internal validity, external validity or reference validity — why? Because absolutists are programmed not to — they will be credulous followers of anyone who invokes the name of their group.

How to live

What can we humans grasp as being a reliable base on which to build our lives? There is actually very little if one adopts an absolutist approach. Few of us doubt our own existence, nor the existence of those with whom we interact. We know we live in a set of social groupings, we interact with our fellows, we bond, we breed, most of us attempt to live in harmony. Our existence becomes a series of events which we must balance according to importance and reliability. In general we trust what we experience but this does not satisfy absolutism for we know we have illusions and hallucinations at times. This question of misperception has troubled philosophers for millennia, questioning the primary reliability of our perceptions, our ability to trust memories, and the drift of linguistic meaning. Despite the absolutists we know we make mistakes, because we identify them — we do not recognise them as mistakes unless they are identified. By naming the actions as 'mistakes' we acknowledge the absence of intention, lack of thought or sheer inappropriateness of the action. We discover they are mistakes by testing them against past experience, or the descriptions of others. For the absolutist there can be no mistakes — they exist because it is written.

That we can write, and express abstract ideas is a function of acculturation. Our language to some extent necessarily constrains our interpretation of our perceptions. This means all of us are affected by the interpretations of our world, district and society which is part of our parents (or part of those to whom we bond as infants and children). Our interpretation of our world is built on and constrained by the informal learning in our childhood. Francis Loyola is claimed to have said '*give me the child and I will show you the man*'. We can identify the association of trauma in childhood with adult personality disorders and there has been some work to show an irreversible neuroanatomical change in such people. Hence it is likely that our most basic intellectual functioning becomes hard wired with the views and interpretations of our parents. For some of us subsequent learning may conflict with this, requiring either rejection of the evidence or an our an ongoing repression of our childhood beliefs, that is we break our programming but are uncomfortable with the conflict.

Many of us succeed in "breaking our programming". Many highly intelligent people do not — this may well be a function of their neuroanatomy which becomes fixed at the end of the phase of cerebral neurological plasticity (approx 8 years of age). This does not diminish their intelligence — but it may seriously restrict their capacity for analysis and reasoning. Because their set of data for analysis is necessarily limited by the *a priori* construction of the model of the world and universe they acquired in childhood. It is not an *a priori* assumption, because this implies doubt, it is an absolute constraint upon analysis, a blinkering of the field of data which is not visible to the person conducting the analysis.

Colour blind - evidence blind

The best concrete example that I can think of is the colour-blind man. Until Helmholtz, and Ishihara and others developed tests for the various forms of colour-blindness it did not exist. Yet there were millions of men who were afflicted by the disorder over history. Their misperceptions may have been recorded but not understood. Today a man will not know he is colour-blind unless a parent is diagnosed, or he is subjected to occupational testing. He perceives the world as normal — his mind interprets the shades of the world, the shades have colour labels no different from the unaffected person — but he can never distinguish between certain shades of red and green. He will guess for 50% is better than 0% and the occasional social embarrassment can be glossed over — it is rarely important. It is the same for those who are programmed to view the world as a creation of a

supreme being — they also perceive differences between human groups, or animal species but they cannot perceive the evidence for biological selection that creates the differences because they lack the neurological equipment. For us, as skeptics, to attack the professed beliefs of such people is probably a waste of time.

This is not brainwashing, which is a technique of re-education to break childhood programming and substitution of another. We are a result of our childhood experiences, formal and informal, culturally acceptable and culturally unacceptable. If we as children are subjected to a Unitarian explanation of the world and denied experience of an alternative view, we most likely will never develop a capacity to logically reason beyond that Unitarian world view. This of course means that a large proportion of the population do not have the capacity to "see through" political manipulation, or advertising, or any form of dogma — as long as it does not conflict too strongly with their own dogma.

Why dogma?

Why is it necessary for man to have theistic dogma? When did it develop?. Did we wonder about our existence and place in the universe, or was an all powerful being simply a useful concept for the enforcement of social laws and the rest came later? We may speculate that, as we can train chimpanzees to express cause and effect relationships, we genetic cousins survived and prospered because enhancement of this ability was advantageous. Was there really a need to infer an unseen cause for things we could not otherwise explain. This hinges upon the meaning of need — clearly having a theistic enforcement of tribal morality provided a survival advantage less internecine conflict, and more cohesion with intergroup conflict — it may thus be argued that as we would not exist in our present form without theism then it is a true need.

Many people argue that belief in god is necessary for the perpetuation of human ethics, and others that god fills a personal void in explaining their perception of the universe. Which is more important — the reward/ punishment system for enforcing "morality", or the gap-filler for the intellectually lonely? We obey the law in Australia and the UK and The USA because we may suffer civil punishment (unless we are very rich), or because we believe that we will suffer punishment after our death — these are logical rationalisations we add as adults to support our adherence to the morality installed by our parents. In many countries adherence with law is limited to dealings with members of the dominant religious or ethnic group (and this includes Marxism as a religion).

Survival advantage

One can certainly speculate that a tribal group, which had rigid rules about supporting those in the group and attacking and killing others competing for resources, would have a survival advantage when resources were scarce. Intra-group cohesion would also be necessary for hoarding and sharing of food. Transgression requires group approbation, but this may conflict with parental and sibling ties and may lead to group schism. A group which was acculturated to a world view, that the rules governing their group were provided by a supreme all powerful being, would be more likely to remain cohesive with increasing pressure and adversity, because punishment of a member would be less likely to attract the normal family ties — in other words they acquired a social survival advantage over the competition.

I would also argue that dietary rules embedded in several religions also conferred a survival advantage. The prohibition of pork would protect the group from cysticercosis, and the prohibition of beans would protect those members of the group with GP6D deficiency from haemolysis. An absence of understanding of the mechanisms would further reinforce the "power" of the god in protecting his (its, her) chosen people. Prohibition of shellfish would reduce the incidence of faeco orally spread diarrheal disease. Fasting happens to occur in several large religions at the time when winter food stocks would be running low — the purpose of surviving the winter becomes a rite, and act of proving adherence to the faith.

The other reinforcing effect is an extension of survivor bias. A group has survived for 6000 years because of social advantages; what greater proof is needed that their beliefs are the one and absolute truth? Survival is used the justify the historical means.

Does it matter?

If we cannot resolve the question of a supreme entity responsible for the universe, does it matter if the large majority of people subscribe to the limited world view, as long as there are enough analysts and skeptics around to keep science going? Unfortunately I think it now does, we have blown the human population to levels where we now know our impact on the planetary biosystems is producing irreversible change — how this will affect nutrient cycling we do not know as yet. If there is a persistent belief that a supreme being is going to control the damage we produce, or worse that the supreme being wants us to destroy the human species, then we are in grave danger as a species.

We learn that the Easter bunny, the tooth fairy, and St Nikolas are myths perpetuated by our parents — they are bonded to Christian religious rites, but pagan. They are not necessary for an adult interpretation of the world, they are a temporary fantasy perpetuated for the entertainment of adults. But these are single event rituals — they are not used to answer the 4-year-old, who constantly asks why, how what and where, but recourse to theistic explanation is constantly used.

Theism has served us well for millennia, it allowed certain groups with aggressive and defensive cohesion to dominate and I am a product of those conflicts. Our population, and capac-

ity for communication has now rendered aggressive competition for resources not only inappropriate but counterproductive, yet politically we are shifting away from development of scientific critical thinking and human cooperation, and promoting credulous blinkered belief systems, in expanding religious schools, giving credence to all manners of quackery and pseudoscience in the media and starting economic wars. Why? The only thing we have we can commonly agree upon is our survival as a species, but we even are shifting away from that. Is this a sort of social apoptosis or merely a recursion induced by the paranoid hegemony of the cold war?

While it would be nice to conclude dramatically, to do so would be inappropriate. There are many good people who will be seriously offended by what I have written, they believe that promotion of their beliefs is the morally correct action, perhaps it will be; perhaps survival in the competition for scarce resources will depend upon espousing group beliefs and being a member of a group with power to exterminate the opposition and defend resources. I must conclude with a statement of the obvious — that conflict is necessarily wasteful, and perhaps our survival as a species is along the pathway of cooperation and pursuit of knowledge and application of scientific thought and reasoning. If I am right and we take the wrong approach — it will not be the end of the planet, merely several species, including *Homo*.

Further reading for those who have time

J.L. Austin *Philosophical Papers*, How to do things with words, and *Sense and Sensibilia.*

Lewis Carrol - *The Hunting of the Snark* - available from The Gutenburg project, but Tenniel's drawings make it much more interesting.

Plato *The Last days of Socrates*

Bertrand Russell - *A History of Western Philosophy*, Philosophical Questions

John Bowlby *Attachment and Loss* and other works

Vale

Philip Klass 1919-2005

We mourn the passing, at 85, of Philip Klass, one of the towering figures of the international Skeptics movement, who died in the USA on August 9.

Philip Klass was an electrical engineer by training who became a distinguished aviation journalist and a long time senior avionics (a term he is credited with coining) editor of *Aviation Week & Space Technology*. There he developed an interest in UFO claims that was to remain with him for the rest of his life. Philip Klass became a founding member of CSICOP, the world's first organised Skeptics group, in the 1970s and was later named by them as one of the "Ten Most Outstanding Skeptics of the 20th Century".

His training and background in engineering and journalism gave him a methodological approach to evidence which, combined with his meticulous field research and excellent access to official and unofficial sources, made him a formidable investigator. They allowed him to penetrate to the facts behind many UFO claims and to expose the overlay of speculation and hyperbole to the light of his critical intelligence. This approach showed that most such claims, stripped of sensationalism, had prosaic explanations .

His many successes in the field won him few friends among UFO True Believers, but even they generally considered him to be an honest honourable investigator. Skeptics regarded him as a giant in the field.

Philip Klass wrote seven books covering the UFO phenomenon, including *UFOs —Identified* (1968), *UFOs Explained* (1976), *UFOs — The Public Deceived* (1983), *The Real Roswell Crashed-saucer Cover-up* (1997), and *UFO Abductions: A Dangerous Game* (1989), which are considered to be the definitive works on the subject.

Philip Klass was a true Skeptic and we are the poorer for his passing.

Robert Baker 1925-2005

We also mourn the death in August of another prominent Skeptic, Dr Robert Baker, who was 80.

Robert Baker was a psychologist and a CSICOP fellow who was considered one of the world's leading authorities on such mind-phenomena as ghosts, alien abductions, false memories and religious apparitions. An expert in the workings of the human mind, Dr Baker explained apparitions as mental experiences (such as hypnosis and hypnopompic hallucinations) and viewed "hypnosis" skeptically as a product of imagination and fantasy.

He wrote widely about these topics, both in professional journals and in books for the lay reader. Among his best known Skeptical works were *They Call It Hypnosis* (1990), *Hidden Memories: Voices and Visions from Within* (1992), *Mind Games* (1996), *Child Sexual Abuse and False Memory Syndrome* (1998), and (with Joe Nickell) *Missing Pieces: How to Investigate Ghosts, UFOs, Psychics, and Other Mysteries* (1992).

He will be sadly missed.

For more details of the lives of these distinguished Skeptics, see the CSICOP site:
www.csicop.org/remembrance.html

A Skeptic's Search for God

or, how I learned to stop worrying and love the Bible

Tracking a journey to its implausible conclusion

Martin Hadley, Barrister-at-Law, is President of Australian Skeptics Inc and the runner-up in the Improbable Shirt Awards of 2005

***A Skeptic's Search for God;* Ralph O Muncaster, Harvest House Publishers 283pp**

And I thank Christ Jesus our Lord, who hath enabled me, for that he counted me faithful, putting me into the ministry; who was before a blasphemer and a persecutor, and injurious: but I obtained mercy, because I did it ignorantly in unbelief.

1 Timothy 12 & 13.

The saying about there being no one less tolerant than a reformed smoker, drinker or prostitute is put to the test by a reformed skeptic. Ralph O Muncaster promises to give non-believers "Convincing Evidence of His Existence". The plugs for the book set the scene. One is from a writer of "best selling" Christian apologist literature. Another plug is from the founder of the Church where Ralph has his ministry. This neutral source assures us that the book is *"an indispensable tool for dealing with skeptics."* I like the way the plugster chooses the expression "deal with". The last time I saw that verb applied to humans, it was in legislation which referred ominously to a Judge's power to "deal with" a malefactor for contempt of Court.

Ralph's story

Ralph has decided that the best way to prove God's existence is by taking us through Ralph's own life. In brief, the familiar pattern of rebellion against parental values leading to some misspent years followed by the discovery that they had been right — so right for ralph, that this truth must be spread with zeal.

Ralph had a religious upbringing with grace before meals, Sunday school, church services with father and siblings looking from the pews up to mother in the choir. We meet a precocious Ralph in Sunday school class where he is taught that Adam lived 930 years and the oldest person was Methuselah at 969. Ralph and his friend Robert are skeptical.

How do you know that? I asked.

Because the Bible says so, Miss Lynn answered.

I know, Robert said through his laughter, *I'm going to write a book that says that I lived to be 1000 years old and break the record for people that read it hundreds of years from now!*

The whole class started laughing.

No, I said, *because I'm going to write a book that says I lived 2000 years!*

> The class was out of control and in an uproar as kids started giving me high fives for beating Robert…

Then in History he is taught how the cavemen had tough short lives. But didn't they live to be 900, he asks. The teacher graciously asks from where could he have got such an idea? From Sunday school. After an awkward pause, the teacher replies that although some people believe differently, the history that she teaches shows that life spans have been increasing for a number of discernable reasons.

Like countless kiddies before him, Ralph starts to work through some basic ideas about God and the universe. He discovers Dr Seuss and realises that some books are not meant to be true. Perhaps the Bible is a book like that for adults. On the other hand, he might as well believe in the Bible 'just in case'. He calls this "death insurance", unaware that he has discovered something that has been the subject of much philosophising and has been dignified with the label *Pascal's wager*.

Meanwhile, in the real world

That level of analysis seems to be good enough for many Christians and followers of other religions. It gives a feeling of safety without going to the trouble of practising the religion zealously or agonising over its contradictions. In places where religion is also a vehicle of governmental or social control and when conforming shows that you are the right sort of person, it is easier to understand why people adopt a 'death insurance' approach. Even in Australia, parents who rarely go to church will christen their kids. Of course, this happens many years before the baptisee has any chance of understanding the event. Some will attend Sunday school and some won't but they all have a label they will answer to later.

My Italian teacher told me that a true Italian man goes to church three times in his life; and for the first and last he is carried in by someone else. That is how I started. By the time I went to school, I had been christened but had never since gone to church. Nevertheless I knew I was a Presbyterian and by that label I was sorted for scripture class. (I wonder whether Presbyterians and Methodists were ever at daggers drawn — we were considered similar enough to be put together.)

"Non-belief" was not an option. The classes were presided over by visiting clerics. With nary a humanist on offer, what could the school do with a group of leftovers? Not let us play or go home. With that as an alternative, most of us would have apostatized on the spot.

Many people take their religious label into adult life. They will respond to it at census time but they rarely go to church and are not conscious of living their lives "under God". They will have a church wedding for all sorts of reasons (including homage to the rellies who are copping the expense of the festivities) and will later christen their kids, renewing the process. They may have occasional doubts about whether their religion stacks up but they are too busy to think much about it and they don't want to start fights. Calling yourself an atheist sounds aggressive, while "agnostic" sounds like nothing at all.

Back to Ralph

Ralph does not analyse his concept of death insurance. Two problems that were obvious to me as a little towser. Firstly, God would surely know that you were believing only to be on the safe side; odds are that he would separate pretenders for special punishment. Secondly, you had to be sure that God was the only contender. After a life of going through the motions — perhaps even fronting up to church a few Sunday mornings while your atheist mates were at the beach — you might find yourself face to face with Osiris or Apollo or whoever, and still at risk of a bollocking.

Ralph then enters the stage of wondering what started it all. There must have been something and that something is God. This is one of several routes to a God who is there in some general kind of way. The advocates of intelligent design are more and more in the news, but their Herculean efforts do not seem to take us any further than this generic God. A God who gives us beautiful sunrises and congenital deformities, each for reasons best known to himself.

If you lean towards believing in a generic God — theism — you are in good company but query whether it will make any practical difference to your life. To take human relations as one area, a theist is not bound to embrace the kind of ideas spread by St Paul (aka Saul of Tarsus) about how men and women should treat each other. Believers in the generic God should be as fascinated by scientific discoveries as anyone. They do not have to try to defend 900-year-old men or talking snakes.

Young Ralph has these theistic leanings but he emphasises that he has the kind of mind that seeks the truth through argument and discovery. He tells us that even the Bible does not urge blind faith, quoting ***1 Thessalonians 5:21*** *"Prove all things: hold fast that which is good."*

Cutting corners

Fine, but we soon get a hint of Ralph's tendency to cut corners. He begins to refer to atheism as a "faith" alongside the various religions. Only 4% of people follow the atheist "faith" because: *"…there is far more evidence, even intuitively, for a God – some God — than for none at all. A true atheist almost has to want to become an atheist. And many do — choosing to reject God out of hand rather than face the possibility of being accountable to some higher power."* Ralph wants to evade an important fact: the natural world makes perfect sense to an atheist. However wretched, amoral or uncertain your average atheist may be, she can always say: *"I can understand what I see around me. I do not have to assume anything to feel at home in my world. And if it is necessary to have a purpose in life, I have a good enough brain to devise one."*

Ralph throws in another fallacy to

be getting along with. It boils down to this:

The choice is between creation by God and chance origin of life.

Belief in chance origin entails evolution, to get from the first living thing to all the species we have now.

