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Have you registered for the Skeptics
World Convention yet#&?#!!



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Contents

4	Notice	
5	Around the traps	Bunyip
7	A test of radiometric dating	John Happs
9	Therapeutic touch	Kathy Butler
11	Dense, precious and malleable	Shane Reeves
14	A matter of perspective	Barry Williams
15	Why meddle with the masses?	Colin Keay
16	News: Creationist meeting	Peter Barrett
18	Brindle berry: the weight loss herb?	Martin Caon
21	Wort's in a name?	Ken Gillman
22	Winners and losers	Richard Lead
23	Poesy: The tap	Mark Newbrook
24	The Phaistos Disk	Mark Newbrook
27	π in the sky	Sir Jim R Wallaby
29	Bureaucracy as a health hazard	Grant Stevenson
30	Nocturnal visitors	John O'Neill
34	ESP & the mind	Kirk Straughen
35	Notice: 2001 Skeptics Eureka Prize	
36	Notice: Skeptics World Convention	
38	Musings of an innocent abroad	Barry Williams
42	What the punters need	Bob Nixon
43	Review: Grandfather of computing	Rob Hardy
44	Review: Of prose and cons	Barry Williams
45	Review: History through a lens	Grant Stevenson
47	Review: Making the past mysterious	Peter Hiscock & Mark Newbrook
49	News: Linguistics course	
49	Review: A great read	Colin Keay
50	Forum: Prescription drug danger	
51	An ethical dilemma	Paul Jewell
52	Forum: Readers' thoughts on SETI	
55	Forum: Reply to Richard Dawkins	
57	Forum: Comments on depression	
58	Forum: More about maps	
60	Forum: Cannibalism	
62	Eternal Life	Ben Moffatt
63	Report: Canowindra	Grant Stevenson
64	Report: Acta Skeptica Victoriana	Grant Stevenson
65	Letters	
69	About our authors	
71	Crossword	Tim Mendham

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Skeptics World Convention

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November 10-12

Sydney University

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Around the traps

Congratulations to former *Skeptic* editor and ongoing Crossword compiler Tim Mendham and his wife Hilda on the birth of their first child, a son. Oh its name lad? (6,6).

* * *

And then the bad news. As though traffic and transport chaos, blanket media coverage, wall-to-wall hyperbole and general disruption of the quiet enjoyment of life were not enough for the long-suffering citizens of, and visitors to, Sydernee during the second half of September, we have received word of an occurrence that is sure to send a chill down the spine of even the heartiest of them.

Answers in Genesis has called upon its ~~cash-cows~~ (sorry) supporters to kick-in to help them produce "tens of thousands" of "a special mini-Answers Book" to hand out to those expected to throng to Homebush to cheer on the cream of the world's athletic crop. Among the mini-Answers this enlightening pamphlet will offer to the bewildered sporting folk will be those to the questions "Where did the races come from?" and "Where did Cain get his wife?" It should go down a bomb among sports fans.

Picture, if you will, the citizen of Ulan Bator, having scraped together his life's savings to get to Sydney to cheer on the Mongolian weight lifting team, being accosted by some wild-eyed loon wearing a T-shirt bearing the claim that the world started last Tuesday and clutching a bundle of tracts. The thought uppermost in his mind is sure to be "Where did Cain get his wife?" or "Does God exist?" Or perhaps not. I suspect it is more likely to be "Why can't you find a policeman when you need one?" (in Mongolian, of course). Or the Moroccan track and field addict, whose question is more likely to be "When do the races start" rather than "Where did the races come from?" Having survived SOCOG, does Sydney really deserve this further embarrassment?

As there are bound to be lots of these little tracts left over, maybe we should invite AiG along to the World Skeptics Convention to add a little comic relief.

Bunyip

Further on the creationist front, there is some good news from the USA at last. The Kansas Board of Education recently, by a vote 6-4, joined with some other states in reducing the emphasis on teaching evolution in the science curriculum.

Elections have just been held to the Board and three of the four incumbents who voted for the change and were up for election were defeated by moderate candidates who campaigned on keeping science education scientific.

* * *

Is there really a mysterious numerological synchronicity that ties Skeptics together? Recently we had it pointed out that the office phone number of NSW vice president, Trevor Case, and the home number of Victorian committee stalwart, Steve Roberts, are identical except for two transposed digits. Coincidence? We'll let you be the judge.

