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The Eureka Prizes



Winner: Tim Van Gelder



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Thanks Minister

The NSW Fair Trading Minister, John Watkins MP, recently revealed that more than \$150,000 in payments from NSW consumers had been seized before being sent to overseas con artists involved in bogus mail order schemes. This seizure happened after the NSW Supreme Court ruled that Fair Trading could take possession of more than 5,500 cheques and credit card payments, addressed to a Canadian organisation, from a PO box in Mascot.

The scam offered mass-produced clairvoyants' reports and bogus lottery winnings to recipients. The Minister said such con artists send millions of letters every year, targeting mainly elderly consumers. Mr Watkins said:

I'm angry that so much money is leaving Australia with nothing in return. These scammers will not profit from trusting and lonely consumers. My advice is just chuck it in the bin, otherwise people will continue to get them.

About time

Well more power to Mr Watkins' elbow we say, but we must also say that he, and his colleagues in other states, are a bit late in coming to the party.

For more than a decade Australian Skeptics has been lodging complaints with his department, and with similar authorities in other states, about various scamsters using mass mailings to offer clairvoyant readings, lucky charms and all manner of other fraudulent schemes to the public. The pages of *the Skeptic* contain many, many reports about these scams.

Nor are all of these scams located overseas, with many coming from postal addresses in Tasmania or the

Gold Coast. Furthermore, through our infiltration of "Psychic Hot Lines" offering "readings" via the phone lines at \$5+ per minute, we have provided authorities with, at the very least, sufficient evidence to cause them to investigate the *possibility* of fraud being perpetrated. To date all we have received in reply are a plethora of form letters thanking us for our interest, and a couple of letters telling us that this minister's immediate predecessor in office regarded the complained of activities as coming under the heading of "personal beliefs" and that she did not consider it to be appropriate to pursue them.

Quackery questioned

On a different front, we are also particularly pleased to see that a Lismore naturopath is being prosecuted for misrepresentation, under an amendment to the Fair Trading Act, which requires businesses "to substantiate a claim or representation (express or implied)" made in an advertisement. Another charge is that he offered medical advice that he was not qualified to give.

The NSW Health Care Complaints Commissioner said (and we would heartily endorse) the potential of the new legislation to make alternative therapists accountable was welcome. Some other practitioners had been referred to the director of public prosecutions or the coroner, but it had been difficult to act at an early stage. (Better late than never, we suppose.)

Add this to the fact that a federal body, the ACCC, has taken action in court against some manufacturers of such bogus "diagnostic" and "treatment" devices and techniques as "Rife Machines", "Zappers", "Colloidal Silver Generators", "Magnetic

Sleeping Mats", "Live Blood Analysis" etc (see Cheryl Freeman's story elsewhere in this issue) and we might be starting to get the protection from our agencies that we pay for.

Cloaked in respectability

For far too long scamsters have been able to get away with their claims under the cloak of "freedom of belief" or "right to choose", but these new actions mean that we might now begin to see a glimmer of hope that our regulatory authorities are (at last) starting to take their responsibilities seriously.

Of course, we have no quarrel with people believing whatever they want to, nor do we object to the right of choice, but to be genuine it must be informed choice. As much of the "information" coming from the proponents of quackery is simply populist puffery, disguising a mistrust of scientific evidence, it adds no real information to the choice at all.

However, when these fine democratic principles are used to cloak simple fraud, then we have every right to expect that regulatory agencies will do their duty. While the authorities choose to ignore breaches of the law, using these principles as an excuse, then they are being negligent in their responsibilities and it is simply not good enough.

Australian Skeptics has been, for a very long time, feeling fairly lonely and exposed in its outspoken opposition to these expensive and, in the case of bogus health devices, potentially dangerous, rip-offs. We are delighted that the instrumentalities of government are now catching up and we offer them all the support and assistance we can muster.

Barry Williams

It's a weird world

■ Congratulations in order

We are delighted to report that long-time contributor and stalwart of the Canberra Skeptics, Dr Colin Groves, has been appointed as a professor in the Department of Anthropology and Archaeology at ANU. Colin has long been a leading proponent of the "Out of Africa" hypothesis of human origins and an item by him telling of the latest evidence in support of this position appears in this issue.

Also of note, Michael Jones, the man who supervised the AV at the World Convention and whose article "Wind Beneath His Wings" appeared in 20:3, advises us that he is an AV tech no longer, having just accepted a new position as Education Officer lecturing in Media Arts at the Powerhouse Museum of Applied Arts and Sciences in Sydney.

It has certainly been a strange quarter since last we reported on what a strange world it is.

■ Cats Black in Mountains Blue

What is it about black panthers, that causes them to travel to disparate parts of the world, far from their native habitats, to terrorise residents and incite tabloid media into a frenzy? Perhaps part of the problem lies in the fact that there is no such species as "black panther"; rather it is a term applied in different parts of the world to the uncommon black members of the leopard, puma or jaguar clans.

Be that as it may, in recent years, "black panther" sightings have been reported in Australia from the Gippsland, New England and Blue Mountains districts, with others being seen in England and parts of Europe, none of which is the native turf of any of the big cats covered by the term.

Explanations of these sightings are varied, but the most common ones are either that an animal has escaped from a private menagerie or circus, or that a mascot has been released by visiting American servicemen. In the case of Australia, it is never mentioned how these US military folk managed to

smuggle such an animal through our quite strict quarantine regime, but why spoil a good story? However, even though these explanations are not very likely, they are not inherently implausible, and they might possibly even be true.

Probably the most engaging of such stories was proposed at the recent Australian Museum Eureka Prize presentations. There, NSW Environment Minister, Bob Debus, jokingly accused Museum Director, Mike Archer, of having completed his widely-publicised plans to reanimate the *thylacine* (Tasmanian Tiger) and of releasing the results into his electorate, which covers that area of the Blue Mountains most recently infested by "panther" sightings.

It is as likely as any of the other explanations that have floated about (apart from the one that suggests that the "panthers" are probably large feral moggies).

■ Passing of an eccentric

We were saddened to learn of the death in California, at 74, of Charles K. Johnson, for many years president of the International Flat Earth Society. Johnson and his small coterie of follow-

ers held that the Earth is a disc of infinite diameter with a tiny sun and moon circling it at about 8000 km (sunsets/rises are optical illusions).

Certainly, Johnson's Flat Earth theories were no less absurd than those of creation 'scientists' and breatharians, but, unlike the proponents of these idiotic notions, he posed no threat to the physical or intellectual health of individuals or our society. Rather he was one of those charming eccentrics whose activities added a dash of spice to a sometimes grey world.

■ UFOs: going, going, gone

Another demise of note was that of The British Flying Saucer Bureau, which, after searching for extraterrestrial activity for around 50 years, recently shut-up shop through lack of interest. One rather hopeful comment from a devotee suggested that all the aliens had gone home, having completed their researches on our planet. Now, that's a relief.

■ Or have they?

However, this didn't convince a US group, the Disclosure Project, which organised a press function at the National Press Club in Washington, on May 9. At this fun-fest, some score of former US government, military and security officials came forward to say they had witnessed evidence of aliens and unidentified flying objects and called for congressional hearings. Steven Greer, director of the organisation, claimed that the US and other governments have known about UFOs for at least 50 years and have been keeping the information secret. As all this hardly rated notice in the media, it probably confirms that the conspiracy is real (so runs the logic of conspiratologists).

■ Off in a puff of chalk dust

Perhaps one of the secrets they have been keeping came to light in an announcement, from yet another UFO group, MUFON Skywatch Investigations. In this report, reference is made to a letter from Jo Glapan, identified as "a former French College professor". It seems that Prof Glapan has claimed in a book that UFOs use CaCO_3 (calcium carbonate) in their propulsion systems. He is quoted as saying

This is mostly chalk or calcareous earthy substance of opaque white colours, soft, and easily pulverised. I think they have been robbing our planet for thousands of years. That's why we find enormous caves under the seas in the Bahamas or Australia. I hope my gritting (sic) ideas will show you that our formal science is not quite honest - there are too many holes - or lies.

All this was too much for Californian Dave Palmer, skeptic, amateur magician and no mean wit, who opined on the Skeptic email list (reprinted here by his kind permission):

Are UFOs mining chalk for UFO propulsion?

Of course they are. They used to just take what they wanted, but world leaders recognised that this would quickly lead to a worldwide chalk supply crisis in education. Leading educators (who were called "teachers" or "professors" in that era) were appalled at the thought of not having enough spare chalk to get on their sweater cuffs.

Fortunately, a compromise was reached in 1982 with the Treaty of Dover, where the aliens agreed to share with Earth the long-sought-after "whiteboard technology," and in return, they were granted extensive chalk-mining rights. It is a little-known fact that the construction of "The Chunnel", the tunnel beneath the English Channel, was created largely by alien chalk mining.

The Sanford Corporation, a leading manufacturer of marking pens of all types, has had a strong alien presence

on its board from the start, and was more than happy to make up the chalk shortage with a flood of dry-erase pens.

Quite!

■ The Loons of June are Mainly on the Moon

Of course, in the weird world of conspiracy theories it makes a sort of sense that while alien races from the far-flung corners of the universe are trotting all over our planet, doing what they will, we, the ignorant denizens of said planet, are totally incapable of landing one of us on our own satellite.

The Fox network, that bastion of intellectual rectitude, recently presented us with a programme that asked whether the Apollo Moon landings were in fact a gigantic NASA/Hollywood-perpetrated hoax and seemed to plump for an affirmative answer.

In support they adduced as evidence the quaint notions of various "experts" whose comprehension of science and technology seems to have ceased with the invention of the wheel. Much is made of the fact that the only light source on the Moon is from the Sun (but they forget that the Moon reflects sunlight, otherwise we would never see the Moon). Why can't you see stars in the photos taken by Moon walkers? Think *f*-stops.

For a complete investigation (and rebuttal) of this nonsense, readers are advised to have a look at Phil Platt's excellent *Bad Astronomy* site at: www.badastronomy.com/bad/misc/apollohoax.html

■ Face it, it's a mountain

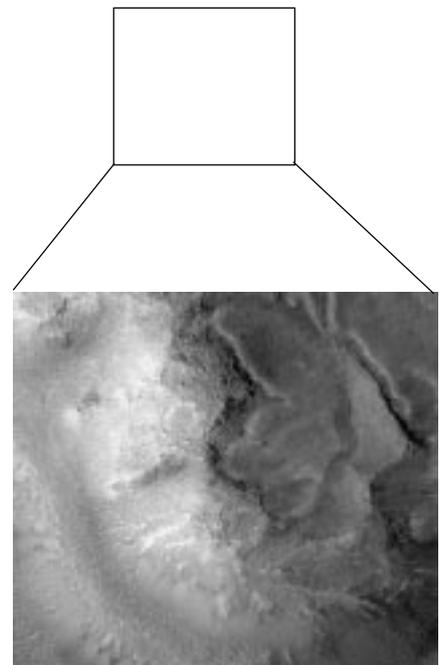
Apropos NASA, it is heartening to see the latest pictures from Mars Global Surveyor of the Cydonia region, the site that has launched a thousand fantasies.

These photographs, taken on May 24, give conclusive proof that Mars has indeed been visited by a highly technological race of beings whose main skills lie in the construction of large and rugged, well, mesas.

Check it at http://science.nasa.gov/headlines/y2001/ast24may_1.htm?friend

■ Or not

Of course we might be wrong about the Mars "face". The most recent picture from NASA shows a fairly rugged mesa, but if one looks carefully at the lower right part of the mountain, focusing on what had been misrepresented by the face advocates as the mouth of its Prince Valiant-like features, one can see a very evocative portrayal of a cat. Perhaps it is another case of "alien" service people leaving behind a mascot...



■ Mystical engineering

Fresh from his triumph in stalling the Olympic cauldron, Uri Geller has again entered the sporting arena with his publicised attempt to close the jammed retractable roof of the Millennium Stadium in Cardiff in time for the FA Cup final on May 12. As was the case with the Sydney event, we have no doubt that Mr Geller jumped at the chance for the publicity while engineers on site did the work.

■ **Fantasies unlimited**

Even more enthralling, from the world of showbiz come reports of two new theme parks being planned for different parts of the world.

From Kentucky, USA, we learn that the US marketing arm of Answers in Genesis is setting up a "Creation Museum", at a cost of some US\$14 million (please send money).

Meanwhile, another of our favourite purveyors of piffle, Eric von Daniken, is planning to build a "Mysteries of the World" park in Switzerland, based on his peculiar notions of history.

Time alone will tell whether ignorance sells.

(Lest readers chide us for being harsh in our criticism of these endeavours, citing such purveyors of harmless fantasies as Disneyland, let us say that as far as we are aware the Disney people do not really expect us to believe that mice speak and elephants fly.)

■ **Evidence**

ABC viewers could hardly have seen a better demonstration of the difference between science and the pseudo version than shown on two contiguous programmes on Sunday, June 3.

Compass ran a story on Nicholas Reeves, an Egyptologist who is proposing a new theory on what happened to Nefertiti. This was followed by a programme in which author Graeme Hancock proposed his views of connections between all ancient civilisations.

Both are controversial theories, but the methods used by each could hardly be more different. Reeves sought evidence that matched all the known facts (science), while Hancock sought only that evidence that matched his prior convictions (pseudoscience).

Heavenly advice

Our thanks must go to subscriber, Roger Cooper, who drew our attention to a report about investment advice in a recent *Sun-Herald*, where several people had been given a notional \$100,000 to invest for a month. Doreen Daze, an astrologer, finished last, having been beaten even by someone throwing darts at a dartboard.

Bunyip

Divine Guidance

The Borderline Skeptics, our new branch based around Albury/Wodonga, (see their details on the Contents page) conducted a test of water dowers at Mitta Mitta in March 2001. Word got around and a world-record crowd of 52 diviners showed up, many jostling to have the first shot at the Skeptics Prize, now standing at \$110,000.

We are still in correspondence with some of the disappointed losers, so a full account will have to wait until the next issue. Meanwhile here are the results and some stories:

- One caller, who said he was "the best gold diviner in Victoria", asked if we could find some cheap camping accommodation because the motel was too expensive.
- One water diviner didn't come because green grass upset his divining.
- One gold diviner complained that his rod was upset by a guy standing nearby 'with gold coins in his pocket', presumably \$1 and \$2 coins (which are only gold coloured).

- Onediviner complained about residual orange juice in the samples (which consisted of clean water or dry sand in cleaned-out 2-litre milk and OJ bottles).

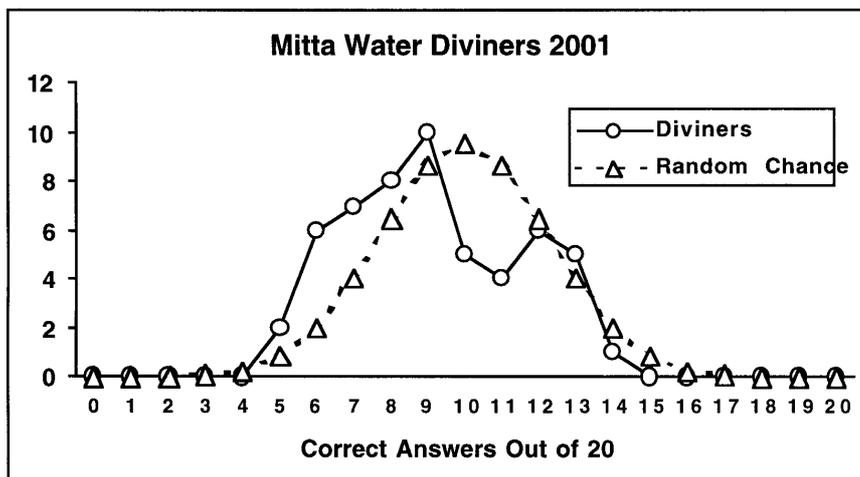
- Several complained about residual water in the sand, despite our tipping it all out and showing it to be dry. OK then, dampness in the sand. The test was conducted on the Mitta Putting Green, the most thoroughly irrigated piece of green grass anywhere between Albury and Omeo.

- Seven of the 52 diviners complained about underground streams, but in 8 different places (one went for two streams). The full article will have a map of the apparent aquifers .

- And the most popular excuse of all, after the results were announced: "If I had not changed my mind before I wrote down the result [on sample X] I would have been right".

Always a useful observation; carve it on my tombstone – no, on second thoughts don't ...

Steve Roberts



Eureka Prizes Reward Science Excellence

Winners of the 11th annual Australian Museum Eureka Science Prizes were announced on May 15 at a “house full” presentation in the Sydney Grammar School auditorium and a highly successful celebratory dinner at the Museum.

The event was hosted by ABC science commentator and humorist, Adam Spencer. More than 400 influential people from Australian science, politics and the corporate world, attended the awards night, which paid tribute the best in Australian science and the promotion of science.

Opening the evening's proceedings, Mr Brian Sherman, President of the Australian Museum Trust, said, “The Eureka Prizes are made possible through unique cooperation between State and Federal Governments, major private sector organisations and institutions. I pay tribute to these groups and to their commitment to the pursuit of scientific excellence in Australia.” Prof Michael Archer, Director of the Australian Museum, spoke enthusiastically, noting, “For over a decade the

Eureka Prizes have been Australia's pre-eminent national science and environment awards; they are now clearly also this country's most comprehensive”.

The Australian Museum Eureka Prizes were launched in 1990, with five prizes, totalling \$30,000, to reward excellence in Australian



Skeptics Eureka winner, Tim van Gelder, flanked by Skeptic editor, Barry Williams and Australian Skeptics president, Richard Gordon

science and raise the profile of science in the community. Australian Skeptics became the sixth sponsor in 1997 and it has now expanded to such an extent that the 2001 event awarded over \$120,000 in prizes in 13 categories to researchers and organisations from across Australia.

Australian Skeptics

Eureka Prize for Critical Thinking

A new technique of teaching people how to think critically, the **Reason!** method, was awarded the 2001 Australian Skeptics Eureka Prize for Critical Thinking, which encourages investigation into beliefs that owe little or nothing to the rigours of scientific method .

The prize was accepted by Dr Tim van Gelder, Department of Philosophy, University of Melbourne. In developing the **Reason!** method, his team investigated whether or not critical thinking might be taught and if so, what was the most effective method of doing so.

Tim looked at current critical thinking courses before proposing and testing an alternative. The study led to the development of the highly effective **Reason!** method and **Reason!Able**

software, designed to develop better critical thinking skills in school students. This software is currently being distributed and further support materials such as lesson plans, guidelines and professional development courses. (See the following story.)

Eureka Prizes

Other winners were:

(Full details of all winners can be obtained from the Australian Museum website www.austmus.gov.au/eureka)

Industry, Science & Resources Michael Daley Eureka Prize for the Promotion of Science

The winner of this was the outstanding science journalist (and Skeptics mate) Leigh Dayton, with her colleagues, Paul

Schneller and Chris Spurr, from the late and lamented ABC TV *Quantum* programme. They won the prize for 'Unearthing Evil', a report on the role of classic archaeology in investigating alleged war crimes in the Balkans.

Industry, Science and Resources Eureka Prize for the Promotion of Science

Dr John Long, Curator of Vertebrate Palaeontology at the Western Australian Museum, was awarded this year's prize for his untiring dedication to the public promotion of science through a wide range of activities.

Macquarie University Eureka Prize for Earth, Environment and Planetary Sciences

Won by a group of five students from Newton Moore Senior High School in Bunbury WA for the development of a web page, *Looking good...from a frog's point of view*, which focused on the health of school wetlands and the effect that this is having on the local frog population.



Promotion of Science Eureka Prize winner, Leigh Dayton, with Skeptics, Richards Lead and Saunders

Reed New Holland Eureka Science Book Prize

The prize was awarded to authors Prof Patricia Vickers-Rich and Dr Thomas H Rich for *Dinosaurs of Darkness* (Indiana University Press). *Dinosaurs of Darkness* opens a door into Australia as it was between 100 million and 120 million years ago, joined to Antarctica and far south of its present location.



Richard Saunders explains his theory of economics (or something) to Senator Stott-Despoja

Allen Strom Eureka Prize for Environmental Education Program

Sponsored by the New South Wales Environment Protection Authority, this prize was won by the Gould League for the *Wildscape* website, a

free on-line learning program, that enables students to plant a 'Wildscape' habitat online.

The Australian Museum Eureka Prize for Industry

A Minerals Council of Australia program encouraging cooperation between educators and industry to provide enhanced education opportunities for students and graduates of

geoscience, mining engineering and metallurgy.

Environment Australia Peter Hunt Eureka Prize for Environmental Journalism

Won by the *Daily Telegraph's* distinguished environmental journalist, Simon Benson, for an outstanding body of work published between February 2000 and January 2001. Sponsored by the Environment Australia, the prize commemorates the outstanding work of the late Dr Peter Hunt of the ABC's Science Unit.

Engineers, Australia Eureka Prize for Engineering Innovation.

The award was accepted by a team of engineers from Boulderstone Hornibrook and Connell Wagner for the modelling, development and implementation of the Patawalonga Seawater Circulation and Stormwater Outlet venturi gravity solution. Sponsored by the Institution of Engineers, Australia.

POL Eureka Prize for Environmental Research

A ground-breaking study of Australia's inland river system won the Prize for Dr Richard Kingsford, Principal Research Scientist, NSW National Parks & Wildlife Service, for his internationally important and innovative research addressing the ecological crisis in rivers of arid Australia. Sponsored by one of the founding sponsors of the Eureka Prizes, POL Publications.



"Two Glass" Paul Willis and Richard Saunders discuss fashion trends

In a break with tradition, this year's Eureka presentations were followed by a dinner which could be attended by runners-up, unsuccessful nominees and other interested people. Previously the dinner had been confined to Prize winners, official guests, judges and representatives of the sponsors. The new format proved to be most popular and around 300 people filled one of the Museum's main display spaces.

The Skeptics were very widely represented, and took the opportunity to get to know the winner of our Prize,

Dr Tim Van Gelder, his wife and parents, as well as ensuring that the contribution of another sponsor, Petaluma Wines, did not go unappreciated.

The ABC TV *Eureka Prize* programme shown on the following Thursday (May 17) gave some idea of the excitement and atmosphere of the evening, but it really was an event that deserved a lot more publicity. As usual, the staff of the Australian Museum performed above and beyond the call of duty in making sure that everything ran smoothly. Director, Mike Archer and Roger Muller, the officer in charge of the Eureka's, are to be applauded for another job that far exceeded all possible expectations. 

Royal Botanic Gardens, Sydney Eureka Prize for Biodiversity Research

Dr John Woinarski, Parks & Wildlife Commission, Northern Territory was awarded the 2001 Prize for Biodiversity Research for his lifetime commitment to the preservation of Northern Australia's biodiversity.

University of New South Wales Eureka Prize for Scientific Research

Dr Brett Neilan from the School of Microbiology and Immunology, UNSW, won this prize for his innovative research designed to enable the rapid and unambiguous identification of toxic cyanobacteria (blue-green algae) in water and sediments

for use in the proactive management of drinking water supplies.

University of Sydney Eureka Schools Prize for Biological Sciences

At 15, the youngest ever recipient of a Eureka Prize, Miss Ling San Lau, a year nine student from Rose Bay High in Lindisfarne, Tasmania, won for the development of a website examining the commercial potential of dyes extracted from Tasmanian eucalypts.

Sponsored by the University of Sydney School of Biological Sciences, with support from Abbey's Bookshop and Microsoft.

Photographs courtesy Richard Saunders



Enjoying the Eureka Dinner.

The *Reason!* Project

Tim van Gelder describes the critical thinking program that won him the 2001 Skeptics Eureka Prize



Dr Tim van Gelder, from the Department of Philosophy at the University of Melbourne is the winner of the 2001 Skeptics Eureka Prize for Critical Thinking.

In a Dilbert cartoon, a character in a restaurant smugly avows that she would never use a credit card on the internet due to the risk of fraud. Meanwhile she is paying the bill by allowing the waiter to disappear for five minutes with her credit card.

The cartoon nicely illustrates how selective we often are with our caution. Skepticism is a kind of intellectual caution, and we are often only selectively skeptical as well. For example, I once knew a postgraduate student in chemistry who had converted to the Church of the Latter Day Saints. She seemed to leave her critical faculties on the lab bench at the end of each day.

Teaching critical thinking

An interesting case of selective skepticism is the teaching of critical thinking at universities. Every year, hundreds of PhDs teach critical thinking to thousands of students around the world. The primary rationale for this activity is that it helps students think more critically.

This is certainly the way the subjects are usually “sold” to students.

But there is little evidence that these subjects actually have the intended effect. In fact, the general drift of the available empirical research is that they don’t. For example, in one study at the University of Melbourne we pre- and post-tested students in a traditional critical thinking course. The students as a group performed no better at the end than they did at the start.

A colleague tells me that at the University of California Berkeley they once pre-, post- and follow-up tested students in an introductory logic subject. After one semester of training in the rules of reasoning, performance had actually gone down. By the time of the follow-up test, the lost ground had been recovered. Their spin on the results: studying logic had done no permanent damage to students’ thinking skills.

We have been doing an exhaustive review of all available studies bearing on the efficacy of instruction in

critical thinking. The studies are a real dog's breakfast. Indeed, the meagre quantity and generally poor quality of research on critical thinking instruction is scandalous.

Still, we can draw some tentative conclusions. Some studies find no gain; some find a slight gain. Overall, it seems clear that the widespread belief that critical thinking instruction improves critical thinking skills is not supported by the available empirical evidence. (That statement may not be the whole truth, but it does have the virtue of being more true than any other claim that short.)

Of course, most teachers of critical thinking do actually believe their courses improve critical thinking. (If they didn't believe this, they'd be frauds. I don't think they are frauds. Just as stuff-ups are generally more likely than conspiracies, in cases like this, self-delusion is more likely than deliberate deception.) They believe this partly because it is the conventional wisdom. They believe it partly also on the basis of their informal observation; they can "see" their students coming to understand the concepts and gradually improving their skills.

As any skeptic knows, however, conventional wisdom and informal observation are unreliable guides to truth. Most teachers of critical thinking are much like physicians prescribing blood-letting based on a combination of orthodox opinion and their selective, biased observations of apparently beneficial effects.

The depressing irony of this situation is that it is teachers of skepticism who are being selectively skeptical. They are failing to apply the principles they teach to their own teaching activities.

Sometimes teachers recognize the problem. Doug Walton is a leading

informal logician based at the University of Winnipeg. After decades of trying to teach introductory logic, he wrote recently that: "I wish I could say that I had a method or technique that has proved successful. But I do not, and from what I can see, espe-



Reason! project team members (L-R) Yanna Rider, Tim van Gelder, Andy Bulka

cially by looking at the abundance of textbooks on critical thinking, I don't think anyone else has solved this problem either."

The **Reason!** project at the University of Melbourne has been confronting the problem head-on. The goal is to develop a way of teaching critical thinking that produces substantial and demonstrable gains in critical thinking. Another constraint is that the method must be both affordable and effective for widespread use.

What is critical thinking?

Critical thinking is a pretty large and vague topic. Within that domain we have been focusing on general skills of informal reasoning and argument. (Informal reasoning is, basically, any reasoning conducted in natural language such as English.) These skills are, if not the whole of critical thinking, at least at the heart of it. Also, they give many people a lot of trouble. In her landmark book *The Skills of Argument*, psychologist Deanna Kuhn reported the results of her intensive interviews with hun-

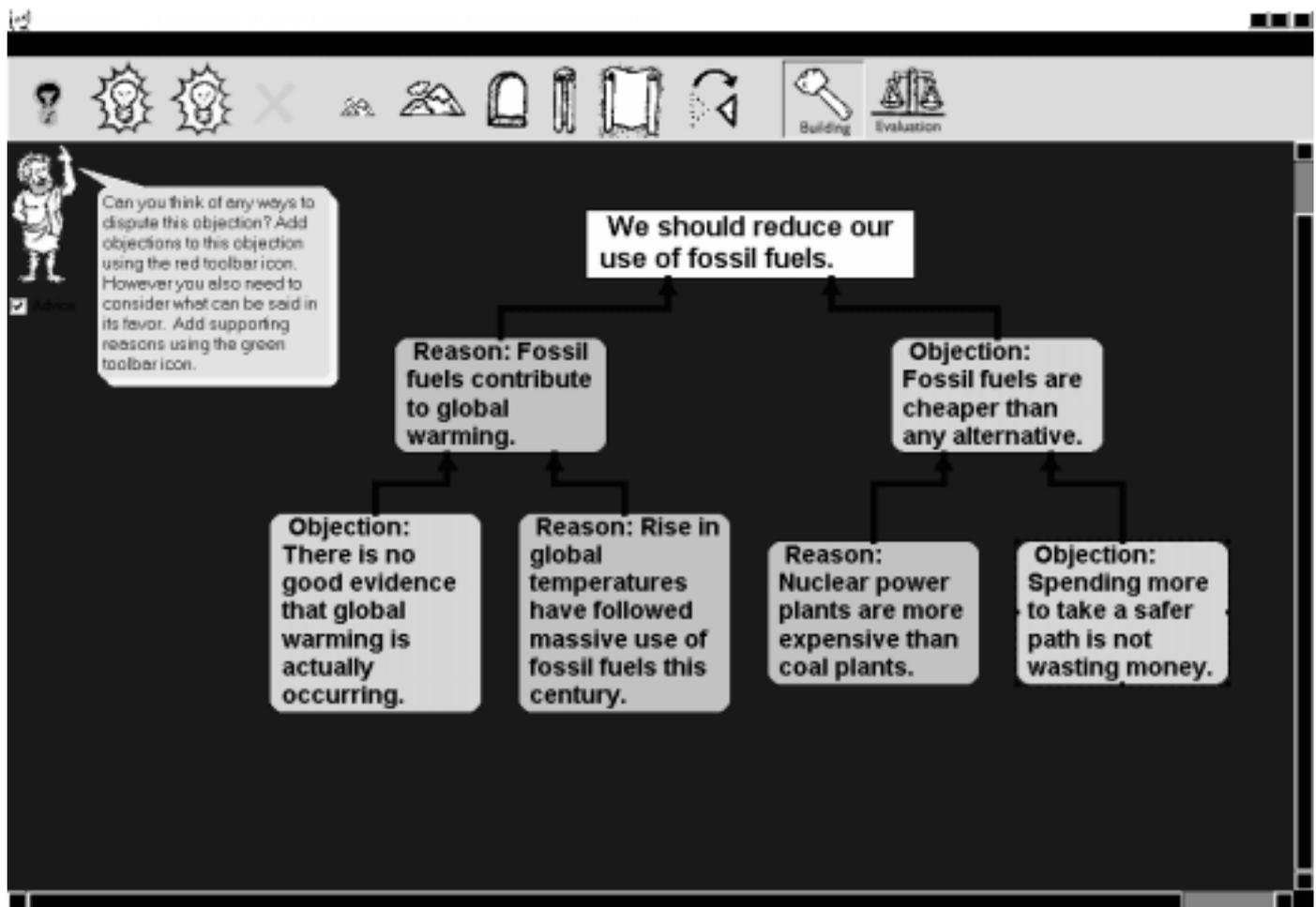
dreds of people from all walks of life. She found that over half of people could not reliably exhibit even the most basic general reasoning capacities. For example, while almost all subjects readily held opinions on questions such as why criminals are often repeat offenders, a majority could not provide any genuine evidence at all for those opinions.