Therefore, if you believe in evolution, you must be an atheist.

This sleight of hand dismisses all of those who believe in God and accept that evolution is occurring in accordance with the overwhelming scientific evidence.

I see nothing in the teachings of Jesus which prevents a Christian from accepting evolution. The Christians who waste their lives in pointless rearguard conflict with scientists are those who have backed themselves up the intellectual dead-end of literal interpretation of a few verses of the Old Testament. I predict that history will move on from them as it did from those who persecuted Galileo. Their theology strayed from the spiritual to the material world and was too far from reality. The inquisitors degraded themselves by using their power to impose that theology. Everyone now accepts that God did not want people to think that the sun went around the earth. God did not want the talented individuals who ran holy mother church to spend their time torturing people for describing what God had put up there to be seen with the new telescopes. Fortunately the creationists today do not have the powers of the inquisition. However historians will condemn them for their misconceived attempts to do as much damage as they can with their pathetic arguments.

By the end of High School, Ralph is still a sceptical agnostic but with a creationist's baton in his knapsack. He is off to university. The University of Colorado is a dangerous place, where there be parties, liberal causes and scientific "experts":

I watched as they carefully crumbled the "weed" into cigarette paper. After they'd twisted both ends, I watched nervously as they began to pass the joint from one to the next. What would I do when it came to me?

Speaking as Ralph's (non-Samoan) Attorney, I would have said: *"For a start, ask someone to light it."*

As you would expect, the bold Ralph courageously avoids inhaling, thereby keeping his mind in Clintonian fettle, in readiness for the controversies ahead. His next intellectual breakthrough is to conclude that many scientific experts are too "comfortable" with their beliefs to tolerate any questioning. If you are going to adopt a worldview based on bigotry rather than evidence, then it is a good confidence builder to pretend that the other side is just as bad. Ralph decides that scientists have a vested career interest in what they teach! Like atheism, science is a faith. Bad science and atheism are in cahoots, he later concludes:

I was saddened to learn that, in fact, I had been taught a religion in school — the religion of atheism — because the theory of evolution had ruled out any basis for the existence of God. And I was angry to learn that this religion of atheistic evolution was based on obsolete incorrect science.

A Damascene conversation

During one of the many long breaks it took me to get through this book, I had a kind of visitation. The voice said clearly:

Martin! Mend your ways and embrace Christ as your saviour. Cut back on the foul language and stop watching Father Ted…

That is what you are expecting of course. But no, one morning as I walked through Hyde Park and looked up at the enormous trees that overarch the path, the message came like this:

It's me. Me! I created everything you can see now and everything else too. I created all the plants and animals and then all the humans to amuse me with their antics. And to sing my praises forever of course. That was quite fun actually. Until Christian TV that is. I am sick of those chunderous songs.

Worse than that, I think I'm losing it. Becoming insecure. People believe that something must have created stuff and that something is me. They feel secure. They have an origin and a purpose. They think that they can come and join me forever if they behave themselves. And they tell their naughty kiddies about me to make them behave themselves.

So who worries about me and how I got here? I can't be an accident. What do I call my creator? Greater than God — Goddissimo?

Goddissimo, speak to me! What is my purpose? To create the universe? Universe, schmuniverse. Now they talk about parallel universes — lots of them. How did they get there? Did you make them, Goddissimo, or do they each have their own god like me?

Goddissimo, please reassure me. It is all getting too complicated and I'm starting to worry that I might be only a figment of human imaginations…

Logic? Not likely

Back to the book. Just before we really get into the convincing evidence, we get another lesson in logic. Ralph contends that proof is based on probability. If something has happened often enough consistently, we treat it as certain. After referring to Newtonian laws he continues:

None are proven to 100-percent certainty Yet all key laws of physics are proven to a degree of certainty exceeding 1 chance of non-occurrence in 10^{50}. That means that there is less than 1 chance in 1,000…(zeroes across the page ha ha) *of any of them not being right.*

Ralph's big number is unreferenced. (I suspect it has evolved from a statement by probability theoretician Dr Emile Borel who said basically that if the odds of

something are less than 10^{50}, then we can treat it as something that will never happen.) Ralph's idea is: if it is very unlikely to be true, it is false; and vice versa.

In other words, the odds of gravity not existing are absurdly small. Gravity is essentially an absolute fact. Yet, a hard-core skeptic might claim that gravity is "still unproven," However I have yet to find a skeptic willing to challenge the proof of gravity by jumping off a cliff.

To my untutored eye it looks like Ralph is up to something. He does not mention that with things like gravity there is an explanation as well as the repeated outcomes. Perhaps he has become too distracted by the idea of science being a religion to remember what the scientific method really is.

I'll bet that Ralph came across Plato's dialogues at some point and decided that this was an *oeuvre* he could emulate. Since he is using his own life to demonstrate God's existence, you expect a few conversations but unfortunately Ralph has taken Plato's way of provoking the reader to deeper thought, and used it for the intellectually shabby purpose of inserting ideas without proof. Important notions are taken as read and never returned to. Ralph is to dialogues what Jack the Ripper was to blind dating.

A flight from reason

Aboard a jet to LA, Ralph finds that his neighbour is "avidly" reading his Bible. Lo and behold a conversation ensues about creation (Ralph is still an evolution-addled-agnostic). Seatmate John has much to offer:

Many leading scientists are now rejecting evolution and believing in creation as a form of intelligent design… you were taught a lot of misleading things in school… I have made it a point to investigate the truth of evolution…. [He approves of microevolution — this is why people have different coloured eyes.] *The other type that has been theorised is macroevolution which is a change from one species to another that's entirely separate — for example, a fish to a frog. Now really, forgetting evolutionary claims for a moment, how do you expect a fish and a frog to mate?*

Ralph counters with the evolutionary adaptation of the peppered moth, which progressively changed colour to follow its sooty environment. Check out John's clincher of a last sentence!

I know your example well. That's a great example of microevolution. And nobody doubts Darwin's observations of the survival of the fittest — including the Bible. Understand that the color variation between moths would be like the color variation between people. One could even conclude that such incredible variation within a species is part of God's miracle of design that allows it to survive. Yet there still have been no documented accounts of changes between reproducing species.

(So this whole creation of new species thing is just a rumour! How often did Plato come up with a gem like that?)

Ralph asks about the fossil record and the "combination bird-and-reptile that they found."

You're referring to the archaeopteryx. A few scientists still cling to this old idea. However, most scientific journals and texts have now updated the information to classify it as simply an ancient bird. Everything I've read indicates that all its feathers were fully formed. And some unusual features, such as the claws on its wings, are found on several species of birds today — all for a purpose. To me, if evolution were a fact, we'd find some reptiles with partially formed feathers.

Remember that I am quoting all this because none of it gets revisited. John then gives a plug to some worthwhile institutions. He tells Ralph of two universities that give courses in "apologetics" — defending the faith. Then there is the Institute for Creation Research which tackles the tough questions such as:

How do you explain the apparent age of the universe with stars hundreds of millions of light-years away?

How do you explain the dating of dinosaur bones?

How did Adam name the millions of species of animals and plants in a single day?

But John assures us that the Institute seems to have an answer for everything.

Ralph the skeptic is getting agitated:

Come on! The Bible's filled with myths. How do you account for 900 year old men, or Jonah living in the belly of a whale, or any of the miracles?

The two answers to this question are a fair guide to the intellectual calibre of this book. First John goes for the quick and dirty solution:

Who's to say that miracles couldn't be caused by a God who could create the earth and life in the first place?

But just in case that doesn't get you where you live, John follows through with:

Regarding Jonah, there have been two accounts in modern history of humans being swallowed and living for extended periods, in one case for more than a day, in the belly of a whale or large fish.

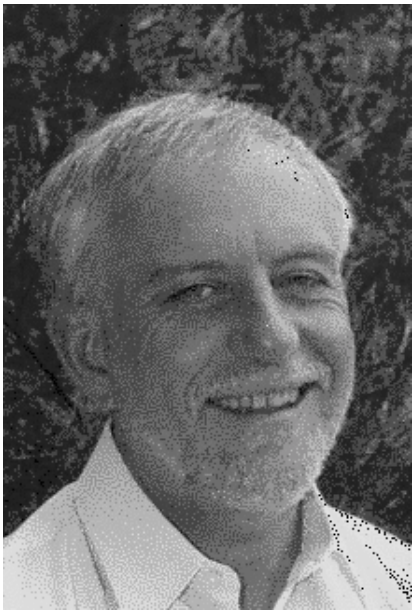
Accounts? Unreferenced, this is never revisited. Ralph and John are almost at LA and since John needs time to prepare for the evening's Bible class, the conversation must end. We leave them descending, physically and intellectually. Plato? I see him turning in his grave and dry retching with disgust.

To be continued

The Social Impact of GM Food:

A Scientist's Perspective

Facts repudiate scare tactics in this debate



Robert Henry, one of Australia's leading plant scientists, is Professor of Plant Conservation Molecular Genetics at Southern Cross University, Lismore

The media would have us believe that GM food is a danger to human health and the environment. What is this worrying technology generating "frankenfoods"? What have been its impacts so far and what is likely in the future?

The technology

DNA is the molecule that contains the genetic code or blueprint determining the identity and function of higher organisms. Conventional plant and animal production and breeding is based upon the recombination of DNA within the organism. For example, sexual reproduction in food plants and animals requires the mixing and recombination of the DNA from both parents (female and male). Selection of desirable recombinations has been the main basis of the genetic modification of crop plants over the past 10000 years or more of domestication. This genetic modification over this long period of time has resulted in the development of radically altered food organisms (domesticated plants and animals) that form the basis of our conventional food.

Genetically modified (GM) is used in the popular sense to refer to products of recombinant DNA technology. This is reflected in the regulatory environment, so that foods labelled as GM are those produced from plants or animals in which the DNA has been recombined outside the organism. This recombinant DNA technology emerged in the 1970s, following the discovery of the molecular structure of DNA more than 50 years ago, and development of techniques for extracting, modifying and reintroducing specific parts of the DNA of an organism. Importantly, any means of modifying the DNA without taking it out of the organism, such as mutation by chemical or radiation induced mutagenesis, is not considered to produce a GM organism. Nor are radical genetic changes resulting from sexual hybridization with distant relatives. Both of these approaches have been widely applied to genetic improvement of plants in the last 100 years. Indeed, a GM and a non GM plant may be identical in every way. The distinction is in the way they were produced, not the identity of the final plant. Most conventional non GM plants, produced by modern plant breeding, involve much more radical widespread and uncontrolled DNA recombination than that required to produce a GM

plant. However, the recombination in a conventionally derived plant does not occur in the test tube.

Opposition to the technology

Opposition to the technology was originally based upon fear or uncertainty about the risks that might be associated with a new technology. This has resulted in the development of a rigorous process of evaluation and regulation of the processes and products of this technology. GM plants are subjected to a high level of testing and public and private evaluation before release. This includes consideration of ecological or environmental concerns, as well as food safety and human health implications. Almost none of this regulation and safety testing is applied to conventionally produced food plants or animals.

Concerns about the relatively minor alteration of the genes in our food in GM crops seem to take little account of massive and ongoing genetic alterations employed in conventional agriculture.

The dangers of escape of genes from GM crops are small compared with the risks of gene escape from conventional crops. Genetic pollution of ecosystems and wild plant populations by crops is a major issue. Any additional risk posed by a gene introduced into a GM crop is small and very carefully evaluated before the plant is released for production. GM crops may, ironically, provide the answer to this problem by being engineered to be sterile while their conventional counterparts continue to spread their genes into the wider ecosystem.

Impact of GM technology worldwide so far

The technology is still at the early stages of application, in terms of the range of products likely to be developed. The main impact to date has been a dramatic reduction in the use of chemicals in production of GM crops relative to non GM crops. The best known example is probably the use of the BT gene in cotton to protect against insects and avoid the use of chemical insecticides. This gene, isolated from bacteria, produces a protein that breaks down only in the gut of the insect to produce an insecticidal toxin. The bacteria producing this protein have been widely used by home gardeners in the form of a biological insecticide for many years. Gardeners and organic farmers spray the bacteria onto their crops to protect against insects. Consumers of organic produce may consume not only the protein and the gene but all the other proteins and genes in the entire living bacteria on their food, while consumers of the GM product eat the protein and the gene for the protein in their food. This is very safe and long established technology with clear benefits to the environment.

The positive influence of GM crops on the environment has recently been documented in studies of the impact on the entire ecosystem. Reductions in the use of fossil fuels and greenhouse warming are some of the additional benefits of GM food production.

Potential importance of GM technology in the future

While the current GM products are likely to continue to provide benefits to the environment relative to the non GM crops they replace, new traits are also likely to appear. Improved human health and nutrition are major aims of GM plants in the pipeline at present. Golden rice (rice with a dramatically higher content of pro vitamin A) is a good example of this type of GM product. Vitamin A deficiency is the cause of large numbers of human deaths each day, especially among infants in developing countries. The latest version of Golden rice contains two genes from maize that cause the production of enough pro vitamin A in rice to meet nutritional requirements of people deficient in this essential vitamin. This technology has been provided to the world free of charge by all of the companies and institutions owning the enabling technologies because of the humanitarian need.

The genetic improvement of crops has been they key to increasing world food production in line with the growing world population. Over the last 50 years both population and food production have been doubled by using conventional genetic manipulation. This has been crucial to protecting biodiversity on this planet. Agriculture competes with nature conservation for land in an increasingly heavily populated world. Without the contribution of plant genetics to increased agricultural productivity the demand for land for agriculture would have eliminated many natural areas, reducing biodiversity and accelerating species extinction.

The pressure to divert land from biodiversity conservation to agriculture is increased by opposition to GM technology. GM technology offers the potential to continue improving the efficiency and sustainability of agriculture, while minimizing the footprint of agriculture on the global environment and reducing the rate of species extinction. The strongest supporters of GM technology should be those with a genuine concern for the environment and nature conservation.

Further Reading

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On Redox Reactions, Free Radicals and Human Health

If we are going to talk about it, let's understand what we are talking about

Geoffrey H Sherrington graduated in Science, with emphasis on Chemistry in Queensland, in the 1960s. He found complications with unconventional uses of the cold finger condenser, which like the author is now seldom seen – or used.

All substances are poisons: there is none which is not a poison. The right dose differentiates a poison and a remedy. Paracelsus ca 1530

I wish to place a scientific framework around the terms "anti-oxidant" and "free radical" as commonly and often wrongly used in health science concepts.

Oxidant or anti-oxidant

An oxidant is a substance (which can be an ion, or an organic compound, or have other forms) that strips an electron or electrons from another substance. By parity, the other substance in the reaction is a "reductant", or "anti-oxidant", the latter terms meaning the same. The reduction/oxidation reaction is often abbreviated to "redox".

[See encyclopedia.laborlawtalk.com/Oxidation for a longer discussion.]

There is a continuum of substances from which electrons can be stripped. There is a continuum of substances that can do the stripping. In a closed system, redox proceeds to equilibrium if the giver and the receiver have different initial strengths of attachments of electrons, are able to overcome any energy barriers that might be otherwise prevent the electron transfer and can compete for the reaction with other substances already there.

Thus, by definition, a substance can be an oxidant or an anti-oxidant depending on the compound with which it is reacting. There are some very strong chemicals that are usually anti-oxidants, like hydrogen sulphide gas in water and there are some very strong chemicals that are usually oxidants, like ozone gas in water. (Both are fairly toxic to people, but some deep marine life forms rely upon hydrogen sulphide). Between extremes, there are sensitive balances in electron stripping that make nonsense of a general term "anti-oxidant" in the health chemistry context.

In this context, "anti-oxidants" are being quoted as good because they destroy "free radicals".

Free radicals

A "free radical" is defined as an atom or group of atoms with at least one unpaired electron. [For more, see http://www.answers.com/topic/free-radical]

The free radical is not common in chemistry because a large energy input is needed to form one from its precursor. Ionising radiation can provide the energy, or it can be from an energetic chemical reaction, or from other energetic mechanisms such as bright light.

An example of free radical formation is when the hydrogen molecule, H_2, which has 2 paired electrons is split into two units of neutral H. , each atom keeping one electron. (The dot symbolises the neutral free radical).

The point in common between an oxidant and a free radical is that

each strips one or more electrons from another substance. An anti-oxidant can lose its electrons to either party, depending on the energy required for the reaction to proceed, and on competition. In the body, an example of a free radical is an oxygen molecule than has lost an electron. It will commonly stabilize itself by stripping an electron from a nearby molecule.

Iron in the body is often discussed in the context of redox reactions. The iron ion commonly exists in two states, ferrous ion Fe++ and ferric ion, Fe+++. Many ferrous iron compounds are unstable even in the presence of air and water and will form rather less reactive ferric ions by oxidation. This is rusting. Whereas the ferrous form partakes in many biochemical reactions, the ferric form is more reluctant. That is why we commonly take supplementary iron as a ferrous chelated compound, rather than lick rusty objects. Note that ferrous ions, Fe ++, can be anti-oxidants when forming ferric ions Fe +++, or oxidants when forming iron metal Fe.

Note also that *cations* such as Fe++ cannot be obtained alone in a bottle. Electrical neutrality dictates that they have an *anion* with them (in inorganic chemistry) or a negatively-charged organic molecule. This complement to the iron enters the human system on ingestion as well as the iron and has to be considered regarding its effect on chemistries already in the body.