* * *

So Phoenicians came to Australia to build a major port and mine near Mackay? They probably got the idea from the Egyptians who had earlier built pyramids at nearby Gympie, and left hieroglyphs in the Hunter Valley (they came to get shiploads of fine Hunter wines, no doubt).

Much of the media went unskeptically to air with the Phoenician story, including the ABC *News*, but our friends in Auntie's Science Unit soon put them straight with a more sober assessment of the claims. At *the Skeptic*, we are always Skeptical of any such claims, especially when the claimant is described only as "a local resident".

* * *

Friends in the right places department. Some weeks ago, subscriber Susan Cluett was aghast while on a visit to the *Colours* exhibition at the Australian Museum to see a panel describing "human auras". She was, naturally,

outraged to see this uncritical presentation of new age claptrap, in an otherwise fine scientific display of the uses of colour in the natural world and mentioned her concerns to *the Skeptic*. We passed on her complaint to Museum Director, Mike Archer, who lost no time in having the offending panel removed, agreeing with Susan that such dubious matter had no place in a scientific institution. Thanks Mike.

* * *

While on the subject of the Mike Archer and the Museum, residents and visitors to Sydney are encouraged to visit the new *Lost Kingdoms of Australia* exhibition which depicts for the first time, some of the unique, now extinct fauna that makes our country such a fertile field for new finds in palaeontology and new leads in the search for evolutionary history. Many of these animals were first discovered by Mike during his research in the fossil-rich fields of Riversleigh near the Gulf of Carpentaria.

* * *

In case anyone had failed to notice, we are being inundated with claims about the efficacy of magnets in curing all "the shocks that flesh is heir to". (With due acknowledgment to the reader who recently wrote to tell us that a preposition is the wrong word to end a sentence with. That's *Hamlet*, that is, and what was good enough for the Bard is good enough for *the Skeptic*. So there.)

In the USA the long established shoe firm, Florsheim, (does that make them a load of old cobblers?) had been advertising a new range which included a magnetic inner sole, making various claims for them, until CSICOP and other Skeptics complained about the unsubstantiated nature of such claims. Florsheim withdrew the shoes.

That doesn't stop many others from selling all manner of "magnetic" products, including bed linen, bandages and supports, jewellery, pet bedding, etc. These all make unwarranted claims about the medical benefits to be obtained from proximity to magnetic fields.

If we were to take such claims at all seriously, then clearly the healthiest position to take up in any household would be leaning against the fridge. Magnets are good for sticking things to fridge doors (though whether sticking things to fridge doors is inherently a good idea is another question).

* * *

An intriguing item we found on the net from the Denver *Rocky Mountain News*, July 23, 2000

A cigar-shaped object has been reportedly seen from a "UFO Watchtower" in the San Luis Valley. Judy Messoline, the proprietor of the tourist attraction (and one of the witnesses) is quoted.

We just had to ask if *UFO Watchtower* is an evangelical publication for aliens produced by Jehovah's Witnesses?

* * *

Apropos Urban Legends, we will give a book prize to the first reader who reports a mention in the Australian media of a foreign tourist here for the Olympics, who knocks down a kangaroo with his car, gets out and props up the "corpse", dressing it in his jacket for the purpose of having a photograph taken, only to have the stunned 'roo revive and bound off across the "sunlit plains extended" complete with the jacket with the tourist's passport and travellers cheques in the pocket.

* * *

Those readers who have been following the editor's musings about is UK trip (missing from the last issue, but read on), will be no doubt thrilled to know that in the Northern Ford Premiership Final (Rugby League, we think) Dewsbury 13 defeated Leigh 12. Our thanks to former Dewsbury resident Steve Walker for the information.

* * *

To those of us to whom the grand old game of cricket marks the highest aspiration of the human spirit, it came as something of a shock to hear the disgraced former South African captain, Hansie Cronje, claim that his fall from grace was occasioned by malign influence. "The Devil made me do it", he is reported to have said. It might be instructive, therefore, to search the voluminous archives of the game to discover just what is the playing record of His Satanic Majesty.