How can we help people improve general reasoning skills? The bottom line from cognitive science is that cognitive skills improve with practice. (No surprise there.) We also know that to be effective, practice should have certain properties. It should be motivated,

scaffolded, guided, graduated in difficulty, and there should be feedback. And to be really effective, there should be lots of it.

Unfortunately, nobody had ever really systematically investigated whether this general result applies to informal reasoning and argument specifically. Some evidence actually points the other way. One thing we know is that lots of practice on formal reasoning problems (mathematics, chess, formal logic) does not help much with general reasoning. The benefits of formal training don't seem to carry across to different contexts and domains. A chess grandmaster might be a very average lawyer.

Pessimists conclude that there is no such thing as general reasoning or critical thinking skills. All you can do is practice and improve your thinking within some particular domain – say, shopkeeping, or quantum mechanics. The pessimists are not surprised that critical thinking courses make so little difference: the courses are trying to teach skills that never really exist.



Reason!Able 1.03 screenshot

If the pessimists are right, we're in serious trouble. The world would be a much better place if only there was more critical thinking. They are saying, in effect, that we should give up on that dream, since general critical thinking skills are a myth.

My hunch is that they're wrong. Some people clearly do have strong general reasoning skills. Tests of critical thinking are designed to test such skills. People perform differently on such tests, depending on their skill levels. The real question is whether such skills can be learned – or whether they only ever emerge the way a butterfly emerges from a caterpillar.

Our conjecture is that general reasoning and argument skills can be learned, and that practice is the key. However it has to be practice of the right sort. It has to have the generic features listed above. But the practice must also focus on the right ac-

tivities. Formal training is not going to do it because of the transfer problem. To improve general informal reasoning, people have to practice general skills in lots of different domains. To get transferable skills, they have to practice transfer.

The quality practice hypothesis

We call this idea the quality practice hypothesis. The QPH guides our whole approach to improving critical thinking. The **Reason!** method, as we call it, is simultaneously an implementation and a test of the hypothesis. If we can design a learning method based on quality practice, and students really do start improving, we can be more confident that the QPH is true.

Unfortunately implementing the QPH is not easy. The central difficulty is that quality practice seems to require an expert coach to provide motivation, guidance, and feedback

on reasoning exercises in a wide variety of domains. Coaches like that don't come cheaply. In reality, the best we can expect is a single teacher - who may not be an expert - for every 20-30 students. That just isn't enough.

Our approach has been to develop software to help the student engage in quality practice, and to help the teacher help the student. We're using software to try to bridge the gap between the amount of coaching needed and the amount that is available. Computers can't provide everything, but they can provide a certain amount of scaffolding, guidance and feedback.

Argument maps

Over the past three years or so, we have developed a package called **Reason!Able** (slogan: Enabling Better Reasoning!). **Reason!Able** is a kind of practice environment for

reasoning on any topic. It provides a framework within which students are guided through the complex processes involved in articulating and then evaluating arguments.

One of the central innovations in **Reason!Able** is that all practice is based around argument maps. An argument map is basically a boxes-and-arrows diagram of reasoning. The claims making up the argument go in boxes, and the arrows indicate the logical structure of the argument.

Argument maps have various advantages over more traditional prose formats, due primarily to the fact that they can call upon a wider range of resources in order to help the user understand the reasoning. While prose is basically limited to monochrome text in linear order, argument maps can use shape, line, colour and position to convey information. The visual display spares the user much of the cognitive burden involved in interpreting the text to figure out what the reasoning is.

In **Reason!Able**, argument maps are not just static visual representations. Users themselves construct the argument maps by adding claims, reasons, and objections, and moving them around as necessary in order to clarify the reasoning. Arguments thus become concrete, manipulable structures rather than abstract objects which must be held in the mind.

The Reason! method

In the **Reason!** method, students use the **Reason!Able** software to do intensive practice over a long period on a wide range of problems. The problems gradually increase in difficulty as the students build both their skills and their grasp of the relevant concepts.

Does the **Reason!** method work? Every time we teach critical thinking at the University of Melbourne, we evaluate the students' improvement using pre- and post-testing. The results are now indicating strong gains in general critical thinking skills.

In the most recent study, we pre- and post-tested the students with

two different tests. One was the widely-used California Critical Thinking Skills Test, which is probably the best objective (multi-choice) test of critical thinking available. The other was a home-grown written test, in which students were asked to critically evaluate the reasoning in a short text. All student answers were graded "blindly" by two experts who were quite independent of our team.

The results on both tests were about the same, with the students as a group showing almost a standard deviation improvement. This is about four times the gain found in typical critical thinking subjects, and almost twice the expected gain across three years of undergraduate education, as found in other studies. If this was IQ, we'd be talking about an average 15 point gain across the group.

These gains are, to our knowledge, much the strongest ever recorded for a comparable period or activity. Or, put another way, we think we've set a world record. Moreover we suspect this is just the beginning. The results are steadily improving as we learn from experience and refine the **Reason!** method, the software, and the associated learning materials. We're expecting even stronger gains in this year's study.

Encouraging results

The results to date certainly suggest that the QPH is correct, but it is too early to draw any firm conclusions. We still don't really know whether the gains are due to all the quality practice, or using the diagrams in the **Reason!Able** software, or something else entirely. We are conducting research intended to answer questions like these. For example, in the current study we are recording all student activity with the software, and looking at the correlations, if any, between quantity of practice and degree of improvement. A stronger correlation would be better evidence (though it would not conclusively prove) that improvement really is caused by quality practice.

Meanwhile, the challenge is to take the **Reason!** method out of its original environment and make it

available in a way that is useful and affordable to teachers in schools and universities. As a first step we have released the **Reason!Able** software, which has been picked up by dozens of educational institutions ranging from primary schools to the Australian Defence College. Although it is early days yet, many schools are introducing the software across the curriculum and across many year levels. The very broad relevance of the software is due to the fact that it helps with general reasoning and argument skills, and these are basically the same in most domains and at most levels.

We are following up with materials intended to help teachers introduce **Reason!**-type techniques into their classrooms, including tutorials, exercises, and lesson plans. This is a slow process, requiring lots of help from teachers themselves, as well as field-testing and refinement. Eventually we will also need to design and implement studies of the **Reason!** approach in the schools, to find out if it is really having the desired effect.

The **Reason!** project began as an idea to develop a piece of software to assist a more-or-less traditional university-level course in critical thinking. It has grown into a major effort to change the way reasoning skills are taught throughout the educational system, and even transform the way we represent and communicate arguments. It will be finished on the day when undergraduates arrive at the University of Melbourne and don't need training in critical thinking because they are already masters of the art.

Somehow, I think that's going to take quite a while.

Further information:

The Reason! Project: <http://www.philosophy.unimelb.edu.au/reason/>
Reason!Able: <http://www.goreason.com>

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Laying a Ghost

Investigator Bob Nixon applies a Skeptical perspective to a haunting experience.



Bob Nixon is the Chief National Investigator for the Skeptic. In real life he is a business analyst, which is much more scary than ghost hunting.

A dark night. Moonless. The fact that garish fluorescent lights do not illuminate the unpaved road that runs past the house is one of the attractions of living in a rural setting. It is 20 minutes after midnight. Darren¹ is smoking a cigarette on the balcony outside the bedroom on the first floor. Tanya is in bed, but the couple are chatting quietly through the open door.

It is a still March night, crisp but not cold. Darren is wearing only shorts as he enjoys the night and answers Tanya quietly so as to not disturb the two children sleeping downstairs. He smells something odd, like gas but not exactly the same. He mentions it to Tanya and at almost the same moment the lights go out. It is the beginning. What follows in the next few minutes will drive the family from the house.

The house is powered exclusively by solar cells, with a large bank of batteries to maintain power during the night, even so the family must be careful with the use of the power and darkness is not unusual for them. Darren puts out his smoke and is about to go downstairs to check the power when Tanya calls him over to the bed. She is watching a light and she wants him to see it.

To the right of the bed is a wall made entirely of panelled glass. A curtain that can cover the glass is

pulled aside tonight and Tanya sees a white light in just a single pane of the glass wall. As she watches the light grows in size and becomes a dancing female form; she will describe it later as something like a ballerina. The figure is dancing by the time Darren reaches the bed. He cannot see it, and places his face against hers in an effort to see what she can see, without success. He tells Tanya that he will go to check on the power, but she is engrossed by the dancer and does not respond. He tells her again, then shakes her and tells her a third time. The dancer disappears in a flurry of lights and Darren leaves the room, descends the stairs and quietly finds the control panel for the power. He finds two warning lights are displayed, both the under-voltage and the over-voltage lights are glowing, something he has not seen before. Before he can investigate further he hears Tanya calling from upstairs, asking where he is. He tells her he is still checking the power and she calls him to come upstairs. There is, she says, a man outside the bedroom.

In the very few seconds it takes Darren to reach the bedroom Tanya watches a figure, just the head and shoulders really, of what she perceives to be a male, move from the top of the stairs. As it passes a doorway beside the bedroom door a bolt of

lightning shoots up the doorframe. The figure passes through the bedroom door, crosses a wall and melts into a mirror that hangs on the wall directly opposite the bed. The room is black, the figure is black, yet she can tell the difference and when she sees the figure merge with the mirror she pulls the blankets over her head and she sees nothing more.

Darren reaches the top of the stairs and asks Tanya to tell him what he's supposed to be looking for. She describes the head and shoulders that she saw and Darren begins searching. He is at the top of the stairwell. Opposite him is a window and he peers at it for what seems like a long time but was probably only seconds. There, in the window and apparently looking directly at him, is the same figure that Tanya had described.

Darren is a powerfully built man. His head is shaved and he displays an array of tattoos. He is clearly not easily intimidated, but this figure frightens him. It is not something he can easily explain. He determines that the best course of action is to get his family clear of whatever danger this figure might represent. He half turns and calls to Tanya, telling her to get out of bed and get dressed. Tanya refuses point blank to move from under the covers. Darren turns back to the window. The figure has disappeared, making him even more determined to get his family out of the house. He turns toward the bedroom door and takes the first step when, from the wall opposite the bed a figure, again black against the black night, emerges from the wall, the upper body. Head and both arms reach out of the wall, blocking his entry to the room and seemingly reaching for Tanya. Darren stops. He shouts at the figure, ordering it to go away, swearing at it, threatening. It recedes into the wall and Darren passes through the door and into the bedroom, watching the wall with every step. He reaches the bed and physically drags Tanya from under the covers. They both dress and leave

the room. Downstairs the children are wakened and bundled into their clothes before being taken to the car. Tanya now smells what she describes as a dead animal and, as she makes for the car she looks back at the house. One end of the house - the end away from the bedroom - is entirely black and shapeless in the night. The family leaves and drives to the safety of another house shared by two older children. By the time they get there it is after 1am. Darren begins looking for help to explain the experience and two hours later he calls the Australian Skeptics.



The part of the house that Tanya saw in total darkness

I spoke with Darren at some length over the telephone. He was clearly shaken and it seemed apparent from the outset that he was not making this story up. He gave me only a brief outline of the story. He and Tanya had already decided that they would ask a local Anglican priest to come to the house and try to work out just what it was that had happened to them. Darren was due in Frankston on business the following week and he was anxious that Tanya should be reassured before he left. After the priest had visited I had a chance to speak with Tanya about both the visit and the experiences of the night they left the house. Again it was clear that something had frightened them. We arranged that a team would visit the house to examine the event in detail.

Ray Crossley is the President of the Dowsing Society of Victoria. Ray and I worked together previously on the test of the "Golden Rods", invented by John Stamos. Ray, apart

from being a good friend, is a level headed and caring person and I felt he would be a useful member of the team. I also asked for volunteers from the Australian Ghost Hunting Society. Rowena Gilbert joined us. I had not met Rowena previously, having contacted with her by e-mail and telephone only and I confess I wasn't sure what to expect. I found her to be a very pleasant woman who, although she believes in ghosts, took the view that each individual case must be viewed with scepticism. Rowena, Ray and I listened to the story as Darren and Tanya told it.

The couple were very open in their responses to our questions and my impression was that Darren wanted there to be a rational explanation to the experience. Tanya was less sure that there could be any possible explanation other than the one she feared the most - a ghost had visited them. The interview over, Darren and Tanya left us in the house to conduct the investigation. The couple had spent only a single night in the house since the incident - the next night, after the priest had visited. More of the priest later.

There were a great many aspects to the story, each of them requiring examination.

The smell Darren detected immediately before the lights went out.

The possible sources of an unusual smell were too numerous to count. An emu farm exists right next door to the house; the bush around the house is relatively untouched. During the night we saw and heard many animals making their living in the darkness. Darren described the smell as like gas (we presume he means like "mains gas"), and Ray discovered an interesting possibility that might lead us to the answer of another question, why the lights went out. The solar cells that sit in the yard are connected to a bank of heavy-duty automobile batteries that are placed under cover beside the house but reasonably close to the

Laying a Ghost

bedroom. If there was a problem with the battery bank it may be that they began to bubble and emit gas. Gas or spray from lead acid batteries could be described as gas-like.



*The wall as seen from the bed.
Note the mirror.*

The dancer

Tanya was not happy with our explanation of what is probably the basis of the whole experience, because she believed that throughout the experience she was wide-awake. Our belief is that she was asleep. There is evidence for this in a couple of the otherwise minor aspects of the story. Darren could not see the dancing female form, even though he placed his head close to Tanya's in an effort to do so. Even more significant, in our view, is the fact that when Darren told Tanya that he was going downstairs he had to do it three times, the last time after shaking her to get her attention. It seems likely that Tanya was having a dream, perhaps a waking dream, but a dream nonetheless. By shaking her gently Darren woke Tanya briefly, though how wide awake she became is a matter of some doubt. Our feeling was that Tanya woke only enough to register that Darren was going somewhere. It was enough, however for Tanya to lose sight of the dancer.

It was also possible to identify the

source of the original light that may have been the trigger to the appearance of the dancer. Over the staircase is a single light bulb, covered by a simple conical shade. Any light in the stairwell, no matter how weak, is reflected by this shade. From the position in which Tanya's head was on the pillow this light is visible directly through the pane of glass in which the dancer appeared. It seems likely that a light, or the memory of one, reflecting on the conical shade, was the source of the dream.

The male figure seen by Tanya

When Tanya called to Darren she asked where he was, despite the fact that he had told her where he was going and he had been gone for no more than a minute or two. She had, we believe, fallen asleep once again and the male figure was a result of another dream, perhaps even a continuation of the previous dream that was beginning, in Tanya's mind, to take on supernatural overtones.

The lightning bolt

Since this occurred while she believed herself to be watching the male figure move across her view, it is simply a continuation of the dream. The figure disappeared from view by merging with the mirror. At this point in the story, Darren was hurrying from downstairs, almost certainly loudly enough to wake Tanya again. She pulled up the covers and hid.

The male figure seen by Darren

The figure was described for him. He knew what he was looking for, but not entirely where to look. It is interesting that Darren began his search at the top of the stairs, the same position where Tanya had first seen the figure. Although neither of them could accurately recall the content of their conversation it seems likely that Tanya described not only what she had seen but also *where* she had seen it, and this was why Darren began looking there. Tanya's description was not sufficient to prevent Darren finding the figure in an entirely new place – in the window it-

self. The window is not actually visible from the bed and Tanya was very clear that the figure appeared at the top of the stairs, very much inside the house.

What Darren saw, we believe, was a simple pattern in the window, perhaps caused by the tree outside. It was very dark now, but even starlight will provide sufficient illumination to enable the pattern recognition abilities of us humans to work. It is significant that when Darren turned away from the window briefly, then turned back, the figure was gone. It seems likely that he simply "lost" the pattern he had previously established.



*The view of the wall as seen by Darren
from the top of the stairs.*

The lunging figure

This was by far the most problematic of the events of the night, and one that genuinely frightened Darren. By now he had decided that he was going to get his family out of the house, that there was some danger present. Adrenalin was pumping through his body, his senses were heightened and his brain was looking for any threat. A pattern now appeared in front of him and his mind turned it into a threat, something to be dealt with. It was sufficiently real for him to shout at it and it went away as he moved forward, losing the perspective he had previously.

Given what he had seen, and what he believed was only centimetres to his right as he passed through the door into the bedroom, I can only admire Darren's courage.

The smell detected by Tanya

Smell and taste are our least acute senses. We get our picture of the world around us largely through our eyes, ears and skin. By the time Tanya smelled whatever it was she smelled things had calmed down a great deal from the trauma of a few minutes earlier. Both she and Darren had been occupied with dressing the children and preparing to leave. With the atmosphere less frenetic, Tanya's sense of smell had an opportunity to register. It may even be that Darren told her about the smell he had encountered and she actively sniffed the air. As previously mentioned in this bush setting there is any number of possible sources for the smell. It is significant, we felt, that she smelled something different from the odour that Darren reported.

The darkened house

Tanya felt this was an important point when she told her part of the story, but we could see no real reason to be surprised by it. There was no source of light anywhere until the car headlights were turned on. The entire house had been dark for many minutes by now and Tanya's night vision would have been approaching its optimum performance. Where the headlights were turned on they shone on the part of the house to the right of where she was standing. It was the left hand side of the house that she reported as being in total darkness.

That strange things happen is a fact of life. Darren's decision to call the Australian Skeptics indicated from the outset that he wanted an answer other than "It's a ghost". It would be fair to say that Darren took

our explanation well, if for no other reason that it fitted with his view of the world. He accepted it even though it brought into question his own judgement, but one must recall that he was under a great deal of pressure. Tanya had told him that there was a man upstairs and he rushed to protect his family. He had no reason to disbelieve her, and he found what she had warned him was there. His desire was always to protect his family and he was single



The window pane where the dancing female appeared. Although not visible in this picture, there is a light directly behind it.

minded in this. Tanya was less ready to accept that it had all been an illusion, started by her own dream. This is to be expected because, while it is not true, the feeling is that she had somehow been foolish. Tanya experienced what many people have experienced all over the world, a dream so real that it felt as if it was really happening.

The priest

In an effort to bring some comfort to Tanya, Darren travelled to Ballarat, the nearest major town, and asked an Anglican priest for help – neither Darren or Tanya are religious and Darren simply chose the first church he came to. The priest visited their home that same evening. While it is not my intention to bash the clergy in this article it has to be said that this man did not offer the sort of comfort and reassurance I would have expected from a man of his profession. He asked Tanya if she practiced witchcraft, for

example. He announced unreservedly that a spirit had visited them – probably an evil one - that wanted to contact Tanya and was threatened by Darren. He warned that it might return. Neither Darren nor Tanya felt the priest had given them any cause for optimism.

I had my own lesson in just what tricks can be played by the mind the very night after the investigation. We had stayed awake until 4am, at which time the moon set and we had the opportunity to see the location in much the same lighting conditions that prevailed on the night of the events described above. After a couple of hours sleep we were woken by Darren and Tanya. After going through our findings with them we set off on our various ways. Rowena and Ray headed home, while I made my way towards Mitta Mitta, where we were to hold a divining competition. I got as far as Wodonga

before fatigue got the better of me and I took refuge in a motel. I was sufficiently tired that, after going over my notes of the investigation I lay back on the bed and began watching a film on the TV. I was aware that I would very likely nod off at some point, and was in that twilight zone that exists between trying to maintain focus on what was turning out to be a good movie and not caring in the least if sleep came.

My dog's tail crossed from the left to right at the foot of the bed, wagging in its usual happy way. I called him to jump up on the bed for a pat. Then I recalled that he was 300 kilometres away. Despite this I had very definitely seen his tail and the image is clear even now, months later.

Oh, and yes, I did ring home to make sure the dog was okay. He was.

¹ For reasons of privacy I have not used the real names of the people involved, nor have I named the tiny country town in which they live. 🗺️

With a wing, *not* a Prayer

New fossil finds in China put paid to yet another of the creationists' favourite debating tricks.
Paul Willis reports.



Dr Paul Willis is a palaeontologist who works as a science journalist with the ABC, and a part-time fashion plate.

There's always a childish satisfaction in the retort "I told you so" which is greatly enhanced when backed up by new, predicted evidence. Now evolutionary biologists can proudly squeal "I told you so" as a new set of fossils have come to light that exactly fit the prediction: *birds evolved from dinosaurs*.

Not only does this new data flatly contradict creationist twaddle about there being no intermediate fossils, it also seals a debate within science in the most convincing way one could hope for. We now have dinosaurs with skeletons like birds, furry filaments that could be precursors to feathers, bunches of filaments that are early down feathers, fully formed feathers on dinosaurs' skeletons and even that most elusive but logical intermediate: a dinosaur with half a wing. In fact, there is now so much evidence for the link between birds and dinosaurs, and most of it has only come to light in the last decade, it's a little confusing and the job of this essay is to tease out that data and put it into perspective.

The story so far

When Darwin published *On The Origin Of Species* in 1859, he readily admitted that there was a lack of

fossils of organisms intermediate between the various groups of animals, fossils that ought to be there if life had evolved through time. While uneasy about this fact, he was satisfied that, with on-going research in palaeontology, eventually intermediate fossils would be found.

This placed an imperative on palaeontologists to find the missing intermediates and, only two years later, the discovery of *Archaeopteryx* in southern Germany was heralded as one of the most significant intermediates that could possibly be found - a link between birds and reptiles. Clearly *Archaeopteryx* had a reptilian skeleton with teeth and a long bony tail as well as a number of other features not seen in birds. But, owing to a freak of fossilisation, *Archaeopteryx* also preserved a full set of feathers arranged in the same pattern as a modern birds' wing. Usually something as soft as a feather would not be fossilised, so here was a reptile with feathers - exactly what you would expect as some kind of midpoint between the two groups. Thomas Huxley went one step further and pointed out that the most likely group of reptiles from which birds evolved was the meat-eating theropod dinosaurs.

After such a promising start, a spanner was thrown in the works in 1926 when Gerhard Heilmann published *The Origin Of Birds* in English (it was originally published in Danish in 1916). Heilmann maintained that dinosaurs do not have clavicles, the collar bones thought to have fuse together to become the furcula or wishbone of birds. For Heilmann, this eliminated dinosaurs as contenders for bird ancestry and suggested an earlier group of reptiles, the thecodonts, may have been the birdie grandparents.

Surprisingly, this became the orthodox view for most of the 20th Century. Surprising because, if you actually have a look at well preserved theropod dinosaurs, they do have clavicles, just not particularly big ones. For many theropod specimens that clearly show their clavicles (fused together into a single bone), this element was misidentified as one of the breast bones or gastralia.

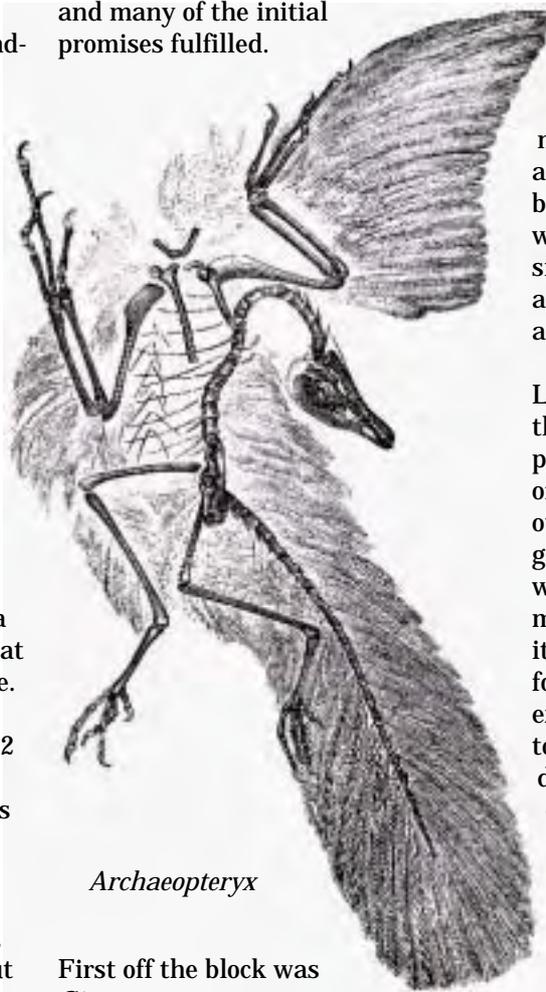
In the late 1960s John Ostrom found and described *Deinonychus*, a smallish (2 metre long) theropod that he recognised as an active carnivore. During his description of *Deinonychus*, Ostrom noted some 22 features of the skeleton that were shared between advanced theropods and birds and **no other animals**. Since then over 100 other skeletal features have been identified that unite the two groups. This is taken, within palaeontology, as being about as definitive as the evidence can be, as proof that birds and theropods share a unique relationship. Although there is a small group of palaeontologists who question the evidence, it is now generally accepted that the bird-dinosaur link is sealed.

Chinosaurus

The mid 1990s was a time of great excitement in palaeontology. News spread of a site in China that was producing the crown jewels of fossils: animals preserved as complete skeletons with integument and soft parts intact. Rumours spread of feathered dinosaurs, small dinosaurs with the remains of even smaller mammals

preserved in their guts and even one specimen with unlaidd eggs still present in its oviducts. Liaoning soon became fabled as the Holy Grail of palaeontology, a site that might answer some of the questions raised by Darwin, 150 years earlier.

Over the last six years some of these specimens have been described and many of the initial promises fulfilled.



Archaeopteryx

First off the block was *Sinosauropteryx* (Chinese-Lizard-Feather). At around 1 metre long, this small theropod was covered in hair-like filaments instead of scales. Skeletally, *Sinosauropteryx* was not the closest dinosaur to a bird, but it was in the right ballpark of the family tree (to mix three metaphors), which was probably more exciting news than if it were closer to the bird-dinosaur link. This suggested that a broader part of the theropod group was experimenting with some kind of body covering other than scales. For most palaeontologists, the filaments were precursors to feathers although others remained skeptical.

The announcement in 1999 of a second theropod covered in filaments seemed to strengthen this position. *Sinornithosaurus* (Chinese-Bird-Lizard) was much more bird like in its skeleton and belongs to a group known as the dromaeosaurs. This group, which includes *Deinonychus* and *Velociraptor*, has a suite of features, such as an outward-facing shoulder joint and forelimbs almost as long as the hindlimbs, that make them about as much a bird as a dinosaur can be without actually being a bird. But *Sinornithosaurus* was frustratingly tantalising. Only a single specimen has been recovered and it lacks most of the vertebrae and rib-cage.

Despite these early signs that Liaoning was going to produce something bigger than *Ben Hur*, nothing prepared the world for the discovery of *Caudipteryx* in 1998. God is obviously a palaeontologist because He gave us the answer to all our prayers when He faithfully preserved this 1 metre long dinosaur, complete with its feathers and half wings, in the fossil deposits of Liaoning. This is exactly what evolution dictated ought to be somewhere in the family tree of dinosaurs and birds, but we didn't dare hope that this frail creature would ever have been fossilised in such exquisite detail. We can plainly see its long arms covered in feathers arranged into tiny wings that could not have ever let the animal fly. It's been a fair-enough request that, if birds with fully functional wings evolved from dinosaurs with no wings, then somewhere along the way there must have been a bird-like dinosaur with half a wing. Well, against all hope of ever seeing such a beast, here it is.

For me, the triumph of *Caudipteryx* is twofold. Firstly it fulfilled the prediction that some creature must have had half a wing, something that was not used for flight, that formed the basis for the fully functional bird wing. Secondly, this half wing is attached to the right kind of dinosaur, the kind of very advanced theropod that evolutionary

theory predicted ought to possess it. If ever there was to have been a prediction (make that two predictions) of evolution based on the fossil record, *Caudipteryx* is it. And here's the nub with respect to evolution versus creationism: evolution predicted that, if we were lucky, such a creature would be found. Creationism is completely silent. It could never have predicted the existence of *Caudipteryx* and must surely stand gobsmacked at its discovery.

Another dinosaur has been found at Liaoning that answers a key question about the evolution of birds from dinosaurs. In December 2000 another new dinosaur, *Microraptor*, was described from the locality. It's another small, bird-like dromaeosaur. What's significant is that its claws indicate it was a tree-dweller. One problem with the theropod-to-bird theory is that flight is more likely to have evolved in tree-dwelling animals and theropods are ground-dwellers. *Microraptor* shows that at least some small dinosaurs, and importantly, those close to the ancestry of birds, lived in trees.

I know that I'm being boastful here, but hey, it doesn't hurt to gloat once every 130 million years or so. So let's make it a pig's breakfast of it and really rub it in.

On the Origin of Feathers

The skeptical creationist (a painful oxymoron) might say, "OK, you have a dinosaur with feathers and a dinosaur with fur, but you don't have a dinosaur with half a feather." Well, as of April 26, 2001, we do.