Iron poisoning is fairly common among children. The USA FDA reported that:

> *In 1994, at least 3,210 children under 5 years of age were treated in emergency rooms for exposure to iron-containing products, and two children are known to have died following such accidental overdose.*

But it is drawing a long bow to say that good health is maintained if available iron is kept as ferrous by ingestion of anti-oxidants into a living system. For each anti-oxidant compound that enters the body, there are many resident compounds with the ability to react with it. Some will react as oxidants and some as reductants according to their place in the continuum. The supposed good that the antioxidant is supposed to produce for iron can, in theory, be offset by the harm of other reactions.

Vitamin C (or not)

The purveyors of anti-oxidant potions do not appear to understand the fundamental high school chemistry of redox reactions. Just because L-ascorbic acid, also called Vitamin C, can be an anti-oxidant in test tube reactions, it does not automatically follow that it takes a simple and beneficial route in the body. Vitamin C can also be an oxidant in the test tube, depending on the other compounds in the test tube.

In passing, researchers at ANU have just announced that a review of the last 50 years of publications on Vitamin C and the common cold reveal that Vitamin C is essentially useless. But, it is another case of so-called experts ramming unreliable theories down the throats of the unsuspecting public. At Uni I was taught that there are FEW circumstances when people in Australia would need ANY vitamin supplements — and the times when they do were known then.

Back to free radicals, there is no argument that some anti-oxidants react with free radicals and restore them to a more customary state by supplying their missing electron or electrons. But, because of rules of maintenance of electrical charge in a closed system, the by-product of a free radical reaction can often be another free radical. A form of catalysis can arise, which is shown for example by the use of free radicals in initiating and continuing some polymer-forming chemistries.

Free radicals, although known for decades, appear to be a trendy "enemy" in the fight for good health. They have been postulated to initiate cancer, to cause breakage of DNA and so on. Perhaps they can. Perhaps they do. They have always been around as Man evolved, but perhaps we have added more from the products of energetic processes like inhaling hot smoke from a cigarette. But simply swallowing more Vitamin C is not a proven or logical approach to their removal, any more than failed attempts with the common cold.

Remember firmly that in chemical reactions involving interchanges of electrons, there is always a continuum and in the body, there are always many competing reactions — and often side products that are hard to forecast. It has been shown time and time again that a simplistic approach to chemical treatment of the body is fraught with dangerous unintended consequences. I liken it to walking on a water bed. Each time you put down a firm foot, a bulge appears somewhere else and that bulge can throw you.

Accordingly, I read with some mirth the earnest, but mostly wrong, chemical explanations given by the guy from Blackmore's (when have they ever been authoritative?) in *the Skeptic* 25:2 p 68.

The path of a by-mouth treatment like "anti-oxidant vitamins" through the harsh digestive system is fertile ground for the wrecking of whatever redox reactions were sought. The effect of competitor substances there and elsewhere is a minefield of poorly-understood reactions.

Selenium is mentioned as a cure or preventive for cancer. In my younger research days I participated in the slow deaths of a number of sheep fed a selenium compound from a plant, *Neptunia amplexicaulis*, growing in western Queensland. I know that selenium forms highly toxic organic compounds such as the ones we isolated and purified and fed to the sheep. To me, this is a more important piece of knowledge than uneducated talk about anti-oxidant properties and the demonising of free radicals by people without the relevant scientific qualifications and grasp, who might be comfortable if you took a daily sip of Selsun dandruff shampoo just in case it reduces your risk of cancer.

Sugar Causes Tooth Decay

Clean your teeth; no need to get caried away

***Glenn Cardwell,** Sports Dietitian and regular columnist, can be contacted on www.glenncardwell.com*

Excuse me for being pedantic, but sugar does not rot teeth. It is acid that rots teeth. Let me explain. When you eat carbohydrate, and that includes both sugars and starch, some will remain in the mouth after you have swallowed your food. What remains becomes fodder for the bacteria (primarily *Streptococcus mutans*) that naturally reside in your mouth. The bacteria dine on the carbohydrate leftovers and, in doing so, produce lactic acid. It is this acid that erodes the enamel of teeth, leading to tooth decay. If there are no bacteria present in the mouth, then the chance of decay is remote.

That means that fresh fruit, sultanas and raisins, bread and potato crisps all have the potential to cause tooth decay as they all leave a little carbohydrate debris in the mouth after being eaten. Not for a moment am I suggesting that anybody avoid fruit or bread, but I am trying to make clear it is not just sugar that is on the bacteria's menu (as seems to be the focus of some health advisers).

Without carbohydrate or bacteria there is no possibility of tooth decay. As there is no nutritional sense in avoiding carbohydrate, the smart solution is to clean your teeth regularly to clear away leftover carbohydrate and to strengthen the enamel with the fluoride in toothpaste. You could also kill the bacteria in the mouth, a job that made Listerine mouthwash famous, although the antiseptic mouthwash is seen more as an adjunct to teeth cleaning, rather than an option.

Eating & teeth

"*A clean tooth will not decay*", said J Leon Williams (1852-1931), the first president of the American Dental Association. He suggested that oral hygiene is sufficiently effective to prevent dental caries and has long been considered the cornerstone of healthy teeth. Nowadays, brushing teeth twice a day with fluoridated toothpaste could be the most effective deterrent to tooth decay, probably more effective than restricting sugar-containing food.

The length of time a carbohydrate remains in the mouth will influence its potential decay risk. Carbohydrate consumed as liquid sugars will pass through the mouth and into the throat quickly, having little chance to be consumed by the oral bacteria. That means the sugar in soft drinks is unlikely to cause decay, although another characteristic of the soft drink can present dental problems. More on that later.

Carbohydrates that remain for a long time in the mouth have a

greater opportunity to cause decay, with dried fruit and potato crisps being good examples. The ability for a carbohydrate to remain in the mouth is not always related to the 'stickiness' of a food. A jelly bean may be sticky, but it clears from the mouth quicker than does a biscuit or potato crisps. Milk chocolate tends to clear from the mouth quicker than white bread. If sugars are in the mouth for a short time then the bacteria don't have enough time to convert them to acids.

What we eat with sugars can also influence decay risk. The anti-oxidant catechins in tea seem to reduce the activity of *Streptococcus mutans*, and the protein casein in milk products buffers the acid to reduce its erosive effect.

Eating frequency

Another potential problem is the frequency of eating carbohydrate foods. Tooth enamel will slightly demineralise after every meal or snack due to the acid produced by oral bacteria, even if the carbohydrate food can be classified as 'healthy'. This loss of enamel is quickly rectified by saliva after each meal or snack, which remineralises the enamel with phosphate, fluoride and calcium. If carbohydrate of any kind is eaten with great frequency each day then there is more demineralisation than remineralisation, leading to a slow decline in tooth enamel, hence tooth decay. The common advice is to allow at least two hours between eating episodes for complete enamel remineralisation via saliva.

Tooth decay not linked to sugar

Many studies show an association between sugar intake and the risk of tooth decay, but is it cause and effect? A 1994 review of sugar consumption and dental caries in 90 countries found there is "*considerable evidence of* a lack of *strong relationship between the amount of sugar consumed and caries occurrence in Western countries*" (emphasis mine). This is likely due to sugar being only one factor in the development of caries, which is totally dependent on bacterial plaque being present in sufficient amounts for them to cause an acid attack on teeth.

Professor Klaus Konig, University Medical Faculty, Preventative and Community Dentistry, The Netherlands makes the observation:

> *The dental risk of dietary sugars is dependent on the frequency of intake, but the prevalence of caries in a population is strongly modified by other dietary, social and behavioural factors independent from intake of sugars. ... This explains why in most highly developed countries caries prevalence has decreased markedly during the past 20 years although consumption of sugars remained high.*

This view is supported by Dr Daniel Kandelman, University of Montreal, who comments:

> *In the past 20 years, mainly due to the optimum fluoride exposure, and practice of good oral hygiene procedures, an important reduction in caries has been observed, despite the fact that sugar consumption was maintained and/or was increasing during the same lapse of time. A sugar-caries relationship cannot be established in most of the industrialised countries and the dietary factor is not as preponderant in the caries process as it used to be two decades ago.*

These comments point to a wide agreement that tooth decay has many elements and the presence of fermentable carbohydrates (sugars and starches) in the mouth is only part of the equation. Although sugar can cause tooth decay, we must always consider what other factors might be associated with a high sugar intake. High sugar consumers might also be less likely to clean their teeth or attend dental clinics. Researchers generally agree that oral hygiene plays a huge role in tooth decay risk.

Other sources of acid

Even if you remove carbohydrate from around your teeth or blitz the bacteria that produce acid, enamel erosion can be caused by acidic drinks. Soft drinks (regular and diet), sports drinks, energy drinks, fruit juice and wine are all fairly acidic and have the potential to erode tooth enamel (yes, even no-added-sugar juice can cause decay). It is smart to drink them reasonably quickly and don't slosh them around inside your mouth as this effectively gives your teeth an acid bath. Drinking through a straw is a good solution. Some people think that changing from regular soft drink to the diet version is a clever move, not realizing that the pH of both drinks is the same. A kilojoule advantage, but not an acid advantage.

Some dentists have seen young athletes with enamel erosion due to frequent consumption of acidic sports drinks that are constantly swished inside the mouth. My advice as a sports dietitian is to drink sports drink through a plastic tube and swallow without letting the drink come into contact with the teeth. This is more sensible than trying to scare athletes from sports drinks as they have clear, scientifically demonstrable, ergogenic benefits to the athlete, hence sports drinks are widely used by the Australian Institute of Sport and other sporting bodies.

Kids' teeth healthier than ever

If you took regard of some media stories, you might get the impression that kids' teeth are worse off than ever. Here's some news that might stun you. In a survey of 41 countries, Australian 12 year-olds had the third healthiest teeth behind the Netherlands and Luxembourg.

There was a "consistent and steady decline in 12 year old DMFT (decayed, missing or filled teeth) across the 1990s" according to the 2003 Child Dental Health Survey from the Australian Institute of Health and Welfare. The evidence suggests our children's teeth are in better shape now than at any other time. The number of children with not a single decayed, missing or filled tooth also increased over the

1990s. Around 85% of 7-8 year olds and two thirds of 11-12 year olds have no DMFT at all. This makes it clear that most tooth decay is in a small proportion of high-risk children where dental hygiene may be a low priority.

In fact, all westernised countries have seen a dramatic fall in tooth decay in recent years. Witness Switzerland: it had an average of 10 DMFT in 12 year olds in 1963, dropping to 1.2 DMFT 30 years later (and with no change in sugar consumption in the 1980s or 1990s). Currently, Australian 12 year-olds average 0.8 DMFT. Sugar consumption in Australia has changed little over the last 50 years with current annual intakes being around 45kg per capita. Italians eat half the amount of sugar of Australians, yet their 12 year-olds have twice the tooth decay. Clearly tooth decay is not purely a sugar issue. While the dental health of children can improve, our kids are ahead of the pack.

Author v dentists

As you can imagine, I have dental colleagues who disagree with me. A local dentist tells kids to avoid chocolate for dental hygiene, despite not a skerrick of evidence that it will make a difference. Quoting Professor Martin Curzon, Department of Paediatric Dentistry, University of Leeds:

> *Although chocolate has been associated in the lay public's mind, as well as within much of the dental profession, with the promotion of dental caries, the experimental evidence for such an association is thin.*

Dentists continue to promote the view that sugar = caries and, when seeking some publicity, sports drinks = caries. Many have a similar view to the majority of health professionals. That is, keep the message simple, scary and emotional. I'm certain that a lot of the public want to hear it that way. My view, no doubt biased, is that a lot of the public would prefer facts from which they can make an informed choice.

The other common view of the health professional is to broadcast the message, ignoring the fact that it might just be a small subsection of the community at risk (many of you will remember the first AIDS campaign hinting that everyone, including grandma, was at risk). It is deemed both unsavoury and insensitive to say that those at highest risk of tooth decay are the poor, the unhygienic, and kids of parents that don't enforce teeth brushing. This, of course, places more emphasis on personal responsibility, a concept not well-regarded by the public and health departments.

Minimising tooth decay risk

It's time to sum up using expert opinion, not mine. The dietary recommendations for dental health, as reported in the *American Journal of Clinical Nutrition* in 2003, are:

Eat a balanced diet and practice good oral hygiene, particularly the use of fluoridated toothpaste.

Eat combinations of food to reduce decay risk eg diary foods with sugar containing foods; add raw fruit and vegetables to meals to increase salivary flow; drink sugar containing drinks with meals so the acids are buffered quickly.

Rinse the mouth with water, chew sugar-free gum and eat dairy foods like cheese after eating sugar-containing foods.

Chew sugar-free gums between meals and snacks to increase saliva flow.

Drink, rather than sip, drinks like soft drinks, cordials and fruit juices.

Moderate eating frequency to reduce the number of times teeth are exposed carbohydrates and acids.

Avoid putting infants or children to bed with a bottle of milk, juice or any sugar-containing drink (the sugars don't clear from the mouth as the baby sleeps allowing time for the bacteria to produce acid).

Not all of the above advice is practical from my viewpoint. I won't be eating cheese after my favourite black jelly beans. I have sugar-free gum only on the odd occasions that teeth brushing is inconvenient. Tooth decay is more a lifestyle disease than a sugar disease. The sensible eating advice above will further minimise tooth decay risk.

My tip

Clean your teeth twice a day with fluoridated toothpaste, and floss regularly to get carbohydrate bits from between your teeth. See your dentist to check that your fangs are resisting any acid attacks, especially if you drink a lot of acidic drinks like sports drinks, soft drinks and wine. If you wish, chew some sugar-free gum after meals as your saliva does a wonderful job of neutralising the acid produced by bacteria or found in drinks. Remember, sugar isn't the main cause of tooth decay in children or adults; the problem is usually a lack of dental care.

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Food for Thought

***How to poison your spouse the natural way: a Kiwi guide to safer food*; Jay D Mann PhD: JDM & Associates 2004 (4 Kantara Lane, Somerfield, Christchurch 8002, New Zealand) 144 pages**

What has failed to get across to the public and the media is that nutrition is a concept, it is not a perfect science of absolutes. It was the 16th century Swiss healer Paracelsus who stated: "*Sola dosis facet venenum*" with the lose translation of "It is the dose that makes the poison", meaning that many consumables are poisonous or "bad for you", but only at the right dose. This is the cornerstone of an intriguing book by plant biochemist Jay Mann.

During a visit to the UK, a woman tried to convince me that oranges were now devoid of vitamin C. While this is untrue, and demonstrates the types of arguments supplement distributors have to fabricate to make sales, it shows a belief system that plants are for humans and their nutrients are for human benefit. Dr Mann reminds us that plants produce a range of compounds to promote growth, reproduction and reduce their attractiveness to bugs. Some of these compounds are useful to human health, some benign, and some are plain dangerous.

He provides an interesting history on the introduction of new foods, all of which have met with fear and misunderstanding before becoming acceptable. Tomatoes were feared for centuries. Discovered growing in South America, they were introduced into Europe in the 16th century and although embraced by the Italians almost immediately, there were rejected by the British for a further 300 years because consumers would "foam and froth at the mouth and double over with appendicitis", according to one report. Today the tomato is heralded for its lycopene content and the link with a reduced risk of prostate cancer. The fear of new foods is a part of human behaviour and that of the rat, according to Dr Mann. The rat will take a small morsel of a new food and then wait for a day to see if there is any adverse reaction. If not, it is added to the menu. If there is, it is rejected forever.

Dr Mann gives some insight into a range of plant foods that have the potential to harm our health, from parsnips and broad beans to moulds and herbal medicines. Sure, the chance of coming unstuck through natural plant poisons is unlikely, but it does happen often. Woe betide those who eat under-cooked dried legumes such as the kidney bean. When a group of British school children became unwell from undercooked beans, a further 870 cases were reported due to the publicity. These are the forgotten cases of self-inflicted food poisoning.

The author demolishes the persistent argument that "natural good, processed bad". Comfrey was used as a nutritional supplement and a tea until it became clear that the allantoin content caused liver damage. Lima beans were once poisonous, but have been bred to reduce their cyanide content to a level safe to humans. Original versions of many vegetables were high in toxins and unsuitable for human consumption. We are thankful for selective breeding and the work of geneticists to give a greater range of plants to place on the menu.

This lively book will tell you the full range of natural toxins in food and why you should be thankful that science, medicine and the food safety laws work to protect people from these natural terrors. There is a very useful chapter on evaluating health and medical information, something incomprehensible to current affairs programs, politicians (and ex-pollies who get cancer and become supplement evangelists), bewildered radio interviewers and those health advisers who have done a weekend diploma course in Developing Undue Dread at the School of Health in Asinine Medicine (Dip. Dud. – S.H.A.M.).

I wish the scare-mongerers would read Dr Mann's comments on pesticides and pesticide residues. The plant produces far more (10,000 times more from one estimate) pesticide than the residual man-made pesticide. The sensible genetic modification of crops will reduce our reliance on herbicides and pesticides and produce cheaper and more nutritious crops, rather than making them more dangerous to humans.

Dr Mann also reminds the reader that cancer is a disease of age and chance, and not a disease of food additives and power lines. The longer you live, the greater your chance of getting cancer. The doomsayers tell us that more people are dying of cancer than 100 years ago. True, but in 1900 the average life span was about 50 years, before we could diagnose cancer properly and it was legal to die of old age. A century later, a bonus 30 years has been added to the life span. I do enjoy asking these doomsayers whether they would prefer to die of 'old age' at 50 or cancer at 80.

This is a very enjoyable book for

Glenn Cardwell

Continued p 47 ...