The first public mention we can discover is in a rare score card from a match played at Broad Halfpenny Down, Hampshire in 1821, when "Eleven men of Hambledon" pitted their skills against "22 men of the Rest of England" (it was not uncommon in those days for sides of such unequal numbers to compete) for a "Purse of 1000 Guineas". A certain P O D'Arkness top scored for Hambledon, also taking 6-66 against the Rest.

The next clue comes from a 1890 county match where Lancashire (coincidentally (?) home of the dark Satanic mills) defeated a strong Gloucestershire by an innings and 222 runs. Among the successful Lancastrians was B L Zebub (denoting he was a "gentleman", ie amateur; had he been a "player" or professional he would have appeared as Zebub, B L). The Gloucestershire team included all three Graces (WG, GM and EF), which might be evidence that they were trying to ameliorate the demonic forces assisting their opponents

Further evidence might be gleaned from the influence exercised by the mysterious Lord Ofthafflies over minor counties cricket in the 1900s, but this is far from conclusive.

There is little to suggest that this demonic influence extended to the other cricket playing nations, though a score card from an obscure match played at Ballarat in the 1860s between the Chinese Diggers XI and the Troopers Club reveals that a certain S A Tan distinguished himself for the Chinese team. Some alleged historians claim to detect indications of a Christian fight-back against satanic influence in Australian cricket of the 1970s ("Why else", they ask "would there be so many Chappells in the Australian team?") but serious students of the game regard this as mere sophistry. As they do with the significance of the West Indies once having a bowler named Bishop, although the fact that an England player, David Sheppard, later became a bishop, might have more substance. However, this evidence is all circumstantial, and we would not be advised to place too much reliance on it.

As Skeptics we might well conclude that despite the increasing amount of (and increasingly nausea inducing) publicly overt acts of religiosity spouted by sporting figures ("I would like to thank my God, Jehovah", from a victorious tennis player in the recent past - as though we might have thought her God was Odin) greed is a characteristic of our species that re-

quires no external nor supernatural causes to explain.

* * *

Not entirely unconnected with the previous story, we can now reveal an astonishing fact. Some years ago, we published a review by Sir Jim R Walby of Nobel Laureate, Leon Lederman's book, *The God Particle*, which was Lederman's name for the fundamental particle, the Higgs boson. In the review the noble baronet asked if anyone had any information on Peter Higgs, the British physicist who had postulated this eponymous particle. All he could find was that Higgs had proposed its existence while working at Edinburgh University and that he was now involved in doing other things.

This elusive particle came up in news recently of a recent breakthrough in particle physics, so we asked around the internet to see if anyone had any further information on the equally elusive physicist.

As a result, we were pointed to the CERN web site, where we found lots of information on Higgs the boson, but very little on Higgs the man. We did, however, find a reference to a "Higgs Field" which we initially took to be yet another facet of the elusive boson, but which, after further research, turned out to be a sporting field located near the CERN facilities in Preveessin, France. To our surprise and delight, we found that it was in fact a cricket ground. Unlike the Higgs boson, we never imagined in our wildest fantasies that a cricket pitch could possibly exist in France.

There is just a chance that civilisation might endure after all.

* * *

Among the important issues being discussed at the World Convention will be the proliferation of assorted electronic gadgets alleged to provide diagnostic and healing services. Following up on the excellent work done by 1999 Australian Skeptic of the Year, Nurse Cheryl, and the publicity given to the outrageous claims made by the proponents of pseudo-medical gadgetry by Jim Rowe, contributing editor of *EA* magazine (formerly *Electronics Australia*) the Hunter Region Skeptics will be displaying various of these devices and listing some of the claims made for them in a stand at the Convention. Drop by and have a look.



Creationists, historic tragedy and a test of radiometric dating

John Happs

Creationists.

Having locked horns again with Carl Wieland on ABC radio during a “debate” over creationism and the age of the Earth, I am reminded of the creationists oft-repeated pronouncement, to a generally non-scientific audience, that radiometric dating is an erratic and unreliable technique. Creationists, such as Wieland, argue that::

1. There are instances where the radiometric dating technique failed to produce a sensible result.

There is no doubt that some radiometric dates have been wide of the mark yet these are in the minority and should not lead to the conclusion that all radiometric dates are therefore invalid. This is akin to purchasing a number of firecrackers and finding that occasionally, one in the box does not detonate. To state that all the firecrackers in the box are unreliable, because one failed, appears to be an exaggerated response, to say the least.