Those wonderful sediments of Liaoning have preserved the complete skeleton of a small dromaeosaur which has the furry filaments of *Sinosauropteryx* and *Sinornithosaurus*, as well as tufts of filaments forming down feathers and filaments arranged in a herringbone pattern - the expected precursor to bird feathers. The animal is a juvenile and it may be a young *Sinornithosaurus* or some other

dromaeosaur. Until it is identified, it goes by its catalogue number NGMC-91. Amazingly, these findings were predicted six weeks earlier when an analysis of *Sinornithosaurus* showed



Sinornithosaurus

that it too had filaments collected together into tufts between 30 and 45 millimetres long and one to three millimetres wide. Each tuft resembles down feathers and is made up of several long filaments, joined at the base. But the preservation of the earlier specimen was not as impres-

sive as that associated with NGMC-91. The results are conclusive: we have the half-feathers that evolution predicted ought to exist.

So what were feathers evolved for if not initially used for flight? The furry filaments of *Sinosauropteryx* are almost certainly an adaptation toward retaining body heat, an observation that re-ignites the debate on the temperature of dinosaur blood. The tufts of *Sinornithosaurus* and NGMC-91 are almost certainly an improvement on this original function and down feathers continue to be used by birds as an effective method of retaining body heat. Having the filaments and tufts as structural precursors, the elongated herringbone filaments and the long feathers of *Caudipteryx* were probably used for display. In *Caudipteryx* the long feathers trail back from the arms and fringe the long, bony tail giving it an appearance similar to a turkey rejected from Mardi Gras.

Dating game

There is one creationist non-argument that could be raised against the fossils of Liaoning and the ancestry of birds. Although the dating of Liaoning has been a matter of some debate, the deposits there is general agreement that they are 124.6 million years old from the Lower Cretaceous. In these deposits, apart from the dinosaurs already mentioned, there are also several early birds. The hoary old creationist argument that could be pressed into service here is "if they are all the same age, how can they be a related series of evolutionary links?"

I call this the "My mother must have died the day I was born" argument. It implies that each species has to be totally replaced by its descendants. This is, of course, not true. A species can split in two, one remaining similar to the parents, the other being different. It is no surprise that animals *representing* ancestral

forms survive alongside other species that represent their descendants.

What the diversity of animals associated with the theropod-to-bird transition present at Liaoning does show is that this was an active and vigorous branch of the family tree. There was obviously a good living to be made in the area, at that time, by being a small bird-like dinosaur. In the same way that a coral reef can support a diversity of small fish species that are all slightly different from each other in size, shape and colour, Liaoning supported a diversity of feeble flappers and their flying cousins.

Liaoning does not present a linear chain of descent from theropod to bird (I bet that is the one sentence that the creationists will quote from this essay). It presents a slice through the thicket of life soon after the evolution of birds from dinosaurs had occurred. We're not seeing the game in play here, we're looking into the locker room after the match when all the key players are still present, crowing about their recent success.

Fly in the ointment?

If there is one fossil from Liaoning that every creationist will know about, it's *Archaeoraptor* and they will know about it for all the wrong reasons.

As I said earlier, at Liaoning we're seeing the crown jewels of palaeontology, and some people will pay a king's ransom for a piece of the action. The black market in fossils from Liaoning has encouraged fraud and fakery. One such example concerns a small fossil of an apparent bird-like dinosaur.

This specimen was being offered for sale in the US and was snapped up by a small museum who presumably thought they were getting a bargain. As I understand it (although details are sketchy in parts) *National Geographic* became involved when they part-funded the purchase in return for exclusive rights to the public announcement of the find. In all the excitement, *National Geographic* rushed into print with pic-

tures and the name "*Archaeoraptor*" before the specimen had been scrutinised by palaeontologists in peer reviewed literature.

Unfortunately, they had been conned. Black market fossils from Liaoning are mostly collected by peasant farmers who make more money from fossils than from growing crops. They know that a complete specimen is worth more than a fragmentary one and have become adept at joining bits together to make complete specimens. In the case of *Archaeoraptor* they created a mosaic of at least two and possibly as many as five specimens. Predominantly the front end of the *chimera* was a bird fossil while the hind limbs and tail were from a small dromaeosaur. The fact that they selected two such key types of animals to glue together suggests that either they were very lucky or they knew more about the emerging pattern on bird evolution than most other peasant farmers (and certainly more than the average creation 'scientist'.)

If I know our creationist friends and their abilities with the facts as well as I think I do, one accusation they may try to make against the Liaoning fossils is that they are fakes, and they will base this argument on *Archaeoraptor*. However, they need to take on board a few salient facts.

- The original fraud was perpetrated, not by palaeontologists, but by professional collectors outside of science.
- *Archaeoraptor* was named outside of the established system for naming organisms that includes rigorous peer review. If the specimen had been exposed to peer review, it would have been identified as a fake prior to publication.
- It was recognised as wonky by palaeontologists who pointed out that it was inconsistent with the emerging picture of bird evolution. It was not a creationist who exposed the fraud - it was evolutionary theory that did the job.
- Subsequent detailed analysis of the specimen was conducted by palaeon-

tologists who published their findings in *Nature* (V 410, Pp 539-540). This was not a cover up.

- *Archaeoraptor* is one fake among dozens of genuine fossils that demonstrate the dinosaur-bird connection.

In short, the whole *Archaeoraptor* saga is a sad story of deception that needs to be remembered only for the way it was exposed; another test passed by evolutionary theory. The *chimera* is currently being pulled apart and studied and the name *Archaeoraptor* may yet be applied to the dromaeosaur part of the fossil.

No end in sight

So far, the creationists have been relatively silent on the chinosaur that gave us birds. I've tried provoking some kind of response on various chat lists including *No Answers In Genesis* and an "Intelligent Design" board that I regularly participate in. As yet, no response.

Answers In Genesis has just two web pages that mention *Caudipteryx*, claiming it's a flightless bird and ignoring the long bony tail, teeth and numerous other dinosaur characters that show it is not a bird as we know them. Predictably, they have 22 pages that mention *Archaeoraptor*.

I don't think for a moment that this clear demonstration of evolution in action will change a single creationist's mind. They are not interested in data, they are pliable enough in their logic to accommodate anything and they are duplicitous enough to simply lie and deny anything that stands between them and their dogma.

But I do take wry warmth from the knowledge that *Sinosauropteryx*, *Sinornithosaurus*, *Caudipteryx* and their mates are all on the table. It must leave at least some creationists wondering to themselves why God keeps giving all the good evidence to the opposition.



Did we come Out of Africa?

Recent research findings bring clarity to the debate on human origins. Colin Groves, a leading proponent of the Replacement hypothesis, explains why.



Colin Groves is a professor at the Dept of Anthropology and Archaeology at ANU and a long-time Skeptic.

Two years ago saw the publication of new dates for the arrival of the first humans in Australia. The Lake Mungo 3 skeleton, which was excavated in 1974, was dated by the Electron Spin Resonance and Uranium Series to $63,000 \pm 6000$ years, and the sediment into which it was buried was dated by the Optically Stimulated Luminescence method to $62,000 \pm 2000$ years. It may seem curious at first that the burial seemed to be older than the sediment, but the error range is very wide, and “around 60,000 years old” is the best way of viewing the age. There have been objections to the age, by both geomorphologists and dating experts, but, for a number of reasons, everybody agrees that it has to be at least 45,000 years old, and there are two archaeological sites in Arnhem Land that seem to go back to over 50,000. Whatever – people have been here for a very long time.

Enter homo, evolving

Modern humans (*Homo sapiens*) first appeared in Africa: at Kibish, on the Omo River in Ethiopia (dated at 130,000 years), and at Klasies River

Mouth, on the southern coast of South Africa (120,000 to 80,000 years). Apparently contemporary with the Omo 1 skull is a much more archaic one, Omo 2; and in the Klasies series (which consists mainly of lower jaws) there are some more primitive-looking jaws. Earlier than this, there are some nearly-but-not-quite-modern skulls from Tanzania, Kenya, Morocco and South Africa, which are from 280,000 to 130,000 years old. Before that again, there are the ancient species *Homo heidelbergensis* in Africa and Europe, and *Homo erectus* in China and Java. It is a bit more complicated than this, but this is the basic outline.

Two competing models

There are two competing models of how modern humans arose: the Multiregional (or Regional Continuity) and Replacement (or Out-of-Africa) models:

The Multiregional model sees the pre-moderns in Africa, Europe, East Asia and Southeast Asia as being, more or less, ancestral to the modern people of those same regions (and the

Southeast Asian ones to the Aboriginal Australians and Melanesians). The Chinese ones differ from the rest in ways similar to those in which modern Chinese, and other “Mongoloid” peoples, differ from other moderns; the Java ones differ in a fashion similar to that in which modern “Australoid” peoples differ from other moderns... and so on. These evolutionary lineages were not independent, but connected by gene-flow all around the old world, so that modernizing trends that arose in one place would be transmitted to all contemporary populations, while regional characters would be preserved. Sometimes lineages were independent for a while, and came back together again. So multi-regionalists see the whole of the Old World as evolving *en masse* from premodern to modern, from perhaps as far back as a million years or more ago, so they don’t talk about these different species, *Homo heidelbergensis*, *Homo erectus* and whatnot: we were all *Homo sapiens*, evolving in concert, from way back.

Replacement model

The Replacement model sees modern humans as arising in Africa, specifically from African populations of *Homo heidelbergensis*, and neither *Homo erectus* nor the archaic Europeans had anything to do with our ancestry - they were our sisters and our cousins and our aunts. When the early moderns spread out, they replaced these ancients, not necessarily by wiping them out, but just because somehow they did the human thing rather better - by some accident of history, perhaps, they had developed new tools, or new ways of life, that gave them an advantage. A variant of Replacement has moderns occasionally interbreeding with the ancients when they encountered each other.

I came, over the past twenty years or so, to favour the Replacement model. I simply cannot detect the similarities that are said to exist between regional ancients and their modern counterparts. The intermediate stage between *Homo heidelbergensis* and modern humans

is well represented in Africa, as I indicated earlier; admittedly the fossil record is much sparser in eastern Asia, so the absence of evidence there cannot be taken as evidence of absence, but there is a region where replacement very definitely did occur: Europe. While modern humans were evolving in Africa, another rather advanced species, the Neandertals (*Homo neandertalensis*) were evolving in Europe; ironically, their evolution is the best-known of all. At first, they and the moderns were equal. In Israel, they alternated: Neandertals at about 120,000, moderns at 80-100,000, Neandertals again at 61,000, moderns again at 45,000. When the ice-ages bore down on Europe, the Neandertals spread south into Israel; when the weather warmed up again, Neandertals’ range shrank back into Europe, and moderns spread north out of Africa. Finally something happened, this “accident of history” as I called it, and moderns got an advantage; from 40,000 years ago they entered Europe, and gradually replaced the Neandertals. By 27,000 the Neandertals were all gone, leaving *Homo sapiens* in sole possession, with just one possible hybrid, a child’s remains from a site in Portugal. Note that modern humans were in Australia long before they entered Europe.

Use of genetics

Genetics can also be used to trace human origins. We turn out to be, on the whole, a rather un-variable species compared to, say, chimpanzees or gorillas. Study of the DNA in our mitochondria - the energy-supplying bodies in the cell, which (unlike other DNA) is inherited entirely through the female line) - suggests a common origin in Africa (“Mitochondrial Eve”) some 150-250,000 years ago; DNA in the Y chromosome likewise indicates an African origin (“Y-chromosome Adam”), but later, about 45-80,000 years ago. When you think about it, Eve was certainly not the only woman alive at that time, and there is no requirement that she ever met Adam!

DNA degrades over time, but enough survives in some fairly young fossils that short sequences can be extracted, and these can be compared to corresponding sequences in modern DNA. Three Neandertal fossils, 33-45,000 years old, were recently sequenced, and their mtDNA forms a group separate from that of modern people; the geneticists estimated that their DNA lineages separated from moderns about 600,000 years ago, which according to the fossil record would be about right.

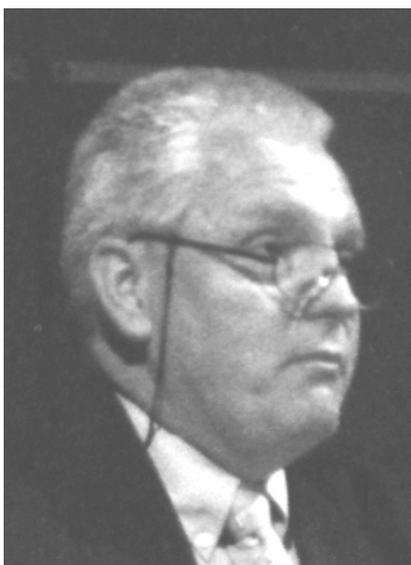
In January 2001, it was revealed that mtDNA had been extracted from a number of Australian fossils, including Lake Mungo 3 - quite a feat, because if it really is around 60,000 years old it is older than those three Neandertals whose DNA has been sequenced. The claim was that, whereas the DNA of the Kow Swamp fossils fell within the modern range, LM3’s mtDNA separated from everybody else’s *before* Mitochondrial Eve. Old, outdated claims that “someone was here before the Aborigines and was wiped out by them” were, quite unnecessarily, revived. It seemed to support Multiregionalism - an ancient DNA lineage, not from the African Eve stock, had turned up in Australia!

But the journalists (who went overboard on the story), and the rather more restrained researchers, may have spoken too soon. Two other research teams tried and failed to reproduce their analysis: not the DNA sequences from the fossils, but the phylogenetic analysis that led to the conclusion about LM3’s DNA. Their computer program didn’t work properly, or they misread the result - something as simple as that!

In my opinion, the Replacement model is still the best model of human origins. As for a population preceding the ancestors of Aboriginal Australians, there is not, and never has been, any evidence pointing to such a conclusion. Sometimes a scientific story is reported as an astounding breakthrough, and turns out to be a storm in a teacup. Not so much English Breakfast, as a dog’s breakfast. 

Homoeopathy: all the idiocy that fits

If, as homoeopaths assert, smaller is better, then Peter Bowditch reckons the best thing for our health would be for this nonsense to disappear altogether



Peter Bowditch is a computer consultant, a member of the Australian Skeptics committee and a determined investigator of various idiocies.

Of all the things called “alternative medicine” the most ridiculous must be homoeopathy. It’s even sillier than iridology.

For those unfamiliar with the origins and principles of homoeopathy, it was invented in the late 18th century by Samuel Hahnemann. It had no less success than the conventional medicine of the time and probably saved the lives of many people, simply on the basis that people get better from many illnesses without any intervention, so doing nothing (which is essentially what homoeopathy is) could often produce better outcomes than bleeding, purging, cauterisation and amputation. The difference is that medicine has moved on and no longer does those things (or does them differently and for different reasons). Homoeopathy still relies on the principles set out at its invention.

Laws of Homoeopathy

One of these principles is the *Law of Similarities*, which says that something which produces symptoms in large doses will be useful to treat diseases that have those symptoms. To determine what can be used for what, various things are subject to “proving” where they are administered in increasing doses until a reaction is observed. This reaction is then recorded, and when a patient presents with the same signs the homoeopath can use a preparation of

the cure to fix things. Jalapeno peppers would be a candidate for the treatment of excessive sweating and cat hair as a potential treatment for hay fever. Presumably cyanide would provide a useful treatment for death.

To avoid the obvious problem, a second principle is invoked: the *Law of Infinitesimals*. This states that the more dilute a substance is, the better it will work against the “proved” symptoms. There are two sorts of dilution in common use - X and C. To make an X dilution, you take one tenth of the sample and mix it with nine parts of diluent. To make a 10X preparation, the dilution process is carried out ten times, each time taking one tenth of the mixture and diluting it. At each stage, the mixture is “succussed”, which means hit in a certain fashion. Sometimes succussion requires the container to be tapped against a particular object, such as a leather-bound book. Preparations can be made at 6X, 10X etc.

Dilution or delusion?

More powerful preparations can be made using the C method, where the dilution is one in a hundred each time. I have heard of M preparations where the factor is one thousand, but I assume these could only be handled by very experienced laboratories.

The folly of traditional homoeopathy can be illustrated to even the simplest of minds, a fact that does

not seem to deter those with “minds” coming in under the “simplest” score.

As an example, someone suggested to me recently that a daily dose of 5 grams of some calcium salt could be taken in 6X homoeopathic form to treat some condition or other. A simple calculation showed that this would require the patient to consume 49,995.995 kilograms of lactose per day to get the recommended dose of calcium. This weight of tablets will not fit into the back of your average semi-trailer, and would therefore require at least two truckloads of pills per day. Every day. (The same person had said that 30X preparations were so powerful that they should only be taken when under the care of a fully-qualified homoeopath. To get 5 grams out of a 30X preparation, the daily weight of tablets would be just under the mass of the earth. Every day.)

Faced with situations like this where the choice was either to eat the weight of 40 small cars per day, drink a volume of liquid equivalent to one and a half petrol tankers or to take a manageable quantity of medicine that could not possibly contain any measurable amount of medication, the homoeopaths have sought desperately for a resolution of the dilemma. What they came up with was the memory of water.

Water remembers (and pigs fly)

I assume lactose has a similar memory, but nobody seems to be talking about it. The memory of water voodoo says that water remembers things that it has been in contact with even after all traces of the substance have been removed. Strangely, however, it doesn't remember the bottles or bladders it has been stored in, or the chemicals that may have come into contact with its molecules, or the other contents of the sewers it may have been in at one time, or the cosmic radiation which has blasted through it. It just remembers the one thing that the “researcher” wants it to remember. Then they tell us they can transmit this memory by email, but that's a story for another time.

Water has a whole lot of special

chemical and physical properties that nothing else seems to have. The molecules in liquid water keep grouping and ungrouping, combining and recombining into tiny crystals and patterns. This has a lot to do with the way life looks on earth and why water is essential for life. It also has a lot to do with why water is an almost universal solvent. What it hasn't anything to do with is the idiocy of homoeopathy.

Homoeopaths have adopted this “memory of water” nonsense in an attempt to recover from the disaster that arises whenever anyone who can think thinks about the ramifications of continuous dilution. In order to explain how something can continue to act even after all of its molecules have disappeared, it was necessary to invent the concept of “memory of water”.

Despite there being severe logical, philosophical and scientific reasons why any “memory of water” is a vacuous idea, and despite the fact that nobody has even come up with any even remotely feasible way of testing the concept, the homoeopaths have simply willed it into existence. They then refer back to the weird way water molecules react with each other to say “see, some of these temporary structures could code for molecules that they have seen before”.

The real problem for them is that, even if “memory of water” was both possible and proven, it would not make homoeopathy any less ridiculous. You see, homoeopaths go further by claiming that they can selectively control what it is that water remembers. We have the situation where they are claiming to do the impossible while working with something that does not even exist in the first place.

Hot under the cholera

Let's look at making a typical homoeopathic remedy. I have randomly chosen a treatment for cholera, which simply consists of a 30X preparation of human excrement. I won't bore you with the procedure because it just consists of successive dilutions

and succussions. It's the final product I'm interested in.

How does the preparer ensure that only the excrement is remembered and nothing else? Remember how I mentioned that water is an almost universal solvent? How was the preparation controlled to eliminate the possibility that the water remembered any of the non-excremental molecules that it might have come in contact with? For example, if it had instead remembered the molecules in the glass preparation vessel, we might have ended up with a treatment for silicosis. What if the preparer had breathed out through her mouth and the air above the preparation vessel had become contaminated by mercury vapour coming off her fillings. Some of this could have become dissolved in the water and then we might have come up with a treatment for ____ (fill in whatever mercury in fillings is causing this week). If she smoked, we might get a cure for lung cancer. If some of the nitrogen in the lab air had got into the water, a cure for the bends might have resulted, and a tiny fragment of asbestos blown in from a nearby demolition site might have been remembered and a treatment for mesothelioma been produced.

None of these would be of any use to the poor person sitting outside waiting for a cure for diarrhoea (well, sometimes sitting, sometimes hurrying to sit elsewhere). If it were to be proved conclusively tomorrow that water can retain molecular structures related to other molecules that had been near the water ones, homoeopathy would still be a stinking crock. Diluting it by a factor of 1,000,000,000,000,000,000,000,000,000 would not make it more powerful or make it smell less.

If you wonder how anyone could believe this stuff, see my forthcoming article about how there is no bad alternative medicine.

See more of Peter Bowditch's thoughts on alternative medicine and like matters on his website *Quintessence of the Loom*.

<http://www.ratbags.com/>



Paul Kurtz:

father of modern Skepticism

In the second of a series of interviews conducted during the World Skeptics Convention in Sydney, Richard Cadena talks with Paul Kurtz



Richard Cadena is a computer analyst who has conducted a series of interviews with prominent US Skeptics for the Skeptic.

Paul Kurtz is Professor Emeritus of Philosophy at the State University of New York at Buffalo, founder and chairman of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP - www.csicop.org); the Council for Secular Humanism; Prometheus Books (www.prometheusbooks.com); and editor-in-chief of *Free Inquiry*.

Beginnings of CSICOP

Richard Cadena: *How did you begin in skepticism?*

Paul Kurtz: My interest in skepticism goes back a lifetime. Not only as a young man but particularly during my first introduction to philosophy when I was 19, in the second World War. I went to Shrivensham University in England and began studying Socrates. It was a long time ago, is it not? It came after I got my doctorate at Columbia University and began teaching. Of course, I decided that I had to take skepticism 'to the arena' like Socrates and question the sacred cows of society and the foibles of human belief. So my interest in skepticism is lifelong.

RC: *Were there any specific events that pushed you to create CSICOP?*

PK: That began in the early 70s when I noticed that the cults were growing: the Church of Scientology, the Moonies, Hare Krishnas and all sorts of wild cults. There was great popular interest in them but then I noticed there was also widespread belief in astrology and there didn't seem to be any criticism. Incidentally, at one time I thought UFOs might have been extraterrestrial and I thought at one time that my wife was telepathic because she seemed to know what I was thinking. When I came home I had to be very careful what I was thinking. So I had an open mind about this.

I met H.H. Price, who was a famous British philosopher and Professor Curt Duccase, both who believed in psychic phenomena, so I was intrigued by that. But I've always been a kind of naturalistic materialist. I began an interest in this because I noticed that in society there didn't seem to be **any** criticism.

Take astrology as a point, no criticism, so I asked my colleagues in astronomy, "Is there any foundation for astrology?" They were very critical. There didn't seem to be any empirical basis, so in 1975 I engineered a statement "Objections to Astrology" which we then published. It immedi-

ately raised international attention. It was on the front page of the *New York Times*.

I said we have to organise or crystallise a scientific, philosophical examination and critique. So CSICOP began brewing in my mind. I brought together all the skeptics I could find at a convention in 1976 at the State University of New York in Buffalo.

Again, it took off like a rocket. It seemed to touch something. People said, at long last we have some critical examination. And so the Committee for the Scientific Investigation of Claims Of the Paranormal was launched in 1976 and has been going strong ever since.

Prometheus Books

RC: *How did Prometheus Books get started?*

PK: I founded Prometheus Books in 1969 because I noticed that the publishers were publishing absolute nonsense and you didn't have any kind of skepticism. I was interested at that time also in the fact that you didn't have unbelief or atheism or secular humanism being published by the major publishers. So I decided to launch Prometheus Books and again it began to develop. We seemed to fit a need particularly among educated/scientific people in the country and in the world.

RC: *And what kind of success have you had?*

PK: Well, it is hard going. All of these ventures are hard going. It's an uphill battle, it's not easy but they have grown constantly, year in and year out, and that is very gratifying. Then I founded *Free Inquiry* magazine in 1980 when the Baptists and the fundamentalists were attacking secular humanism and again there was no response. So I've taken the lead. I feel philosophy should not be in the cloisters or the ivory tower; the philosopher should be out in the marketplace and I've attempted to do that. I've always deplored the fact that philosophers tend to withdraw from the real world and argue among themselves. Of course, I love philosophy but I thought it had to be rel-

evant pragmatically to the world, so my effort has been to apply philosophical and scientific ideas to the social context.

The spread of Skepticism

RC: *Given the number of years you have been involved in skepticism, how have you seen it spread?*

PK: Let me say that after I founded CSICOP, the interest was worldwide and people said "Do the same thing here, do the same thing here". It was genuinely a worldwide phenomenon. It wasn't restricted only to the United States, which I agree has distemper about this. The US is the most extreme case of both scientific technology/science on the one hand and superstition and the paranormal on the other. So, I am very pleased that it now exists globally. It is about time that the scientific, academic, philosophic communities, and lay people became sufficiently interested, to ask for tests of these claims.

RC: *How do you feel the battle is going?*

PK: As I identify it, the real source of this tremendous increase in paranormal belief is the media. Superstition, interest in the paranormal, the occult and religion is historic.

It may be part of the human condition; if you don't have natural explanations, you find occult explanations. But it has developed in a fascinating way in the last 40-50 years because the media now dramatises it. Before, you would read a novel or an account in a newspaper or short story, but now it is dramatised in full colour and sound on television, the movies and the electronic media and it sweeps everywhere.

So in one sense, it is more difficult than ever before because the media is instantaneous. Claims appear that are dramatic and fictionalised and they seem as though real. I think it is increasing because the media is not basically interested in information or education or knowledge or truth, it is interested in entertainment and sensationalism and profit. It is a business - OK, it is a capitalistic world.

I can see this in the publishing industry too. I think the publishing industry is irresponsible. They put out these mass selling books, never checking facts, and so billions of people on the planet have been suckered into a new religion. The paranormal is a religion, a new-age religion, a quasi-religion.

RC: *Do you think you have made a difference, a big enough difference?*

PK: I think we have made a difference and I think we can be proud of that difference. We have crystallised an opposition by the scientific or the educated community who felt helpless. As I travel around the world, I remember people saying, "Oh, I feel isolated and alone. I'm surrounded by crazy culture. How do these people accept these beliefs that we know have no basis in fact."

So we have made a difference in that at least people have seen these claims tested and challenged. It is interesting, we are in about 38 countries and it is usually the best scientists that are the leaders. In many countries, the scientific community is trying to respond. It is a Herculean task because often we feel we are being marginalised even though the modern world is based on science and technology.

Still the general public fails to understand the nature of the method of science nor does it appreciate the cosmic outlook of science. We are like David against Goliath, the vast media and of course religion is another factor. Religion is unexamined in most countries and is immune to criticism.

RC: *And that David versus Goliath, does that part get frustrating?*

PK: It doesn't frustrate me. I never give up. No, I accept challenge. I relish the battles.

RC: *Well that is good for all of us.*

PK: Not only do we have victories but we have defeats. But there is always new nonsense. They are like unsinkable rubber ducks. You shoot them down. Something has been refuted, there is no evidence for it

but it comes back in a decade. And there is always new nonsense to fill the gap.

RC: *What stream of pseudoscience do you think is the most dangerous?*

PK: I'm most concerned about the growth of alternative medicine and I notice it is very strong here in Australia. I saw a building around here with a sign touting Homeopathy, Naturopathy, Reflexology and all the alternative medicines. I'm told by my colleagues that if you go into almost any drug store it will be filled with alternative medicines. I think that is most dangerous.

We live in an age when medical science is making advances by leaps and bounds. Antibiotics, modern surgery, public sanitation and so on have extended the life of people and reduced pain and suffering. Yet, at the same time, there are these quack cures and charlatans all over the place.

In the United States, at a conference of the Council for Scientific Medicine, which publishes *The Scientific Review of Alternative Medicines*, there were about 250 doctors at the meeting and they were deploring the fact that almost overnight spiritual/religious/paranormal claims have intervened in medicine.

So I think alternative medicine bothers us the most - that includes faith healing incidentally - because you are dealing with people's health and that could be very dangerous in the long run.

RC: *Do you find that the media look to CSICOP to get responses, or do they go off on their own?*

PK: No, we have become a kind of resource centre. I think in the US, virtually all the media, the press, the radio and the television come to us if they want to know about something. What about spontaneous combustion,

iridology, UFO abductions? We have a cadre of experts all over the place.

The same thing is happening in other countries as well and that is very important. Most scientists are concerned with their own speciality and in order to succeed you have to spend an enormous amount of effort on your speciality. The paranormal is



Paul Kurtz

interdisciplinary and falls between the cracks. So we provide that speciality for these wide range of claims.

Critical thinking

RC: *In your talk you mentioned the idea that critical thinking could be applied to politics. Could you speak to that?*

PK: In one sense, the paranormal is the sideshow. We deal with that, we have to, we have a specialisation there and we provide a valuable service, but I think the broader impact of magical thinking has a profound impact upon society. I'm concerned with the development of critical thinking in society.

Politics is clearly one area where critical thinking is essential. We have lived through this great battle between Marxism, which has largely evaporated in large sections of the world, and now we have a free market economic doctrine, which is very powerful but also, for some, becomes extreme. A critical examination of political and economic claims in the marketplace is important.

RC: *In humanism, of which you are a leader as founder and chair of the Council on Secular Humanism, is there a political left-wing bias?*

PK: No. It may be true in Australia but it is not true in the US. We are apolitical. We include libertarians, conservatives, liberals and social democrats - a wide range of opinions.

RC: *The reason I ask is because at an annual humanist event I was told, as part of a group, that humanists care about people and if one is conservative one can't care about people.*

PK: I think that is **absolute** nonsense myself.

RC: *Well, I'm glad to hear you say that.*

PK: I've argued that we shouldn't politicise humanism. I consider myself not just a humanist but a secular humanist.

I define secular humanism first as a commitment to the method of science and critical thinking, so skepticism becomes contiguous with humanism.

Secular humanism

RC: *Could you give your definition or view of secular humanism?*

PK: Secular humanism begins with a method of inquiry; that is part of its great rationalistic tradition. We are committed to scientific rationalism. Test all ideas by evidence, by their rational coherence and by their consequences. So, that is my basic definition of secular humanism.

Secular humanism does have an

ethical point of view and it holds that you can apply reason to ethics. I'm worried, being a dedicated skeptic, that if we simply destroy, debunk and undermine after inquiry, beliefs, what are we left with? You may end up with nihilism, subjectivism and cynicism. That is why the other hat I wear is we need to use science to provide positive beliefs and a cosmic outlook. I think ethics is amenable to scientific examination and critical thinking and reason. It seems to me that humanism is very deep, it deals with the meaning of life. We reject a supernatural view. We don't think the soul survives the death of the body.

The great challenge for the human person is to make life on his or her own terms and try to develop a just society. But there can be honest differences of opinion about economic taxation or political parties or the role of government; these can clearly be open to dispute.