Hinn Crusade: a Failure in Africa

Faith-healing no substitute for medicine in Africa

Leo Igwe, who heads up the Nigerian Skeptics, is an occasional Skeptic *contributor on matters affecting his region.*

In April, American evangelist Benny Hinn arrived in Nigeria for his much advertised "Healing Crusade". He flew into the country aboard his Gulfstream with a retinue of bodyguards, but a few day later Hinn left Nigeria in annoyance and disappointment. He was irked by the low turn-out to the event — a mere 300 000 attendees out of the six million people who were expected.

Hinn was visibly angry over the huge amount of money he had invested in the crusade. "Four million dollars down the drain!" he was said to have shouted on the final day of the event. Vice President of Benny Hinn Ministries, Jon Wilson, gave a breakdown of the money. He said three million was spent on hotel accommodation, technical infrastructure, etc, while one million dollars was used up by members of the local organising committee.

The Benny Hinn Healing Crusade generated a lot of interest and debate in the local media. A Nigerian pastor writing in *The Guardian*, one of the national dailies, urged the Pentecostal leaders to "bury their heads in shame" given the "prevailing rot" in their churches. As a face-saving measure, the Pentecostal Federation of Nigeria (PFN) — the local umbrella group of most Pentecostal churches in the country — expelled Bishop (Dr) Joseph Olanrewaju Obembe, the Lagos PFN President, General Overseer of the El-Shadai Bible Church, and Coordinator of the Benny Hinn Healing Crusade, as well as other pastors who had served on the local committee.

With the growing decline in religious belief in America and the entire western world, evangelists are looking to Africa for converts, for followers and disciples. Many Pentecostal churches in Africa receive millions of dollars in aid from their American counterparts who want to 'bring Africans to Christ'. Luis Bush, a cousin of the American President George Bush and one of the leading evangelists in the US, supports missionary work in more that 30 African countries. Other American evangelists — Benny Hinn, Todd Bentley, Oral Roberts and the German evangelist Reinhard Bonnke, sponsor "miracle crusades" across the continent.

Pentecostalism has therefore become a thriving business in Africa. In fact it has become the shortest route to affluence for the continent's teeming population of unemployed youths. Local pastors employ all sorts of means and techniques to exhort money from gullible folks (as well as foreign friends). They use this money to build mag-

nificent churches, erect costly apartments, buy luxurious cars and aircraft and to live ostentatiously. And all the while their church members live and languish in poverty, misery and squalor.

In most cases, pastors tell the faithful to give money to God so that God will bless them in return. They remind them of the divine favours that come to those who pay their tithes and offerings regularly. Or they use the Biblical injunction that says "givers never lack" to squeeze money out of the people. In Nigeria there have been instances where people have stolen money to give to their pastors and churches. In March 2003, a cashier in a hotel in Abuja was arrested for allegedly stealing nearly 40 million naira (about $40,000) from an employer. The man later confessed to the police that he gave the money to his church — Christ Embassy.

In another case of theft-for-God, a bank clerk stole 40 million naira from his employer and gave 10 million to his church as seed money in the belief that the seed would germinate and yield several-fold, as promised by the pastor. The man, according to the BBC *Focus on Africa* magazine, was appointed to the office of assistant pastor. But before his seed could germinate, the crime was detected and he was arrested.

Miracles in Africa

Africans are suckers for magic, miracles and paranormal claims. Generally, among Africans there is a deep-seated belief in supernatural forces that intervene and alter human destinies for good or ill. These spiritual forces are believed to work in magical and miraculous ways; through signs and wonders that confound the human mind, imagination and comprehension. And the evangelical churches are capitalizing on this superstitious strand in African thought and culture to peddle and propagate their paranormal wares. They promise divine healing and instant solutions for problems and diseases. Pentecostal pastors claim they have the power to make the deaf hear, the blind see, the lame walk, and the barren to give birth.

Recently, Gilbert Deya, a self-proclaimed archbishop from Kenya, got himself into trouble. He said he could make infertile black couples give birth to miracle babies. But police investigations revealed child theft and baby trafficking. Some years ago, a Nigerian pastor Temitope Joshua — of the Synagogue of All Nations — announced to the world that he could cure HIV/AIDS. But his claims were later discovered to be all fake and forgery.

In 2001, the German evangelist, Reinhard Bonnke, was reported to have raised somebody from the dead. There have been many such indiscriminate claims of miracles and divine healing by Nigeria's televangelists and end-time preachers — Chris Oyakhilome, Enoch Adeboye, David Oyedepo, Helen Ukpabio, and Matthew Ashimolowo among others. These faith-healers use the money extorted from miracle seekers to mount billboards and sponsor radio and television programmes advertising their miracles. Last year, the Broadcasting Commission in Nigeria had to ban the transmission of stories of miracles on national television.

Faith healing is the greatest threat to scientific medicine and health care delivery in Africa. Miracles have no basis in science, reason or common sense and claims of divine cure and healing cannot be reconciled with the dire health situation in Africa. Africa has the highest infant mortality rate in the world. And millions out there are still dying of preventable diseases like malaria and tuberculosis. According to the United Nations, 6000 African children die — and 11,000 get infected with — HIV/AIDS everyday. If indeed there are people with supernatural powers to heal the sick, raise the dead and cure all ailments, why are Africans suffering and dying; why are human beings suffering and dying? It is quite obvious that all claims of miracles and faith-healing are fake and fraud.

As the French archeologist and historian, Ernest Renan, rightly pointed out "No 'miracle' has ever taken place under conditions which science can accept. Experience shows, without exception, that 'miracles' occur only in times and in countries in which they are believed in, and in the presence of persons who are disposed to believe them." So, faith-healers are just taking advantage of the African condition, disposition and predicament. They are cashing in on the desperation, gullibility and nincompoopery of Africans to enrich themselves and to promote their churches.

Africa needs science not superstition, critical thinking not dogmas, open mindedness not blind faith, reason not revelation, industry and technological intelligence not Holy Spirit and miracles. Africa needs skepticism, not Pentecostalism.

...Food from p 45

Skeptic readers who relish learning about biological risk and disease. It has a useful bibliography for those of you that would like to take Jay Mann's thinking further. It suffers a little in the way that most self-published books do, in that it needs an editor's touch to improve the flow of ideas and formatting, and make it more public-friendly. My copy had a few hand-corrected errors. Don't let the word 'Kiwi' in the title put you off — despite many examples coming from NZ this is a book for anyone with an interest in logic, science, biology and health. None of my criticisms detract from what is a cracking good read.

We will shortly be purchasing copies of this book for sale through our online shop. Ed

1421:

The Year China Didn't Discover Terribly Much

Not a bad yarn, but is it history?

Peter Barrett, an enthusiastic dancer and war gamer, is Vice President of Canberra Skeptics. As we cannot locate a photo, he will have to remain a faceless bureaucrat.

Browse through bookshops and you'll find plenty of commentaries on Dan Brown's *The Da Vinci Code*. People go on "da Vinci Code" bus tours to see the buildings described in the book. Watch ABC TV and you can see Tony Robinson turn his attention to the claims in *The Da Vinci Code*. But at the heart of it all, even though Dan Brown genuinely believes the premises of the book to be true, *The Da Vinci Code* is published as fiction.

Not so for *1421 — The Year China Discovered the World* by Gavin Menzies. This book is published as factual history, and sits among history books in bookshops.

The book describes the story of the Chinese treasure fleets of the Ming Chinese Empire, led by their admiral, the eunuch Zheng He. But in a challenge to the generally accepted story, Menzies claims firstly that on one of the voyages, the ships of the fleet in fact mapped most of the world, and secondly that the maps resulting from these voyages helped European explorers from the 15th to the 18th Century.

The book has proven very popular, but also drawn a lot of criticism from professional historians. So what are the claims that Menzies makes in his book?

Background

Menzies describes the origins of *1421* in his fascination with a couple of early 15th Century European maps which appeared to show islands well out in the Atlantic Ocean. Menzies concluded that the islands shown were Puerto Rico and Guadaloupe in the Caribbean. As the maps predated the voyages of Christopher Columbus by 70 years, Menzies wondered how the map-makers knew of the existence of these islands, and decided that the only people with the technology in the early 15th Century to visit these islands and pass their knowledge on to Europeans were the Chinese.

Menzies therefore researched Chinese nautical history in more detail, and learned of the voyages of Zheng He's treasure fleets in the early 15th Century. In particular, he saw the possibility that the sixth of the fleet's seven voyages provided an opportunity for sections of the fleet to travel around the world. He then searched the world for evidence of the passage of the fleets. The book is therefore an impressive catalogue of evidence in favour of Chinese visits to all parts of the world except Europe.

What sort of evidence does he present?

Stone monuments

A number of stone monuments were placed at the orders of Zheng He to commemorate the fleet's voyages. Two of these were originally set up in China, and while the stones themselves no longer exist, there are

records of what was written on them. Another monument, this one trilingual in Chinese, Tamil and Arabic, was also set up in Sri Lanka.

Menzies searched for stone monuments elsewhere in the world, and managed to find quite a few. One of the more impressive is in the Cape Verde Islands, while others are located in Hong Kong, Brazil, New Zealand and the Congo.

Language and DNA

Menzies points out the possibility that various languages in the Americas and elsewhere picked up words from the Chinese they interacted with. More interestingly, he suggests that there's evidence in the DNA of native societies around the world that the Chinese left behind colonies which interbred with the locals.

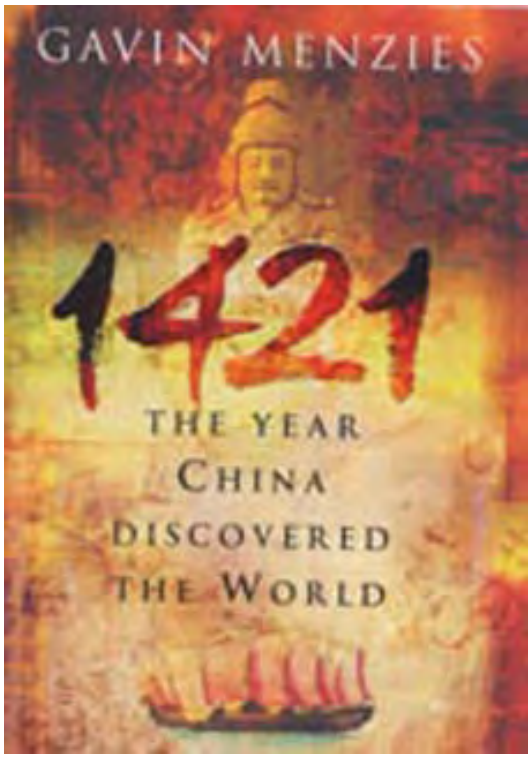
Sand bars and rocks

While researching the book, Menzies travelled around the world, investigating locations personally. He explains how he used his nautical experience[1] to locate harbours on the basis of maps and Chinese descriptions.

He also examined the Bimini Road, one of the staples of Atlantis research. The Road is a straight section of rocks, looking remarkably like a paved road, but a few metres underwater. Menzies suggests that it's a slipway for ships to be dragged out of the water and repaired.

Maps

As I mentioned earlier, Menzies was inspired to write *1421* by seeing unusual old maps. One such map is the Piri Reis map, a Turkish map produced in the early 16th Century which appears to show the coast of America, and which is claimed (by Menzies among others) to also show Antarctica. Menzies thus uses the map as evidence that the 1421 voyagers reached the southernmost continent nearly 400 years before Europeans. Supporting this, one of



the notes around the "Antarctic" portion of the map says that night and day here range between two and 22 hours in length.

Among other maps, Menzies says the Waldseemüller map of 1507 is evidence of suspiciously early detailed knowledge of the west coast of America.

The connection to Europe

Menzies's theory requires the Chinese knowledge to be transmitted to Europe. After all, the earliest map to show the islands in the Atlantic (Pizzigano) was published in 1424, only months after the fleet's voyage had finished.

Menzies suggests that the person responsible for this was Niccolo di Conti, a Venetian who spent most of the first half of the 15th Century travelling through Asia. Di Conti returned to Europe in 1441, and in 1448 Poggio Bracciolini published a book describing di Conti's adventures. Menzies proposes that di Conti accompanied Zheng He's fleet on its voyage, then, at its end, immediately and secretly returned to Venice where he provided information exploited by map-makers and the Portuguese Prince, Henry the Navigator.

"Never mind the quality, feel the width"

I've described only a small portion of the evidence Menzies provides. If sheer volume of evidence was any guide, Menzies would have made his case. Of course, it doesn't quite work that way.

It seems that for Menzies, every unusual event outside Europe or Asia which is dated around the early 15th Century was caused by the Chinese on this voyage. Every shipwreck is a ship from the treasure fleet, every mound a Chinese observatory.

But what impressed me about *1421* was that the four detailed articles I found which were critical of it cover different aspects of Menzies's evidence (Hartz[2] , Poser[3], Finlay[4] and da Silva[5]). That is, all four writers were able to come up with fresh material in refuting Menzies's claims.

What do they say?

Stone monuments

None of the stone monuments Menzies investigated had Chinese writing on them. Or at least, we assume they don't, because we don't get to see the inscriptions. Instead, let the story of the Cape Verde Island inscription provide an example: Menzies says that he faxed a copy of the inscription to the Bank of India, who told him the writing in the inscription was possibly Malayalam, a language spoken in southern India.

Since when did you send a request for information about a language to a bank? Since Menzies decided the characters on the inscriptions looked like one of the languages written on high-denomination Indian bank notes! Alas, Menzies provides no translation of the inscription, not even saying whether he sought one.

Hartz asks why the Chinese would write an inscription in Malayalam. Menzies suggests it was because the Chinese thought it would be a language recognisable to

locals. But the Cape Verde Islands are in the Atlantic Ocean, thousands of kilometres from southern India.

Language and DNA

Menzies joins the ranks of amateur linguists when he compares apparently similar words in Chinese (or Tamil) and seemingly unrelated native American languages. But again we run into problems. Firstly, many of the words appear not to be real words in either Chinese, Tamil, or the recipient languages. Secondly, many of the borrowed words are for objects that the locals would logically already have words for. Thirdly, why would native Americans borrow words from the few Tamils in the Chinese fleet? Fourthly, he believes that the names Inca, Inuit and Indian (as in native American) all have their origin in the root word *yin-*, the Chinese word for themselves, despite these not being native terms for these people[6] , and *yin-* not being a Chinese word for the Chinese.

The DNA evidence is almost laughably slight. About the closest to real evidence is the bland statement regarding some native American tribes: *"Close similarity between the Chinese and native Americans suggests recent gene flow from Asia."* But no time period is suggested for "recent" even though DNA studies are cited. In other cases: native American tribes are reported, without evidence, as being able to "understand Chinese" (though how that constitutes DNA evidence baffles me); some Maori "look Chinese"; in the case of Australian Aborigines, the lack of interest by the science community is interpreted as a "screen of silence"; and the Basques and Chinese are both generally Rh-, while West Europeans generally are a mix of Rh+ and Rh- (but apparently Menzies doesn't know that the Basques can be connected to their land for thousands of years).

Sand bars and rocks

My own nautical experience falls far short of Menzies's, but I'm aware that sand bars and shoals are dynamic; unless stabilised, they change over time. On what basis can Menzies say that he can see the same harbours the Chinese saw nearly 600 years earlier? In any case, the claim would only make sense if sea levels were the same now as then. Turning to the Bimini Road, Menzies ignores solid geological evidence that the road is a natural artefact called beachrock. In any case, his theory relies on sea levels being a couple of metres lower than they are today.

But one of the more extreme claims in *1421* is that one part of the treasure fleet circumnavigated Greenland (their presence is used to explain the disappearance of the Viking colonies there at around the same time — remember what I said about events outside Europe and Asia?). Menzies's belief that a circumnavigation of Greenland was plausible in the early 15th Century is based in part on his assertion that the world was a warmer place in the early 15th Century, and that consequently sea levels were a couple of metres higher than they are today.

So over the course of the book, Menzies determines that sea levels were the same as now, that sea levels were lower than now, and that sea levels were higher than now.

Maps

When Menzies provides translations of notes relating to the "Antarctic" section of the Piri Reis map, he fails to include translations of other notes in the same part of the map; these comments describe the land as hot, and full of snakes and spices — not things you'd normally associate with Antarctica.

Menzies is also prone to some strange interpretations of maps. As I mentioned above, Menzies interpreted two islands on early 15th Century maps, such as the Pizzigano, as Puerto Rico and Guadaloupe in the Caribbean, thus triggering his interest in the whole topic. It's reasonable to say that the islands on the map resemble Puerto Rico and Guadaloupe. But in order to make this connection, the islands on the map must be moved, rotated and shrunk in order to appear in the right place and size to be Puerto Rico and Guadaloupe. Instead, as shown on the Pizzigano map, they are in the right place, the right size and right orientation to be Nova Scotia and Newfoundland.

There's circumstantial evidence that fishermen from England, France and Iberia were exploiting fishing grounds on the Newfoundland Banks in the 15th Century. So it's no great step to say that the occasional sailor may have ventured far enough west to see these islands, and perhaps even land. I don't know whether they'd have been interested in mapping the entire islands, but it certainly eliminates the need to conjure up Chinese voyages to explain the mystery. Of course, the reason for writing the book thus vanishes.

The connection to Europe

The only evidence of di Conti's secret return to Europe is the maps. Strangely, Bracciolini's book failed to mention di Conti's adventures with the Chinese treasure fleet. Instead, the closest anyone came to mentioning the fleet was descriptions of large ships in the Indian Ocean, with no information about their origin.

Summary

There are pages of other arguments provided, especially by Hartz, Poser and Finlay, and yet they deal with only a portion of the claims Menzies makes. For those with the time and inclination, you could write a book about the shortcomings of *1421*.