2. The assumptions made in radiometric dating are not reliable.

These “assumptions” are only seen as assumptions by creationists. They include:

- (a) Radioactive decay rates are not constant.

This “assumption” should not be regarded as an assumption since significant changes to the rates of radiometric decay have not been observed. I doubt that any scientists involved in radiometric dating would ever consider the rate of decay as a parameter that tends to fluctuate.

- (b) Contamination is unavoidable and will invalidate results.

The possibility of contamination is minimised by experience and sound technique since such contamination could certainly lead to meaningless results. There is no pattern of chaotic results in radiometric data and merely trusting that the sample was without contamination would not be an approach undertaken by any scientist.

Historic tragedy

Recently, there have been a number of opportunities for testing the validity of radiometric dating by using materials which offer an age already established via historic records. Because the historic dates, associated with some datable materials are known with real accuracy, scope is available for further refinement and testing of appropriate radiometric techniques.

The eruption of Vesuvius in 79 AD and the subsequent destruction of several population centres along the southern coastline of Italy, was an historic tragedy

which today offers an exciting opportunity for testing the reliability of radiometric dating.

Geologists describe Vesuvius as a strato-volcano or composite volcano, so called because this type of volcano undergoes two phases of eruption which lead to alternating layers of lava and ash. The latter phase is called the Plinian Stage since it was vividly described by Pliny (the younger) during the afternoon of 24th August, 79 AD. The Plinian stage can last from several hours to days. His description tells us how vast quantities of rock and ash were thrown high into the air and how these materials fell back to the ground. In some places they accumulated to a depth of 4 metres over a period of about 8 hours.

The volcano had blown tonnes of ash, pumice and sulphurous gases into the atmosphere and this firestorm quickly descended on the inhabitants of the resort towns of Herculaneum, Pompeii, Oplonti and Stibiae. People were suffocated and rapidly buried where they fell. Apparently, many were able to climb to the top of the thick layer of pumice only to be engulfed by pyroclastic flows which followed the ash and pumice deluge. The fallout from Vesuvius reached Libya, Syria and Egypt, causing crops to fail as a result of significant ash cover.

The eruption also produced a superheated cloud of steam and boiling mud which moved rapidly down the slopes of Vesuvius, covering the 7 kilometres from the volcano to the town of Herculaneum in about 4 minutes. Herculaneum was a small fishing town close to Pompeii and the settlement was quickly covered to a depth of 20 metres by hot mud which set like concrete on cooling.

It is difficult to realise the impact of this kind of eruption on thriving communities and almost impossible to imagine the terror faced by those who could not escape the eruption. Scenes from the event were graphically recorded by Pliny and provide some real insight into this natural disaster.

Pliny (the younger) was an 18 year old on holiday in his Uncle’s villa in Misenum when Vesuvius erupted. Later, he wrote a number of letters to his friend, Cornelius Tacitus. In one of these letters, Pliny recalled how his Mother first noticed a large, unusual cloud in the sky and how she pointed this out to his Uncle:

My Uncle was stationed at Misenum, in active command of the fleet. On 24 August, in the early afternoon, my Mother drew his attention to a cloud of unusual size and appearance.

Pliny (the younger) and Pliny (the elder) climbed up the hillside to get a better view of the huge cloud.

Pliny (the younger) wrote:

It rose to a great height on a sort of trunk and then split off into branches, I imagine because it was thrust upwards by the

first blast and then left unsupported as the pressure subsided, or else it was borne down by its own weight so that it spread out and gradually dispersed. In places it looked white, elsewhere blotched and dirty, according to the amount of soil and ashes it carried with it.

When the eruption was well under way, Pliny (the younger) and his Mother observed the result from their vantage point, a hill, about 20 km from the volcano, called the *Monte di Procida*. Pliny noted severe earthquake activity, during which carts were shaken backwards and forwards despite their wheels being wedged. Pliny also noted tsunami activity with the retreat of the sea at Misenum. Interestingly, these same phenomena were reported during a later eruption of Vesuvius in 1631.

Meanwhile, Pliny (the elder) ordered a number of his warships to sail up the coast in an attempt to rescue some of the people who were living in the densely-populated settlements and would be threatened by the volcanic eruption. Pliny (the younger) decided not to accompany his Uncle up the coast although Pliny (the elder) maintained a detailed account of his dangerous venture.