RC: *I'd like to get you to comment about other skeptical organisations, including Michael Shermer's Skeptics Society (www.skeptic.com)?*

PK: I'm very pleased that all these skeptics groups have occurred. Michael Shermer grew out of Southern California and he was a successor to the Southern California Skeptic Society and he has created a vigorous magazine. I am on good terms with him. I am most pleased myself, in one sense, that I created the skeptics movement in the world, and I'm most pleased that there are 80 journals and magazines now. That is a sign of vitality, so I think the more the merrier. I mean look; there are thousands of paranormal journals. (laughing)

RC: *We're a drop in the bucket.*

PK: So we are very small in comparison. Therefore, I think we have to welcome all efforts. A movement grows when you have different seedlings springing forth.



A Special Report

Cheryl Freeman is both a very determined and a very courageous lady. A trained nurse, some years ago she suffered a debilitating injury while working for an overseas aid programme, an injury that gravely reduced her ability to work and which has resulted in years of ill health. Returning home, she discovered that there was little that medical science could do to relieve her pain and suffering and so she sought relief from various practitioners of "alternative" healing.

It is what she discovered during this search that set her on a course of investigating and exposing the claims made by many such practitioners, with a particular focus on the wide range of unproven devices for which diagnostic or therapeutic claims (or both) are made, and for which there is no good evidence. Her courage in the face of the harassment and legal threats resulting from her investigations has been an inspiration to many of us, and we are delighted that we can now publicly salute that courage. For her dedicated work in this field, she was named (as "Nurse Cheryl") as Australian Skeptic of the Year for 1999.

The following article covers only a few of the many investigations Cheryl has conducted into many different claims, and it only scratches the surface of the frustration she has experienced in trying to get someone to take notice of the threat posed to public health by the unmonitored proliferation of devices for which exaggerated therapeutic claims are made, and for which the evidence of efficacy is vanishingly slight.

With some notable exceptions she has met with political and bureaucratic inertia, and an almost total indifference from the news media. There are many regulatory agencies, state and federal, which might (or should) be concerned with what Cheryl has discovered, but bureaucracies are adept at shoving difficult problems onto someone else, and that has happened to Cheryl many times. Hopefully, there are some small signs that this is changing, albeit far too slowly for something as dangerous to public health as this.

When bureaucracy fails to act, one role of the Fourth Estate is to prod them into action. In this case the media has abdicated its role. The news media, normally all too willing to expose scandals, has avoided any serious investigation into what can only be seen as a dangerous threat to public health. Whether this is through genuine journalistic ignorance because of the technical nature of the problem, or through a misplaced sympathy with the new age anti-scientific claims of the promoters, it is difficult to say. Cheryl Freeman has provided, over many years, enough sustenance to whet any journalistic appetite, but the follow-up stories have been rare.

Whatever the reason, they are missing a very big story indeed if only they care to look. Few suburbs in Australia are without at least one clinic offering false diagnoses and treatments of dangerous conditions, from gadgets that simply do not work.

Barry Williams

Crisis in Healthcare: the threat of untested devices

Hitherto, for family reasons, Cheryl Freeman has been reluctant to be publicly identified with her investigation of pseudo-medical devices.

We are delighted that she has now agreed to do so, thus enabling us to thank her, publicly, for her care, concern and invaluable work.

State and federal governments are now in the process of developing a national framework for establishing minimum standards for training, conduct and safety within the alternative/complementary health industry. NSW, which has an independent Health Care Complaints Commission (HCCC), but with limited legislative powers in relation to alternative therapist complaints, has a leading role. The end result will be state government accreditation and registration of qualified alternative health practitioners.

A NSW Parliamentary Committee Inquiry in 1998 recommended a 'generic' form of registration as against the 'full registration' afforded to doctors, nurses and dentists. But any form of registration will bestow a government licence and imprimatur on practitioners and all their diagnostic-treatment practices, procedures and products.

Setting standards

My investigations reveal that industry registered therapists, along with "holistic" doctors, nurses and dentists, will be involved in setting standards. Collectively they are the face of the latest concept in combina-

tion health care - "Integrative Medicine, the ultimate in orthodox and complementary medicine". They also represent the very class of people who, in the near future, will benefit from having state government licences and from the legitimacy that registration confers.

What seems to be missing from these discussions is any objective, scientific, evidence that any of these practices or devices actually do what is claimed for them. That should be the very first step, before any move towards regulation, generic or otherwise, is even considered. Further, the setting of standards should, at the very least, be at arms length from those who might benefit substantially from them.

Moreover, engaging in unsafe and potentially dangerous and financially exploitative practices is not simply a result of the actions of unqualified, unregistered 'quacks and charlatans', who are usually blamed by the qualified or registered sector. My research suggests that people at the highest levels of the alternative health industry are just as likely to make unsubstantiated claims, or offer unproven therapies, as are "renegade" practitioners.

Regulatory failures

I have discovered many cases of industry-registered therapists involved in appalling abuses, malpractices and/or financial exploitation of their clients. These represent gross interferences in the diagnostic and treatment management of serious diseases such as cancer, and also in cases of highly infectious diseases such as HIV-AIDS and hepatitis. These latter have the potential to lead, not only to bad outcomes for the individual patients, but also to serious public health consequences.

What is worse, qualified practitioners who are aware of what has been happening have tended to put the interests of victims aside, in favour of supporting the industry.

My research also reveal the seriously flawed and ineffective state and federal regulatory and complaints systems. With few exceptions, these allow complaints to go unresolved, as concerned complainants are put on a lengthy buck-passing merry-go-round from one authority to another.

We have no public alert/early warning system, which gives the authorities the power to issue immediate Public Health Warnings, nor any avenues to appeal to those with information to assist investigating authorities when serious problems with alternative health claims are uncovered.

Media blindness

The future release of an official government paper **should** result in constructive broad public discussions, but will it? The mainstream media have for many years blinded themselves to the truth, and frequently publish or broadcast favourable stories about claims about "remarkable" treatments, while failing to conduct any background research. Whether this is through ignorance of the simplest fundamental requirements of scientific medicine, or through a misplaced belief in giving a "balanced" presentation, the result is that they give the potentially dangerous practitioners, practices and products free publicity.

One example that went against this trend in the media occurred in *Reader's Digest*, (July 2000). In an article "The Truth About Natural Therapists", it reported an independent, Australia-wide, survey of 25 "alternative" therapists, which found a disorganised industry, making wild and disparate claims, in which the only consistency seemed to be "anything goes". The editor was so shocked by the results that he appealed to the public to petition their MPs for legislative protection and for victims to contact *RD* for a follow-up report. Did any other sector of the media take up this story and run with it? They did not.

Accountability

I applaud government efforts to set some basic standards which I fervently hope will lead to a total ban on some practices and products, and to encourage informed public debate about others. However, I have grave reservations about any form of state government registration especially when there has never been an open, in-depth public inquiry into **all** of the industry's diagnostic and treatment practices, machines and products and when health consumers are poorly informed and where victims live in fear of reporting abuses and malpractices. To me it is a dangerous mix.

What we need is public accountability: We need firstly to publicly focus on the victims' fears and support them, then to look at what has been happening in this industry, examine all the practices, machines and products, the practitioners involved and their training and all the regulatory and complaints systems and their flaws and errors and learn from them. Only then can governments attempt to offer health consumers a greater margin of safety than that which is currently available to them, so they can make truly informed choices.

Specific cases

Now to look at a couple of specific instances. Breast screening is a major public health issue and my reports below on breast disease detec-

tion programs reveal the extent of current industry practices. From my 16 years of experience in investigating dubious devices, these are also common standard practices in relation to many other diagnostic and treatment machines and therapies.

Warning

In March 2001, the National Breast Cancer Centre launched a campaign through the national media, warning women that delays of longer than three months in the medical diagnosis of breast cancer would greatly reduce the chance of survival.

TRD/CRT tests

This study looks at the promotion and use of unscientific screening/diagnostic machines, promoted as "the latest advanced diagnostic technology" in breast screening. While the focus of this study is on breast screening, claims are made by promoters of these devices that they are also useful for diagnosis in the cardio-cerebro-vascular fields.

Thermo Regulation Diagnosis (TRD) or Computerised Regulation Thermography (CRT) tests are promoted by naturopaths and others who are publicly involved in the alternative cancer therapy industry in Australia and in numerous influential alternative cancer groups.

Unlike the field of medical thermography, the TRD-CRT machine does not use a thermal imaging camera, and is physically incapable of taking 'heat pictures'. It has a large pen-like sensor connected by cable to a control unit and VD monitor. Developed in Germany, the TRD-CRT is an updated and computerised version of an old alternative health concept. This holds that specific teeth, and skin points on the face, neck and body, are 'connected' to specific body parts and organs. Temperature change, measured at over 100 specified teeth or skin points, is alleged, by proponents, to indicate abnormal activity in the distant 'connected' organs or body parts.

It should hardly need stressing that there is no physiological, nor medical evidence to support these claims, *and in the absence of such evidence, there is no reason to believe they might be true.*

Changing stories

One prominent proponent is reported in an article in *The Australian* as claiming that the TRD machine was useful for detecting, through heat readings, abnormal activity in the breast that was worthy of examination, but she is also reported to have said that she did not claim the thermogram was a diagnostic tool for breast cancer, nor that women should avoid mammograms.

Yet I have copies of that practitioner's brochures, have read her magazine articles and visited her web site, and they tell a very different story. TRD-Thermography is described as "true preventive medicine" and "advanced technology in diagnosis" in bold red print. It is also claimed that, "this diagnostic approach is simple, non-invasive and risk free" it "provides important diagnostic information" and "TRD frequently provides indications of unrecognised disease, hidden cause and dangerous complications ... without the patient being subjected to any strain from X-rays, diagnostic operations, biopsies ..." and "assessment of the degree of illness". There are many other impressive claims including: "... Is suitable for diagnostic purposes in the cardiac field" and "assessment of circulation. Disturbances of cerebral and/or peripheral blood circulation, and (if) vascular occlusion are evident."

A front cover of *New Vegetarian and Natural Health* magazine described TRD and Live Blood Cell Analysis (LBCA) tests as "state-of-the-art cancer testing". An article by the practitioner in that issue makes such claims as: "we can also measure every tooth and various points on each breast" and "we get a crossover effect where whichever breast holds the tumour, the opposite ovary will also register a problem ... which, in patients with malignancies usually

give very low readings" and "with breast cancer we of course expect abnormal readings for the chest region and we also see abnormalities in the abdominal region", among many other claims.

A *She* magazine cover story asked: "But how do we tell helpful from hocus-pocus?" The potentially dangerous introduction began: "Going for a check-up doesn't necessarily mean a visit to your GP these days." The reporter was tested and told, "Your breasts are fine", which, the reporter noted, "gave me some relief". As a result of LBCA, another highly dubious, though widely practised "modality", the reporter wrote, "I was relieved to find out my heart, kidneys, thyroid, uterus, breasts and lungs were okay." (It is fairly obvious that *SHE* magazine did no background research, nor consulted any medical experts or health authorities)

Personal experience:

In April 2000 I contacted one such clinic (I have reports of at least 10 others operating in Australia) and told the receptionist that I had read the magazine articles on breast cancer and was very impressed. I asked if I (then aged 52), and a relative who had had breast cancer, could make appointments for the TRD test. I was not asked if I had been having mammograms, nor told the TRD test did not replace mammogram screening, that it could not detect breast cancers, nor advised that it was extremely important for my relative to know that she must also continue to have regular medical checks-ups from her cancer specialist, nor that the TRD test was not approved by orthodox breast cancer or other medical experts.

Note: None of the brochures, web sites nor magazine articles promoting TRD contain these warnings.

I also received from the clinic, a brochure for the International Cancer Association Network (ICAN), which promotes alternative cancer treatments and foreign clinics, plus a "practitioner referral brochure" which listed 19 Sydney doctors, 33 qualified therapists, and many high-

profile holistic MDs, who the mainstream media promote as 'innovative new-age doctors - the new face of Integrative Medicine.' The clinic advised me that private health fund rebates were payable on TRD tests, a fact confirmed in the *She* magazine report.

An article in *The Australian* in November 2000 reported that the "thermogram" machine was "listed with the TGA", implying that it had been scientifically tested and approved by the TGA. No mention was made that 'listed' devices were not tested for efficacy, nor that the seriously flawed 'listing system' was abolished in 1998. The TGA has advised me that the 'listing' for the TRD-CRT machine was cancelled in mid-2000.

My concerns

Given the above detailed promotions, my personal experience with this clinic and the total lack of essential warnings on promotions and media publicity, my concerns are that women with medically undiagnosed primary or secondary cancers may avoid or delay having mammograms and essential follow-up medical tests and treatment, with tragic results. When tested with an 'advanced diagnostic machine' and reassured, "your breasts are fine" (a negative diagnosis), they might be lulled into a false sense of security. Conversely, test results that suggest their breast readings were "not quite right" or that they had "problems", "abnormalities", "abnormal activity" or "hot spots" in their breasts, ovaries and other organs could create extreme anxiety, fear and depression in women with a family history of breast cancer. It could lead to 'panic mastectomies' and other surgeries (or even suicide attempts) in those who fear secondary spread of their cancers. Sensitive women required to sit naked to the waist, to have their breasts 'probed' for what they believe is a legitimate scientific medical test, would feel betrayed and humiliated when informed of the true nature of the 'test'. Panic and extreme anxiety could strike those women who do not

have any breast problems but who have relied on this 'screening test.'

Unknown to science

In *The Australian* I was reported as a former nurse and member of Australian Skeptics petitioning for a total ban on the 'dangerous thermogram'. However it was not a thermogram, but the TRD-CRT, to which I was referring. It is an unscientific device, based on the most illogical concepts and is unknown to medical experts. It is physically incapable of performing as claimed, but it is part of the global growth industry in these types of machines being presented to medically inexperienced and easily misled health consumers as the 'latest, advanced technology in diagnosis'. It is now widely used in the alternative-holistic health industry with endorsements from holistic doctors and nurses.

Prof John Forbes, head of the Australia-New Zealand breast cancer trials, and the National Advisory Committee to the Breast Screen Australia Program both commented in *The Australian* report (unfortunately about medical thermograms). Neither had any knowledge of the TRD-CRT machine until I contacted them, nor had other medical experts I spoke to.

A solution

In this case a total ban is the only solution, given that the previously published dangerous breast cancer detection claims will remain in the public domain and on foreign web sites and will continue to influence how the machine is promoted, sold and used in Australia. At any time, anyone can become an importer and distributor of this machine, (unknown to health authorities as no licences are necessary) and promote it according to the explicit claims on the manufacturer's website and 'confidential practitioner reference material'.

The authorities

My complaint to the NSW Health Care Complaints Commission

(HCCC) and appeal for urgent public health warnings, was referred to the Australian Competition and Consumer Commission (ACCC) after being assessed as a trade practices issue. The HCCC did not refer my complaint and appeal for an urgent public health warning to the NSW Health Minister, nor to the Director-General of Public Health. My complaint to the NSW Minister for Fair Trading under the new May 2000 *Substantiation of Claims Act* was acknowledged. Both the ACCC and Fair Trading are investigating as at April 2001. The Therapeutic Goods Administration (TGA) requested that I complete a *Medical Devices Incident Report* following my complaint. ('Devices' distributors must still comply with the TGA's Advertising Code, but no penalty or public advertisement correction notice system exists.) I submitted my concerns regarding the 19 Sydney doctors listed in the practitioner referral brochure to the NSW Medical Board. My grounds were that even if some of the doctors do not actively refer their patients to a clinic for TRD breast and other TRD tests, inclusion of their names in the promotional material bestows medical credibility and endorsement by association on the TRD-CRT which could dangerously impress and reassure clients.

Senator Jocelyn Newman (herself a victim of breast cancer) referred my submission to the Federal Health Minister in Jan 2001, specifically noting that no public health warnings had been issued. The minister has not responded.

In March 2001 a concerned medical expert and I approached the NSW Health Minister to ask for investigation of all TRD-CRT clinics under the new provisions of the NSW Public Health Act, and to issue an urgent public health warning advising women who have undergone these tests not to rely on the results, but to consult their MD's immediately. We also sought an appeal to those with information on the TRD-CRT clinics to assist investigating authorities. We have had no results to date, but continue to hope.

DITI tests

This report focuses on the current trend of establishing breast screening programmes in suburban clinics using Meditherm DITI machines - without any approval or support from state health authorities or medical experts. We know of 15 Meditherm clinics, but we do not know how many other brands of DITI screening machines are in use in Australian clinics

Digital Infra-red Thermal Imaging (DITI), more commonly called 'medical thermogram or thermography', uses a portable thermal imaging camera connected to a standard PC to take 'heat pictures' of body surface areas. In simple terms, in relation to breast screening, the rationale is that the area surrounding a tumour will present with increased blood supply and therefore heat which can be detected and recorded by the camera.

Personal experience

I found a practitioner in the Hunter Telephone directory under the heading 'Thermology'. She promoted herself to me as a 'thermologist', with no formal health or medical qualifications. She explained that she was qualified to take thermal pictures "just as radiology technicians are trained to take X-rays". To obtain her qualifications she did a two-week training course followed by six months 'on-the-job' supervision from an Australian man who trains operators for the USA-based company. She skirted around my question to avoid having to identify this man, but added that the practice was relatively new in Australia, with 15 clinics being set up in the past four years, including several in various Sydney suburbs.

After introducing myself as a 52 year old (female age being a very important factor) who had had mammograms, I was told that DITI was better than X-rays and MRI scans and could pick up tumours earlier than mammograms - before the cancer became clinical and was in a precancerous state she called *neovascularity*. This was especially so in

younger women who had denser breast tissue, making mammogram detection of tumours impossible. She added that she now has women patients who refuse to have mammograms which, she said, can be very painful for some women, especially those who have had surgery or who are small breasted. She talked of 'temperature differentials,' referrals from doctors (but self-referrals were acceptable) and referred me to the USA website.

'What is the test procedure?' I asked. She explained, that Test 1 is performed, then three months later Test 2 and the results then compared. This forms a baseline. Then Test 3 is performed yearly and compared with your baseline. She takes a 'full case history', conducts the tests, interprets the results and informs the patients of her assessment, providing them with a print-out of their test and results. There is no medical consultation, assessment of tests, nor supervision.

As a follow-up, I contacted a Sydney centre which also conducts a DITI 'Early detection of breast disease program' as well as offering such other dubious services as "Listen screening!" and "Rife-Bare treatments".

Note: Neither of these clinics advised me that it was most important to realise that DITI did not replace regular mammograms.

The Meditherm Website lists 75 conditions including 'breast disease' as indications for DITI which is "state of the art PC based IR technology" able "to detect early lesions before they are clinically evident. It is used as an aid for diagnosis and prognosis ... within clinical fields that include oncology and many others."

Breast cancer experts and national breast screening bodies are on public record as condemning claims that 'medical thermography' can detect small breast tumours. They say that tumours must be at least 2cm in diameter before they can be detected with medical thermography.

My concerns

As I have detailed in the TRD-CRT report above, the giving of both negative ('your breasts are fine, no problems') and positive ('there are some hot areas, abnormal activity') diagnoses to women can carry very serious risks. Misdiagnoses and delays in obtaining medical diagnoses and treatment can have very grave physical and emotional ramifications for some women. The test procedure of having one test then another three months later to determine a 'baseline' for future yearly tests is, in my view, a potentially deadly practice. How a person, who has no formal health or medical qualifications, can achieve medical expertise after a two-week training course then six months under supervision (which, incidentally, may be by distance consultation) sufficient to be able to assess a 'full patient case history', conduct a 'medical' test, assess and deliver the results to patients who may be suffering from any of 75 minor, serious or life-threatening conditions, astounds me.

It appears that the time has come for state health authorities to prohibit the operation of 'breast screening' clinics, or any other type of 'organ screening' clinic using any type of machine that has no government approval nor medical supervision and accountability.

The authorities:

In November 2000, aware of the NSW Health Care Complaints Commission's legislative limitations, I bypassed the HCCC and forwarded by complaint directly to the ACCC which advised me in December 2000 that my "concerns were acknowledged but the matter is not an issue for the ACCC at this point in time".

In March 2001 I submitted my concerns to the NSW Health Minister under the new provisions of the NSW Public Health Act, appealing for an urgent public health warning and an appeal to those with information on DITI clinics to assist investigating authorities.

In both these reports, I have not visited clinics operated by "fakes and charlatans", but those run by high-profile leaders in the field of alternative medicine and well-publicised proponents of "Integrative Medicine, the ultimate in orthodox and complementary medicine". These are precisely the sort of people who might well be setting the standards of training and practice in these fields, if "generic registration" comes into effect and if the regulatory authorities do not take a lot more notice of what is going on than they have to date.

Refs

1. ACCC website for landmark ACCC-LISTEN prosecution case, April 2000

Note

I have fully documented details of all the claims I have made in this article and have made them available to the various regulatory authorities as part of my complaints.



Notice

NSW subscribers are advised that the next quarterly Dinner Meeting at the Chatswood Club on Friday, July 13, will feature a seminar by famed comedian and Renaissance entity, Flacco, entitled:

Releasing the Imbecile Within

The dangers of critical thinking.

Those who find their own intelligence a handicap will be given the tools to to unleash their inner cretin. Please book early as it will be a sell-out performance. Full details in the WatsOnWare insert.

Bishop Takes Prawn: The Great Easter Debate

April 11 2001

Civic Centre, Springwood NSW

The topic: "That the evidence that Jesus is alive is stronger than the evidence that He is still dead."

For: Bishop Robert Forsyth (Anglican Church)

Against: Richard Lead (Australian Skeptics)

My first reaction, when I heard about the topic of this debate, was 'Why have it at all? Why do the churches in the Springwood area want to hold a debate on what for them is a non-question? What could they gain? After it was all over, I was still wondering.

I think it is important to state, even though this point has been made many times in these pages over the years, that the Australian Skeptics hold no position on religious faith. People from any and all religions are welcome in the Skeptics at any time. However, the magic word 'evidence' was used in the topic of the debate and the search for evidence is our bread and butter.

I made my way to Springwood with Richard Lead who was kind enough to offer me a ride. On the way we discussed why the churches would want such a debate. Could they produce evidence apart from the biblical reference? Richard didn't think so.

Once at the Springwood civic centre, I found myself a good spot and

the crowd was 350 or so; a full house. What follows is only a brief overview of the case put forward by both sides, mentioning only a few of the key points and themes.

After a short introduction of both speakers by the Mayor of the Blue Mountains Shire, Jim Angel, Bishop Forsyth stepped up to kick things off

with 15 minute opening argument. The thrust of his argument was more or less 'Jesus was once alive, a real man, therefore He is still alive as per the Christian belief'. Many examples from the Bible were cited concerning the eyewitness accounts of the life of Jesus and the resurrection. The evidence is in the accounts of people who were there and wrote of what they saw. He ended with the words, "[God] has uniquely and specially intervened and left us evidence, stronger evidence

than that against, surprisingly, in the testimony of these witnesses."

Richard Lead's 15 minutes of fame started with him informing the audience that the Australian Skeptics



Skeptic and Bishop in pre-debate propaganda swapping exercise.

set up my video camera. Richard gave me a fistful of subscription forms for *the Skeptic* and between Alynda Brown and myself, we made sure everyone had a copy. I estimate

Bishop takes Prawn

and the Christian church have no quarrel and indeed we have many Christians in our ranks. "We test claims, not beliefs."

I could almost feel the disappointment in the air, as I'm sure many people turned up to see the Skeptics and the church at each other's throats. Then, after a few jokes, (now that's open to debate!) Richard began by teaching the audience a new word, "Undisproveable". No matter what he did he could not disprove the statement "That the evidence that Jesus is alive is stronger than the evidence that He is still dead". Instead he concentrated on the historical aspects of the Bible, who wrote the scriptures and more importantly, when. "Remember", he said, "the Devil can quote scripture too!" and proceeded to point out other examples of people being resurrected, including Lazarus and the dead who ran through the streets after the crucifixion, as reported in one of the Gospels. The point being, that resurrection is not a unique event in the Bible.

Bishop Forsyth replied with more eyewitness accounts from the Bible. "They are serious weighty claims!" The story of doubting Thomas and other first-hand observers followed. "Although we cannot see, we can believe from the evidence from their testimony."

Richard Lead continued, wondering why, if Jesus was all that was claimed in the Bible, miracles and all, why are there no secular references to him? He went on to explore the history of the Bible and the early Christian church, commenting



Bishop pulls rabbit from a head.

on the many different sects and their differing view on just who Jesus was.

Both speakers were then given a brief time to wrap up. While Bishop Forsyth made a religious appeal, Richard Lead mentioned some more Biblical references regarding the accounts of the resurrection, questioning the differing accounts.

Question time was a chance for both speakers to stray somewhat from the topic of the debate with various people asking Richard about the Skeptics and Bishop Forsyth being asked about the nature of God. Although many jokes and light-hearted jabs ensued, the questions from the floor were generally of a

high standard with people resisting the urge to tell personal stories. The Bishop went out of his way to assure listeners that he had no problems with the age and condition of the natural world as described by science, quipping that this probably put him offside with several Christians in the audience.

At the end of question time, both speakers were thanked and given rapturous applause by all. No vote was taken and I think there would have been little point to this, instead the audience headed for the tea and

bikkies on offer where the debate was kept alive.

As on the night, I feel there is little point in awarding a victory to one side or the other. The victory was, in my view, in the enjoyment had by all present of an entertaining, amicable, funny and thought-provoking night. I had the impression the many people gained a much better understanding of the Australian Skeptics along the way as well as great respect for Bishop Forsyth.

As a postscript I must mention that Richard Lead and I arrived in Springwood an hour so before the debate as we had an important mission to accomplish. Find and eat a

real hamburger from a real milk bar! "Ahh," Richard sighed after polishing off a fine example of a real hamburger. "You know, I could eat another one of those without any trouble at all." I think this help set the tone for the evening, which was pleasant and all in all, well worth our time. I'm sure *Skeptic* subscribers who also attended would agree.



Lead gets what's coming to him.

Richard Saunders

It's a Pokémon World: Not-so-intelligent design

"Intelligent design" is sophistry used by creationists to rescue their discredited pseudoscience. Grant Stevenson looks at the claims and finds them wanting.



Grant Stevenson, President of the Victorian Skeptics, is an architect, and when discussing design he knows whereof he speaks.

I am not a regular reader of the *CSF's Technical Journal*, and so I was surprised, as I perused a recent issue (Volume 51:1), to learn of the latest (?) evidence ranged against the 'case for evolution'. Pierre Jerlström's article "Insect leg development: evolution out on a limb" (p.12-13) deals with the role of *homeotic selector genes* (Hox) - and in particular, the *Distal-less (Dll)* gene - (apparently) responsible for the development of legs in both insect larvae and vertebrates.

Accepting that Jerlström's understanding of the role of this gene is correct: how is this significant? Because "vertebrates and insects have completely different limbs: bugs have muscles on the inside of a protective exoskeleton, whereas in animals muscle covers the bone. And, according to evolutionary belief, insects and vertebrates are only distantly related to [through?] a limbless flatworm that lived perhaps a billion years ago." As this common legless ancestor had no need for a 'grow leg now' gene, and the odds of identical genes coming into being twice is so (nay, infinitesimally) slight "it is easy to recognise this hidden unity in limb

development as the work of one Creator who used a highly successful basic blueprint to design appendages for the movement for the various created kinds."

Whether this conclusion is as obvious as Jerlström would have us believe is for greater minds than mine to say. I can see no problem with the suggestion that the 'grow leg gene' started its career as a 'develop protruding bit on body segment here' gene - something that helped my flatworm antecedent wriggle along a bit more efficiently - and proved useful to vertebrate and invertebrate ancestors alike as their body plans developed and diverged. I am, however, no biologist, although judging by some of his writing - neither is Jerlström.^{1 2} Look at the first quote above - "... bugs have muscles ..", "... whereas in animals .." Even my four year old son knows that whilst all bugs are insects, all insects aren't bugs. And that bugs and insects are animals too!²

But this is not the main problem with Jerlström's thesis. This rests on the matter of design.

Design is a word often used in creationist writings. Jerlström him-

self refers to the Creator's design. What is design? What is the process of design?

For most of us, the act of design is inextricably linked to the creative/imaginative process. And this seems right enough. Faced with a new situation, drawing upon creative and imaginative abilities, the designer produces a new solution – a design – to address, solve or resolve the issues presented by the problem at hand. This applies whether the thing designed or created is a concert hall, a concerto, a chess stratagem or a Pokémon character.

In doing so, the designer reviews the bounds of the problem – the initial constraints and eventual purpose, considers issues of economy and efficiency, and calls upon his accumulated knowledge and past experience. As a designer matures, so too do his designs – as he learns from past work, successes and failures. And his work shows the characteristics, the unique 'finger-prints', of his turn of mind, developed over years of work and experience, and growing from his personality.

We can see this in the work of a designer or artist whose work we appreciate. Works by Bach, Beethoven, William

Turner or Harry Seidler, are immediately recognisable as such. They reveal their authors' style, and the development of that style.

One need not be too familiar with an artist or designer and his work to be able to readily establish when a previously unfamiliar work might have been produced. But recognisability or personality in a design, which, in great designers or artists, may be desirable, can also be a weakness. There may be many solutions to any one problem, but by definition, there can only be one *best* solution. Habits of mind or limitations to free-thinking will inevitably prevent a designer 'seeing' all the available approaches.

The Pokémon electronic game / cartoon characters are a good (and,

as a parent of the previously mentioned four year old, topical) example. At least 250 individual Pokémon species inhabit the Pokémon world and, in themselves, embody an interesting array of design ideas. But despite what appears to be a reasonable effort to produce a group of fantastic creatures (that are, as cartoon characters, quite unencumbered by small matters like reality), the limitations of imagination are manifest. Without exception they are bi-laterally symmetrical; most have faces – two eyes, two nostrils and mouth below; many are quadrupeds, with defined hands and feet.