Menzies v The Establishment

Why should academics pay so much attention to this book, and write such extensive critiques? Probably because they're unhappy with the money he's received for writing what he wrote. Menzies was paid a £500,000 advance by the British publishers of *1421*, and the book has been a best-seller since its publication in 2002. But Menzies also thumbed his nose at the orthodox

historians, claiming to see things and make connections that the professionals haven't.

The public reaction

Having read the articles written by the critical academics, I looked at the reception of his book on the Amazon web-site, which contains over 150 reviews. The reviews actually ranged fairly evenly from highly critical to highly favourable, and in turn were all rated at varying levels of helpfulness.

Nearly all the favourable reviewers accepted everything in the book at face value. Very few appeared to spot errors or inconsistencies, or considered that, in fact, Menzies had presented little evidence to support his assertions. This is despite many of the adjacent critical reviews pointing out various flaws in the book. The other interesting point to note of the favourable reviews was the number who appreciated Menzies's puncturing of the Eurocentric view of the exploration of the world and his challenge to the Establishment.

The implications of 1421

1421 has been a best-seller, despite my non-interest, and the publishers no doubt feel the £500,000 advance they paid to Menzies has been amply repaid.

You may ask, so what? What does it matter to us if an unscrupulous author can extract £500,000 from publishers with a piece of fiction dressed up as history? What does it matter if it's a best-seller? What does it matter if people can't see the faults in the book?

People often dismiss history as boring stuff that happened to dead people. In some ways it's true, but what these dead people did created and affects the world we live in. History is routinely dredged up to justify political decisions, when people wish to vilify other countries or to inflame the emotions of others in their own country, despite the historical simplifications which underlie these sentiments. One only needs to look at American francophobia or Serbian attachment to Kossovo to see that. Simply put, sloppy history provides unjustified evidence for revisionists.

But the problem is larger than that: if a reader believes this, what else might they believe? Readers of *1421* might not be people who believe in UFOs or astrology (one favourable reviewer said *1421* was the best book he'd read since Jared Diamond's *Guns, Germs and Steel*), but they nevertheless lack a skeptical grounding in history, or in the fields of study Menzies relies on for evidence in his book.

The reality of 1421

China mightn't have discovered terribly much in 1421, but the voyages of the treasure fleets (1405 — 1433) were real, they did affect the world today, and they're worth knowing about and celebrating.

The fleets were built on the orders of the Ming Chinese emperor Zhu Di as part of his plan to inform the rest of the world that China, having thrown off Mongol rule 40 years earlier, was once again the Middle Kingdom. Vietnam had long been part of the Chinese sphere of influence, and during the preceding Yuan dynasty, Chinese fleets had interfered in local South-East Asian politics. Zhu Di intended to take things a step further.

The first three voyages of Zheng He's fleet were all to South-East Asia, India and Sri Lanka. On the third voyage, the trilingual inscription stone was set up in Sri Lanka. The next three voyages travelled to the Middle East and the Horn of Africa. The seventh voyage reached Mombasa on the central east coast of Africa. During the course of these voyages, the Chinese collected and returned ambassadors, fought local kings, hijacked a Buddhist relic and obtained a giraffe (shown in a remarkable Chinese painting [7]).

Zheng He died during the seventh voyage, and the fleet didn't last long after his death. A new Emperor was more concerned with military threats from the Mongols to the north of China. The treasure fleets, only ever intended to show the flag rather than generate trade (or pursue pure exploration), were an expense he could do without. The ships were broken up or left to rot, and the crews redirected to other tasks. Initially, ocean-going ships were banned, but this was soon rescinded to allow trade with South-East Asia. But the Ming never rebuilt their navy, a decision which left coastal parts of China vulnerable to piracy in the latter years of the dynasty.

Conclusion

1421 is a theory in search of evidence. As a result, Menzies acts the same way as so many outside the mainstream, ignoring contrary evidence, padding out or inventing the supporting evidence, employing circular logic and ignoring contradictions. Unfortunately, by imitating the appearance of a real history book, he convinces many that *1421* **is** a history book. He would've been more intellectually honest to do what Dan Brown did, and present *1421* as a novel.

Notes

1. 13 years in the Royal Navy, including two years commanding the submarine HMS Rorqual.

2. www.thehallofmaat.com/modules.php?name=Articles&file=article&sid=91

3. www.thehallofmaat.com/modules.php?name=Articles&file=article&sid=87

4. www.historycooperative.org/journals/jwh/15.2/finlay.html

5. www.apol.net/dightonrock/thediscoveryofamericabychineseis.htm

6. [*i*]*Inca*[/*i*] was the title of the King;

[*i*]*Inuit*[/*i*] comes from the root word [*i*]*inu*-[/*i*] which relates to resident spirit;

[*i*]*Indian*[/*i*] was Columbus's term for the people he met, because he assumed he was in the Indies, and wasn't a term used by the locals.

7. www.pmpsa.gov.za/Zheng%20he.html#

Other information

Menzies's own web-site: www.1421.tv

A useful introduction to Zheng He, with a range of links, is available at en.wikipedia.org/wiki/Zheng_He.

Dumb and Dumber at the ABC

Is Auntie turning tabloid?

Ken McLeod is a retired Air Traffic Controller and Search And Rescue Co-ordinator. He is now a boutique farmer on the NSW South Coast and recently lost his whole flock of livestock when both his sheep died.

What is happening to the ABC? Australia's most respected media network, famous for its science programs and excellent research, is now publishing and endorsing what is clearly bunkum. First we had the decidedly crackpot endorsements of quackery on the ABC TV program *Second Opinion*, and now we have the Radio National program *The Spirit Of Things* clearly saying:

Allison Dubois is a forensic psychic whose information has helped police locate bodies and murder suspects.
And:

Allison DuBois has helped to solve murders for the FBI."

Note that it says "has helped " not "claims to have helped". Now all of this we find just a little difficult to believe. Isn't just a little bit of checking required before publication? Isn't *the Skeptic* magazine required reading for all ABC personnel? Hasn't anyone read *the Skeptic*'s eminent articles demolishing psychics' claims of helping Police and Search And Rescue organisations find missing people?

But before we get all puffed up and indignant about this, does it really matter? Does it really matter that the ABC has clearly stated that some self-promoter has helped the Police and the FBI locate missing bodies and solve murders? Can we let this one pass through to the keeper and put it down to just another day in the life of a skeptic; continually assaulted by all manner of improbabilities and lazy thinking.

Well, yes it really does matter. Consider this:

- *The families of the missing are deeply traumatised by unsolved murders and missing bodies. As Bret Christian said in an earlier article, "Skeptics sometimes find amusing the bizarre claims of clairvoyants, but there are many instances when their antics add to the trauma and heartache of bereaved people."*

- *No "psychic" has ever solved a murder, located missing bodies, aircraft or boats.*

- *The urgings of such traumatized people and "psychics" only inhibits the work of Police and Search And Rescue organizations.*

- *The ABC is a greatly respected organization, and this endorsement will only lift the credibility of "psychics" and cause more grief for the bereaved and difficulties for Police and rescue authorities.*

So at first keeping an open mind, (my friends call it a "vacant mind") I contacted the ABC *Spirit of Things* presenter Rachael Kohn and asked:

1. What steps did you take to verify her claims that "Allison Dubois is a forensic psychic whose information has helped police locate bodies and murder suspects."

2. Can you name the cases, dates, police services, and contacts within those police services who can verify those claims?

3. Were you aware that the Texas Rangers and the Glendale Arizona Police have denied Alison Dubois' claims that she had helped them solve crimes?

4. If you were aware of that, why was this not mentioned in the program as a way of introducing balance?

While waiting for her reply, I did some digging for myself, Strangely, I found that on one web site that the ABC linked to from *The Spirit of Things*, there were published the rebuttals from the Texas Rangers and the Glendale Arizona Police of Alison Dubois' claims that she had helped them solve crimes. So the ABC had the rebuttal right in front of them when they went to air and did not notice it. This seems to create an entire new definition of the phrase "incompetent research." One would think that this would have raised some concern in even the most gullible minds, but not apparently, in the ABC. Is there some form of super-gullibility, like super-conducting metals? I can see a lucrative research program being developed by some budding PhD.

Rachael Kohn's response to my questions came commendably quickly, but it did leave me a little perplexed, so I show it here in full.

The Spirit of Things *is about matters of faith, which Allison Dubois clearly said her work requires. In answer to my question, she said very plainly that you do have to make that leap of faith or its just not going to work or be meaningful. Similarly, the matter of faith is central to the second interview on the program with Patricia Stannus. The "material" evidence for both mediums is typical of the field, and one is free to believe it or not. Rev'd Stannus may be able to see the images on the photographs or not, but I'm not sure that telling her they aren't there is going to make much difference to her faith. The* Arizona Daily Star, *featured a positive assessment of her uncommon powers by Prof Gary E Schwartz, which was impressive. But as the article also notes, a fellow academic who holds him in high regard, is critical of his work on mediums. In that article it was a draw. I'm unaware of the specific denials by the Texas Rangers and the Glendale Arizona police, which you did not cite. But as Allison says, the police are not willing to admit they use information from psychics. Either way, I'm in no position to get to the bottom of it. But I do not have to.* The Spirit of Things *is not in the business of debunking faith .If it was, I can assure you, it would not stop at mediums. The whole box and dice of the religious world would be up for grabs. But that would be to misread the whole purpose of faith, which Allison, along with everyone else in the religious world would admit can move mountains metaphorically speaking and heal people.*

While I am aware of the exploitive nature of some religious/spiritual movements, and occasionally do programs which focus on the it, I am not aware of any stories about Allison Dubois being exploitive or abusive of the people who have faith in her. Though I am sure there are some disgruntled ones out there. I wonder why sceptics do not turn their rational powers of debunking to Aboriginal beliefs in spirits, Christian beliefs in the resurrection and associated miracles, and Protestant beliefs in the powers of the Holy Spirit to save people. For that matter there is a central Muslim belief that no matter how destitute or needy one is as a result of having children, Allah will provide. I wonder if they all need to be investigated as well, after all, the claims are made on a daily basis around the country.

Regards, Rachael

Readers will no doubt be as perplexed as I am. To the simple and straightforward questions regarding what steps were taken to verify Allison Dubois' claims that she had helped police locate bodies and murder suspects and to name those cases, dates, police services, and contacts within those police services who can verify those claims, there was no response, except to say that it is all about faith.

Now, some people might call me difficult, but this is not about faith at all. Statements of fact were clearly made; *"Allison DuBois has helped to solve murders for the FBI."* By dressing this up as a statement of faith we are asked to overlook the lack of supporting evidence and go blindly into the netherworld of gullibility. No doubt, we shall be hearing from more people who have nothing but faith to support their irrational beliefs on the ABC. I haven't heard from the Flat Earth Society for a long time and really miss them, and they would fit right into *The Spirit of Things*. Better yet, the Flat earth Society will not traumatise the bereaved.

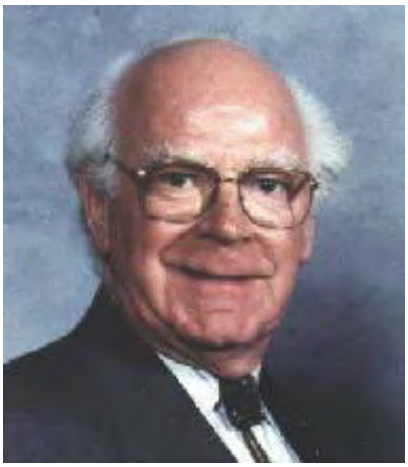
So it seems that there's two avenues for advancement within the ABC. One can aim for such programs as *4Corners*, where you work your fingers to the bone, researching every detail, checking every allegation, unearthing every document. Or you just sit back, like in *The Spirit of Things* and *Second Opinion* and accept everything that every whacko and charlatan who comes along tells you, as long as it's a matter of faith, of course.

It's very sad that the ABC has come to this. This is the organisation that the Australian public rely on for information because of its reputation for accuracy and professionalism. What a shame that the uncritical acceptance of the mutterings of every ratbag is trashing that reputation.

Of course, a cynic would say that that's just the way the Government wants it.

The Perils of Part-time Power

Abridged version of a paper given at the National Convention



Colin Keay, physicist and astronomer, recently stood own after a long and distinguished term as Supremo of the Hunter Skeptics

On August 6, 2005, just one week before the convention, the following letter from John Huston of Blackheath appeared in the *Sydney Morning Herald* under the heading "Green calculations". It read:

> *If Sydney was to revert to green power, does anyone have the figures of how many hectares of solar panels and/or how many wind turbines we would need?*

Very timely. A wonder nobody appears to have asked before now. And if it was a Dorothy Dixer let me say right away that I had never heard of the letter writer, John Huston, before his name popped up.

I responded with a very brief letter (published on August 9) claiming that, provided a 100 percent efficient means of storing electricity was available for when the sun is not shining or the wind not blowing hard enough, 1,200 square kilometres of solar panels or 44,000 Kooragang-size (600 kW) wind turbines would do the job.

The next day, three (of the five) responses claimed such an enormous expanse of solar farm was no problem. They have much to learn.

I could have added to my contribution, saying that less than perfectly efficient electricity storage would only make the staggering numbers I presented even more horrendous. Unfortunately, being rather less than perfect, electricity storage is not a practical solution. The only escape from the intermittency of solar or wind power is to have it supported by reliable base-load generating capacity on hand with generators spinning ready to carry the load whenever the wind drops below about 4 m/s (14 km/Hr), or when sunshine is absent. This requirement sets an upper limit of around 20 percent for the amount of on-again, off-again green power that can be absorbed within a national grid system. Even with good weather forecasts, sudden variations in supply to the grid makes wind (and solar) power a load manager's nightmare.

This lesson is being learned the hard way by Denmark and Germany. Early in 2004 Denmark was reported to have decided to build no more wind farms on land or sea because wind-power has given them the most expensive electricity in Europe. But they intend to continue manufacturing wind turbines for export because of being world leaders in the technology.

Not everything green is rosy

Why is Danish power so expensive? Because the wind is so fickle and the Danes became too reliant on it. When, due to lack of wind, there is a shortage of electricity, they have to import power at well above market prices. They often cannot import it from neighbouring Germany, where there is usually a shortage of wind power at the same time. That leaves Denmark reliant on power from the Nordic grid — where it is generated by hydro plant in Norway (Norway has over 95 percent hydro power), or a mix of hydro and nuclear power from Sweden.

On the other hand, when there are strong winds over much of northern Europe there is a surplus of wind power. P Anderson of Eltra, one of the two Danish Transmission Service Operators (grid controllers), claimed as early as 2001 that on occasions Denmark has had to give electricity away abroad for nothing, or has even had to pay to get rid of its surplus! Eltra's house magazine quotes their chairman as stating that wind power has produced an acute need for innovative thinking. The company has been forced to develop a new plan to cope with the usual winter overproduction of electricity.

Germany, with extensive wind farms all along its northern seaboard, has run into similar difficulties. The 2003 paper "Challenges and Costs of Integrating Growing Amounts of Wind Power Capacity into the Grid — Some Experiences Dealing with 12,000 MW in Germany" by Steffin Sacharowitz of the Berlin Technical University, highlights the developing problems in that country. The paper contains valuable material I have been seeking for a long time, particularly a chart of the feed of wind power as a function of time over a period of twelve winter days for a major national grid system. It gives the lie to green claims that variations in wind power even out over an extensive region. Furthermore the capacity factor of wind farms varies greatly with season, as one might expect. Often the maximum values are the ones given out in brochures and publicity releases.

The effects of wind power on conventional power production can be quite dramatic. It is found that a twenty percent wind power contribution results in a net saving of only six or seven percent overall, because base load plant has to be kept online to absorb sudden wind power shortfalls.

Germany is now (2005) facing a showdown over power generation. The German government's energy research agency, supported by the wind industry and supply companies, has produced a 490-page report proving that their plans to double the current number of wind turbines by 2015 will result in drastic cost rises to consumers who already heavily subsidise wind power. Not only will their costs rise, from EUR 1.4 billion to EUR 5.4 billion, but the government will need to invest EUR 1.1 billion in better grid infrastructure to cope with supply fluctuations. The German Greens dispute the report's adverse findings and have forced its withdrawal for "re-editing".

So, all told, wind power is not the greenhouse gas saviour that many hope. And much the same will prove true for solar power. It is noteworthy that Australia's largest solar-cell array near Singleton, NSW, opened seven years ago, has not been duplicated anywhere that I know of. Poor economics maybe?

Do not imagine that here in Australia we do not have subsidies for green power like those operating in Denmark and Germany. Here we have MRET, the Mandatory Renewable Energy Target scheme providing credits of up to $A40 per megawatt-hour which halves the $A70 per MWh cost of wind power, making it comparable to the $A30-35 per MWh cost of coal power and $A40-42 per MWH cost of gas-fired power.

Australian states facing serious power shortages in the near future are WA, SA and Tasmania. The latter, like Norway, has a high fraction of hydro power that can absorb fluctuations in supply if they build more wind farms. South and Western Australia are not so fortunate, and their expansion of wind power is restricted by their limited base-load capability. According to energy consultant Dr Robert Booth, South Australia already has, like Denmark, a dangerously high contribution from wind power. In future, in both states, crippling blackouts seem likely at times of high demand.