When sailing closer to the point of the eruption, Pliny noted that ashes, pumice and blackened rocks were falling all around them and, before long, their ship ran into shallow water and was unable to reach the shoreline because of the large quantities of volcanic debris accumulating in the water.

Pliny eventually reached the shore at Stabiae where a personal friend of his resided. He actually stayed overnight with his friend despite reporting how terrified the residents were and how they sat up all night as they observed numerous fires on the flanks of Vesuvius. The citizens vainly attempted to shelter from the continuous showers of ash and pumice.

The houses were shaking violently in the morning when they finally decided to leave their building, protecting their heads with pillows. Although it was daytime, Pliny reported the stench of sulphur and noted that it was darker than any night. They had to light torches to make their way back to the ship. The sulphurous fumes made breathing difficult and they eventually overpowered Pliny. Unfortunately, he collapsed and died before he could reach the safety of his ship.

Pliny (the younger) wrote a second letter to Cornelius Tacitus in which he described the events of the day following the first eruption of Vesuvius. He recalled how ashes continued to fall and another large black cloud approached "*behind us, spreading over the earth like a flood.*" They decided to leave at once despite it having suddenly become dark, as a result of the looming cloud.

Pliny wrote:

You could hear the shrieks of women, the wailing of infants, and the shouting of men; some were calling their parents, others their children or their wives, trying to recognize them by their voices . . . Many besought the aid of the gods, but still more imagined there were no gods left"

This was certainly a tragedy of significance and one that was hidden from the world for some time. These once thriving resorts were covered for almost 1,500

years, not to see the light of day until excavation commenced in 1748.

Radiometric dating

Bertram Boltwood (1870-1927) suggested that minerals which contained uranium should also contain lead since uranium-238 decays to lead-206 and uranium-235 decays to lead-207. Older uranium bearing minerals will contain more lead isotope as more uranium breaks down. Today, those isotope ratios can be accurately measured using a mass spectrometer.

Potassium is an element which is plentiful in the Earth's crust and every 100 potassium atoms include one radioactive potassium-40 atom comprising 19 protons and 21 neutrons within its nucleus. When one of these protons is struck by a beta particle it can be changed into a neutron so the original atom later has 18 protons and 22 neutrons. In this way, the potassium-40 atom is converted into an argon-40 atom. As the decay process continues, the argon-40 gas is trapped within the rock. Being a gas at room temperature, argon can be released and transferred by vacuum line into a sensitive gas mass spectrometer for analysis.

The half-life is the time taken for 50% of the atoms to decay and all radiogenic isotopes have their own decay series. After one half-life, the ratio of parent to daughter is 1:1 and after two half-lives 1:3 etc. After 10 half-lives, less than 0.1% of the parent isotope will remain. In the potassium-argon technique, measurements are based on the radioactive decay of potassium-40 to form argon-40 with the half-life of potassium-40 being approximately 1.3 billion years.

Potassium-argon dating has proved a reliable technique for samples as old as 4.3 billion years and as young as 100,000 years. However, lower limits have been imposed on the technique by the rather small mass of argon-40 which would be produced in very young samples. Only recently has it been possible to accurately date such samples.

To further ensure that the technique is reliable, samples must be taken by experienced geologists who check that the material (usually containing mica or feldspar) has not been altered by subsequent events such as reheating and recrystallization or severe weathering.

Workers in Africa have used the technique to obtain a 3-4 million year human history associated with archaeological and geological deposits. The potassium-argon dating technique is very useful for archaeologists who might locate volcanic deposits which cover evidence of human occupation since the age of the volcanic deposits cannot be older than the underlying artifacts. Clearly, the technique is most useful where archaeologists and historians can establish a clear link between any human artifacts and an associated volcanic event.

A test of radiometric dating

The historic link between artifacts and a volcanic event is very clear in the case of the Vesuvius eruption and the settlements which were engulfed by pyroclastic material. The volcanic material available for dating would have normally been considered far too young for conventional potassium-argon dating. However, a

continued p 10 ...

Therapeutic touch: are we being touched?

Kathy Butler

It's hard to predict the future of some pseudosciences. Some go the way of biorhythms and ear-candling. Others stick around for the long haul. A sure sign that a pseudoscience is starting to worm its tendrils into acceptability is when it appears under a University letterhead.