A designed life form

Most, in one way or another are adaptations of the body plans of real and familiar animals – cats, dogs, horses, birds and bats – with some minor addition: a flaming mane, an extra head or tail, a single horn, a piece of vegetation growing from the back or top of the head. Occasionally a more exotic model is used – a nautilus, an octopus, a seahorse, carnivorous plants – with similar embellishments, but the results remain predictably familiar. Keeping the characters cute and cuddly is surely part of the explanation, but the suspicion remains that when pushed to simply even imagine a 'new life form', it is just too hard to break with familiar forms.³

What sort of designer would we expect God to be? Clearly the corpus

of his work should not show signs of growth or maturation. Omniscience rules out that he might have to learn from the past, or that his work (or imagination) be constrained by previous work or experience. So, as each problem is unique, the solutions developed should also be unique.

Rather than a high degree of similarity (parsimony) in the solutions generated (as Jerlström observes), we should see a high degree of divergence in the solutions for life. God shouldn't have a design style. We should not expect to find those similarities between creatures that Jerlström finds so convincing: the

"hidden unity ... of one Creator who used a highly successful basic blueprint ... for the various created kinds." These similarities, beloved of Jerlström, and so well demonstrated by Pokémon, are just what would be expected of a designer building upon experience and past error, working within a 'house style' – a designer, or a self-developing (dare one say 'evolving') design process, using "a highly successful [but unimaginative] basic blueprint."

That's what I reckon anyway. But as I've already said, I ain't no expert!

Notes

¹ He is described as "Dr" (of undefined sort) and co-ordinator of the *TJ* Editorial team.

² And if sloppy writing rather than sloppy thinking is to blame – surely more is to be expected from the co-ordinating editor of what purports to be a serious publication.

³ For those without young children or grandchildren and so with a legitimate reason for not having been exposed to Pokémon, when was the last (indeed the first!) time you saw a really original cinematic alien life form? I acknowledge the limitations that faced the designers of the alien races in TV series' such as *Star Trek*, constrained as they were by the limited number of body plans available amongst (even American) actors. But what excuses the designers of computer graphic assisted productions – but their own imaginations?



Two Records Shattered

Our ferocious fiscal friend finds further fiendish methods of separating fools from the folding stuff.



Richard Lead is a tax consultant and treasurer of Australian Skeptics, who likes a red wine on a hot day.

My column in the Autumn 2000 journal was headed *Four In One Week*, and outlined four victims of the now ubiquitous offshore-investment scams. The article was submitted to our grizzled editor on a Friday, and on the following Tuesday I phoned Skeptics' Central with the suggestion we rename it *Five in Six Days*, for indeed another victim turned up on the following Monday.

Earlier this month (May) an accountant client sought my advice on establishing a tax-effective structure for an Australian investor. In the financial year ended 30 June 2000, this chap's business had boomed, making him a profit of \$1.3 million. He had invested all of these profits overseas. Being asked to establish a structure for clients *after* they have made their investments is surprisingly common, and is one of the reasons a glass of Shiraz at the end of the day (refilled many times) is such needed therapy.

Anyway, you guessed it, and one glance at these investments was sufficient for me to advise the accountant the very last thing he should be considering was tax savings. His client had invested through four Asian-based 'advisers', all of whom are featured on the Australian Secu-

rities and Investments Commission's 'Cold Calling' warning list (a visit to <http://fido.asic.gov.au/> is thoroughly recommended). The \$1.3 million has been lost, the largest individual loss I have been involved in. But it is worse than that. The client still has to pay income tax on his profits for the June 2000 year, but he now doesn't have any money. The \$1.3 million loss is not tax deductible (if I steal your wallet, is that a tax-deductible loss?) so he is now facing bankruptcy. His innocent belief that total strangers would make him seriously rich has probably cost his family their home. My words fail to convey my rage.

Selling non-existent shares is a hugely profitable scam. There are now hundreds of international groups busily competing for this easy dollar. In an April 17 article in *The Age* (thanks to Mark Plummer for the reference) the American stock-market commentator Brian Hale outlined the activities of the Mafia in this activity. It seems the Gambino family ran a share-fraud scheme which made A\$98 million from its victims. One of its victims was tennis star Steffi Graf, who admitted losing US\$600,000.

One of the tricks of these scammers involves mimicry. Goldman

Records Shattered

Sachs is a leading and reputable global investment banking and securities company. So when you receive a phone call from the advisory firm A.S. Goldmen, it is easy to confuse the reputable firm with its imitator.

I now ask a special favour from readers of *the Skeptic*. Please tell your friends and family about this scam. Think of anyone you know who could perhaps have idle funds sitting in a bank account, and warn them. If not to protect them, at least to deny that money to the bad guys. A number of articles on telephone psychic scams have appeared in *the Skeptic* over the years. We are aware of a number of people who 'invest' thousands of dollars each year in such telephone counselling, with our worst example to date costing the victim some \$15,000.

Tax on Tarot

Recently I was asked for a tax opinion on the deductibility of some \$24,000 in telephone expenses which a Sydney businessman wanted to claim as a business expense. Fairly trivial stuff, and I wondered what the tax issues were, until I examined the Telstra accounts in question. A sample shown on this page, covering a

typical three-week period, should explain my incredulous spluttering.

What I find most intriguing about this telephone usage is the time of the day this businessman made his calls. He was not seeking paranormal guidance and comfort in the middle of a cold dark night, when all of us can feel the need for a friendly voice and a word of encouragement. These calls were generally made during working hours, and from his work telephone. Take March 21 as an example – he called the *Live Tarot* line at 10:01am and paid \$234.65 for a 78-minute paranormal session. Within seconds, he was back for a further \$55.80 worth of advice.

The victim submits his calls to these services are for business guidance only, and accordingly the cost should be tax deductible. I am sympathetic to this argument – fees paid to management consultants are tax deductible, yet the quality of some of the advice I have seen over the years makes even paranormalists look vaguely respectable. But alas, the chance of a crusty ATO auditor allowing these expenses to be subsidised by the rest of us via tax deductibility is remote indeed. My advice was that his habit comes from after-tax dol-

lars, and he would be unwise to pursue the tax claim.

Despite the unrevealed advice the Tarot cards had offered, this man's business has not prospered. Perhaps he spends too much of his working time on the telephone.

The Australian Skeptics' record for a telephone-psychic loss in a twelve-month period has leapt from \$15,000 and now stands at a heady \$24,000. Let's hope this record is never broken.

The *Live Tarot* line is big business. I invite readers to make a short call to the number quoted – the \$3.30 per-minute fees don't start until after a warning beep. Readers will instantly recognise a modern and infuriating feature of using the telephone!

Wattle he do next?

In 1981 Geoffrey Robert Dexter was jailed for 16 months for fraud. His conviction was on the public record.

In May 2001 Geoffrey Robert Dexter was jailed for 10 years for fraud, the longest conviction for fraud yet achieved by the Australian Securities and Investments Commission (and a hearty Well Done, chaps).

Between those periods of incarceration, Geoffrey Robert Dexter scammed \$155 million from Australian investors in a Ponzi Scheme he named the Wattle Group, a scam familiar to regular readers of *the Skeptic*. His first conviction for fraud was in the public domain, yet he took, and lost, \$155 million in a transparent Ponzi scheme. Never underestimate the ease with which we can be parted from our money.

Figure 1. The phone bill

Date	Time	Number	Provider	Min:Sec	\$
Information calls continued					
Telephone Service continued					
09 Mar	09:05 am	1902263910	Live Tarot	37:01	110.00
11 Mar	10:15 am	1902263910	Live Tarot	11:19	32.50
12 Mar	07:02 pm	1902263910	Live Tarot	30:07	89.30
15 Mar	06:35 pm	1902263910	Live Tarot	36:43	109.10
17 Mar	09:13 am	1902263910	Live Tarot	17:23	51.10
18 Mar	10:09 am	1902263910	Live Tarot	10:43	31.10
19 Mar	05:28 pm	1902263910	Live Tarot	27:17	80.80
20 Mar	10:17 am	1902263910	Live Tarot	16:56	49.75
21 Mar	10:01 am	1902263910	Live Tarot	78:34	234.65
21 Mar	11:20 am	1902263910	Live Tarot	18:57	55.80
22 Mar	09:54 am	1902243425	Tarot Line	0:15	0.15
22 Mar	10:39 am	1902243425	Tarot Line	15:56	61.51
23 Mar	02:39 pm	1902243425	Tarot Line	23:18	90.60
26 Mar	10:27 pm	1902263910	Live Tarot	33:43	100.10
29 Mar	09:14 am	1902263910	Live Tarot	32:48	97.35
01 Apr	12:28 pm	1902263910	Live Tarot	36:15	107.70
Total for 02					\$1,435.51
Total for Information					\$1,435.51

Confusing Language

Mark Newbrook begins a regular roundup of linguistic and historical weirdness from around the world.



Dr Mark Newbrook, a linguist at Monash University, is the consultant in linguistics to the Skeptic.

According to their web-sites, ILCC, Inc. (Intergalactic Lovetrance Civilization Center) work to 'provide more precise guidance to seekers of Truth'. They adopt a typical Vedic world-view: Hinduism and the Sanskrit language were universal throughout the world for millions of years, until wicked Christians, scientists etc took advantage of temporary weakness to pervert this paradise and re-write history. *Lovetrance* is their name for the civilisation which existed before this outrage and (if these people ever had their way) would exist again.

But perhaps they should first become more precise about some basic facts. There follows their account of British history, with my comments. Strangely, none of this (except, marginally, 2) relates to these writers' non-standard ideas on Hinduism, the Vedas etc. They just got it all grossly wrong! I have referred them to introductory textbooks.

1) First [Britain] was conquered by the Romans, then the Celts.

2) The Celts combined with the ancient Aryan Dravidians...

3) Britain was then gradually conquered by the Mutos, Thangles, Sextons, and Danes.

4) In 1066 French and Germans from Denmark's royal races conquered and governed over Britain.

5) The British were then converted into Christians.

6) Until Henry VII, French was the national language of England.

7) Then the German royal race was amalgamated into England and the conqueror and the conquered became amalgamated into one Christian community.

Comments

1) The Celtic presence in Britain is no longer regarded mainly as a 'conquest'; but in any case the order is wrong here (the Celts were in Britain long before the Roman conquest).

2) It is strange to use *Aryan* and *Dravidian* together, but this seems to relate to these writers' own non-mainstream beliefs about these things. The main point, however, is that I know of no evidence that 'Dravidians' or Dravidian languages were a factor in early Britain.

3) There was no group called the *Mutos*. Is this a massive typographical problem involving the word *Jutes*? Further, *Thangles* should obviously be the *Angles*, and *Sextons* (as in grave-diggers?) should obviously be *Saxons*. And the Danish incursions were considerably later.

4) The invaders of 1066 were the Normans, Vikings who had created a kingdom (Normandy) in North-West France 150 years earlier and by that stage spoke French (albeit a different dialect from that used in Paris etc).

There was no connection with the Kingdom of France, with Germany or with Denmark.

5) The main group affected by the Norman Conquest was the English (the descendents of the Jutes, Angles and Saxons) - not the British (= Welsh, etc). England and most of Britain had been Christian for several hundred years by this time.

6) English had largely replaced French in many domains before this.

7) This did not occur 'then' (1485 and after); it happened in 1714. And it was not 'the German royal race' but the House of Hanover (one of the many states that then made up Germany). There was no conquest (no violence at all) in the 1714 change of dynasties; and, although the accession of Henry VII in 1485 involved a civil war, there was no 'conquest' (by an invading force) then either.

But there have been so many errors by this stage that it is difficult to know what the reference to *amalgamation* is actually about.

Sexydial and speling reeafum

Spelling reform enthusiasts (who often know rather too little linguistics) have just got excited about some new findings. It seems that dyslexia is more common in English-speaking countries than in France or Italy.

This kind of thing is not really unexpected. After all, Italian spelling is almost phonemic, ie, very close to the phonology (sound system); it is what a non-linguist would call 'phonetic spelling'. And, once you know the French spelling system, it is normally easy enough to tell how to pronounce a new French word, too - although working out the spelling from the pronunciation is harder!

English spelling, on the other hand, has multiple sources and many irregularities; it is not surprising that children and foreign learners struggle with it. Armed with the new findings, the reformers are once again clamouring for phonemic spelling. But it has first to be noted that not **all** spelling problems involve anything as alarming as dyslexia. And in fact a phonemic spelling system for a language as varied as Eng-

lish (even just Standard English) would simply not be viable. Would we write *car park* with the *rs* (as most Americans say it) or without (Aussie, English)? Would we write a long or a short *a* in *castle*? No solution would please everyone, even if we confined ourselves to the five or six most major accents. And how many Aussies would like being told to spell everyday words in unfamiliar ways because 'that's how most Americans pronounce them'?!

Knapp and the Bulgars

Stephen Knapp (see my review of his book in 20:4) claims that the Bulgarian authorities introduced Sanskrit into their education system because the Indian Embassy told them that all European languages - including Bulgarian - are derived from Sanskrit. Never one to accept such claims at face value, I wrote to the Bulgarian Consul-General in Sydney. He was kind enough to reply in person. He himself thinks that Sanskrit is the ancestor of all Indo-European languages, at least (still wrongly) - and also (again wrongly) that Hungarian is Indo-European, not that this is very relevant to the point at issue. But in any case he denies the truth of Knapp's story (not surprisingly!).

Hindus on the web

I posted a potted version of my review of Knapp's book to start a new thread in the forum section of the relevant main Vaisnava (Krishna-devotee) web site. This posting quickly drew a response and the thread lasted a month (deviating into philosophy of religion and other matters) before the moderators finally expelled me, actually fixing the site so that I could not even look at it anymore as long as I used my normal email address. I had already been berated for blasphemy in that I doubted the truth of Hindu myths.

These people refer to science and scholarship as 'speculation' and seem to regard them as very poor methods of learning the truth. An Australian member of the group - who was among those who showed some sup-

port for my criticisms of Knapp and for my advocacy of careful, unbiased scholarship - reports that they were apparently running scared of serious criticism! At least I made my point. I also learned about a new, and to all appearances more scholarly, advocate of the idea that Sanskrit is close to Proto-Indo-European. I have his book on order and will report further later.

The Aetherius Society on Sanskrit

Despite the death of Mr/Dr/the Rev George King, the good old Aetherius Society still forges ahead on its mission to save Earth from its extra-solar foes. But the forum I found no longer accepts postings, and though the London office promised to forward mine it remains in limbo. So my attempt to query yet more crazy remarks on Sanskrit has been thwarted!

A shame: the Aetherians regard Sanskrit, not merely as the ancestor of all human speech, but as vastly ancient and the main lingua franca of a whole swathe of inhabited planets! Never mind: next time I'll report on some **really** far-out languages from off-planet!

Ancient alphabet in Australian cave?

A group called 'Viewzone', consisting of the fringe writers Gary Vey, Gene Matlock, the Australia-based John McGovern etc, has a web-site promoting the idea that ancient inscriptions (definite or putative) found around the world constitute a 'world alphabet' that was used between 8000 and 4000 years ago (ie, much earlier than the earliest known alphabets, and for the most part earlier than **any** writing system).

The alphabet, and the language as partly 'deciphered', are close to early Semitic forms; Viewzone regard them as Proto-Semitic. They may have a case of sorts as far as the Middle East is concerned (and for the latter part of their period). But in order to bring in North America they have to accept some of the identifications proclaimed by Barry Fell & Co, most of which are clearly unwarranted and none of which have been reliably confirmed. And they don't stop there!

For them, the Panaramitee rock-art tradition of Australia also represents this world alphabet. Never mind that the symbols in question – circles, crosses, etc - are so simple that they predictably crop up all over the world with many meanings, linguistic and other! Never mind that Panaramitee symbols are typically of varying sizes and spread all over a cave wall, with no obvious order in which one might read them!

And then they quote the distinguished archaeologist Robert Bednarik out of context, suggesting that he endorses their views (which he definitely does not)! Vey has written a computer program which translates such texts into English – but to do this you have to accept his identification of the marks as Proto-Semitic symbols **and** his ideas about the order in which they run. But read on...

Reported for asking questions!

For two days in January, Vey and I emailed to & fro (I was trying to learn more about his ideas); but he and Matlock suddenly became so angry that Matlock emailed my Head of School at Monash, accusing me of deluging them with unwanted messages. Their view seems to be that people should talk only to those who already agree with them (eh?). By the time my HoS got around to asking me what was going on, I had long stopped emailing Viewzone. His wholly understandable decision was to ignore the complaint. I will review Vey's material when time permits.

Matlock, the land beyond Knapp

Meanwhile, back at the ranch, I obtained two of Matlock's books, intrigued by his portion of the Viewzone web-site, the similarity of his views to those of Knapp and his extremely weird ideas as expressed in emails. Example: he thinks that his buddy's expertise in missile guidance systems and yucca plants qualifies him to discuss historical linguistics, whereas people like me should wait until we have built up our 'credentials' before commenting!

He also states that he is more interested in selling books to non-expert readers than in learning some linguistics and considering whether he might not just possibly be wrong in thinking that the vocabularies of most of the Amerindian languages of the American South-West consist largely of Sanskrit words (etc, etc).

A joint review of these books can be read elsewhere in this issue, and I also put mini-reviews on the Amazon and Borders sites. I ended each of these by urging readers **not** to buy the books - because they are utter nonsense.

Oak, spiritual father of Knapp

Knapp and Matlock draw much inspiration and many examples from P.N.Oak, a now elderly writer living in Pune, India. I bought five of Oak's books, not without problems: I had to send him a draft in rupees, and the books arrived wrapped in rapidly disintegrating pieces of Indian newsprint! I have begun to look at the material, starting with *Fowler's Howlers*, in which Oak attacks the accepted etymologies for hundreds of English words, place-names etc, and proposes new Sanskrit etymologies – most of them ludicrous both linguistically and historically.

At the outset he quotes a very sensible letter he received in 1991 from Oxford University Press after he sent them some of his proposals: OUP politely pointed out that his claims clashed so badly with what is known that they couldn't possibly be correct.

It is a pity that even after this Oak didn't set out to learn some historical linguistics. Like Knapp and Matlock, he gives no evidence for most of his etymologies, but merely invites readers to agree that they are obviously correct. Occasionally he puts forward an argument against a standard etymology, but these arguments fail, chiefly because Oak simply does not know enough about the subject or about the history of any language other than Sanskrit.

Even for Sanskrit he uncritically adopts Vedic ideas about its vast antiquity: he thinks it was used in

happy Hindu communities worldwide for 2000 million years [sic] until wicked Christians, scientists and such subverted all this and re-wrote history. The reference to howlers in the book title is rather ironic!

Oak's nonsense is not confined to linguistics and history, either. He repeatedly asserts that Vedic philosophy can be accepted by believers in all non-Hindu religions and even by atheists; but in other passages he describes specific Vedic beliefs about the gods, which an atheist would surely struggle to accept!

Religious people too object to Oak's views: there are Muslim web-pages attacking him, not surprisingly when he claims that Islam is a perverted offshoot of Hinduism and that the Kaaba in Mecca was originally a Shiva temple!

For my part, I wrote Oak a closely argued 11-page letter, which should give him something to think about! I have also asked the Indian Rationalists if they think local action is warranted.

Zuni and Japanese related?

Nancy Yaw Davis has written a book arguing that in the remote past there was cultural contact between the Zuni (New Mexico) and the Japanese, which indeed was instrumental in the development of the Zuni as a distinct cultural entity and was reinforced by a C13 Japanese expedition to New Mexico.

She advances arguments of various kinds to support this position, including comparative linguistic 'evidence' of the usual kind. This material occurs throughout but is largely concentrated in one particular chapter. Several non-specialist reviewers of the book in the media and on websites seem to think that this is where Davis' case is strongest, which says little for her overall position.

Her Zuni-Japanese linguistic equations are collectively far too superficial and unsystematic to support her case, and many of them involve features which are so general and widespread that they are not even suggestive of a link. What is most alarming here is that Davis has a

PhD in anthropology and has taken a course in historical linguistics.

While she refers to mainstream linguists and appears more sophisticated than most such authors, she repeatedly displays a seriously incomplete grasp of the relevant methods and theories. She fails to note the contentiousness of some of the ideas she adduces as support, does not distinguish adequately between shallow- and deep-time reconstruction, and in particular misunderstands the force of Ringe's recent work.

In places she appears simply naïve. Davis is also too ready to 'pass the buck', at one point suggesting that those who dispute her thesis must themselves identify other sources for Zuni (but the two languages are simply of unknown genetic origin, and discussion of both cases continues). Interestingly, Davis' thesis is a partial reversal of Smithana's proposal (in a more obviously fringe book published in 1990) that Japanese is derived from Amerindian languages.

Sales rule?

It always amuses me how confident the editors of minor publishing houses and specialist booksellers are in writing positive reviews for books on topics of which they know nothing.

I recently pointed this out to one such person, who had written a glowing review of Knapp's linguistic ideas. 'I know nothing about the subject, but it looks all right to me', he (effectively) said. Obviously he was not going to change his comments merely because Knapp's theories are demonstrably nonsensical. But minor players are not alone in this respect. Just read what Amazon themselves have to say about Knapp!

Brett, Tony and the Gympie Pyramid

Closer to home, Brett Green lives near the Gympie Pyramid, proclaimed by Rex Gilroy and others as Egyptian in origin; his C19 forebear John Green copied some of the alleged inscriptions.

In 1992 Brett Green wrote a book on this matter and in 2000 he issued

a revised edition. He believes that the ruined structures which remain, and surviving photographs of now-vanished structures, together with artefacts associated with the site or with neighbouring areas, do indeed suggest early settlement of Queensland by seafaring peoples from Asia and Europe.

Green admits that his book is not academic in style, but that can hardly excuse the uncritical way in which he handles the evidence. This includes linguistic evidence: like so many other such writers, Green relies heavily on impressionistic comparison of isolated, superficially similar forms, in this case forms in local Aboriginal languages on the one hand and in ancient Mediterranean and Indian languages on the other. As I have explained to Green, this material cannot be taken seriously, and I have grave doubts about the non-linguistic aspects of his case as well. Green is not angered by criticism but does not seem to 'get the point'.

But in fact this is not the first time Australian Skeptics have examined the case of the Gympie Pyramid. Back in 1985, Queensland member Tony Wheeler inspected the site and came to the view that all of the ruins and artefacts are of C19 or early C20 date; some items, indeed, he judged to be fakes.

Green devotes two pages of his book to an attempt to debunk Wheeler's skepticism, but his treatment of the subject is not very coherent, and Wheeler stands by his views.

But the story is not over! Gympie is not very far from Sarina, where Val Osborn claims to have found a Phoenician port, and we may yet hear more of the ancient seafarers who supposedly reached Australian shores long before the C17 Dutch or even those dreaded C16 Portuguese!

Godwin and the Seven Vowels

Joscelyn Godwin is a Musicology lecturer at Colgate University in the perhaps unfortunately named town of that name in New York State. He has also written prolifically and positively (though not uncritically) on

various fringe topics such as theosophy and the Hollow Earth.

In his 1991 book *The Mystery Of The Seven Vowels*, Godwin presents a strange mixture of amateur linguistics and occultism. Laura Tollfree and I recently looked through it. Godwin seems largely unaware of mainstream phonetics and phonology, relying mainly on earlier amateurs such as Richard Paget for background.

His own contribution to phonetics predictably involves matters of pitch, tone and frequency, and – though he makes some mistakes – he has something genuinely interesting to contribute in this area (which is often neglected in undergraduate courses). But then he branches out into mysticism, and in the later sections of his book even his facts are often wrong.

For instance, Ancient Greek did not have only seven distinct simple vowel sounds (those of the title). Only the imperfectly systematic alphabet suggests that, and the real figure (for most dialects) was at least ten. Godwin responded briefly but not angrily to our comments; on the other hand, his proposal to take them into account if a new edition appears seems over-optimistic, given how much would need to be changed!

David Oates reverses into view again!

Oates is back, giving talks and running a clutch of web-sites adorned with uncritical articles presented as if they reported properly controlled studies and incorporated genuine expertise.

His misinterpretations of Newbrook & Curtain (1997, 1998) are especially funny; he seems to think that our results clearly support him but that we won't admit it! On one site he has a link to what appears to be a paper attacking our work, but so far we have been unable to access the piece itself. Is this perhaps deliberate?



The Dirty Thirty

Pt II

In an attempt to restore a measure of balance to the public debate, Colin Keay looks at further myths about nuclear energy.



Dr Colin Keay (PhD, DSc) is a retired physicist and president of the Hunter Skeptics. He has no connection with the nuclear industry or government.

Claim 16: "There is no good way to dispose of nuclear waste, as every alert schoolboy knows."

A throw-away line in Dava Sobel's inherbest-selling book Longitude which is the story of the development of the marine chronometer and has nothing whatever to do with nuclear matters.

The safe disposal of nuclear wastes is only a political problem. It is no longer a physical problem thanks to the work of the late Professor Ted Ringwood, who developed the Synroc mineralisation procedure. This Australian invention locks highly radioactive elements into an extremely stable matrix of appropriate minerals. Out of the process comes a dense rock-like cylinder, which can be buried safely. Its level of radiation depends on how long the radioactive nuclides have had to cool from the initial high activity they had in a reactor and how much the activity has been reduced by dilution prior to the process, as explained above.

If fissile materials were disposed of in Synroc their recovery would be extremely difficult at best. Much

simpler for terrorists to steal a nuclear weapon. It is nuclear weapons that need the guards rather than blocks of radioactive rock buried hundreds of metres underground at a remote location.

All manner of hypothetical problems have been dreamed up concerning radioactive waste repositories. The best rebuttal is the natural nuclear reactor complex at Oklo in Africa which, because of the presence of water as moderator, started up spontaneously in a uranium ore deposit about two billion years ago. It ran spasmodically at six adjacent sites for several million years. Excavation of the ore body proved that most of the high level waste remained immobilised at the reactor sites. When it comes to demonstrations, Mother Nature prefers actions to empty words and placards.

Interestingly, the recent concept, by Nobel Laureate Professor Carlo Rubbia, of an accelerator-driven nuclear power reactor promises to make this entire matter a non-event. His reactor design is inherently safe and has the ability to get rid of high-level nuclear wastes by a nuclear incineration process.

Claim 17: “High level nuclear waste threatens human life for 250,000 years.”

Statement by Giz Watson BSc (Environmental science), Greens MLC, WA Parliament.

This period of time is ten times the half-life of plutonium-239, by which time its radioactivity will have been reduced by a factor of a thousand except for the activity (which is low) of its radioactive daughter elements. A similar result may be obtained merely by diluting the plutonium by a factor of a thousand with a suitable non-radioactive mineral. The amounts involved from the entire nuclear power industry are small enough to make this a feasible proposition, if it was politically acceptable.

When it comes to danger from radioactivity, high-level reactor wastes, including the contribution of plutonium within the volume, in the span of one thousand years, it will have decayed overall to the level of radioactivity of the original yellow-cake ore. It is only mildly radioactive and can be handled with little protection.

Claim 18: “The uranium for this (Hiroshima) bomb came from Radium Hill in South Australia.”

This statement came from a Uniting Church booklet issued by the Rev, Ian Yule, 1977 November 4 (5 weeks before election day).

Prior to World War II, minute amounts of radium were mined at Radium Hill for medical use. Uranium was first mined there in the mid-1950s. The uranium used in the Hiroshima bomb was mostly from the Belgian Congo (see *The Making of the Atomic Bomb* by Richard Rhodes).

Claim 19: “There is no way to separate ‘peaceful’ nuclear power from nuclear weaponry.”

From a 1984 hearing brief by Dan Heap, NDP Member of the Canadian Parliament

Not so. One only has to compare the large number of countries employing nuclear power for peaceful purposes (thirty-three) with the smaller number of countries (eight or nine) having nuclear weapons capability.

To be sure weapons-grade plutonium may be produced by nuclear reactors, but only under constrained (and very uneconomic) conditions not generally met by commercial reactors in the West. For the early British power reactors (eg, Calder Hall) electricity generation was secondary to their role in weapons-grade plutonium production, which made their electricity very costly in more ways than one.

The reason for this is because the fissioning of uranium-235 produces excess neutrons, which uranium-238 nuclei absorb to produce plutonium-239. It is the time of exposure of uranium fuel rods to neutron bombardment that is the important factor. If the fuel rods remain in the reactor for more than a few weeks an increasing amount of the initially formed bomb-grade plutonium-239 becomes transformed by neutron capture into plutonium-240. It was discovered in 1944 that this isotope has such a high spontaneous fission rate that its presence renders a plutonium bomb unreliable and inefficient (see H Bethe and R Christy, *Physics Today*, p 15, June 2000).

On the other hand the grade of plutonium is of little concern in a commercial power reactor where the fuel rods are left in for two or more years. Using the rods for as long as possible maximises their energy yield (and gets additional energy out of the plutonium as well as uranium fissions). In this scenario the plutonium isotope mix they yield is extremely difficult to refine into weapons-grade material.

In other words to make bomb material a reactor must be operated uneconomically with rapid fuel turnaround. This was the give-away that exposed the North Korean program for producing nuclear weapons

by employing plutonium from their nuclear power reactors.

Claim 20: “... terrorist groups will construct atomic bombs from stolen nuclear materials, ...”

Statement in the book Nuclear Madness by Dr Helen Caldicott, Jacaranda Press, 1978, page 23.

The terrorist threat was summarily dismissed by Mr Justice Parker, who conducted the Windscale inquiry in Great Britain in 1978. In his report, he pointed out: “*Although plutonium has been produced and moved both intrastate and internationally for more than 25 years, there has never been any terrorist threat.*” Nor has any such threat materialised in the 23 years since the *Parker Report*.

Claim 21: “Given the plutonium, a student could build an atomic bomb in a garage workshop”

According to media stories based on an attempt by a Princeton University student, John Phillips, to design a nuclear weapon. His sketches were crude and did not constitute a feasible design. His professor gave him a good mark for collecting a lot of information useful for a bomb design. An unnamed MIT student also gained publicity for a similar project.

This claim is not heard so much these days because the extent of the unsuccessful efforts by the Iraqis and others to build a bomb is now better known. Fabrication and quality testing of the precisely lensed explosives of two different detonation characteristics would be next to impossible in a home workshop. Then the required timing accuracy of the detonators and the production of an initiating neutron source would defeat the would-be terrorists unless they could obtain restricted electronic components and scarce tritium. There are many other daunting problems in making a successful nuclear weapon.