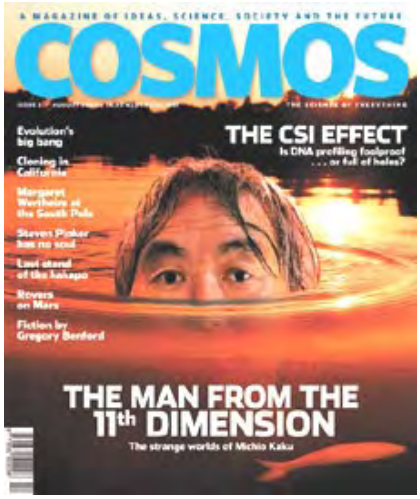
Power blackouts are very costly to industry and commerce. Such costs will quickly mount up if the construction of additional reliable base-load electric power plant is delayed. Wind farms and solar arrays have their place as a minor component of power generation, but their intermittent nature limits their contribution. If we become heavily reliant on them Australia will suffer the perils of part-time power.

Hello *Cosmos*

A welcome new ally in promoting scientific understanding

A new Australian science magazine is a rare event, so when I heard there was to be one, I sought out the editor for an interview. Wilson da Silva, who had previously edited the short-lived *Newton* magazine is the editor of *Cosmos*. I spoke to him in his Sydney office shortly after the publication of the first issue (July 2005).

Wilson da Silva: *I like the Skeptics. You know I was the Kerrie-Anne show the other day to talk about space. Bill Chalker was also there to talk about UFOs and his 'Alien DNA'. Come on... Alien DNA?*



Richard Saunders: Good old UFOs. You don't hear much about them these days. Anyway, to your new magazine. Was there a reason for the first issue hitting the stands in July?

WdS: *Yes. As soon as the decision was made to do the magazine we approached Dr Alan Finkle who is a bio-technologist, founder of Axon Instruments and was a big fan of* Newton *magazine which I also edited. We pitched the idea of* Cosmos *to him and the next thing you know we had a deal, found the office space and here we are. It all took time, but we wanted* Cosmos *to come out as soon as it could.*

RS: And the name?

WdS: *The name is always tricky with a new magazine. We wanted the name to reflect the true meaning of science, getting back to Leonardo da Vinci when art and science were the same thing. So we want the full* Cosmos *and I guess there is a strong suggestion of space and stars in that name.*

RS: To people like me, the word *Cosmos* has a very strong connection to Carl Sagan.

*WdS: I talked to friends of Carl Sagan as I didn't want to be seen as riding his bandwagon and they told me I was being too sensitive about it. They said, "*There were people using 'Cosmos' before Carl and there will be people using it after Carl and we don't think he'd have a problem with it anyway!" *Then we found out that 111 years ago there was a magazine, published in Sydney, by a woman, called* Cosmos*!*

I must say that we also spent a lot of time on the cover design. We wanted to give science a Vanity Fair *treatment. So we are trying to portray science as being a natural part of culture, not like some wired cousin you hide away in the cupboard and drag out from time to time. Our reports can be constructed from many angles. Science in cul-*

Richard Saunders, an inveterate interviewer and skeptics life member, is the freelance audio and video producer responsible for the Great Skeptic CD and various Skeptical DVDs

ture, from a first person point of view, a day in the life, portraits of scientists who are doing something intriguing, we have a gadget section, a photo gallery, travel logs and so on. The structure we have created, I think, allows us to cover stories in many interesting ways. Everything is open and what we are trying to say is that science is a part of life and science is done by people who are every bit as interesting as the science they do.

RS: That's a good point. Dr Phil Plait (the Bad Astronomer) would be a good example of that as well as Carl Sagan.

WdS: *Yes. I grew up with that sort of thing and I found in incredibly enlarging. I want to bring that sense of wonderment into the magazine.*

RS: Your list of contributors is quite impressive. You have a feature by 'Buzz' Aldrin. How on earth (forgive the pun) did you get him?

WdS: *We just approached him! I said that I always wanted to know what it's like to walk on the moon, do you slip over much, how hard is it to bend over and things like that. We had seven months leading up to the launch (another pun?) and so we had plenty of time to edit what he had written and send it back and so on. We also have Richard Dawkins who wrote an item on his trip to the Galapagos Islands.*

RS: So you simply approached people whom you would like to contribute.

WdS; *Yeah.. Why not? But we did this before the magazine existed so we had to prove our credentials.*

RS: I see that *Cosmos* will come out 11 times a year. So my next question to you is when do you find time to sleep?

WdS: (Laughs) *Not much lately — 112 pages every month with a bumper issue for December/January. We have a minimum number of staff here. I find that one good person can do the work of three mediocre people. I have spent a lot of time finding the right sort of people and think I have a fabulous team. However most of the writers, illustrators and photographers are freelancers and we have people working for us in this respect all over the world, submitting their work via the Internet.*

RS: What sort of people do you think will be buying *Cosmos*?

Wilson da Silva

WdS: *We see three main groups. The first would be the science aficionados, who like you and me have no problem with the meaning of the word science. Then we have the 'science agnostics', these are the people who would watch* Catalyst *or a science documentary, read an article in the newspaper, but would not class themselves as 'readers of science'. But they consume science and enjoy it. The other chunk will be science-fiction fans who are very comfortable with science and the possibilities for the future so we carry one science-fiction story in very issue including original works.*

RS: It's early days, but what sort of feedback have you been getting?

WdS: *It's been extraordinarily good from across Australia and across the world. We had some good early publicity with TV interviews but I think we were very smart with our PR. There was a buzz about this new magazine before it came out.*

RS: You also have 'Science On Tap' the public meetings and talks based on stories from the magazine.

WdS: *I don't think we want to make a buck out of that, it's more a chance for us, at a very community based level, to expose the magazine to those who may not have heard of it. We also know that it will be fun with giveaways and lively discussion. It's free to come along.*

RS: Anyone can also visit your web site, (www.cosmosmagazine.com) are you going to dedicate much time and effort to that?

WdS: *That will stay very basic with information about the magazine and how to subscribe. Maybe details about 'Science On Tap' but we don't want it to detract from the core business producing a magazine. People will be able to see what stories are in each magazine so hopefully it will encourage them to buy the issue. There is a page there about the people on our Editorial Advisory Board, that's certainly worth a look.*

RS: Thank you.

Later that week I attended the first 'Science On Tap'. The topic was 'living forever' and the room was packed. What followed was a most enjoyable few hours with science, discussion and lots of laughs along the way. I can only wish *Cosmos* every success.

[Cosmos is a monthly magazine, produced by Luna Media Pty Ltd, a specialist publishing house in Sydney. Luna Media is a start-up private company; its founders are Dr Alan Finkel, a successful Australian inventor and biotechnology entrepreneur who founded the international scientific instrument manufacturer, Axon Instruments; Wilson da Silva, an award-winning science journalist and former *Quantum* reporter; and Kylie Ahern, a successful publisher and former marketing and circulation executive in Britain and Australia.]

Malaria Vaccine:

Salvation for the World?

An elusive goal, but is it worth the effort?

Paul Prociv graduated in medicine from Sydney Uni in 1971, worked in clinical medicine in Canberra, Pacific and WA then moved to Uni of Qld for a brief stint to do a PhD, but ended up staying for 23 years (teaching all and researching in a range of parasitic diseases), to become Assoc Prof in Medical Parasitology and Deputy Dean (Pre-Clinical) of Medical Faculty. He has been "Honorary Research Consultant to the School of Molecular & Microbial Sciences" since resigning 4 years ago.

Background

From time to time, items appear in the media to remind us about what a dangerous threat malaria represents to the world, and how pressing our need is for a vaccine. It's even not so uncommon to hear on the news of an imminent breakthrough, of a new malaria vaccine about to be tested. And of course, it's all so much more serious now that we have global warming, which will cause us all to be eaten alive by malaria-infested mosquitoes (not to mention all those other nasties that they can give us). It's a truism that more money is needed for research and, in a continuing spirit of outstanding generosity, Bill and Melinda Gates have been donating many millions of dollars to support scientists working not only on malaria, but also several other major "tropical" diseases.

(I can't help noticing how there's always a flurry of such publicity, about not just malaria, but also great breakthroughs in cancer and arthritis and other emotive diseases, around grant application time — seems such a waste of effort when the public can't get to vote for these projects).

My first encounter with the notion of a malaria vaccine had been in late 1979 when, on my way to a job at the University of Queensland from a clinical post in Western Australia (I had already qualified as a specialist in internal medicine, but wanted to do a bit for humanity on the global scale), I called in at a tropical medical conference for a select group of key players at Sydney University. Although still an altruistic neophyte, I wasn't completely naïve, having had first-hand experience of malaria while working for four months as a medical student in the New Hebrides (now Vanuatu) 10 years previously, and also having seen an occasional patient with the disease in Perth. However, I was intrigued with the concept of a malaria vaccine, and that the meeting participants were enthusiastically convinced that one should be available "in 5 years". Well, a quarter of a century later, the missionary zeal persists, but in slightly less optimistic tones – now the deadline is "perhaps 5-10", or even "10-5" years off. Why the delay? What will it be in another quarter century — 25-30 years?

Over the ensuing few years, as a lecturer in medical parasitology, I had to familiarise myself rapidly with all the parasitic diseases afflicting humans, including the daddy of them all, malaria. While we still have quite a bit to learn, I was overawed by just how much we already knew, and by the ingenious and painstaking work of pioneering researchers who brought us this knowledge, not to mention their personal sacrifices (as well as those of their patients!). From the considerable information that was already available about immunity in ma-

laria, I couldn't help but wonder about the feasibility of producing an effective vaccine, let alone its practical usefulness.

Before proceeding further, some explanations are in order.

What is Malaria?

All vertebrate animals package their oxygen-transporting protein, haemoglobin (Hb), inside red blood cells (RBCs), and a surprising (perhaps not so surprising, when you consider its nutrient value and accessibility) variety of parasites seek it out as their prime nutrient. A large group of protozoa, including those causing malaria, has evolved to actually invade RBCs, inside which they eat up the Hb and then multiply, as a critical phase of their life cycle. Prominent among these is the genus *Plasmodium*, which includes over 100 species that parasitise mammals, birds and even reptiles. Each one of these is pretty fussy about which host it can develop in, but almost all are transmitted between vertebrate hosts by mosquitoes, in which they undergo essential development and multiplication.

It so happens that four species of *Plasmodium* are specific for humans:

- *Plasmodium vivax* is the most widespread;
- *P. falciparum* tends to be mainly tropical but is also nasty, accounting for almost all deaths from malaria;
- *P. malariae* is more slowly developing and causes about 10% of all cases; and
- *P. ovale* is restricted in its distribution and accounts for less than 1% of all cases.

(That these species occur only in humans tells us that Adam and Eve must have had malaria while in the garden of Eden, but that's another story . . .)

The parasites multiply inside RBCs, which then eventually rupture, allowing parasites to attach to and invade other RBCs, initially giving rise to an exponentially expanding population. This is soon retarded, by unavailability of appropriate target cells, by clearance from the circulation through filtering mechanisms (eg, as in the spleen) and/or by developing host immunity. After several such cycles of asexual reproduction, some transform into what are known as "gamete" cells, which develop no further unless taken up by a mosquito (only of the genus *Anopheles*, in the case of human malarias). In the insect's gut, they develop further then multiply in the body cavity, ultimately to accumulate in its salivary glands — it takes about two weeks for this stage, depending on ambient temperatures and other factors, a period which is beyond the life-span of most mozzies! Should that mosquito then get a chance to feed on another human, it will inject the "spore" forms of the parasite into the bloodstream while feeding. These sporozoites passively float around in the circulation until they can enter a liver cell, inside which the first phase of multiplication occurs. After 1—2 weeks, the parasite numbers in the liver have been boosted by a factor of 10—30 thousand (depending on parasite species), and they are released by the disrupting liver cells to re-enter the circulation, where they invade RBCs to commence that phase of the cycle. This initial liver phase does not cause any symptoms.

By definition, malaria is an infection with any of these species, regardless of symptoms. Because they all invade and destroy RBCs, without treatment any malaria eventually will cause a decline in blood Hb levels, *ie*, anaemia. However, for the purposes of this discussion, we'll focus on *P. falciparum*, for this is the species that kills people, has become resistant to many antimalarial drugs and is the target of vaccine development.

Health Impact of Malaria

For lay people, and even among medical circles, malaria has a frightening reputation. Everybody knows of someone who died of it, if only from sensational media reports. Falciparum malaria is the one that kills, for several good reasons.

- Firstly, the parasite multiplies inside RBCs faster than the other species, and so builds up in numbers in the blood quickly, before host defences can be mobilized effectively.

- Secondly, "newborn" parasites escaping a rupturing RBC can invade any other RBC, regardless of its age (normally, 120 days); by comparison, *P. vivax* will invade only very young RBCs, those that have just emerged from the bone marrow, so only a very small proportion of the total circulating RBC mass is available for invasion by that species.

- Thirdly, *P. falciparum* releases molecules akin to the endotoxins of bacteria, which can have powerful effects on host cells and tissues.

- Finally, many strains of this parasite trigger changes in the membrane of its target RBCs that make these cells "sticky", so that they aggregate in microscopic clumps in the circulation, and also stick to the walls of tiny blood vessels in important tissues, such as brain, lungs, liver, kidneys and bone marrow (the precise range and severity of these effects is partly determined by the genetics of the parasite, as well as by the individual human host). In effect, this shutting down of blood flow to important organs can lead to or exacerbate a wide range of severe metabolic and physiological disturbances, any of which can be lethal (*eg,* cerebral malaria), but most of which can be prevented by early treatment.

[Why *P. falciparum* is the only species to cause such severe complications, which seem not to benefit the parasite in any way — in fact, by killing its host, the parasite ensures its own demise, and hence biological

failure — is not known, but it has sufficient differences from the other three human-specific species to indicate that it is not well-adapted to us, and probably came aboard only recently in evolutionary history. Some authorities think, with good evidence, that it might have jumped across from birds! Parallels with influenza?]

The author, hir-suitably skeptically adorned, tracks down a rare Antarctic mosquito

Despite all this, not everybody who gets malaria dies, not even from *P. falciparum* infection. Global statistics are rubbery, being based on very patchy and unreliable data, as well as being massaged by reporters who might have vested interests. Nevertheless, the most widely accepted global annual mortality rate is about one million, while the annual incidence of new cases is estimated to lie in the range 300—500 million (of which 40—45% is *P. falciparum* infection). Given that probably most of those new cases are not properly diagnosed or treated, then obviously malaria is not as deadly as widely believed (although it certainly can make you unpleasantly sick, with severe repeated fevers, headaches, muscle aches and fatigue). Furthermore, of those one million who die each year, well over 95% are infected with *P. falciparum*, and about 80% are small children in sub-Saharan Africa who are generally malnourished and suffer from a range of other medical problems.

What about in Australia?

Well, while we do have suitable vector mosquitoes in the north, we haven't had sustained locally-acquired malaria since WWII. However, each year, about 1000 immigrants or returning travellers are diagnosed here (this figure seems to have been declining over the last 15 years), and occasionally someone dies (usually because the diagnosis is made too late), giving a case mortality of less than 0.1%; *ie,* if you should pick up malaria while travelling, your risk of dying from it is less than one in 1000. Almost everybody diagnosed had been taking inappropriate antimalarial medications or (in most cases) none at all.

Questioning this low local mortality, about 12 years ago I investigated the causes of death among Australians travelling or living overseas, to see if we'd been missing serious cases, ie, people who might have died of malaria while still away, and so escaped the local statistics. Of almost 3 million Australians who ventured outside our borders in one year, about 500 died (little different from age-adjusted death rates at home), mainly from underlying and unavoidable medical problems. There were only two likely cases of malaria — the most conspicuous problem was excessive deaths among young travellers, from accidents, mainly on the roads of SE Asia.

Now that we've seen that malaria is not such a big killer, what happens if you have it but don't have treatment? In the acute episode, and assuming it's not caused by a lethal strain of *P. falciparum*, fevers relapse for many weeks, but then gradually settle over a few months with the onset of immunity, during which period you will become anaemic (severity depending on the malaria species, how sick you feel, what you eat etc) and your spleen will be enlarged. If you are re-exposed to the same strain of parasite, you will experience a repeat episode of malaria, but it will be milder and of shorter duration. Continuing exposure to the same strain eventually leads to a state of immunity where you have parasites in your blood, usually in very small numbers, but without obvious symptoms (although you might be mildly anaemic). However, if you are then exposed to another malaria species, or even a new strain of the same species, you can go through the acute illness in full force all over again. And, should you stop being repeatedly exposed to the original strain, your immunity to it will wane, so that over a few years you will become non-immune again, and so prone to experiencing the same repertoire of symptoms should you become infected.

In other words, immunity induced by a natural infection takes a long time to develop, is not sterilizing (*ie*, does not kill the parasite completely, but only suppresses its multiplication to large numbers in the circulation), is highly specific for species and strain of parasite, and weakens with time if not stimulated by continued exposure.

In hyperendemic parts of the world, *ie*, where everybody in effect is exposed to infective mosquito bites almost continually (*eg*, once/week), it

is routine to find many apparently-well adults with parasites in their blood. In such places, we find that young children take the brunt of malaria, and this is partly compensated by families having many children. In their first 6—12 months of life, children are actually protected against malaria, by many factors, including: their RBCs carry foetal Hb, which the parasites can't digest very well; they are protected by maternal antibodies in their blood, which decline over time; they are on a diet (breast milk) which lacks nutrients essential for the parasite. As the child is weaned and grows, it becomes very susceptible, so that the 2-5 year age group is where we see the bulk of mortality; beyond that, developing immunity means that, should the child survive, malaria will not be a problem into its adult life — unless they lose immunity by leaving home for more than 6-12 months.

It is common in Australia to encounter long-term visitors from endemic areas, such as students from PNG, who decide to go home for a holiday, and then come down with malaria for the first time ever in their lives (they'd clearly forgotten their early childhood experience), either while there or after returning here. This simply reflects the fact that their "life-long" immunity waned after the continuing stimulus was switched off. Often, such people were offended by professional advice to take antimalarials while visiting home.