I first heard of Therapeutic Touch (TT) when a brochure appeared on a noticeboard at the Royal Women's Hospital in Melbourne. It advertised a course on TT as a "complementary healing modality for nursing practice". I have a fairly finely tuned radar for junk science, so I was perturbed to see that:

- a. a public hospital was promoting this pseudoscience; and
- b. that the flyer bore the letterhead of the nursing school of the highly respectable Flinders University, in Adelaide.

The usual claims were made: TT would raise haemoglobin, accelerate wound healing, decrease pain, etc, and the course was to be run by the grand dame of TT herself, Dolores Krieger.

What sets TT apart from other "alternative therapies" is that there have been some articles in respected journals concerning its efficacy. Unfortunately these are rather few, widely criticised for their poor experimental design (including lack of controls for the placebo effect) and plagued by the inability of other researchers to replicate the results. Lately, TT adherents seemed to have dropped the raised haemoglobin claim (possibly a claim too quantifiable, and a possible source of litigation against hospitals if TT were used instead of transfusion) but the less quantifiable claims are still popular, in spite of their questionable evidence.

In 1993, when TT first came to my notice, I was intrigued by this "therapy" which came complete with journal references, but also the familiar psychobabble of the new age, so I undertook to investigate the evidence. In Australia we are extremely good at latching on to outrageous practices from elsewhere (often the USA) so it was no surprise to find that the original research articles came from America. Articles in Australian publications are mostly in nursing trade magazines and popular women's magazines, generally re-publications of popular American articles, or testimonials and anecdotal evidence. No original research appears to have been undertaken here.

At this time I was involved in co-hosting a Melbourne public radio programme concerning pseudoscience and critical thinking. This was a natural vehicle to investigate why a respectable University should be interested in teaching a therapy with, at best, questionable efficacy, to its nursing students. We interviewed Lorraine Kelly, the director of the Flinders Centre that was offering the course. She did not consider, it seemed, that the evidence might be in the slightest questionable. She appeared honestly unsettled

that we considered its value questionable from the outset. Was it, after all consideration, an inappropriate choice for nurses' further education? No, she did not think so. She appeared to concede that its effects might be due to the placebo effect, but still considered it a worthwhile endeavour. (The cost of this was \$750 for the five day course).

The question naturally arises: how do universities and hospitals in Australia choose the content of their nursing courses for basic training and further education? TT must occasionally slip through as it can boast *some* (albeit questionable) scientific research. It also comes with the backing of a number of overseas nurse educators, and the impressive stamp of some colleges such as the University of Colorado. One can understand how a board of education might, at first glance, mistake this for Real Science, especially considering Australia's lingering cultural modesty ("If it comes from overseas it must be superior"). But claims made about the "dynamical nature and the therapeutic functions of the human energy field" should make any board member suspicious.

Unfortunately this is not a rare case. A survey of nursing curricula of Universities and hospitals who provide details on the internet, show that many include some units of alternative therapy training, although often as an optional component. TT is occasionally included. The main source of influence seems to be from alternative practitioners who offer private training, sometimes in association with an institution, as a "Summer school" or extra short course, and which are generally expensive.

Overall, therapeutic touch is merely a small part of the burgeoning practice of alternative therapies in legitimate nursing practice. I surveyed a number of highly placed nurses and nurse educators around Australia as to their interest in, and practice of, alternative therapies, TT in particular. Most of them had heard of it, only a few used TT, however there was overwhelming support for all manner of non-evidence-based therapies. Some nurses were emphatically in favour, one going so far as to cross out the phrase "alternative therapies" wherever it appeared in my survey, replacing it with "complementary therapy". I felt there was an element of political correctness among some respondents, supporting these practices only because others were. As to how these therapies came to be part of the curriculum, it seems that boards charged with modifying the nursing curriculum were largely composed of nurses, so it comes as no surprise.

What is the reason for the popularity of such practices among nurses (TT is virtually confined to this area)? Largely women and generally seen as "second rung" in the medical hierarchy, a vague feeling of powerlessness pervades the nursing world, backed by the political correctness of the "caring professions". Dr

Claire Colebrook of Monash University's Philosophy department has an interest in feminism. Her theory is that powerless community members must create their own power-base, in this case "alternative" therapies.