A far easier option, and one to be much more feared, would be the theft of an existing nuclear weapon.

More to the point of this discussion, using non-weapon-grade pluto-

nium from a civil nuclear power reactor would be quite impractical for the construction of any home-made nuclear explosive device.

Claim 22: "The MOX industry is heavily reliant on reprocessing to produce plutonium"

Article "British Nuclear Fools" by Jim Green in the Green Left Weekly, 2000 April 5.

This claim, in an anti-nuclear article, is totally incorrect. MOX stands for Mixed OXide reactor fuel elements. The fuel rods contain ceramic pellets of a mixture of uranium and plutonium oxides, the idea being to help get rid of military plutonium by burning it to produce electricity. Far from producing plutonium, it is a practical method of getting rid of it. Most power reactors can readily use MOX fuel instead of straight uranium-oxide.

Claim 23: "... plutonium, a substance which has no purpose other than to be made into nuclear weapons."

From a 1984 brief to the British Columbia Government by Dr Elinor Powell, Physicians for Social Responsibility.

Plutonium is as useful as uranium in fuelling nuclear reactors. In fact as much as forty percent of the energy output from a power reactor comes from the plutonium it produces then consumes during normal operation. Power reactors employing pure plutonium by itself could be designed and built but it is much more convenient to use a plutonium-uranium mixture in existing reactors, which is what the MOX process is all about.

Claim 24: "People living near nuclear reactors and facilities suffer increased rates of leukemias."

Editorial "Leukaemia and nuclear installations" V Beral, British Medical Journal, 1990 February 17.

This editorial was written by Sydney trained Dr Valerie Beral, Director of a Cancer Epidemiology Unit in

Oxford and discusses the conclusions of two papers in the journal. The sub-heading of the editorial is never cited. It reads "Occupational exposure of fathers may be the explanation (of leukemia clusters)". Note the word 'may'. Dr Beral was being cautious, and with good reason.

The research referred to was undertaken by a team headed by a professor of medical statistics. Upon scrutiny, the two papers, with the professor as lead author, exemplify the old adage 'there are lies, damn lies and statistics'. The papers violate two of the cardinal principles of statistical analysis. In the first place their sampling (of nuclear installations) was incomplete, omitting many candidate facilities and inviting the suspicion that they committed the statistical sin of selecting favourable study sites. What can one expect when the authors admit that their study was triggered by a TV documentary that featured localised clusters of leukemias found near the Sellafield nuclear reprocessing facility in England and the Dounreay fast breeder reactor in Scotland. Dr Beral rightly pointed out that "... the children of other nuclear workers need to be studied before firm conclusions can be drawn." She further pointed out that "The only other relevant human data available are on the 7,400 children of Japanese men who survived the atomic bomb explosions, and these show no hint of increased risk of leukemias in the offspring." She concludes by observing that "The nuclear industry and its workers have a good record for limiting exposure and for collaborating with independent researchers in studying the health of the workers."

The second cardinal statistical sin committed in the study of leukemia clusters was to completely ignore those with no nuclear facility connection. There are clusters of childhood leukemias in New Zealand, for example, where nuclear facilities are notably absent. They could have been used as a control for the study.

Clusters of leukemias appear to be more related to shifting populations

bringing viral contagions to a region than to anything else. There has been some research conducted on this possibility but it is probably fair to say that the jury is still out for any firm verdict on the matter.

Claim 25: "Workers in nuclear power stations suffer reduced fertility."

Claim by reporter Ilya Gridneff in a news item in the Newcastle Herald, 1999 August 6.

The professor of biology who was interviewed by the reporter subsequently revealed that there is no sound evidence whatever to support this claim. He claims the reporter misunderstood what he had said. In fact the radiation exposure of workers in nuclear power plants is, through continual monitoring, kept lower than that of other workers, such as airline crews, in occupations that receive high doses of natural radiation.

Claim 26: "... making nuclear electricity requires massive amounts of fossil fuel."

Statement by Helen Caldicott in an article in The Australian newspaper, 1999 July 6.

This is a variant of the claim that the energy generated by power reactors never repays the energy needed to build them. It is of course true for research and military reactors not designed for power production. For civilian nuclear power reactors the payback time for energy required for their construction and the mining and processing of their fuel is only a matter of months. From the standpoint of economics the claim is patently untrue or there would be no point in constructing power reactors. The revenue from energy sold must repay the capital and running costs of the station or it would not be commercially viable. In most countries the generating cost of nuclear electricity is competitive with the cheapest alternative.

Until fusion or geothermal power

becomes a reality there is no proven substitute for nuclear fission reactors to generate base-load power if greenhouse gas emission targets are to be met and fossil fuels conserved as vital feedstock for future chemical, plastic and pharmaceutical industries.

Claim 27: “No nuclear reactors have been safely decommissioned, and who pays the bill?”

(A claim from an anonymous protest pamphlet, probably printed by a student activist group).

Not a problem. To date, over seventy commercial power reactors, research reactors and a number of fuel-cycle facilities have been retired from operation. Of those, many have been completely dismantled and their sites restored to green-field condition.

One of the first was the American Shippingport power reactor which operated from 1957 to 1982 when it became uneconomic due to its age and limited capacity. In the space of five years its site was rehabilitated and given the all-clear for unrestricted use. In Europe the 100 MWe Niederaichbach nuclear power station was decommissioned and its site released by 1995 for agricultural use.

Nuclear power reactors are a unique source of electricity in that the costs of decommissioning are by law factored into their operating costs in most countries outside the former eastern bloc. Therefore they do not present an impost on the public purse when the time comes for them to be decommissioned.

Claim 28: “It is cheaper to produce electricity through a new wind power plant than a nuclear power plant.”

Assertion by the Australian Conservation Foundation on page 3 of a colour supplement “Australia at the Nuclear Crossroads” in Habitat Australia, 1999 February issue.

As of now, year 2001, nuclear electricity is being generated for half the

cost of wind power. In 1996 the cost of nuclear electricity fell to rival that of coal fired power (and without the greenhouse gas emissions) and has been falling ever since because nuclear fuel costs are low and much of the higher capital cost of nuclear power has been amortised. Natural gas is the only alternative cheaper than nuclear in those countries with ample natural gas reserves.

Keith Alder, former General Manager of the Australian Atomic Energy Commission, in his book *Australia’s Uranium Opportunities*, observes that had the Jervis Bay 600 Mwe power reactor project gone ahead (in the 1970s) it would have produced the cheapest electrical power in Australia during its operating lifetime.

The country with the greatest proportion of wind power is Denmark, at around four percent. France has the greatest proportion of nuclear power, over 80 percent, and it is the cheapest source in Europe.

Claim 29: “Nuclear energy is not the answer to global warming”

This assertion appeared (2000) in the website of the Sustainable Energy and Anti-Uranium Service.

Until global warming is proved, and if true its cause understood, it is simply impossible to justify such a categorical statement. If greenhouse gas emissions are its cause then nuclear power generation, which produces no greenhouse gases, is clearly a significant answer to the problem.

Claim 30: “Not one scientist is prepared to state categorically that there is no risk of a nuclear accident.”

Statement (abridged) by Walter Bass, Turramurra, in the Sydney Morning Herald, 2000 March 11.

This claim is true enough, but deliberately misleading. No serious scientist would be so foolish as to make such a statement. There is no activity whatever known to man (even sleeping in bed!) where it could be warranted. The best that anyone

can hope for is an impartial assessment of relative risk. Competent risk analysts place nuclear accidents very low on the scale of danger; below civil aircraft mortality, which we accept without humbug, and even below the risk of dying as a result of an asteroid or comet impact.

Over and over again the Chernobyl disaster is cited as evidence that the risk of nuclear electricity generation is unacceptably high. Chernobyl was a totally inexcusable event, for which some of the culpable were jailed, but the sober assessment of its death toll by UNSCEAR (see answers to Claims 7 and 8) paints a different picture. In fact risk analyses, taking the Chernobyl disaster into account, reveal that coal-fired power stations are collectively of much greater danger to health and wellbeing.

On the day Chernobyl hit the headlines there was coincidentally a report (now forgotten) of a dam collapse in Sri Lanka where an estimated 2500 people perished. Does that condemn green power?

Just as the aviation industry has learned from its disasters and developed safety procedures, so too has the nuclear power industry, which, outside the former Soviet bloc, enjoys an almost unblemished record where loss of life is concerned. It has proved to be one of the safest industries on this planet.

Conclusion

After decades of brainwashing it would be too much to expect anti-nuclear beliefs to be overcome by enlightenment overnight. See Gregory Lester’s essay “Why Bad Beliefs Don’t Die” in the *Skeptical Inquirer* (November 2000). Rather, the above arguments are intended for those who prefer to make up their own minds on what is one of the leading issues of the day. The evidence presented here may be independently checked, with the caution that the motivation of any given source should always be taken into account. (Part 1 of this article appeared in 21:1.)



Showing the Skeptic Flag

Australian Science Festival

The Canberra Skeptics have just finished putting on a display at the Amazing World of Science, held at the National Convention Centre in Canberra. We had a little booth, a couple of tables, and lots of pamphlets on a range of topics to hand out to people and answers for their questions (well, mostly). It ran from Wednesday 2 May to Saturday 5 May, mostly school groups up to Friday, and family groups on Saturday.

In the past we've run experiments, but this time we ran none, largely due to a shortage of volunteers. This generally kept the school kids away, but probably attracted more adults, whose questions weren't distracted by the chatter.

Still, we had plenty to keep us busy, and after some of the questions and discussions I fielded, I felt I just have to share some of them with you all...

- The man who asked in all seriousness why it is that planes don't have to flip over to land at the South Pole, and (in effect) how we know the Earth is round. (He also asked what holds the Earth together, saying he didn't think gravity was strong enough.)
- The half dozen or so people who were utterly convinced that water divining works (*I was a skeptic myself, but I felt the rods move; I looked where he drilled, and two streams were pouring into the hole*), described all the different pieces of equipment (*forked peach branch, metal rods*), gave the explanations (*magnetic interference*)

and the reasons people fail our tests (*can only detect underground flowing water*).

- The geologist who told me there are still mysteries about building the pyramids, and that it must be nearly impossible to design the Nazca creatures unless you're looking at them from a balloon.
- The physics person who told me that genetic information can only be lost, never be created, and that he's read a lot of very interesting material produced by the Creation Science Foundation.
- The gentleman who told me how he's trying to organise for "Bodhiology" to be accepted as a subject by Science Faculties.
- And the two pentecostal Christians who bent my ear for over an hour, about problems with the theory of evolution, dating procedures (*decay rates could've changed in the past*) and fossils (*I've seen fossilised tree trunks cutting through layers of coal which supposedly accumulated over millions of years*), argued with me over the nature of truth and their certainty that god exists (*the evidence is there, and you skeptics are all about evidence*), disliked my description of Andrew Snelling, and all in all tried to save me - one with a little reason, thoughtfulness and care for my soul, the other with smug self-satisfaction that he knew he could dismiss most of my arguments with either "*the past could be different and you wouldn't know*" or "*but I've seen the evidence.*"

But there were also...

- The many people who congratulated us on our work.
- The mother of a school-age child who was concerned that skepticism wasn't being taught to children.
- The astronomer who praised us for the accuracy of a pamphlet dealing with the question of life elsewhere in the universe.
- The science teacher looking for skeptical teaching aids.
- The many people who departed with a smile and a fistful of pamphlets, saying, "This'll make for good reading."
- And the interviews with two science communication students on the aims and achievements of the Skeptics.

The level of gullibility among scientists was surprising and rather disturbing. But the general public, or at least those who chatted, seemed mostly to be cheerful skeptics.

It was a tiring four days, but I still enjoy it, and I think it's important for the Skeptics to be involved in events like this.

Dinner talk

But wait! That's not all. On the Friday night we held a dinner talk, with Steve Symonds from the Bureau of Met (who wrote an article in *the Skeptic* a year or two ago) doing the talking. Those present all enjoyed the food, drink and talk immensely, and I think we all learned something as well.

I'd like to organise such talks on a three monthly basis.

Canberra Science Fiction Convention

"A what?" I hear you ask.

Yes, the Canberra Skeptics got involved in a Science Fiction Convention on the weekend of 5 and 6 May. We handed out more pamphlets and engaged in interesting discussions with some of the most scientifically aware non-scientists I've had the opportunity to meet.

I was invited to participate in a panel discussion on the topic of colonising Mars. Other panel members included ACT Member of the Legislative Assembly Kerry Tucker (Greens) and Marcus Champ of the Mars Society. There wasn't much material for a skeptic to play with, in the circumstances, but it was fun.

(The organiser groaned when I told her which organisation "Canberra Science Fiction" shared its initials with.)

Conclusion

What is it to be a Skeptic? Does it just involve reading the magazine, or having a skeptical approach to life? Or does it include explaining things to people and informing them from a skeptical point of view?

Many people hold untenable beliefs, only because no one has ever challenged them. Give them some evidence, and their eyes will open. Watching that happen as they read our pamphlets is one of the reasons I take the Canberra Skeptics' stall at the Amazing World of Science so seriously. I heartily recommend the concept to other skeptical groups.

I'd like to thank the Australian Skeptics Science and Education Foundation for funding our hire of the booth. If we had to rely on our own resources, we'd have no chance of continuing our association with the Festival. I'd also like to thank those who spent some time at the stall, including: Graeme Morgan, Mike Cano, Arno Mikli, Michael O'Rourke, Neil Woodger, Max and Meg Wallace, John Thomson and David Wilson.

Peter Barrett

Loon Tune

*An old mad loon went riding out
One clear and windless day,
Upon his butt he rested as
He went along his way,
When all at once a mighty grid
Of poison clouds he saw,
A-stretchin' 'cross the ragged skies
Above the desert floor:*

*Yippee-yi-ya, yippee-yi-yo,
Ghost streamers in the sky.*

*The chemicals came floating down and
The crystals shone like steel,
The grit was black and shiny and
A hot rash he could feel,
A bolt of fear shot through him as
He looked up in the sky,
For he saw the toxins comin' hard
As the airplanes thundered by:*

*Yippee-yi-ya, yippee-yi-yo,
Ghost streamers in the sky.*

*There's foot and mouth, they're burn-
ing cows
The wind blows from the south
There's fluoride in the water now
And merc'ry in his mouth
Autistic kids from MMR
His wife's tits leak, but why?,
Aspartame in his Diet Coke
Just listen, hear him cry:*

*Yippee-yi-ya, yippee-yi-yo,
Ghost streamers in the sky.*

*The Monarchs fluttered past him and
He heard one call his name,
If you want to save your soul from hell
And not turn out too strange,
Stop eating GM food today,
Or with us you will die,
And you will see your kids deformed,
Your testicles will fry.*

*Yippee-yi-ya, yippee-yi-yo,
Ghost streamers in the sky.*



Seated, alone, one day at the organ¹ in in the Tin Pan Alley district of the city of Parramatta, **Peter Bowditch** [peterb@ratbags.com] was visited by his Muse². He had previously been surfing the web³ where he had stumbled across a site that revealed to his startled eyes, the Absolute Guaranteed Truth about the condensation trails that criss-cross the skies of those nations that have entered the jet age. The rest, as will become apparent above, is musical history.

(Readers wishing to try out this prophetic ode for themselves, should first practice lowering their tone to the range favoured by the late⁴ Mr

Vaughan Munro⁵. This may prove extremely difficult for some readers of the female persuasion, for which we can only offer our profoundest apologies. Biology sometimes makes sexists of us all.)

Notes

1. A vented spleen.
2. Or that is what he later told Mrs Bowditch.
3. Aren't we clever to use this modern jargon?
4. If Mr Munro is still alive, we apologise.
5. Or was it Frankie Laine?



Matlock on Sanskrit in the Americas

The urge to recreate history is strong among fringe dwellers. Mark Newbrook looks at a recent entrant into the field and exposes the underlying ignorance.



Mark Newbrook, a linguist at Monash University, is the consultant in linguistics to the Skeptic.

Recently I reviewed Knapp's nonsensical book on Vedic culture. Much of the 'evidence' for Knapp's non-standard, Hinduism-slanted interpretation of ancient history involves the unjustifiable and often ludicrous identification of words in Sanskrit, on the one hand, and in English and other languages around the world, on the other.

I thought at that stage that Knapp was close to the outer limits of fringe historical linguistics and associated fringe history. It was then, however, that I encountered the American writer Gene Matlock, initially in a different context (links from Gary Vey's implausible theory of a 'world alphabet' several thousand years ago; see later). Matlock's own work is about the diffusion of Hindu culture, the 'true' basis of Hinduism, and many features of the Sanskrit language to groups such as the Biblical Israelites, early Europeans, including the inhabitants of the British Isles, and Amerindians (especially those in the SW of the modern USA and in Mexico).

I had a brief but intense email interaction with Matlock. It emerged that - although he is familiar with several languages - he knows no linguistics and is hardly aware of the existence of the subject. He has in-

vented some rules of his own for equating forms, but these are invalid. He was apparently unable to understand the objections to the use of superficial likenesses in linguistic comparison which damn Knapp's similar methods, and in fact did not seem interested in hearing about them from me. He also showed himself to be a believer in various non-linguistic fringe ideas. At times he talked openly as if his main goal is to sell books to non-specialist readers rather than to unearth the truth.

However, it was not until I actually saw his books that I fully appreciated just how far Matlock goes. If I were not interested in commenting critically upon such books, I would now be regretting having invested in them. In places they are unintentionally amusing, but not so amusing - especially to a non-linguist - as to justify their prices. I suggest that potential readers instead content themselves with my comments.

Recent works

Matlock has written several books, but I deal here with two of his most recent works. The first of these is *Yishvara 2000* (Writer's Showcase, 2000). Briefly, Matlock claims that all religions, and especially Judaism, derive from early 'objectivist' Hindu-

ism, which he regards as a nature religion (pp 7, 58) involving seven basic rules of conduct and reincarnation (pp 7-9). He prefers to call this religion *Yishvara*. This claim naturally involves considerable revisions to the 'true' doctrines not only of Hinduism but also of other religions, and in addition highly dubious claims about the mindsets of believers in these religions (pp 55-58, 142-163, etc). He even alleges (p 18) that the Old Testament prophets regarded Judaism as derived from Hinduism - though not of the *Yishvara* type which he favours and which he thinks was really involved. Indeed, Matlock regards most current forms of Hinduism as 'Aryanist' and 'subjectivist' distortions (pp 58, 158-163, etc).

Atheists 'lie about their beliefs'

In some passages (pp 1, 8, etc), Matlock goes so far as to proclaim that all people - even atheists, who he says are lying about their beliefs - are automatically and by nature 'members' of *Yishvara*, regardless of their expressed views. In the same vein, he claims that even atheists and skeptics believe in spiritual entities (pp 56-58). (He obviously rates himself highly as an analyst of others' beliefs.) Naturally, such claims cannot be taken seriously; and in any case Matlock himself seems to fluctuate between this and slightly less extreme positions. At times, indeed, it is not even clear what he means, because of his loose and chaotic style and sequencing. On p 65 he can be read as claiming either that **every-one** actually agrees that 'Life is eternal' or that some 'skeptics' do **not** think so but are obviously wrong and ought to change their minds. And even as early as pp 2, 10 he confuses the notion of 'the only **valid** religion' with that of 'the **only** religion'.

Matlock supports his basic claim by uncritically citing a mixture of ancient pseudo-historical and religious texts (interpreted literally or metaphorically, as it suits him; see his reinterpretation of the Tower of Babel story on pp 17, 147-148) and recent fringe Indian or pro-Hindu

thinkers. In many cases he simply makes unsupported assertions. An early extended passage along these lines occurs on pp 2-4.

Pseudo cognates

A very prominent feature of the book involves 'Knappian' philologising, often involving very loose similarities indeed. (See my article in *the Skeptic* 20:2 for an explanation of why this method is unreliable and illegitimate.) Matlock's alleged cognates - invented by him or taken from unreliable Indian sources - include:

Scythia and *Scotland* (p 2)

Palestine, *Pelagian* (the ancient Greek name for pre-Greek peoples in Greece) and

Peleg (Old Testament character) (p 14)

Khod (Sanskrit for 'vagina') and *God* (pp 18, 49-50)

Anga-Leh (Tibetan tribal people) and *England* (p 20)

Undes (mountains in Tibet) and *Andes* (p 21)

Karnataka (Indian state) and *Canada* (p 21)

Lanka-Shetra (Indian location) and *Lancashire* (p 21)

Khyber and *Quivari* (mountain in Arizona) (p 21)

Indus and *Inti* (Quechua for 'sun') (p 21)

Maheshvara (variant of *Yishvara*) and *Mexico* (in fact taken from Nahuatl) (p 26)

Several alleged Hebrew-Kashmiri cognates (p 38)

Adol ('not removed' in various Indic = Indian Indo-European languages) and *Idol* (p 54)

Skeptic and Kashmiri *Ash-Kapit* ('broken expectation') (p 114)

Etc, etc. Matlock treats all of these as irrefutable evidence of the truth of his claims!

It should be explained here that Kashmiri is an Indic language which is related to Sanskrit, though not as

closely as Matlock suggests. He regards it as especially important because, as he explains in other books and on web sites, he believes that Kashmir has a particularly close historical link with Judaism.

In the midst of all this nonsense, Matlock inadvertently lists a few genuine cognates, involving Indo-European roots shared between European languages and the ancestor of Sanskrit (eg some of the names of gods on p 27). And occasionally there is briefly the prospect of better things, as where Matlock moves from the outrageous claim that everyone once spoke Sanskrit to a reference to the not widely known Munda languages (p 2). But he at once regains his normal form, claiming that Munda is an important source for German!

Fringe philosophy

Matlock gives an even weirder overall impression than Knapp, partly because his style is less polished but mostly because he is less restrained, less selective and even less critical than Knapp in his adoption of fringe philosophical ideas. For instance, on pp 26-30 he develops a complex quasi-occult philosophy based on Hindu notions extended to cover St Patrick's Ireland, Old Testament Israel and the contemporary USA. Laughably, this fantasy is based (in Matlock's mind!) on a quotation from Carl Sagan. Later (pp 54-71, 88-92) Matlock gives an idiosyncratic account of the relation between faith (good) and belief (bad) - although on p 58 he admits that he himself does not follow this in his book. On pp 88-92 (as elsewhere) he also identifies his own approach as 'scientific'. Indeed he redefines the notions of science and rationality as excluding Skepticism which rejects the paranormal (pp 110-111, etc). On pp 91-92 he identifies such Skepticism as 'idolatry' (his term for any belief system which clashes with his own view of the truth) and sets up his own very informal canon for the validity of empirical evidence. He also rants against dogmatically skeptical straw men, failing to ob-

serve that genuine Skeptics are more open-minded than the typical proponent of non-standard theories. His canon of empiricism involves nothing stronger than the agreement of more than 'a few' witnesses. On p 29 he proclaims that Yishvara has been proved empirically infallible (presumably in this sense).

On pp 121-124 Matlock draws a strained analogy between the evolution of species and the alleged development of individuals through series of lives. He also makes various other attempts to appear intellectually respectable, eg by criticising 'Outer Space cultists' (p 2). But his own use of evidence/argumentation is no better than that of von Daniken and such, and he even accepts Atlantis as real (p 134). In fact, he has less confidence in normal rational methods of enquiry than in his own subjective or unverified experiences which suggest to him that parapsychological phenomena are genuine and indeed ubiquitous (pp 109-111, etc). The only scientist he can legitimately cite as offering any of his ideas even qualified support is the maverick Sheldrake (pp 114-120).

Hindu diaspora

Matlock has also written books on historical aspects of his beliefs, and has another on the way. His most recent book of this kind is *India Once Ruled The Americas!* (Writer's Showcase, 2000). This book offers a hyper-diffusionist account of early human history involving an original homeland in Siberia, a migration to India and then a planet-wide Hindu diaspora (nonsensically identified on p 1 as involving 'the IndoEuropeans') which especially affected the Americas. This last development has been obscured by subsequent religious and cultural degeneration in India itself (p 113, etc) and now by the refusal of linguists, historians and other scholars to face the convincing evidence which allegedly persists.

In many passages, Matlock again produces little or no solid evidence but merely invites his readers to see parallels between the myths, legends and popular historical ideas current

in India, their equivalents elsewhere, and archaeological and other evidence about the relevant areas (pp 3, 6-7, 18-20, 25-26, 34-44, 60-61, 82-114, 118-120, 133-169, etc). Among other things, he claims that ancient Indians (pp 24-25, 112-113, etc) and the Portuguese in 1709 (p 167) disposed of advanced technology including aircraft, gives thoroughly non-standard accounts of the religious history of India and Asia (eg pp 139-153), and re-interprets Hindu ideas about the underworld as referring to the planet-wide diaspora (pp 10-11, 62, 153, etc). Matlock also continues to invoke Indian and pro-Hindu sources of low credibility as further support for these fantasies (pp 2, 6-7, 39-41, 48-49, 113-114, etc); also fringe western authors such as Hancock (p 78). Some of his points receive further bogus support in the form of misconstrued, out-of-context quotations from mainstream sources, such as an extract on purely Indian events of late M1 CE (pp 4-5) and a Mexican government outline of Mexican history (p 49).

Superficial similarities

But much of Matlock's 'evidence' once again involves 'Knappian linguistics', involving superficial similarities between Sanskrit, other Indic languages, Hebrew and Amerindian languages. Indeed, very large sections of the book are devoted mainly to such material: pp 3, 7-14, 18-30, 38-43, 61-68, 72-74, 78-117 (especially 87-88, where Munda and German are again linked, and 104-105, where Matlock presents tables of supposedly cognate forms in Indic languages, Quechua and Maya), 120-132, 152-160, 179-182, etc, etc. The details are of the same nature as in *Yishvara 2000* (I will send some more examples to any readers who are interested). Matlock's conclusion is that a very large proportion of the words in Amerindian and other non-Indian languages derive from Sanskrit, from Kashmiri (to which he again ascribes considerable importance) or from other Indic languages (and other Indian languages; on p 5

he refers to some Dravidian languages in this context).

It has to be stressed once again that dramatic conclusions such as this (or indeed any philological conclusions) simply **cannot** be supported with evidence of this kind. Matlock's huge numbers of examples are not to the point. Hundreds of pairs/sets of words with unsystematic, superficial similarities provide little more support (if indeed **any** more) than one such pair/set.

Idiosyncratic historical linguistics

In some sections of this second book (pp 46-47, 95), Matlock explains his sketchy, idiosyncratic historical linguistic 'theories', referred to above. Essentially, he thinks that words with certain types of meaning - notably the names of divinities and of the tribal groups using the languages in question - are more likely to be preserved and shared over long periods. (He tells me that he also includes sexual, agricultural and economic terms, but these do not loom so large in this particular book.)

Knowing no linguistics, Matlock is unable to take into consideration the fact that the grammars and phonologies (sound systems) of Indic languages on the one hand and of Amerindian languages on the other are completely different in type. This fact alone would suggest to a properly trained researcher that the similarities of vocabulary which Matlock identifies are probably either illusory or (occasionally) the result of language contact (if that were historically plausible).

Matlock cites in his support the ideas of amateur linguists of Indian extraction who have claimed to find links between Sanskrit/Indic and Amerindian, notably Lal (pp 48-49). These writers were clearly no better informed than Matlock himself.

In another attempt to appear intellectually respectable, Matlock discusses the views of Thompson, who developed an essentially similar non-standard diffusionist theory of Amerindian culture but with China as the source rather than India (pp 47-48). He presents himself as sup-

porting Thompson to a degree but as having shown that India was much more influential than China in this respect.

Amerindian origins

This section is perhaps connected with an attempt at the beginning of the book to oversimplify the debate on Amerindian origins and to present Matlock's own position on this issue as the most reasonable. On p vii (and again later, eg pp 51-52, 58), he contrasts his ideas with the common traditional, pre-scientific local Amerindian view that the Amerindians were created (etc) where they now live (and have lived during historic times). This latter is the kind of position which fringe archaeologists like Goodman and postmodernist activists like Deloria have supported against mainstream scientific archaeological findings, and it is naturally easy to make it appear less plausible than Matlock's own views.¹

But in proceeding in this way Matlock leaves out of consideration a **third** set of views: the mainstream scientific views themselves! These involve the well-supported theory that there was indeed diffusion from the Old World (where human evolution took place) to the New, but (a) directly from/via Siberia, (b) at a very much earlier date than 9000 BCE and after as Matlock proposes (perhaps before 20,000 BCE; hence too early to permit any confirmation through linguistic or cultural details), and (c) by land via Beringia and perhaps also by means of coastal navigation around the North Pacific (rather than by sea-borne expeditions across the Atlantic or the mid-Pacific as Matlock envisages). Matlock can thus ignore this much more plausible 'diffusionist' scenario and represent himself as a 'scientific diffusionist' clearing away the nonsense of local non-diffusionist myth. (In our correspondence I found his use of terms such as *diffusionist* confusing, and I now see why.)

One might wonder, however, why Matlock places so much more reliance on traditional narratives if they

happen to come not from the Americas but from India!

Recently there has been much use of genetic information to establish links between populations (although that is not the same thing as establishing links between languages or even cultures). Matlock refers in places (pp 23, 40, 72) to DNA-based and other archaeological evidence that suggests links between Asian (or at least non-American) and Amerindian populations (compare 'Kennewick Man'). But he oversimplifies the complex issues here and ignores possible explanations which do not fit in with his ideas. (Some of the researchers on whose claims he draws also have strong commitments to theories similar to his own.)

At times Matlock even equates fringe believers and scientists - whether he himself supports the fringe beliefs in question or not. On p 72 he accuses 'scientists' of foolishly regarding the Nazca Lines as associated with UFOs; while only three pages later (p 75) he wrongly suggests that the relevant scholars generally agree with Hapgood - and with him - on the vast antiquity of the Piri Reis Map. In places he makes pseudo-authoritative pronouncements on scientific matters such as evolution (p 112 etc) and 'race' (p 49). Again, he sometimes endorses current mainstream views and sometimes fringe views. The last chapters contain further attacks on Skepticism as he misperceives it (pp 168, 170-176) and on conservative Indologists in India who doubt his ideas (pp 168-169).