Principles of Vaccination

A general principle in infectious diseases is that the best protection is provided by natural infection, which is best seen in viral infections, where the parasite develops inside cells and triggers a powerful and prolonged immune response. This is the pattern seen with most of the common childhood illnesses, in which a single episode is followed by lifelong immunity. Of course, the major drawback to this approach is that natural infection might kill or maim you before immunity develops! When we look at the history of vaccine development against common diseases, a clear pattern emerges: it is easiest and most effective to vaccinate against simple molecules, such as toxins produced by bacteria, *eg,* as in tetanus and diphtheria. In such cases, the infection *per se* is not the problem; it is the toxin released by the organism that damages or kills you, and it can be easily neutralized by antibodies circulating in your blood, triggered by prior vaccination with a toxin modified so as to be immunologically active but physiologically harmless (toxoid).

Viruses are not much more than an agglomeration of molecules, and so they too can be inactivated or immobilised by the preformed antibodies, so that we have a wide range of vaccines effective against many viral infections. Of course, some, like HIV, actually interfere with cells critically involved in the immune responses, which creates headaches for researchers trying to develop an AIDS vaccine.

As organisms become more complex, *eg,* bacteria, with lots of strain variation, vaccines need to become more complex and tend to be less protective, *eg,* as against Meningococcus — unless we can find a simple target molecule on its surface that can be inactivated by antibodies. With even more complex organisms, such as protozoa, the task becomes almost impossible — virtually all species of parasitic protozoa demonstrate geographical strain-variation, and even in a single infection, we can see antigenic variation throughout different stages of the infection. Furthermore, in some infections, the parasite has actually come to recognize, and depend on, specific molecules generated by the host response, which could give the paradoxical effect of a vaccine actually making the subsequent infection worse.

Specific Malaria vaccine

This variation between strains, and within one strain throughout different stages of the life cycle, is seen par excellence in malaria, which undergoes compositional changes in every step of its development in human tissues (liver cells and RBCs). By sequentially changing its molecular make-up, which is genetically programmed, the parasite manages to keep a step ahead of the immune response which, of necessity, takes days to work up. To further complicate matters, the parasites have "learned" to interfere with this response by throwing "chemical spanners" into the machinery, switching on "nonsensical" antibodies and cellular reactions that might not harm it, but could contribute to host damage.

Nevertheless, with time, the immune system does manage to suppress a malaria infection — but to be protective, it needs repeated stimulation, and it works against only that particular strain of that one species. And, during that period, the parasite still manages to develop into a stage that is infective to mosquitoes, and so happily flies off, to infect other people.

So, the headaches for malaria vaccinologists are obvious. Trying to find a magic target, a single immunogenic molecule that will trigger a prolonged and effective immune response, is a fatuous and futile goal, yet it has been tried on many occasions, some of them announced to the world with great fanfare, and has then sunk into oblivion. It didn't work even against the strain of parasite from which it was extracted. Even if we did eventually assemble a "soup" of immunogenic molecules, taken from a range of parasite strains and life-cycle stages, it is extremely dubious that this would trigger as protective a response as would natural infection; it would need to be administered repeatedly to produce an effective response, and would have to be sustained to maintain that response.

It might be pertinent to mention here that an effective vaccine has not yet been produced against any protozoan infection, with the exception of babesiosis. This disease of

Continued p 64 ...

On Clinical Trials, Diagnosis, and Medical Intervention:

How Much Science is Involved?

John August
North Ryde NSW

Clinical trials

Jon Jermey (Skeptic 2004) noted the variability of the human response to clinical trials. Clinical trials yield the "average" result, ignoring the variability of "real" patients. Clinical trials are short term, but a disease may outlast it, making the long term side effects uncertain. And the trial usually involves a small number of people — rarer side effects only show up in the general population.

New medications provide an advance, but medications with a long term history can have an advantage over new ones. While some doctors take these factors into account, the general culture seems to focus on "new" medications promoted by the pharmaceutical companies because of profits and lack of competition. At one time, the evidence for older hypertensive drugs was better, but there was a push towards the newer ones, motivated by the claimed reduced side-effects.

Psychiatrists' patients are often from lower socioeconomic groups, who frequently have alcohol problems together with several identifiable psychiatric problems; but clinical trials are performed on "neat and tidy" middle class patients presenting a single problem. The information gained from the trial can be frustratingly narrow.

Over time, a medication can become used on less severe conditions. As a medication frequently represents an assault on the body, it may increase mortality slightly; this can exceed the improvement in mortality through reduction in symptoms if they are only mild.

Doctors can be progressive (reckless ?) when they should be conservative, but there is a balance to be struck. The other side of the coin is that potentially life saving medications can be held back by regulation.

One difficulty is terminally ill people and the availability of "experimental" medications. They can be taken advantage of — but this means the protocols for informed consent and justification of the treatment should be more rigorous, rather than the door being shut.

Participants in clinical trials have experienced significant relief, with the medication stopped at the ends of the trial. This can be the result of regulation. However, in third world countries, participants in clinical trials serve as guinea pigs for the benefit of the patients in western countries, where the medication is affordable.

Overstated Science

In treating an illness, first we have diagnosis. We need a good understanding of the human body. We know infectious diseases are caused by bacteria, viruses, prions, etc. We can treat bacterial infections with antibiotics, and some viruses with antivirals (generally expensive and not commonly available).

Other diseases are a malfunction of some part of the body, where too much or too little of some chemical is present, and we can compensate by introducing some other chemical.

Diagnosis is followed by treatment. An illness is sometimes difficult to diagnose; equally, the diagnosis may be straightforward but finding a medication which works for that particular patient may be difficult.

The use of medications in treatment is "scientific". But its easy to overstate this. Yes, there is the statistical analysis of whether a medication is effective, obtained through clinical trials. But why is the medication itself effective?

The research model of the human what the body is limited — our metabolism has a built in variability, perhaps making us less susceptible to epidemics — at the same time making a "catch all" treatment more difficult. (There is progress in pharmacogenetics; it is known that enzymes enable and disable medications, and their concentrations vary greatly between individuals — but that's a long way off being used in a doctor's clinic).

Medical researchers have an idea of where they're going, but are limited. Clinical trials cover up a lack of understanding of how the medication operates and how it might vary.

Just what is the mechanism by which the microbe operates, and how does the antibiotic effect it compared to other microbes and the body itself? What is the chemistry of a disease we have, and how does medication change the metabolism of the body? While progress has been made, understanding of the mechanisms behind metabolic illnesses is poor overall. The Medical Consumer's Association estimate that 90% of medicine lacks a satisfactory theory of causation.

Heart attacks are correlated with

high blood pressure and cholesterol. Therefore, if we reduce blood pressure, we should reduce the risk of heart attack. High blood pressure is here called a "surrogate endpoint". *Most* of the time, you can make this substitution.

While "Calcium Channel Blockers" lowered blood pressure, the "short acting type" could actually *increase* the chance of heart attack. This was mild in comparison to flecainide in the US. An estimated 50,000 people died as a result of this medication — Peter Arnold tells me it almost killed him! (Interestingly, he still has faith in mainstream medicine — he can testify to a coronary bypass extending his life.)

You could say those involved should have known better, and been more circumspect and careful. You wonder if they projected a confidence about medicine to patients which overstated their understanding of the way the body operated and understated the possibility of adverse side effects.

On the other hand, you could also say they were doing their best, when some effects only show up in a larger population and do not show up in smaller clinical trials.

Abusing the Empirical Link

In principle we can apply statistics to clinical trials and assess whether a treatment works. But statistics are frequently abused.

Without treatment, the chance of a heart attack for a particular group is 7% over five years. Take pravastatin, and that risk is 5%. That doesn't sound like much. But, you can quote this as a 30% *reduction* in the risk of heart attack. This impressive sounding figure, however means that 50 men need to be treated for 5 years to prevent a single heart attack. What if you spent that money encouraging healthier lifestyles?

If you tell doctors the "risk reduction" rather than the difference in absolute risks, they're more likely to prescribe a medicine. Hopefully administrators will be more objective. Drug companies will want to distribute decision making amongst people who are statistically naive, presenting them with a "spin". To the extent doctors are swayed, they don't have enough "Skepticism".

This statistical manipulation is also seen in the media — the effectiveness of the medication is overstated, and the public has a greater interest in it.

More sinister is "farming" clinical trials. Different trials might be conducted in different countries. The rational thing would be to combine the results into one pool, but pharmaceutical companies have been known to take the one trial where there was a positive outcome, and parade it as demonstrating the drug's effectiveness. Perhaps its just a statistical outcome — equally, perhaps the effect is real but related to something unique in that population. Regardless, its unethical to use it as evidence for the general effectiveness of the medication.

Drug free treatment

Treatment can involve medications, or counselling people on their lifestyle. We might give medications where there is no need - the "natural history" of a disease means it clears up by itself.

An example is childhood ear infection. In nations like Holland the treatment rate is about a quarter of ours. The chance of becoming deaf is not altered through treatment. There is a chance of ear infection developing into something worse, but equally antibiotics are not without their risks. The Dutch have figured out how to balance these issues more carefully with less medical intervention.

Drug treatments are promoted much more heavily than alternatives, and used more than they should be — costing both patient and taxpayer. I've heard that calculations of cost effectiveness on the PBS are rarely compared to non-drug approaches. Equally, I've also heard that these comparisons are frequently made. One example given is the consideration of St John's Wort in treating depression (that's a non-mainstream drug, but not a completely drug-free alternative treatment). I've also heard contrary claims over how balanced the comparison is between drugs and surgery — one claim is that side effects are not taken into account, another that they are. Take your pick. Medically qualified people don't necessarily agree.

People are less interested in lifestyle changes when there is an effective medication. Still, we shouldn't think we know how to run their lives better than they do. Worst case, people are presented with a distorted view of their options as a result of marketing by the pharmaceutical companies — but that is a problem with information, not their sovereignty in making decisions (there is a claim that the "informed" ideal is impossible without a background in statistics and medicine).

But — I suggest this is only true if people pay for their own medications, rather than making lifestyle changes. When should our taxes cover someone's bad luck? I believe there *is* a point to sharing our risks as a community. It's something of an arbitrary judgement, perhaps a value judgement, but we should only fund medicine when someone can't alleviate their condition by changing lifestyle.

It's more complicated when medications facilitate lifestyle changes — for example, quitting smoking. We have a one-off expense, with both the individual and the community benefiting. But in one case the PBS spent $160 million on a drug originally developed to cure addiction to "hard drugs". This was at least 10 times more than a TV based quit campaign. While those in the medication program had a greater chance of quitting than a smoker exposed to the quit campaign, the drug based approach cost at least 10 times more per person. So, there were probably better ways of spending that money.

Conclusion

Diagnosis can be difficult. But, some of the time, diagnosis and treatment will be clear and straightforward and we must acknowledge this. At other times a doctor will be in a difficult situation, trying to figure out what to do - but they'll be doing their best.

Mainstream medicine deals with a difficult situation — the variability of disease and patients. In comparison, AltMed rarely acknowledges variability — the options for diagnosis and treatment are usually small.

For all the ambiguity about treatment and poor causal models, there is some application of statistical analysis to treatments. AltMed is certainly worse. The "promise" of mainstream medicine — of reason — is frequently subverted by the realities of the world

— money, politics, human frailties. But, AltMed does not even have this ideal to look up to.

Some will question mainstream medicine's embrace of reason — but we can only uphold reason as a good thing and the argument must stop. Some see mainstream medicine as looking at just one problem at a time, rather than the whole patient and the whole situation. I've engaged with that to some degree. But, its difficult to believe that alternative medicine is "wholistic" and at the same time "rational" — most of the what's said about "wholistic medicine" is mumbo-jumbo rather than a genuine attempt at improvement.

Some practitioners admit mainstream medicine is not perfect, and acknowledge many of the points I've raised. Some people in medicine are self-serving or lack appreciation for the limits of medicine. But I don't wish to tar everyone with the same brush. To the extent that mainstream medicine acknowledges its limits, I've no real argument. But the messages you hear in the media tends to be of "gee-whiz" innovation; there seems to be very little humility in the promotion, and you only rarely hear the limitations of mainstream medicine acknowledged — which is what I try to do.

Acknowledgements

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A major reference was *Too Much Medicine*, Ray Moynihan, ABC Books, 1998.

Editor's Note

John (and others) will no doubt be heartened to read elsewhere in this issue about the activities of the founders of *MediaDoctor,* winner of this year's Australian Skeptics Eureka Award for Critical Thinking. *MediaDoctor* 's approach to media treatment of medical stories, would appear to address many of the concerns raised in this article.

... Malaria from p 61

farm animals, particularly cattle, is caused by a parasite that actually has much in common with malaria, to which it is closely related. Babesia species are transmitted by ticks, and develop inside mammalian RBCs, where they ingest Hb and then destroy the host cells, causing severe anaemia and other complications. Again, natural infections provide the best immunity, but calves can also be protected by injections of living organisms (*ie*, setting up a live infection) either taken from other animals, or from blood cultures in the laboratory and attenuated by irradiation — but the protection offered is relatively weak and short-lived.

Implications of an Effective Malaria Vaccine

Momentarily casting aside skepticism, and adopting an upbeat view, let's assume that a malaria vaccine that actually works is eventually produced. From the foregoing discussion, there are some almost inescapable conclusions.

- Firstly, it will be very expensive, having taken all these years, research dollars and patent application fees, to come to fruition, and incorporating a huge variety of molecules to cover at least a few of the most common strains of *P. falciparum* floating around (not to complicate things by asking for cover against the other species).

- Secondly, the vaccine most likely will need careful protection, being a soup of sensitive and complex chemicals produced by molecular biotechnology, and requiring preservatives and refrigeration, so that transporting it around will not be easy or cheap.

- Thirdly, you will need to have lots of booster shots to pump your protection up to meaningful levels.

- Finally, it will cover you only for a short period — should you want longer protection, you will need regular booster shots.

Now, is this the sort of vaccine that's going to eradicate malaria from sub-Saharan Africa? Where per capita health expenditure runs to all of US$1.00 per annum? Where most people don't even have access to reasonable nutrition and sanitation, let alone mosquito nets or commonly available and cheap antimalarial medications? And where, if they survive childhood (already factored into family population planning), they will no longer be bothered by malaria — unless forced to move domicile, by wars and/or land-hungry political leaders?

No, the kinds of people who stand to benefit are those who will be visiting specific malaria-endemic locales (perhaps where the molecules from well-characterised local strains of parasite will have been expressly incorporated into a vaccine), who can afford to pay for repeated vaccination (in preference to taking drugs that might interfere with their sleep, alertness or judgment), and who do not intend to spend too long a time on location. Should it be any wonder that an outstanding promoter of malaria vaccine development, both financially and logistically, happens to be that exemplar of altruistic motivation, the US Army?

Dawkins, McGrath & Me

Seeking common ground ... does it exist?

John Warren has retired from horticulture after experience in the Snowy Mountains and far Western NSW, and who can blame him?.

On reading the book *Dawkins' God* by Alister McGrath

Richard Dawkins is a Professor of the Public Understanding of Science at Oxford, and a declared atheist. He has, for a long time, been one of the most articulate defenders of Darwin's Theory of Natural Selection. That is the theory which explains the process by which human beings evolved from the beginning of life about 4 billion years ago.

Alister McGrath is a Professor of Theology at Oxford and an ordained priest in the Anglican Church, as well as being the Director of the Centre for Evangelism and Apologetics. He was born into a Methodist family in 1953. He remained attached to that branch of Christianity until early youth when he lost his belief in God and declared himself to be an atheist. On entering Oxford University as an undergraduate he chanced on a book on the history and philosophy of science which renewed his interest in theology and, in particular, Christianity. He gained degrees in both biophysics and theology and is an evangelical defender of the Christian God. The book *Dawkins' God* is specifically aimed at the ideas of his fellow-Oxonian and, if the cover blurbs are any guide, he has reached an enthusiastic audience of like-minded academics. As one who is quoted says:

In this remarkable book, Alister McGrath challenges Dawkins… and disarms the master.

Me? I have an abiding interest in the development of the science/religion debate and its relevance to the wider community.

A clash of world-views

McGrath is a theologian; Dawkins a scientist: there is a deep gulf between them in their attempts to understand the world.

McGrath believes that a supernatural being named God exists. In that belief he follows "*the view of the world set out by the leading Christian theologian Thomas Aquinas*". In the thirteenth century Aquinas put forward five "proofs" of God's existence and presented them in his *Summa Theologiae*. Although apparently accepted by McGrath, they are not proofs in the scientific sense of the word. They are arguments, manipulations of words to convince himself and others that there must have been a First Cause to the beginning of the world, and that Cause is given the name God. Subsequent to its naming, that Being was credited with a variety of characteristics and powers which, as the philosopher Feuerbach noted in his *Essence of Christianity*, are simply projections of human qualities writ large. The qualities are: omniscience, omnipotence, omnipresence, omnibenevolence, righteousness and mercifulness.

Dawkins, on the other hand, requires something tangible in a proof. Something which can be tested; something material which can be ma-

nipulated, experimented on, to enlarge the understanding of the real world.

The difference is that between the idealist and the materialist. Idealists use words in the brain to try to create an image, an interpretation, of the world. Materialists use experience of the real world to try to create the words (theories) to describe it.