Nurses who have been willing to be interviewed say that the nursing profession has embraced alternative therapies, (and these are virtually always lacking in scientific evidence). They give suggestions why this may be so: nursing has always struggled to differentiate itself from medicine and science, and the inclusion of alternative practices is one way of doing so. The aura of a "caring" rather than "treatment" profession allows nurses to reject the "harsh masculinity" of science and its demand for evidence.

Nursing also undergoes fashions in its practice and training. Popular alternative practices today may be removed from the curriculum tomorrow. As a local example, a group of Australian university campuses who had previously had independent control of their curriculum were recently brought under control of the parent campus. All alternative therapies were removed from nurse training.

One nurse pointed out that there is very little scientific training for nurses, making it very difficult for them to independently evaluate the scientific evidence for the practices they use.

Another suggested explanation for the continued encroachment of alternative practices is the military-style hierarchy of nurses and practice in hospitals. Senior nurses on some hospital wards, such as cardiac units, have embraced aromatherapy as a nursing tool. Those nurses who object to unscientific practices can only take up the practice as required, or leave their jobs.

Some nurses complain that their jobs have been eroded by occupational therapists, physiotherapists and other practitioners, so alternative therapy allows nurses to regain some authority.

The single saving grace for those who wish their hospital treatment to be based on science rather than hearsay and wishful thinking is, ironically, the underfunded health system. In recent years public health funding has been substantially reduced and hospitals have cut both staff and services. This leaves many wards understaffed and there is very little time for nurses to do other than carry out basic nursing. This excludes alternative therapies from all but the most well financed areas. (Cardiac departments, for example, can attract custom from wealthy, overseas patients.) It seems that until science is given greater prominence in nurse training, and nurses are taught the critical evaluation of the techniques they use, "alternative" therapies based on misunderstanding and political correctness will continue to creep into our hospitals and universities. A poor "alternative" indeed.



... Dating from p 8

variation on the potassium-argon dating technique has been used recently by Paul Renne and co-workers at the University of California (Berkeley) using volcanic material from the Vesuvius eruption to demonstrate how relatively young volcanic material can now be dated with considerable accuracy.

Volcanic samples from the Vesuvius eruption were bombarded with neutrons to convert the stable potassium-39 isotope into the argon-39 isotope, which does not occur naturally. The ratio of argon-39 to argon-40 was then measured and used to indicate the ratio of the current K-40 concentration to the original K-40 concentration and the age of the volcanic sample. Lava from the 79 AD Vesuvius eruption was analysed in this way to date the event at 1,925 years before present. This represents a very accurate result despite the youthfulness of the samples.

A final comment

Creationists have typically challenged the accuracy of radiometric dating since it offers a solid line of evidence against the absurd notion of a young Earth. Absolute dating techniques are becoming ever more accurate as collection and preparation techniques continue to improve along with the necessary instrumentation. The 79 AD eruption of Vesuvius provided both a window of opportunity and the materials to further test more refined dating techniques. The results from Berkeley will provide little comfort for creationists.

We can only imagine the human tragedy associated with the Vesuvius eruption, as it was seen through the eyes of Pliny and it is extremely difficult for us to fully comprehend exactly what those local citizens endured throughout the time of the eruption. Scientists, from a number of disciplines, will ensure that the memory of those who experienced the wrath of Vesuvius during those fateful days will not be forgotten.

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Keep up to date with the World Skeptics Convention
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www.skeptics.com.au/skep2000



Dense, precious and malleable

Shane Reeves

Gold is where you find it

Gold has been found in virtually every rock type but in distinct geological settings. Auriferous concentrates can be split up into two general categories; placer (or alluvial) deposits formed by the action of water, and hard rock (vein or lode) deposits. A curious feature of gold deposits is that they seem to occur in two main periods of geological time, the Archaean era (everything older than 2500 million years) and the Mesozoic to present (everything younger than 250 million years). There is much argument about why there is this 2000 million year hiatus between the major gold-forming epochs, but the consensus is that conditions in the early earth (high heat flow) and young earth (plate tectonics) permitted high mobility and subsequent precipitation of gold. It is also worth keeping an open mind about gold and where to find it as bizarre things happen in nature all the time. For example Professor Ian Plimer and myself have recently published a paper on gold in human sewage. The Werribee sewage stockpile (representing 100 years of accumulated human sewage waste) averages just under 1 gram per tonne gold. This represents in total around \$A20 million today, just sitting around waiting for an economic way of getting it out (and believe me we tried, with 50 auger holes and 150 assays, and 3 years of experimental work).