Implausible theory of a 'world alphabet'

Towards the end of this book (pp 161-168, especially p 161), Matlock rehearses Vey's dramatic but implausible theory of a 'world alphabet' several thousand years ago (otherwise available mainly on the web). Vey identifies various genres of non-linguistic symbols (including some found in the Americas) as representing this alphabet, which he links with known scripts used to write Semitic languages. He regards his theory as proven at a general

level, but it is difficult to find any experts on the relevant material who take it seriously. (He has cited the linguist Gordon as endorsing some of his ideas, but Gordon has been perceived as a near-fringe figure since making wild claims of his own and supporting works as crazy as Cohane's *The Key* as long ago as 1969.) Matlock connects Vey's claims with his own theories about the links between Judaism and an early Hindu diaspora; but, unless Vey's ideas themselves find more support, this connection can safely be disregarded.

Matlock again treats his own life-experience as adequate evidence for the truth of his ideas and those of his sources, against the skepticism of experts (p 45). His much exaggerated view of the importance of his own work is also displayed in a bombastic declaration on the fly-leaf of this book, warning readers that it will 'destroy' their cherished beliefs and pet theories. Naturally, it will have no such effect on a well-informed reader. But it might mislead the untrained - which is the only real reason for bothering to review such books.

I repeat: do **not** buy Matlock's books (unless they are very cheap, second-hand). If you read them, do not assume without other evidence that **anything** in them is correct - especially if it concerns language. If you already know enough linguistics, you will at least have a good laugh.

NOTE

1. Of course, many of the Amerindians themselves are predictably less than impressed with Matlock's rejection of their own traditions - or with some of his other, rather negative ideas about their cultures (as on pp 51-52), whether these are justified or not. He himself admits this, and indeed observes (p 61) that 'disrespectful, law-breaking Whites' are not welcome at all in some Amerindian communities. This illustrates the need for tact in expressing ideas of **any** kind, however strongly grounded they may be, which conflict with traditional indigenous beliefs. (But that does not mean that the latter ideas should be presented as equally likely or more likely to be **true** than the findings of scientists.)



Like *Déjà vu* all over again

Bob Nixon tunes in and finds an old acquaintance up to his old tricks - very old tricks

Beyond Belief **Channel 9 May 23 2001**

It's Sir David Frost for goodness sake! Here's the man who interviewed my Uncle Richard and showed the world that he really was a crook; a man whose reputation for integrity sets him above the majority of his journalistic colleagues; yet here he was with Uri Geller and a host of tricksters and bad actors. The show was *Beyond Belief* and the name itself should have been a clue.

Broadcast on Ch 9 on May 23 2001 this program came from Carlton UK Productions, made in 2000. I am on record as saying that Geller will one day rise proudly to his feet and admit to the world that it was all a trick and he was trying to teach the world a lesson. My feeling has always been that Geller likes the limelight more than he likes the money (although no doubt the money is nice), and watching this show I could feel my prediction becoming more and more unlikely. The audience loved him, yet all he did was the same tired old tricks: the spoon bending; the watch starting; and the picture duplication. Sadly Geller has not moved on much from the early days of his career as a psychic.

Illusions

The show started with the old parlour trick of four people lifting another person, using just one finger of each hand. The hands were placed above the head, but not pressed down

on the head as I learned the trick. The eight hands were placed one above the other, more importantly they were placed above the level of the shoulder that they were attached to. They stayed in that position for about a minute and then the volunteer was lifted right out of his chair. That such an old and well-known "experiment" opened the show was a clue to the quality that was to follow.

Uri Geller cannot deny, whatever his current claims may be, that he started out as an illusionist, a stage magician. It's fair to say that Geller knows a trick or two and I'd bet a dollar that his library of magic literature is larger than mine, yet even mine contains the effects that were performed by the other entertainers who appeared on *Beyond Belief*.

Blindfolds

Even if we take it as read that Geller has a mind with a significantly greater wattage than the rest of us, he must surely have read books that contain assorted techniques of making blindfolds that you can see through. Yet when Boris Tulchinski donned his blindfold to perform three effects Geller did not rush onto the stage and expose this Russian clown. Tulchinski used an interpreter, allegedly because he spoke not a word of English, yet the interpreter spoke not a single word to the master but he knew exactly what to do.

Part one involved nine objects placed on stands. A volunteer from the audience was asked to select one



Bob Nixon, investigator and illusionist, is an inveterate invigilator of idiosyncracies and idiocy.

of the nine and write it down on a sheet of paper. Only then did another member of the audience blindfold Tulchinski – almost. In fact the blindfold was placed over his eyes, then he removed it, adjusted it and replaced it. The volunteer tied it, but Tulchinski had positioned it.

A black bag was then placed over his head and Sir David confidently told us, more than once, that Boris couldn't see a thing. Boris then wandered about, with much arm waving and head jerking, and selected the basketball from among items. He was, of course, right. He hadn't bumped into anything, had knocked over nary a plinth. Then, still blindfolded, Tulchinski was able to locate and hand a flower to a woman selected by a member of the audience.

Later in the show Geller himself donned a wetsuit in a remarkable bit of nonsense. Telling us that he had experimented with remote viewing between two submerged submarines, and had found that water assisted with the process, he entered a large water tank and transmitted a command to Tulchinski. While Boris went off to complete his task, again managing to find all the doors and avoid all the walls, the television audience was shown the command, "Bring the red roses from the make-up room". Could this indicate that Geller was not the only one to know the secret instruction? Boris in fact took a single rose from the vase and dutifully returned to the studio. This was only a minor flaw, perhaps the result of Tulchinski's limited English, but I suspect he was really only ever planning to take a single flower. It is, after all a better trick to have a blindfolded man pull a flower from a vase. It seems more likely that the person who wrote the instructions was the one who made the mistake. Boris must have been livid.

Throughout the feat Geller sat peacefully in the tank, transmitting away merrily. Can it be that Geller doesn't know how this trick was done? Is it possible that he really did think that he was transmitting a command and Boris was picking it up? Well, no. To put it plainly Geller

could not be unaware of the trick being performed here. Sadly Geller, the mental maestro, has allowed himself to be used as merely the beautiful assistant.

Not that he was alone in that, but the other assistants were a good deal more beautiful. The show contained a host of British dolly birds, most of them apparently famous enough for Sir David to call them by their first names. Geller got just one, and she was in Paris. Ulrika Johnson transmitted an image to Geller from across the Channel and Geller went ballistic with excitement when he was able to reproduce the simple image of the sun, although he missed Ulrika's happy face.

And the spoons

For pity's sake, have we not seen enough of these yet? Geller bent a spoon using the same technique that is well known to Skeptics. At the Great Australian Science Show last year we killed dozens of spoons with this technique, and we'll do so again this year. Geller even started some watches. Ho hum. There was a spoon bent in the audience too, and the young man who managed this feat assured Uri that he had not physically bent it. I wonder if there is any significance in the fact that this guy was the same volunteer from the audience who blindfolded Boris? Geller made a nice little move to give the impression that the spoon continued to bend right there in his hand.

Psychic healer

The other star of the show was Matthew Manning, a psychic healer. He did a bit of applied kinesiology on a woman calling herself Panther and who is apparently a member of the British *Gladiator* cast. Panther won the prize for having the nicest outfit of the night, and I confess that it was a wee bit difficult to follow what was going on around her. She thought a good thought and Matthew was unable to force her arm down, she thought a bad thought and he had no trouble at all. This particular effect was achieved with some grunting and groaning from Matthew. The fact

is that the muscles of the human arm – even a gladiator's – can't really support the weight of a full grown man, yet Matthew did appear to be trying to place his whole weight on her arm. For the bad thought he changed arms, touched her shoulder and down the arm went. It helps too if the volunteer knows what is expected.

Matthew Manning was there to show that the mind is a powerful and marvellous thing, capable of healing, along with the other things Uri and Co were showing us. With the help of Hazel Courtney, a journalist, and Brian Roat, introduced as a pain management specialist, Matthew demonstrated this with a tub of ice. Hazel was asked to plunge her left hand into the ice and a clock was started. She lasted 25 seconds before she had to pull her hand out. All the while Mr Roat described the sensations she would be feeling, the pain that low temperatures cause. All perfectly true of course, and he was telling us this while the poor woman had her hand in the ice. Matthew then performed his healing technique and Ms Courtney plunged her right hand into the ice. Matthew had his hand on her shoulder and was being very intense, while Roat described how much better it would be now that Matthew had worked his magic on her. She lasted 50 seconds, twice as long, before she removed her hand, and said she could have gone on for longer. What we have here is a demonstration of how much difference is made by a supportive atmosphere and the power of suggestion, nothing more than that.

Remote viewing and other nonsense

David Morehouse, author of *Psychic Warrior*, swapped images with Geller across the Atlantic. It was the same trick that Ulrika had performed with Geller, only longer distance. Morehouse stared intently at a picture inside a manila folder. We could see the back of the folder, so we could be sure he was looking at something, but I wonder what it was? Perhaps he was checking his share portfolio. Geller drew a sort of UFO

on pillars and the image Morehouse had apparently been transmitting was revealed, not by having Morehouse simply turn the folder around so we could see it, but as a video clip. It was a building called the Rotunda, in Washington DC. We could see it was a video clip because there were cars moving around in front of the building. No one mentioned the name of the building and Morehouse simply smiled and nodded his agreement that Geller had got it right. Geller then held up a bottle and asked the audience to transmit the image to Morehouse. He got it, of course. Uri had the bottle in his pocket throughout the segment and he and Morehouse know each other. Let's not labour this point.

Coral Polge draws dead people, a remarkable ability. With the help of Bill Landis she then manages to link the dead person to a member of the audience. There was a nice looking little old lady who was bossy and determined, keen to be the first person drawn. She was chosen as grandma by a young lady from the audience, although it seemed to me to be a bit of a stretch and it took a long time for anyone to claim the old dear. Then came an old man, complete with moustache. He was claimed, more readily than the bossy old dear, by a pair of sisters in the audience. The technique here relates to cold reading. Bill would just talk and talk and talk until someone in the audience had heard enough detail to be able to match a couple of

facts with their own dearly departed. Then the facts that don't match can be safely ignored and the adulation of the crowd enjoyed.

My favourite act of the night was Oran and his dad Ronnie, from Israel. Oran sees telepathically through his father's eyes. We had a little taste with a roulette wheel and yet another British babe. The wheel was spun, the ball dropped and Oran was asked by the pretty girl "Oran, what number has the ball landed on?" He correctly answers 2. The wheel is spun again, while Sir David informs us that the odds of getting it right are thirty-seven to one, and of getting it right twice is thirty-seven to one multiplied by thirty seven to one. The ball drops and Oran's dad asks, "C'mon Oran, you concentrate? What's the number?" Again Oran is spot on with his selection of 13. Neat little routine, well known among mentalists. The same technique was used later in the show when Ronnie and a new dolly bird turned up at a pub and were connected to a blindfolded Oran via a live video link. Oran was able to successfully identify things that were around the pub. A pound note, a drink, a packet of cigarettes – and the number of cigarettes it contained. He went on to successfully identify the name and shirt colour of two patrons. Before the routine started Ronnie asked Oran if he could hear him, and he asked again when he got no response. There, dear reader is your only clue as to how this one might be done.

Fire walking

For sheer silliness we must examine the show's climax. It was, of all things, a firewalk. Christine Thomas, who with some work and a good stylist could well qualify as a dolly bird, told us that once you focus your mind you can walk on hot coals and to prove her point she did just that. Sir David, suitably awed, then asked Dr Friedbert Karga, a physicist and the nearest thing we'd had to a skeptic for the night, how he could explain it. He did his best to try and said that anyone could do it. Sir David challenged him to do it, and he did, but Christine soon stole the conversation and reiterated her nonsensical claim that if you get your mind focused and in the right frame anyone can indeed do it. It was, she informed us, an example of how powerful the mind is. I wonder what her course costs.

Shows like this make me wonder if anyone has been listening to the message of Skeptical organizations around the world. Can it be, I wonder, that there are still people out there who think that there is really something inexplicable about these tricks? Could it be that this entire show was just a way for Sir David Frost to meet young, pretty women?

My theory about Geller holds. I think in years to come Uri will announce to the world that what we saw in this show was just trickery, and that he has been fooling us all these years in order to demonstrate just how gullible we all can be.



National Convention

November 10-11

West End Club
2 Vulture St West End
Brisbane

(Full details in next issue)

Delusions in Science

Rob Hardy reviews a book that shows that scientists are no more immune to self-deception than are mere mortals.



Rob Hardy has a psychiatric practice in the USA. He is a regular reviewer for the Skeptic

***The Undergrowth of Science: Delusion, Self-Deception, and Human Frailty*: Walter Gratzer (Oxford University Press)**

We expect that science will uncover truths about nature, and that scientists will be well trained in observing, recording, and analysing data with objectivity. Anyone who regards scientific progress over the centuries, and especially in the past century, will find that such expectations are generally met. And yet scientists are human, with all the weaknesses humans are prone to.

The Undergrowth of Science: Delusion, Self-Deception, and Human Frailty by Walter Gratzer demonstrates instances where scientists can be susceptible to wishful thinking, patriotic coercion, and self-deception. Interestingly, the book does not dwell on cases of fraud; the scientists in the episodes described generally aren't trying to fool anyone, but manage to do so only after fooling themselves. The guiding spirit of this book is Irving Langmuir, a scientist who won a Nobel for his work on surfaces, but who brashly (and offensively to some) pushed his way into the research areas of other scientists.

When he wasn't in the lab, he liked to pursue what he called "pathological science." He never wrote about this hobby, and only a transcript of a lecture he gave in 1953 remains, but Langmuir's Rules for spotting pathological science show up all over this book. The rules specify, among other things, that in pathological science, experimental results are very close to the limit of detectability (hardly noticeable, or noticeable at a very low statistical significance); there are claims of great accuracy; explanations are fantastic and contrary to experience; and any criticism of the "science" is met with excuses thought up on the spur of the moment. The effect of nationalism is one of the themes in many of the episodes described here, starting with German invisible rays versus French invisible rays.

Rah Rah for Rays

In 1895, Wilhelm Roentgen discovered *X-rays*, and made history. A completely qualified and highly regarded French physicist, René Blondlot, studied Roentgen's work and found rays of another sort. He named them *N-rays*, after Nancy, his

university, and did extensive experiments with them. They produced tiny increases in brightness of, say, a spark. The Germans, beyond national pride, found that Blondlot's claims were a violation of physical laws, but other French researchers began to study N-rays and to publish about them. There were scientists in Blondlot's camp and those pitted against him, but all was quashed in 1904 through the efforts of R.W. Wood, an American spectroscopist (and incidentally, the author of a very funny little book of verses still in print, *How to Tell the Birds from the Flowers*).

Wood concealed that he could understand French, so he could listen to the members of Blondlot's staff talking about their work. He watched the procedures and couldn't see what they said they could see. He secretly removed an essential prism from their measuring equipment, and found that they still saw a spectrum of results as before. (The excuse about this episode conforms perfectly to Langmuir's Rules; the prism deflected the rays, and the rays stayed deflected once the prism was removed, a researcher explained.) The extensive publishing about N-rays precipitously dropped off, and they remain perhaps the most famous example of scientific self-deception, besides Percival Lowell's extensive mapping of Martian "canals," which would be right at home in this book but is not covered.

Other emanations

Deceptive rays have been spotted in other labs, too. A.G. Gurvich in the Soviet Union was sure he had found "mitogenic" radiation, some sort of forcefield which guided cells to take their places in a developing organism. Eventual evaluation of Gurvich's extensive experiments showed that various mistakes had been made, chief among them that when the experiments didn't show the radiation properly, the poor result was blamed on some experimental error rather than being evidence against the existence of the radiation.

Otto Rahn at Cornell University

found that menstruating women had some sort of emanation which killed yeast cells if the woman's finger approached the culture; thus the superstitions about menstruating women entered into scientific results.

Gratzer traces the stories of the flatworms that could remember what the flatworms they cannibalized had learned; the viscous new form of our old friend H₂O, polywater, which was supposed to be as dangerous as Kurt Vonnegut's Ice Nine; the impossibly dilute dosings of homeopathy; the monkey testis transplants men put up with before they had Viagra; and of course the debacle over Cold Fusion, which fits Langmuir's Rules perfectly.

Cold con-Fusion

Fleischmann and Pons would probably never have published their results (much less made announcements to the press) if there had not been intense pressure from the administration and the lawyers of the University of Utah, and their collaborator / competitor Steven Jones was incapable of skepticism because of his intense religious belief that God was leading him toward the truth. "It is entirely possible that a year or two of careful research would have persuaded all parties that they had not after all found a route to cold fusion." Financial and political imperatives made careful research impossible, and the episode still casts a shadow on current scientific work.

What has happened to these scientists? Gratzer explains: "The germ of a pathological episode is usually an innocent mistake or an experimental mirage; the perpetrator is persuaded that he has made a great discovery, which will bring him fame and advancement in his profession. Once committed it is difficult to go back and to allow the principles of caution and skepticism that training and experience normally inculcate to overcome the excitement and euphoria of a brilliant success."

Political and Incorrect

National ideology is often a cause of bad science. Trofim Lysenko got

Stalin's attention; although his scientific credentials were poor, his insistence that one could breed better crops by putting the necessary stresses upon the generations that were to produce them was consistent with Marxist doctrine, while 'Western' genetics were held to be 'obscurantist'. There were some scientists that backed Lysenko, and conformed to his completely unscientific dictum, "In order to obtain a certain [scientific] result, you must want to obtain precisely that result." Others were sent to Siberia. Russian genetics has yet to completely recover. Worse, Lysenko's foolish policies brought about crop failure and starvation.

The refusal of the Nazis to accept Jewish physics such as relativity or quantum mechanics drained their universities of talent and stunted the German physics which had previously been a world leader. The laughable superstitious views of Heinrich Himmler included the philosophy that scientific truth was revealed to the imagination and that the task of science was to find proof of such revelations, discarding any demonstrations to the contrary. He called all the shots when Hitler enabled him to set up a research institute along these lines.

These stories have all been told before, but it is useful to have them collected here. Gratzer writes for *Nature* and has a clear style even when the physics gets a little intimidating. The lessons from the collected events should increase our admiration for how well science usually works, but should also remind us that there will always be fringe scientists. It is impossible to tell when the next cold fusion embarrassment will occur, but I hope we will be able to count on mainstream science to counter claims that HIV does not cause AIDS, that the world is less than 10,000 years old, or that people are being regularly abducted by aliens.



Mathematical Puzzle

It would be undesirable to turn the magazine into a mathematical forum but having seen Dr. Richard Wiseman during the Sydney Convention rapidly produce a magic square, I thought some other attendees may be interested in the mathematics behind the trick.

The process works for all numbers 34 and greater and is based on two separate grids which I will show with letters:

Grid No 1

A	B	C	D
D	C	B	A
B	A	D	C
C	D	A	B

Grid No 2

F	G	H	E
H	E	F	G
E	H	G	F
G	F	E	H

In each grid you will note there is no duplication of letters in any column, row or diagonal. Also note the grids are different. The magic square is constructed by adding Grid 1 and Grid 2 together hence:

A+F	B+G	C+H	D+E
D+H	C+E	B+F	A+G
B+E	A+H	D+G	C+F
C+G	D+F	A+E	B+H

Addition of any column row or diagonal gives the sum $A+B+C+D+E+F+G+H$.

To make this illustration easier, we will now go to numbers and take as our nominated sum 41.

Grid 1 is kept standard for all squares letting $A=3$ $B=2$ $C=1$ $D=0$ hence

Grid 1 becomes:

3	2	1	0
0	1	2	3
2	3	0	1
1	0	3	2

As this grid adds to 6 we subtract 6 from 41 giving 35 which is the required sum of E, F, G and H.

These numbers must be separated by 4 and there are several possibilities but I will take $E=1$ $F=5$ $G=9$ $H=20$

Grid 2 becomes:

5	9	20	1
20	1	5	9
1	20	9	5
9	5	1	20

Add these two grids to get:

8	11	21	1
20	2	7	12
3	23	9	6
10	5	4	22

which adds to 41 on every row, column and both diagonals.

Another solution for 41 is to let $E=2$ $F=6$ $G=10$ $H=17$

whence Grid 2 becomes:

6	10	17	2
17	2	6	10
2	17	10	6
10	6	2	17

and adding to Grid 1 gives:

9	12	18	2
17	3	8	13
4	20	10	7
11	6	5	19

which also adds to 41.

For mathematical purity, consecutive numbers would be nice but this is possible only for some numbers eg. 34, 38, 42 etc.

On paper, these magic squares are reasonably easy to construct but Dr Wiseman keeps his secret because how he remembers the basic grid and does the additions so quickly is beyond me.

Robert Backhouse

Thanks Robert. We have had a number of questions about this since the Convention, and, being maths dunderheads, we didn't know the answer.

Ed

The Great *Skeptic* CD Project

In January 2001 I found myself on the blower to Barry Williams. "I have made a video of James Randi's presentation from the world convention", says I "I've copied it onto a CD ROM for the Skeptics' archives".

"Oh yes... (Moriarty, we have a Charlie...)" says he, "You know, we've been meaning to make a CD of all the back issues of *the Skeptic* for some time. You seem like a chap who knows about this sort of thing."

The warning bells started.

"What do you think? Are you able to do this? Would that be hard to do?"

More warning bells.

"Yeah... that sounds like a great idea. I'd love to try."

The warning bells gave up and headed for some poor Skeptic about to debate the creationists in a small town church hall.



Richard Saunders is the Technology Consultant for the Skeptic and a member of the NSW committee.

I visited Barry and came away with a box full of back issues of *the Skeptic*, some with the ink fading away. Some had articles about pyramids; a few looked like they'd been found in one.

That's how it started: it will end sometime later this year when the Australian Skeptics release a CD ROM with all back issues of *the Skeptic*, starting with the very first issue from 1981 (wait until you see the picture of a young Dick Smith!) and ending with volume 20 number 4 from 2000.

Each issue has been carefully recreated from the original, complete with all photos, diagrams and cover art. The CD will function equally well on a PC or MAC and utilises a technology known as 'PDF' (short for 'Portable Document File'). Those of you who frequent the Internet may already be familiar with this technology. For those who are in the dark about it all, no need to worry as it's one of the simpler applications available. We shall also make sure the operation of the CD is as straightforward and simple as possible.

A major feature of the CD will be the search function. At any time you will be able to search **all** back issues at once for a single word or phrase. I think you will find this invaluable, far easier than searching for a word or article by 'flipping' through each issue, page by page, which would take hours. You will also be able to use this feature to search for your favourite author: Bob Nixon, Colin Keay, Sir Jim R Wallaby, Richard Lead ... the list goes on and on. (With

a few words from Barry Williams thrown in for good measure.) Once found, you will be able to print the article or copy it into your word processor. You'll never lose an argument again!

One of the pleasures of doing the CD (in fact maybe the only pleasure) is the chance to read and re-read the back issues of *the Skeptic*. I've lost count how many times I've thought to myself, "I must remember this article — it's a killer!" Twenty years of wonderful, interesting, witty, outlandish and just plain hilarious items and articles will be at your fingertips.

The Great Skeptic CD Project is only the beginning. I hope more and more information of interest to subscribers, be it text and photos or even videos, will soon be available on CD ROM.)

I trust I have been able to whet your appetite. The Luddites among you might even consider buying a computer just so you can use this CD!

Note

People would like to help with proofreading should contact us. We can make a CD with 4 issues and send it off, or we can email them to you.

Proofreaders must be able to use the CD, print out the issues, proof them with a red pen and send the print-outs back for us to make the changes. We'll even give you a credit in the finished product.



Forum

■ Philosophy, *&*\$ Philosophy

Tim Train

Raymond Terrace NSW

I don't know whether to laugh or cry. After provoking a furious defence of postmodernism in the *Australian Review of Books*, Scott Campbell has contributed an article to *the Skeptic*, in which he roundly criticises Popper and his criterion of falsifiability, Hume, and by implication, anyone who happens to see any credibility in their philosophy at all.

Campbell's main purpose seemed to be to dismiss the philosophy of Hume and his heir, Popper, in order to give credibility to his the philosophical alternative which he offers - '*inductive generalisation, where one extrapolates from sample to population*'. This philosophy seems to be of real scientific value, and I enjoyed Campbell's exposition.

His criticism of Popper and Hume, however, seemed to be marred by faulty reasoning and empty, if impressive sounding, rhetoric. It is easy to agree with Campbell that Popper's philosophy is based upon a more or less complete rejection of inductive reasoning; and that what Popper offered instead of inductive reasoning was his own criterion of 'falsifiability'. However, I find it impossible to agree with the following argument which Campbell offers:

A further problem arises when we get out of the realm of simple examples ... and look at more complex theories, like Newtonian theory, and Einsteinian theory, for these can't be falsified in Popper's strong logical sense, because they can always be adapted to accommodate observations that appear to go against them.

Come again? I would have thought

that one of the main distinguishing features of pseudo-science is that it can always be adapted to accommodate new observations; what I expect from science, on the other hand, is that it makes clear statements about the world which will then stand or fall on the strength of their claims.

Consider, firstly, the claim, made by Newton, that two bodies will fall towards one another with a force proportional to their combined mass. Then consider the claim made by Einstein, that nothing can travel faster than light. Is it so difficult to imagine these theories being falsified? How exactly did they become well-established scientific theories, if not by virtue of the physical evidence which supported them? It seems to me that their practicality inheres in just this fact, that the statements and the predictions which they allow us to make are useful only insofar as they can be affirmed or falsified. If Campbell were to attempt to modify these theories to accommodate the evidence, then I think that the result would look suspiciously like pseudo science.

Campbell proceeds from these ill considered generalisations and concludes:

... Popperism entails that the Newtonian and Einsteinian theories are not scientific, which is clearly false.

But he offers precious little by way of explanation: "*they are*".

Similarly, when he argues that:

if you accept Popperism, ... then you have to accept that in most cases we have no grounds for deciding that one theory is better than another,

he offers little evidence other than insults:

So Popperism is nothing but a bad joke...

In his supposedly conclusive argument, Campbell plays the devil's advocate with the Popperians:

We all know it's enormously more reasonable to expect that jumping off a cliff will result in you plummeting to your death than expecting that plummeting to your death is only one of an enormous number of other equally possible outcomes,

in the vain hope that he will be left in peace to pursue his version of reasoned argument.

Presumably the point of this semi-respectable philosophical critique is to give added force to the philosophy of 'inductive generalisation' which Campbell now explains. Certainly, it is important that:

one class of inductive inference ... can be proved by some uncontroversial and mathematical principles,

as this contradicts one of the fundamental tenets of Hume's philosophy, that inductive inference is impossible. In many cases, however, inductive inference may still be impossible, so surely Popper's principle of falsification might still prove useful.

The crucial point of Campbell's argument - that:

Given a fair sized sample, then, from any population ... we know logically that it very probably is one of those which match the population, and hence that very probably the population has a composition similar to that which we discern in the sample ...

is of limited value. It is true only because of an evasive ambiguity, implied in the phrase 'very probably'. It is not even entirely clear that the statements made by 'inductive generalization' are any better than those made by 'falsificationism'. The latter at least

offers an explicit distinction between those theories that have been falsified and those that have not. The theory of 'inductive generalization', on the other hand, infers that everything is possible, but that some possibilities are more likely than others. Therefore, according to Campbell, it would be equally reasonable to expect that jumping off a cliff would:

- 1) probably result in you plunging to your death, and
- 2) possibly result in you hovering in the air.

Campbell says, in the first half of the article, that a Popperian is forced to be sceptical about the *possibility* of science. He offers a justification for this 'possibility', but fails to convince us of its reality. Given these limitations, then, perhaps we should not so rudely consign Popper to the 'rubbish bin of history'?

Still, this was a thought provoking and largely well argued article. I'm informed by *the Skeptic* that Campbell will shortly take up a teaching position in the UK. All I can say is, watch out Britain.

■ Skepticism about Induction

Lawrence Trevanion
Kaleen ACT

I would like to make some comments on Dr Campbell's letter (20:3 p65) and article on Inductive Skepticism (21:1 pp25-30) because I feel some of his misrepresentations and misunderstandings should not be left unchallenged.

Feyerabend

Dr Campbell tells us that Feyerabend thought:

voodoo was just as good, or just as bad, as modern physics – the one was no more justified than the other (21:1 p27).

This interpretation is obviously false. There can be no question that Feyerabend accepted the relative qual-

ity of sciences as the following clearly demonstrates:

And yet Voodoo has a firm though still not sufficiently understood material basis, and a study of its manifestations can be used to enrich, and perhaps even to revise, our knowledge of physiology¹.

In *Against Method* Feyerabend argues that there is no scientific method, not that there is no science.

Hume

Prior to the Skeptics World Convention I wrote the following in response to Dr Campbell's letter:

I would suggest that the interest in Hume's argument (re induction) in the twentieth century arose, not because he thought no empirical statement was probable, as Scott incorrectly suggests but because his arguments were a bar to science obtaining a purely logical foundation.

The comment was prescient because it is now clear to *Skeptic* readers that Dr Campbell himself is involved in a program that aims to provide science with a logical foundation. Dr Campbell has an obvious interest in Hume. Unfortunately he is disparaging of others, such as Popper, who have a similar interest. This double standard is due to Dr Campbell maintaining two inconsistent interpretations of Hume. They are (Hume 1):

.. pure reason does not tell us that the unobserved is like the observed. (21:1 p26).

or

.. it needs to be acknowledged that inductive arguments never deal in certainty, but only in probability (21:1 p29).

This Dr Campbell describes as one of Hume's major achievements. This is the clever Campbell/Hume version. Yet in response to my comment, regarding induction, that Hume "was concerned with *Certainty*" (20:2 p68) Dr Campbell contradicts (Hume 2):

[Hume] was claiming that no (universal) empirical statement can even be said to be probable.

and continues:

That is the controversial claim that excited the interest of certain types of twentieth-century philosophers, such as Popper. (20:3 p65).