In a previous article, "The Science of Religion", (*the Skeptic*, 24:4) I made the point that both science and religion derive from the same source: the need for human beings to control their environment from the very earliest days of their existence some million years ago. The idealist/religious approach arose from the use of magic and spells with the practitioners, the witchdoctors, evolving into priests with their prayers and ceremonies. The materialist/scientific approach arose from experiencing the real world by actually handling it. The resulting science is really the systematic collection of experience of the world as a basis for extending control of that world. There is no equivalent in religious theory or practice, although religious leaders do attempt to control human behaviour by using words to manipulate conscience.

Science, that is, the result of scientific investigation, goes from strength to strength. Each new step in understanding how parts of the world relate to all the other parts opens up further avenues for exploration.

Religion, on the other hand, has nowhere to go, it runs out of the very words on which it is based. The God of theology is, apart from all His other qualities, thought of as absolute and unchanging so, once described, there is no need for further words. That is not to say that theologians such as McGrath would agree. They do in fact indulge in an endless production of works in which the words are rearranged in an ongoing attempt to overcome the basic contradiction between their mental image of a pure unchanging God and His relation to an impure, turbulent world.

Resolving the debate

Alister McGrath was prompted to write his book 25 years ago when he read Dawkins' *The Selfish Gene*. That book presented a modern picture of the natural material basis for the evolution of human beings. There was no need for believing that some supernatural force or Being played a part.

Dawkins' point, that God was irrelevant to the study of human evolution, obviously reawakened McGrath's feeling that the very basis of his theology was under attack, just as so many theologians of Darwin's day had felt.

He, McGrath, should not have felt any surprise at Dawkins or other scientific investigators ignoring the existence of a supernatural force (or its personification as God) because he had spent some years researching biophysics himself. In that role I am sure that he never once felt the need to include a factor for the effect of the supernatural in his explanations. Neither have investigators in any other scientific discipline. Supernatural force is irrelevant to scientific investigations.

McGrath does point out that to conclude that a thing is irrelevant does not prove that it does not exist. True enough, but one can multiply irrelevancies without adding anything toward understanding a problem.

There is good reason to think that McGrath's belief in God is an emotional attachment coming from his early experience in a loving religious family. Darwin's studies led him to comment, in his book *The Descent of Man*: "*that a belief constantly inculcated during the early years of life, while the brain is impressible, appears to acquire almost the nature of an instinct, and the very essence of an instinct is that it is followed independently of reason*". The same idea was also contained in the Jesuits' saying: "*Give us a boy and we will return you a man, a citizen of his country and a child of God*".

If any proof is required for the overwhelming role of early indoctrination and emotional attachment, it can be found now in the self-immolation of Iraqis and Palestinians. That early impressibility is one, perhaps the strongest, path by which cultural beliefs and attitudes are passed from one generation to the next. Once impressed in the early years, the impressed images have to be sustained as part of society's norms so that stability is maintained. In the case of the Christian religion, that personal attachment is constantly strengthened by the continuous use of emotional words. One only has to listen to the words of common hymns and prayers to recognize that the emotional content is centred on love and comfort and the satisfaction of earthly desires. Even the ultimate goal, heaven, is pictured as a beautiful, peaceful place to be shared in the loving company of the Father.

The modern Pentecostals, with their displays of shouting, sobbing and falling at the touch of a preacher's hand illustrate the emotional ecstasy which is generated and used in a mass ceremony of devotion.

At the beginning of his book McGrath says that: "*the real issue for me is how Dawkins proceeds from a Darwinian theory of evolution to a confident atheistic world-view…*". I would have thought that the irrelevancy of supernatural forces to the theory of natural selection would have provided that basis. It obviously does not convince McGrath, and at the end of his book he asks for the debate to continue: "*I'm sure that we all have much to learn by debating with each other, graciously and accurately. The question of whether there is a God, and what that God might be like, has not — despite the predictions of overconfident Darwinians — gone away since Darwin, and remains of major intellectual and personal importance*".

My own view is that the debate has been going on, without any sign of an agreement, ever since people have been recording their thoughts. The chance of a useful debating conclusion being reached now is remote. Scientific investigators (even those with religious commitment) will continue to explore the real world without recourse to supernatural forces. Non-scientists with religious attachment will only be shocked into facing reality and a recognition that human beings are alone in the world when they meet a personal or community crisis and realise that appeals to their God get no reply.

Letters

Anti-skeptic media

Tom Biegler
Brighton VIC

Mark Lawson's article on climate change (25:2) is timely, not so much for the merits of its argument against the consensus on global warming, but because the sceptical view is being suppressed and sceptics vilified in the popular media. Locally, for example, an article in Melbourne's *Age* in February 2005 quoted a description of global warming sceptics as 'disgustingly evil' and 'Holocaust deniers'. Soon after, on John Faine's ABC chat program, well-known TV weatherman and environmental activist Rob Gell, using similar comparisons, roundly criticised Faine for inviting a sceptic to a panel to discuss global warming.

The consequences of such vilification are particularly disturbing when a scientific issue is involved, because scepticism is the oxygen of science. There can be no true scientific progress if scepticism is suppressed.

Worse, much of the science behind climate change is particularly complex. Mark Lawson covers only one of the strands to that science, the interpretation of climate history and its implications for any hypothesis regarding effects of human activity. Setting aside the details of the methods used to arrive at that history, the layman can reasonably expect to follow this kind of technical debate.

With the other strand, there is no such hope, even for a scientist such as myself. I refer to the production of 'climate models' by atmospheric scientists who use mathematical models and computational fluid dynamics to understand and predict the effects on climate of changes in, say, carbon dioxide or dust content. Models like these have convinced Australian politicians that they have to plan for drier weather.

The predictions might turn out to be right. My point is that almost all of us are going to have to rely on the experts when it comes to the science of climate change. And if there is a chance that some of those experts are going to feel inhibited by what they see as hostile 'politically correct' public opinion, then we have cause for concern. Maybe there is an overwhelming scientific consensus on global climate change. Personally, I will feel confident about any such statement only when I see that the sceptic is welcomed to public forums.

The devil is in the details

Carl Wieland
CEO Answers in Genesis Australia

Reading 'Around the Traps' in your Winter 2005 edition, I thought, well, it's nice to be the cause of some joy (Freude), even if it's 'Schadenfreude' at the *faux pas* in my web article. I mistakenly associated the term 'Devil's Disciple' (from the well-known subtitle of Adrian Desmond's biography of Thomas Huxley) with Richard Dawkins instead of *Devil's Chaplain*, the title of Dawkins' book.

Some of the other comments seemed a bit silly, though — I would have thought it was obvious that neither Dawkins, as an atheist (nor indeed Darwin) was being accused of using this title in the literal-biblical sense of a personal devil.

Further, the impression that Dawkins sees himself (metaphorically) in the role of his book's title is not confined to creationists, but is rather widespread, including from sympathetic reviewers of his book (see eg, Dennis Litrell's Amazon review). And I would have thought that, as a crusader against literal-biblical Christianity, the good professor would be more inclined to see it as a badge of honour, rather than a cause for distress.

However, out of deference to your sensibilities, the article has been modified to remove all references to either label, with apologies for any inadvertent misrepresentation or offence. And, of course, in the interests of our constant desire for accuracy (there I go, providing more mirth for your readers — enjoy).

Editor responds

Without wishing to speak for Richard Dawkins, I would imagine that his understanding would not differ significantly from mine, ie that devils (and gods, for that matter) are abstract concepts deriving from human thought processes, with no objective reality.

However, the point of our story was that when you accuse someone of not reading your publications, it is probably not a good idea to misquote them, thus exposing your own failure to read theirs.

You would appear to be having enough troubles of your own, with advocates of Intelligent Design seeking to inhabit your turf. For what it's worth, we regard ID as being no more plausible than we do creation 'science' — on the other hand, we find it no sillier. either

Bag and baggage

Garry P Dalrymple,
Concerned Skeptic of Clemton Park NSW

I write to register my surprise and outrage!

On opening the envelope for the most recent mailing of *the Skeptic* I found:

A Handbag for Skeptics!

Surely some mistake?

Surely, the onus of carrying the burden of proof falls on the paranormal purveyors rather than the Skeptic!

You would do well to remember that **I** am the one who makes the excruciating puns in this journal. **Ed**

Early job departures

Geoff Sherrington
North Balwun VIC

I would like to share with fellow Skeptics a small piece of old documentary movie that I found profoundly moving and full of philosophy.

An airship, maybe the *Hindenberg*, was docking via the long rope that dangled from its nose, to be tied to a tower. The men on the ground had gripped the rope as planned, when a sudden wind gust lifted the airship. More men ran from the crowd and held the rope as well, but the ship rose higher.

Eventually, the men could hold on no longer as their strength gave way. Those who first held on were taken the highest, dropping to a certain death. The more eager of the volunteers were the nest highest and the next to go. Those who held back were not lifted from the ground and did not perish.

There are several morals to this story.

1. When you take on a new job, inquire about safety procedures. Would the paid men have been safe with a mechanical sling instead of bare hands?

2. Remember the old bull and the young bull. (Young bull: "The cow paddock fence has broken. Let's rush in and knock over a couple". The old bull: "No, let's walk in slowly and knock over the lot".)

3. Remember that loyalty NEED NOT have its just rewards. The most loyal of the men were taken highest and dropped.

4. As Army privates knew, Never Volunteer.

5. Re Andy Warhol, "Every person has 15 minutes of fame". Rider: Make sure you live to enjoy them.

I am trying to make this episode readable and light, but it disturbs me deeply. The cinema photographers showed the men dropping off like ants in the distance, with horrible velocity on impact. The more I think about it, the more it stands out as an anomaly in life that has deep import. Can our Skeptics philosophers help me to expunge the recurring dream?

Misidentification

Glenn Brady
Clifton Springs VIC

I don't suppose I'm the first to point this out, but the quotation at the start of Chemical Warfare (*the Skeptic* 25:2) is not from Lewis Carroll. It's a lyric from Jefferson Airplane's song *White Rabbit*, from the album *Surrealistic Pillow*, 1967.

Lewis Carroll would be whirling with glee in his grave. He'd love the error I suspect.

White Rabbit

One pill makes you larger, and one pill makes you small,

And the ones that Mother gives you don't do anything at all.

Go ask Alice when she's ten feet tall.

And if you go chasing rabbits, and you know you're going to fall,

Tell 'em a hookah-smoking caterpillar has given you the call.

Call Alice when she was just small.

When the men on the chess board get up and tell you where to go,

And you've just had some kind of mushroom, and your mind is moving low,

Go ask Alice. I think she'll know.

When logic and proportion have fallen sloppy dead,

And the white knight is talking backward, and the red queen's off with her head,

Remember what the dormouse said: "Feed your head! Feed your head!"

Not only were you the first, Glenn, you were the only one, thereby exposing both your age and remnant hippieness. **Ed**

Power to the people

Jean-Pierre Favre
Bungendore NSW

During a visit to the Jenolan caves, in a dark corner at the bottom of the caves I met Elvis Presley who asked me to write this letter to your magazine as he's fed up with his ever increasing electricity bills.

Recently, a good friend of mine sent me an article from *Nexus* magazine which is a publication that boasts of dealing with conspiracy theories, cover-ups, etc. The article by a 'Dr' Thomas Valine (who also claims to be the president of 'Integrity Research Institute') is about a great discovery by the great scientist Tesla, which will solve all the world energy problems if only someone would allow it to be utilised.

I'm no scientist but according to the article there is a great energy field around the earth which can be tapped using a huge tower with a sphere at the top. From this you can send vast amounts of electrical energy without wires all over the world! A claim is made that with this set up, you wont need power points again as all electrical appliances including electric cars will have a receiver built in! From the

moment you build an enormous electrical 'capturing' contraption on some remote island we will witness the end of the energy crisis as we know it!

Some nasty people at the CIA, NASA or the White House must be stopping this unimaginable discovery from being developed!

Can any of your eminent correspondents enlighten us on this discovery? I really want to build one such tower on my block of land and I need detailed plans and specifications.

PS: The article in *Nexus* is called 'Free Energy from Tesla's Wireless Electricity' from the Dec April - May 2005 edition.

The web site of the magazine is www.nexusmagazine.com

Editor's response

I will leave it to our eminent correspondents to explain the story of Nikola Tesla and his discoveries, many of which were indeed revolutionary — generating alternating current, for instance — but some of which could be described as dubious (to say the least).

As to *Nexus*, it would be fair to say that its method of 'dealing with' conspiracy theories is to endorse them all with enthusiasm, regardless of how mad (or indeed mutually contradictory, they might be.

Deadline Dates

For contributions

Summer issue	**Nov 1**
Autumn issue	**Feb 1**
Winter issue	**May 1**
Spring issue	**Aug 1**

(Not that contributors take any notice.)

Blatant Plug

Readers of *the Skeptic* who have an interest in the ideas in Science Fiction are welcome to attend and participate in *The 2005 Sydney Freecon/Unicon*, which is a Free Entry Science Fiction, SF&F and Sci-Fi event that will take place at the University of Technology, Sydney on Friday October 28 and Saturday October 29.

The 2005 Freecon/Unicon is being run as a Free Entry event to publicise the Sydney Futurians @ UTS, a group recently affiliated to the UTS Students Association, and several other of Sydney's Science Fiction, SF&F and Sci-Fi groups.

This event is intended as a Sydney gathering of people with a common interest in Science Fiction in it's broadest sense.

You may go to *The 2005 Freecon/Unicon* to see and hear the authors, you may go to participate in the discussion of topics of interest to SF&F readers or Sci-Fi viewers, or you could go just to sit and enjoy the company of fellow SF&F fans and meet friends old and new.

The 2005 Sydney Freecon/Unicon program is being organized to include:

- Appearances by local SF&F/Speculative Fiction writers to read and discuss their recent books
- Panel Discussions of several SF&F topics
- News of interstate and overseas SF&F events and conventions
- No Entry Fee, audience judged, 'peoples choice', Writing competition with a prize pool of at least* $100 for Short Science Fiction stories that will be read and displayed during the event
- Presentations on Science Fictional Sciences
- Opportunities for unpublished SF&F/Speculative Fiction writers
- Opportunities to find out about Australian SF&F/Speculative Fiction publishing
- Opportunities to buy hard to locate current Australian SF&F titles
- Cheap Second hand SF&F books available through a 'Front Table Auction' Publicity opportunities for individuals and groups with an activity of interest to SF&F fans

If you have a 'Science Fictional' interest or event you wish to promote, contact the organizer.

The first 100 registered members to attend *The 2005 Sydney Freecon/Unicon* will also receive a 'Sydney SF Show bag' full of items from most of Sydney's many SF&F groups and merchandise suppliers.

I hope to give people who care to register and attend a $50 a day SF&F experience, for the cost of their tea and biscuits.

Ten seats have been reserved for subscribers/readers of *the Skeptic*, Book now!

Holding this event as a Free Entry event is only possible because the meeting venue has been provided by the Student Association of the University of Technology Sydney.

All previous Freecon events have been self funding through donations for the tea, coffee and biscuits consumed by attendees during breaks and by the auction of donated SF&F books.

*This event is intended to be run as a not-for-profit community event, with surplus money likely to be added to the prize pool for the short story writing competition.

For more details, write to:
Garry P Dalrymple
The 2005 Sydney Freecon/Unicon
C/- PO Box 2
BEXLEY NORTH NSW 2207
Phone 9718 5827 (best after 7 pm)

The *Great Skeptic CD²*

We all knew it had to come to an end sometime, and now that day is upon us — the *Great Skeptic CD*, that wonderful compilation of all issues of *the Skeptic* from 1981 to 2000 (plus much more) has ceased to be. We have sold out. (No, not our principles — the disc.)

Don't despair if you missed out, however, because the good news is that the *Great Skeptic CD ²* is NOW on sale (detils on the web site). It contains not only all the text of the previous best seller, but another three years of *the Skeptic*, plus even more extra works, and it has been made even more user-friendly. (So friendly, in fact, that it will almost certainly wag its tail and lick your face.)

Ah, we hear you cry, *but do you expect me, having forked out $55 to buy CD ¹, to again cough up a similar sum to get this new and improved version, even if you are including a set of steak knives?*

No you don't — if you don't already have one it will still cost $55, but if you were one of those adventurous individuals who got in on the ground floor, then we will let you have the new improved *Great Skeptic CD ²* (with hexachlorophe enhancers and polarised theodolites) for **only $25**.

How will we know if you have the old version? We could ask you to send it back — but we'd rather you donate it to a local school or library — so we'll simply leave it to your conscience. Trusting Skeptics, aren't we?

And don't forget, you can still get the *Skeptics Water Divining* Video Tape for $20 and the DVD for $30 (reduced to clear).

Are you a Skeptic?

Subscribe or buy merchandise at our secure on-line store at www.skeptics.com.au

Australian Skeptics appeals to rational individuals of common sense, intelligence and with a social conscience, who are interested in actively pursuing the truth about claims of paranormal or pseudo-scientific phenomena and other irrational popular beliefs, from a responsible and scientific perspective. For more than twenty years it has established a national network of like-minded groups which, by investigation and the application of critical thinking, aims to help free our society of the results of fear bred by irrational thinking.

We seek the evidence.

We challenge the claims.

We don't believe everything we hear .

We encourage the public to adopt a critical attitude towards these claims.

Our quarterly journal, *the Skeptic* is the voice by which we have offered the public and the news media the opportunity to find out what science and reason have to say about paranormal and other irrational claims.

It conducts investigations and publicises the results.

It opposes the generally uncritical sensationalism presented by the popular media.

It draws attention to the possibility of natural and ordinary explanations of such phenomena.

Its findings are sometimes humorous, often sobering and always fascinating.

You can join our growing list of subscribers by subscribing to *the Skeptic*, using the form below.-

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