Or in the same vein:

David Hume, however, thought he had found a proof that inductive reasoning could not possibly be justified (21:1 p25).

This is the foolish Popper/Hume version.

In contradicting my observation Dr Campbell seems to be implying Hume did not mean one of his major achievements. Dr Campbell only resolves this dichotomy by implication. He tells us:

...later on, happily, he (Hume) seemed to have given up on inductive skepticism (20:3 p65);

and

Hume himself found this conclusion impossible to believe, and later on in life he dismissed his skepticism about induction as juvenile. (21:1 p26)

and

Hume himself, later in life, argued very strongly... for what was in effect, logical probability - he argued that we must weigh up evidence to see what it supports. (21:1 p28)

Later in life! What about later in the same book?² Any reader who had gained their understanding of Hume from Dr Campbell would be astounded, I think, to be told that Hume discusses cause and effect and probability in the same book of his treatise (a youthful work), not very many sections or pages away from his discussion on induction. The gist of these discussions involves how the mind makes its judgements. No one reading it could possibly imagine that Hume thought that jumping off a cliff would have any more than one overwhelmingly likely consequence.

The real Hume is, of course, version 1 above. Dr Campbell's confusion arises either directly from Hume 2:

even after the observation of the frequent or constant conjunction of objects, we have no reason to draw any inference concerning

any object beyond those of which we have had experience.

or more likely, from Stove's paraphrase:

... there is no reason **whatever** to believe any contingent proposition about the unobserved.³

Dr Campbell reads Hume's word 'reason' as "pure reason" to obtain his version 1 and as "any reason" to obtain his version 2. Hume only makes sense if 'reason' in this passage means the unfailing steps of logic - version 1. Stove argues this explicitly in his book and does not paraphrase Hume without including the word. This is what Dr Campbell is referring to when he calls Hume a deductivist (21:1 p28) (which, needless to say, Hume isn't). Unfortunately Stove exploits the ambiguity of the word 'reason' as the addition and emphasis of 'whatever', implying 'justification of any kind', shows. Dr Campbell likes this distortion and obtains his version 2 above from it.

Inductive Skepticism

Dr Campbell's two versions of Hume reach a crisis when he discusses inductive skepticism. He tells us that to be a genuine skeptic about induction is to give up induction altogether (21:1 p28). Hume 2 is nihilist and does imply the rejection of induction altogether. Hume 1 says no more than "*inductive arguments never deal in certainty*" (meaning absolute certainty, of course). Unfortunately Dr Campbell equates inductive skepticism with Hume 2. The absurd result is that Dr Campbell finds himself writing in *the Skeptic*, as a supposedly skeptical philosopher, that one may not be skeptical about induction, even though he accepts induction does not provide (absolute) certainty. The only fallacy of inductive skepticism is Dr Campbell's Hume version 2.

Logical Probabilism

Dr Campbell seems to be involved in a philosophical program that says that, although science cannot have a purely reasonable foundation, there exists a variety of reasonableness (or perhaps rationality) called inductive reasoning that can, through the use of

logical probability, justify at least some scientific conclusions. I doubt that this program will alter scientific practice. Even as an abstract exercise the significance of the program is limited by the extent to which the fall of dice (the mathematics of probability) can model phenomena. I would assert that relative certainty has a broader basis than just probability. I would assert that we use induction because it works not because it must work. In a universe where induction doesn't work Dr Campbell's sampling won't work either, which is to say that Dr Campbell's program does not provide a firmer justification for induction but rather is itself a further illustration that induction works. It is with some amusement, therefore, that one reads: "*To deny deductivism is to accept what has been called 'logical probability'.*" (21:1 p28) as if abandoning one philosophical pin-head obliged us to raise our flag on another.

Relativism

Dr Campbell has mocked my use of capitalization to indicate absolutes (20:3 p.65) which is fortunate because it recommends the use of '(to distance my meaning from the tradition he associates with capitalization, and reinforces my definition of absolutes (which he seems to have missed) as a metaphor from mathematics. That definition defines absolutes to be innately contradictory and so my relativism is stronger than just "we cannot gain certainty" but naturally "although some things are more certain than others there is no (certainty" (like saying although some numbers are higher than others there is no highest number).

Dr Campbell's definition of relativism, "that there is no objective truth", implies relativism accepts 'subjective truth' and therefore 'mind' and 'self' as foundation or unquestionable concepts. This is effectively paradoxical. Dr Campbell fails to see that I have proposed a consistent relativism that is much stronger and purer than his definition.

Dr Campbell's elaboration on his definition seems to involve replacing 'truth' by 'belief' and suggests, not that truth is relative, but that there is no

truth at all - just belief. Dr Campbell seems to be telling us that a relativist cannot say that some statements are more true than others. This effectively removes the relativity from relativism such that it becomes the doctrine that knowledge is belief. To give him credit, at least he thinks relativism is foolish. He need only realize that it is *his* understanding of relativism (and so many other things) that is the problem.

Notes

¹ Paul Feyerabend *Against Method* p50 Verso 1978

² David Hume: *A Treatise of Human Nature* Book 1 Part 3 Section 12

³ David Stove: *Anything Goes* Macleay Press 1998 p.116 (Chap 4.1)

■ Response to Tim Train

Scott Campbell
Nottingham UK

I don't know whether to laugh or cry.

Nor do I. I should start charging tutorial fees for this. Let me try to clear up Tim's worries as briefly as I can.

Tim's worry is my claim that Einstein's and Newton's theories cannot be falsified. The objection does not originate with me; it is in fact a textbook objection to Popper. What has to be remembered is that by 'falsification', Popper means a strict logical refutation by an observation (or a set of observations), not just "evidence that goes against a theory to some degree". "All swans are white" is clearly falsified by "This swan is black", but what observations logically refute Newtonian theory? The problem is that a complex theory involves many auxiliary assumptions, and in the face of an observation that appears to go against his theory, a Newtonian could adapt his auxiliary assumptions rather than drop his theory.

Come again? I would have thought that one of the main distinguishing features of pseudoscience is that it can always be adapted to accommodate new observations; what I expect from

science, on the other hand, is that it makes clear statements about the world which will then stand or fall on the strength of their claims.

Good scientific practise often involves adapting a theory or its auxiliary assumptions. Things are often not cut-and-dried. Any scientist will tell you that. The point, though – which I made in my article – is that the more *ad hoc* and unlikely the adaptations are, the more unlikely the theory becomes, because any theory is only as likely as its unlikeliest element, and another theory should be preferred. If, for example, your theory can only accommodate some observations by hypothesizing that aliens insert mind-probes in us, then, because that's extremely unlikely to be true (and presuming that your theory provides no independent evidence for this alien hypothesis), your theory is a dud. However, this does not mean that all adaptations to theories are bad. Many accepted scientific theories involved changes – the thing was, these changes were not *ad hoc* and unlikely.

How exactly did they become well-established scientific theories, if not by virtue of the physical evidence which supported them?... It seems to me that their practicality inheres in just this fact, that the statements and the predictions which they allow us to make are useful only insofar as they can be affirmed or falsified [Campbell's emphasis].

Pay attention, I'm only going to say this once more. **The main claim of Popper's view is that there is no such thing as supporting or affirming evidence.**

If Campbell were to attempt to modify these theories to accommodate the evidence, then I think that the result would look suspiciously like pseudo science.

Trying to modify Newtonianism would look like pseudoscience, yes. Quite right. But that's no argument against me.

In many cases, however, inductive inference may still be impossible, so surely Popper's principle of falsification might still prove useful.

Popper's principle of falsificationism is not that some theories can be disproved by counter-example, for we all knew that, but rather that *refutation by counter-example is all we have*. So it's a complete misunderstanding of the situation to say that "Popper's principle of falsification might still prove useful".

The crucial point of Campbell's argument - that 'Given a fair sized sample, then, from any population ... we know logically that it very probably is one of those which match the population, and hence that very probably the population has a composition similar to that which we discern in the sample ... is of limited value. It is true only because of an evasive ambiguity, implied in the phrase 'very probably'.

The term "very probably" is not an evasive ambiguity, it is in fact a crucial part of the claim. This comment brings home to me how much Popperism has undermined our natural understanding of likelihood – what Stove called the "probability-blindness" of modern philosophers.

It is not even entirely clear that the statements made by 'inductive generalization' are any better than those made by 'falsificationism'. The latter at least offers an explicit distinction between those theories that have been falsified and those that have not.

But inductivists don't deny that any such distinction exists, or that some theories have been shown to be false (although they do point out that many less theories have been falsified than the typical sloppy falsificationist thinks).

The theory of 'inductive generalization', on the other hand, infers that everything is possible, but that some possibilities are more likely than others.

Quite right. Would you really deny this (given that "everything" does not include logically contradictory statements)?

Therefore, according to Campbell, it would be equally reasonable to expect that jumping off a cliff would 1) probably result in you plunging to your

death, and 2) Would possibly result in you hovering in the air:

This is all right - although I'm a bit worried about the "equally" - as long as you allow that the likelihood of (2) is so incredibly close to zero that only an insane person would risk it. Bear in mind that the Popperian cannot say that (1) is more likely than (2), for neither (2) nor (1) have been falsified – for they're claims about the future.

■ Response to Lawrence Trevanion

Scott Campbell

Lawrence Trevanion seems to have been working on his writing, for his letter this time is not the 'madwoman's underclothes job' that he has previously delivered to us - at least, not until towards the end, where a nuclear bomb seems to have gone off, and things go all post-apocalyptic, and wild mutants roam the land.

In Against Method Feyerabend argues that there is no scientific method, not that there is no science.

Feyerabend's conclusion that there is no scientific method is, in effect, a conclusion that there is no science. By "no scientific method" he meant, not just that chemists do different things than physicists (as David Roche implied in earlier letter about me) which we all know, but that any method of doing 'science' is as good as any other, and no-one has any ground for ruling out different theories. What is remarkable about Trevanion's voodoo quote is that Feyerabend, with his background in physics, should have taken his own philosophy seriously enough (he didn't always, insisting sometimes that he was just a kind of court jester to science) to think that voodoo would come to be accepted, at least to some degree. 25 years later it hasn't been, but then for Feyerabend, this tells us nothing about the next 25.

This double standard is due to Dr Campbell maintaining two inconsis-

ent interpretations of Hume. They are: Hume 1. . . “... it needs to be acknowledged that inductive arguments never deal in certainty, but only in probability” (21:1 p29). This Dr Campbell describes as one of Hume’s major achievements.

This was what I thought Hume’s sceptical argument succeeded in showing, but I certainly did not think it was the conclusion that he himself drew from his argument – his conclusion, as I said, was that no inductive argument is ever probable. So I am not, as Trevanion claims, running two contradictory interpretations of Hume.

Any reader who had gained their understanding of Hume from Dr Campbell would be astounded, I think, to be told that Hume discusses cause and effect and probability in the same book of his treatise (a youthful work), not very many sections or pages away from his discussion on induction.

Any reader who gained their – I hesitate to use the word – understanding of Hume here would be astounded to be told that one of the most famous views in the whole of philosophy is Hume’s view that there is no necessary connection between cause and effect, that causation is nothing but constant conjunction, and moreover that **we have no reason to expect the causal connections (ie constant conjunctions) we have observed in the past to occur in the future.**

No one reading it could possibly imagine that Hume thought that jumping off a cliff would have any more than one overwhelmingly likely consequence.

Hume would not have jumped off a cliff, but that is because, as he makes

clear, he thought we cannot help acting as though the future will be like the past, and this is the result of the way we are made – but he points out that this is not any sort of justification.

And when Hume says “no reason”, he means “no reason”. He does not just mean “no pure reason”, as Trevanion claims. Trevanion does not appear to realize that Hume blocked all exits – Hume argued that no *a priori* justification for induction could be given, and no empirical justification could be either, for that would be circular.

The absurd result is that Dr Campbell finds himself writing in the Skeptic, as a supposedly skeptical philosopher, that one may not be skeptical about induction, even though he accepts induction does not provide (absolute) certainty.

Are we Skeptics supposed to doubt everything, even if it has been shown to be rational? The fact that a method does not produce absolute certainty does not mean that one should be skeptical about it. I’m not absolutely certain that switching on my lights at home tonight will make them come on, but that’s no reason for me to be skeptical about it.

I doubt that [Campbell’s] program will alter scientific practice.

It isn’t meant to. It’s supposed to clear up misunderstandings about the basis of science.

Even as an abstract exercise the significance of the program is limited by the extent to which the fall of dice (the mathematics of probability) can model phenomena.

This indicates the baleful influence of Popper again (as well as the mid-century ‘frequentists’), who tried

to make out that talk of likelihood was just disguised talk about frequency, such as occurs in series of dice-rolling.

In a universe where induction doesn’t work Dr Campbell’s sampling won’t work either, ...

Logical probability is a logico-mathematical truth, and as such applies to all possible worlds.

... which is to say that Dr Campbell’s program does not provide a firmer justification for induction but rather is itself a further illustration that induction works.

My ‘program’ shows *why* an inductive inference is likely to work. It doesn’t show that any particular inductive inference is correct, so it does not in fact show, as Trevanion asserts, that induction ‘works’ (which in his sense seems to mean “has led in the past to mostly true conclusions” – this we have seen for ourselves).

It is with some amusement, therefore, that one reads: “To deny deductivism is to accept what has been called ‘logical probability.’” (21:1 p28) as if abandoning one philosophical pinhead obliged us to raise our flag on another.

This shows that Trevanion has little idea of what is going on. Deductivism asserts exactly what logical probability denies, and vice versa. That is why to deny one is to accept the other. That’s logic, fella, not metaphysics.

There isn’t much point in commenting on Trevanion’s last section, since it’s hard to know what the hell he’s on about. I suspect that he’s still confusing truth with justification, but really, it’s anyone’s guess. Here’s one area where anything really does go – reading chicken entrails is probably as good a guide as anything else here. 

Notice

Would you like to engage in discussions with fellow Skeptics from around the country? The Queensland Skeptics runs a web discussion group, *Q-Skeptics*, which canvasses all sorts of topics and opinions, most of which are relevant to the wide variety of interests of Skeptics (and some of which are simply whimsical).

To subscribe, send a blank email to:

qskeptics-subscribe@yahogroups.com

Letters

■ Discrimination

Chris Puplick
Sydney South

I write as a long-time Skeptic, an historian and as President of the NSW Anti-Discrimination Board to take issue with some of the comments of Dr Roger Clarke in your last issue. ("Animal Quackery", 21:1).

Dr Clarke asserts, with absolutely no evidence or basis in fact that "anti-discrimination laws abound ... (and) can work to stifle the basic notions of free speech and expression which one should expect in a democracy." This is nonsense.

Let's be clear about this. Anti-discrimination laws relate primarily to the conduct of people who act in an unlawfully discriminatory fashion. For example, they prohibit unreasonable or unfair discrimination on the grounds of sex, race, marital status, homosexuality, carers' responsibility, disability, age or transgender status (at least in NSW).

Such laws may contain provisions to restrict "vilification". In NSW these are confined to vilification on the grounds of race, homosexuality, transgender or HIV status. Even within this prohibition exemptions exist to ensure that no restrictions are placed upon fair reporting of a public act or any public act "done reasonably and in good faith, for academic, artistic, scientific or research purposes, or for other purposes in the public interest, including discussion or debate about and exposition of any act or matter". Anti-vilification laws exist only to restrain speech or public acts which "incite hatred towards, serious contempt for or severe ridicule of" a person in one of the designated categories.

Dr Clarke should be aware that "a democracy" frequently has laws which restrain "free speech". In Australia for example, we restrain free speech which might involve defamation, sedition, false or deceptive advertising, the sale of tobacco or firearms, incitement to violence or breaches of the law, pornography etc. Even in the more absolutist free speech regime of the United States there are similar limitations and as one eminent jurist once remarked "free speech is not the right to cry 'fire' in a crowded theatre."

There are good public policy reasons, debated and enacted by our democratically elected Parliament to attempt to restrain "hate speech". Historians are aware that the atrocities of totalitarianism or rogue regimes perpetrated against racial minorities and others are always preceded by campaigns of hate speech designed to reduce such victims to the status of lesser than human - "untermenschen" as the Nazis would have said.

Dr Clarke advances no evidence for his proposition or allegation about anti-discrimination laws simply because there is none.

Finally, how silly to assert that what lies behind the popularity of *Star Trek* is a belief in magic or the arcane. Ageing Trekkies such as myself (and more recent *Star Wars* fans) enjoy the programme just because they are damned good entertainment, well written and well produced. It has got nothing to do with what we believe, or indeed don't believe.

It is really a great pity when scientists decide to publish articles which themselves ignore the basic scientific requirements of basing conclusions or assertions on that little thing called evidence - but as a good Skeptic, one has the right to require no less.

■ Harm from mobile phones?

James Gerrand,
Kew VIC

It is distressing to see the lack of any appreciation of scientific evidence among our legislators. The recent Senate inquiry into possible harmful effects of mobile phone use, chaired by Senator Lyn Allison, found that there was no evidence to support the case. Nevertheless, Senator Allison has proposed that a \$5 annual levy be placed on mobile phone users to fund further research into possible health risks from their usage. This demonstrates either her scientific illiteracy or her lack of reading about the subject.

There have been many studies conducted into this "problem" and there has been little or no evidence of any harm resulting from mobile phone usage, nor is it likely from the physics of the low level of their radiation in relation to impact on our bodily cells. The latest and largest study was a Danish one (Feb 2001) of 420,095 mobile phone users over a 13 year period. The study found the incidence of all cancers among them was lower than the general population. This study follows two US studies (Dec 2000) which also showed no evidence of increased cancer risk from using mobiles.

This ridiculous proposal to raise \$40 million for research into a topic for which there is no evidence of medical harm is particularly upsetting to me as Director of the Inflammatory Neuropathy Support Group of Victoria Inc. Our Group desperately seeks adequate funds for research into the known medical disorders of GBS and CIDP. Just \$1 million would most likely enable research to identify the causes of these auto-immune conditions, not

only to cure many sufferers but also save our Health Services many hundreds of thousands of dollars in treatment. The National Health & Medical Research Council does its best with its limited funding but cannot provide for all the needed amounts.

■ Facts or Faith

*John Warren
Annandale NSW*

Paul Kurtz's keynote address to the Convention was both thought-provoking and significant. It certainly raised many issues to ponder, amongst them the role of the Skeptics in the face of the present state of the world.

As I understood it he was suggesting that we need to broaden the scope of our critical questioning to assist in reaching the basic goal of increasing public understanding of science. The techniques of scientific investigation can be applied to all areas of human activity both manual and mental and, insofar as religion is an activity of the mind, it too is within that scope. And Paul Kurtz drew attention to the way in which belief without justification and religious "faith" have stood in the way of enquiry and been used to try to suppress many of the great advances in knowledge arising from scientific investigation.

Religion is one among many manifestations in our society which come from a belief in the existence of non-physical forces which are thought to affect our lives. To what extent Skeptics should pay more attention to religious activities in Australia is a pertinent question now. Our governments all continue to fund private schools which are based on the long tradition of education set up by religious organisations to maintain their religious beliefs.

While the right of parents to teach whatever they like to their children about science or religion, or anything else, has been firmly established, it should be a matter of concern that the past and, even more, the present Government policies are deliberately

aimed at encouraging the transfer of students into the religion-based education sector. The effect is that a large number of children will not be given free opportunity for debate between fact-based and faith based belief. To a Skeptic that means a further brake on the enlightenment which science-derived understanding can give.

One of the reasons Paul Kurtz gave for reluctance by people, Skeptics included, to raise such issues is fear of calumny or, in some countries, much worse. Australian society has, fortunately, progressed beyond the worst displays of social opprobrium which so bedevilled Darwin and, according to Kurtz, exists in parts of the United States even now. Perhaps we have an opportunity to take a lead in this intellectual activity.

■ Language hard-wired?

*Mark Newbrook
Monash University, VIC*

Damien Broderick (21:1, pp 13-15) accepts the Chomskyan view that humans are 'hard-wired' for language (p 14). Indeed, Chomskysians believe that we are hard-wired for languages of a restricted range of types.

This view fits in well with contemporary ideas on some other human faculties, and is often cited by psychologists and other scholars. But it is important to point out that by no means all linguists are persuaded that it is correct.

Sampson and the 'English Empiricists', among others, have repeatedly presented evidence that our ability to acquire our first languages as readily as we do should rather be attributed to a more general ability to analyse complex, patchy data. They attribute some of Chomsky's alleged linguistic universals to other factors, and deny others outright. The rather exaggerated prominence of Chomskyan linguistics in the wider intellectual world disguises the strengths and the import of these other positions.

It should also be pointed out that even on a Chomskyan account there are major grammatical differences between languages. Acquiring one language rather than another is not merely a matter of learning different words for the same things. Indeed, different languages, used naturally, are not always expressing quite the same ideas in the first place.

Of course, if we had other language-using species to compare ourselves with, the picture might become somewhat clearer.

■ Interference

*David Maddison
Toorak VIC*

It was sad to hear of a further unwarranted religious interference by the Government of Victoria into the life of its citizens when it made a concession to "allow" movie theatres to open on Good Friday, but forbade them from showing "R" rated movies, including some new releases which had been scheduled for that date.

Skeptics should be appalled at such Government religious interference into their private lives and should complain to their supposed political "representatives". In Australia, "freedom of religion" is apparently two different things in theory and practice.

■ Nukes and notes

*Gerald Huber
Schierling Germany*

Concerning the letter by Jeffrey Tapping in *the Skeptic* (Letters 21:1 p68) I can assure him that the site of a nuclear power plant in Bavaria has indeed been restored to its original condition. However the reactor was in fact only used for a very short time (a few days if I remember correctly). Also that the site is in its original condition does not automatically imply that the radio-

active waste is disposed of, just that it has gone somewhere else. There is still considerable discussion about which geological structures could be used to safely dispose of high radioactive components.

Bavaria is by the way the only part of Germany where folks greet one another with "Grüß Gott". This means literally "Forward my greetings to god" (if one should happen to meet him today?)

Please allow me to comment also on Stephen Green's idea (*Letters* 21:1. p69) to substitute the word "talent" for "gift". Now Talent is the name the bible uses for a considerable amount of money. Especially interesting is the well-known story in Matthew 25:19. Here someone hands out varying sums to his three slaves to take care of them while he is away. Two of them - the two who received most - invest their money, double it and return all to the owner. The third receives only one talent, hides the money away and returns exactly what he received. For this he is punished and thrown out.

Of course this was before the collapse of the "new" market when, as everybody knows, it was impossible to actually lose money. Maybe Richard Lead should look out for a new investment called Money in Genesis.

■ To whose benefit?

*Daryl Colquhoun.
Canterbury NSW*

I suppose the medical insurance industry is as competitive as any other, and you have to offer the customers what they want. So, I suppose customers must have been asking MBF to cover unproved therapies (that's what I call them) because late last year MBF's member magazine announced cover for "Complementary Therapies". So I wrote, making these points:

- This represents money spent out of the common premiums to no effect beyond the benefit to the patient of a good friendly chat, which they could

have with a friend or even a doctor. Or, for that matter, a phone "psychic".

- If members are encouraged to use unproved therapies many of them may forgo proper treatment so that they eventually require more extensive and expensive intervention.

• Some of these practitioners are downright dangerous. Some dissuade patients from immunising. And as regular readers will know, some of these 'therapists' cannot recognise common infectious diseases, resulting in danger to the patient and to others if the "therapist's" hygiene is poor.

- The "natural", but powerful, substances prescribed may create a risk of an interaction effect between medications, leading to complications and expense.

The last three of these create a prima facie case that offering these benefits must be bad business.

MBF's reply was somewhat upbeat. It pointed out that they offer different classes of cover (so I can choose - but I can't choose to omit these dubious benefits) and pointed out the qualifications demanded of a "therapist" for whose services I can claim. Among other things, the "therapist" must have a suitable qualification and, importantly it seems to me, must have professional indemnity cover. As I pointed out in my reply, I would hope that the 'therapist' who didn't wash his hands after examining a case of Chicken Pox would be unable to secure such cover.

Well, that was all well and good but then I opened my next issue of the MBF members' mag, I found an article "Your Guide to Complementary Therapies"! This was a handy compendium of short descriptions of Naturopathy, Homoeopathy, Bowen Therapy, Kinesiology, Reflexology, Iridology and Herbal Medicine! - setting out what the practitioners "believe". There was contact information for the various associations.

Now the key to all this may be the requirement for professional indemnity insurance. I reckon an insurer would have to be mad to cover these people for the results of their mistakes of omission or commission. So perhaps

MBF's offer is pretty much an empty one and won't in fact cost them very much. The next step is probably to ask insurers whether they'd take it on.

There's something else annoying about these practitioners. Many if not all of them - and MBF's article endorses this line - claim to be taking a "holistic" view of the patient's health, which from my reading of their activities as reported in *the Skeptic*, they do not. From my experience of the medical profession, orthodox medicine does. This whole business should be annoying to the medical profession, too. Wouldn't it be good to see the gloves come off sometime soon, and one of these people sued or prosecuted as a result of their activities?

■ Iridology

*Jim Young
Chatswood NSW*

In the Autumn 2001 edition (21:1) , Ross Hall, of Riddells Creek Vic., expresses concern about iridology sessions in pharmacies. They appear to be sponsored by vitamin and 'health' concoction purveyors. I have had good success in stopping them in my own area by speaking to the owner/manager of the pharmacy. I remind him/her that pharmacists are held in high regard in the community and people depend on them for professional advice. It is therefore not appropriate that pharmacists give undeserved validity to iridology by having sessions in their pharmacy.

I suggest that Ross give it a try.

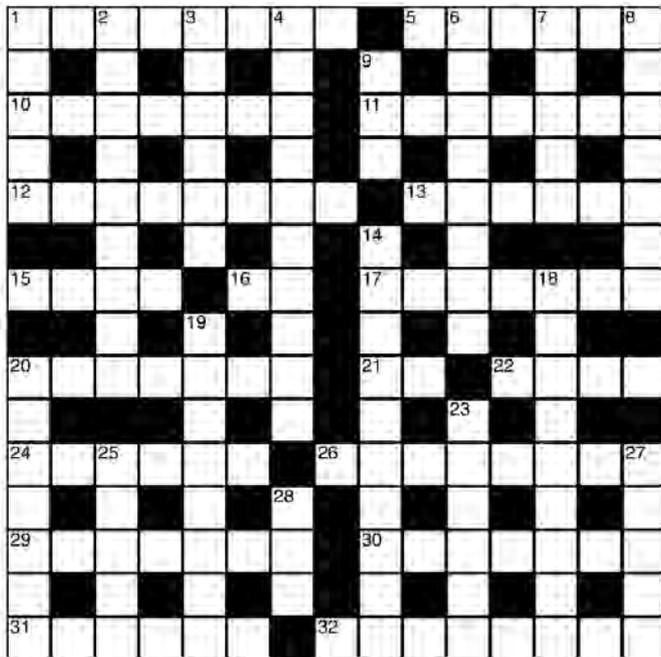


Publication Dates

The Skeptic publication dates are:
Autumn - March 1
Winter - June 1
Spring - September 1
Summer - December 1

Contributors are humbly requested to try to meet our publication deadlines, four weeks prior to those dates.

The Skeptic Crossword No 11



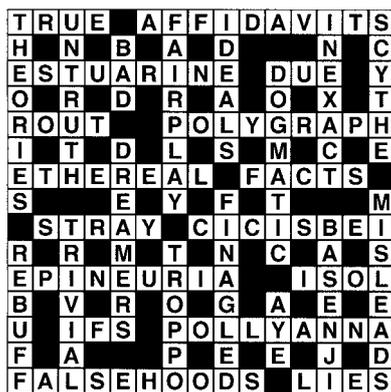
Return to: Skeptic Xword
PO Box 268, Roseville 2069

Name: _____

Address: _____

Entries will not be opened until August 1. The first correct entry opened will win a book by Richard Dawkins.

Solution to Crossword No 10



The winner of Skeptic Crossword No 10, and a copy of Richard Dawkins' *Climbing Mount Improbable*, is Raphael Mills of Club Terrace VIC.

Again we must apologise for an error, this time in the clue for 10 Down, which was missing entirely thereby reducing the number of entries. The spur-of-the-moment clue we devised for those who contacted us was *Authoritarian makes the bitch twitch*; the answer was, of course, *Dogmatic*. Having garrotted the perpetrator after his previous gaffe, we were forced to resurrect him (Skeptics can do that sort of thing) and do it all over again.

Across

1. Declaration of credulity. (1,7)
5. A lust for wealth implied complicity. (6)
10. Ted's ice, it's all lies. (7)
11. Miss Horse consumed by paternity determination. (7)
12. A dispatch consumed by a decision to give up religion. (8)
13. Little Richard and Kiwi Tim make a pronouncement. (6)
15. Liar arranged a place to lie. (4)
16. Short saint on a short street. (2)
17. Sounds like less logical hairs. (7)
20. Bad pickup line used by 14 down? Or a banned scientist. (7)
21. In reference. (2)
22. Aide upset by a thought. (4)
24. In the best possible conditions, choose a mother. (6)
26. White collar Capone takes holy orders. (8)
29. Getting used to ruining itself. (7)
30. Jennifer, I hear you complain just like the real thing. (7)
31. In this place is why you find something that goes against the creed. (6)
32. Believe it to be true that you need to revive clearwater? (8)

Down

1. Inner diameter of a sub-continent. (5)
2. A chlorine-ated native. (9)
3. Fools! Just two eyes and dots! (6)
4. When she arrives, Violet replaces the bloke in momentary delay. (10)
6. Bird throws up bile! You'll believe anything. (8)
7. Formerly Canberra, to be precise. (5)
8. Rearmed the fantasist. (7)
9. Put a foot back. (3)
- 14 Roger lost a mad student of astral influence. (10)
18. Sort of reasoning used by a col? (9)
19. Mac's bile found in distillation vessels. (8)
20. Like a study of short sayings by shortish people. (7)
23. Cutback caused Kelly to become prudent. (6)
25. More accurate, less false. (5)
27. Lord that is in silly leg. (5)
- 28 Turn to the east say I. (3)

Merchandise

Convention Cups & Caps	\$8
T-Shirts	\$15
Polo Shirts	\$20

(P&P Included)

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