All that glisters is not gold

As a geochemist working in a university, I occasionally get people off the street coming in to have rocks identified, strange occurrences explained, or to air their bizarre theories. By far the most common strange claims, however, concern the yellow metal. People bring in flour bags of muscovite and other ungold-like substances hoping for confirmation that they have found 'the motherlode'. However, for every 50 false starts there is one truly fascinating find, like the gentleman who brought in a 590g nugget of gold he had picked up metal detecting (he knew it was gold, he just wanted it weighed!).

Common sense is often discarded when it comes to gold. I have worked with companies that have hired gold diviners to target drillholes. These are otherwise serious exploration companies which people trust with their hard-earned investment dollars. People throw money at gold ventures, which is a good thing for consultants like me, but caution should always be exercised. If something looks too good to be true, be very sceptical, because it usually is.

Gold attracts people more than any other commodity. You can broadly categorise these gold-seekers into two types: (1) those who genuinely believe they have found; a lot of gold, a new method of finding gold or a more efficient way of extracting gold, and (2) those who think they can make a lot of money out of convincing people that they have found a lot of gold, a new method

of finding gold or a more efficient way of extracting gold. A case of the latter group was the Busang debacle of 3 years ago and now a classic case of organised fraud. Somehow, all of the drill core samples from a prospect in Borneo were salted with gold from elsewhere, on such a scale, over a period of time and with such care, that it appeared geochemically reasonable, such that a reserve of 70 million ounces was proclaimed; a massive orebody by any measure. It was only later, when the chief geologist 'fell' from a helicopter that questions were asked. The joint venture partner drilled several holes adjacent to the 'discovery' holes and found no significant gold values. It was then that the enormity of the fraud became clear. Shares prices in the dominant partner (Bre-X, a penny stock Canadian company) dropped massively, lawsuits flew and the company finally collapsed. This remains the biggest proven fraud in mining history, without precedent.

My own experiences are on a smaller, but still significant, scale. Working as a consultant for mining and exploration companies, I have occasionally been asked to evaluate ore samples from small mining company sharks who were trying to vend in properties for cash. When assayed, the samples usually look very nice indeed, but far too commonly they don't 'fit' the geology of the area where they are claimed to be from. For example, one sample given to me contained gold only (and quartz) with no other indicator elements. For the style of orebody it was supposed to be, this was very curious indeed and was a clear case of salting (this same character was always able to pan gold out of the creeks on the properties he was trying to sell, while no-one else ever could). There is also a well known drilling technique (called 'the directors hole') whereby holes are drilled along the strike of depressingly small narrow orebodies. The assays for these holes then appear to show high grades over long intersections but, in reality, are sampling something small and insignificant.

Some strange ideas of yesterday

In the Middle Ages the alchemists got very clever at transmuting gold from less valuable metals such as lead. Several tricks were used to convince people that they had, indeed, created gold from base metal, such as coating the bottom of the crucible with a gold powder-charcoal mixture, or stirring the hot brew with a hollow rod filled with gold, the end of which was capped with wax, or even by adding charcoal saturated in a gold salt.

In the mid-19th century, governments offered monetary incentives for techniques to better extract gold from hard rock. I recently came across a very interesting Legislative Council Select Committee report from the Victorian Parliament in 1855. This report presented the depositions of two new discoveries on gold extraction from quartz reefs. In 1855 the most common

method of gold extraction from hard rock sources was stamp-battery crushing of quartz followed by either mercury amalgamation or water washing, so for very fine gold the procedure was less than effective. The first deposition to the select committee came from Mr. Samuel Gordon, an inventor who claimed that he could 'annihilate' a tonne of quartz in an hour using two 'small' electrochemical batteries, two carbon rods the size of his fingers, and a flame. When questioned he admitted to never having tried the experiment at all, but considered that it would work "judging from the power of electricity". Next, Mr. Henry Harris claimed that by the use of heat, presumably thermal shock, he could economically pulverise quartz. He claimed to have conducted the experiment at home and collected 3 times as much gold as was normally yielded. He went on to say that the fine quartz dust could then be "blown" off the gold, preferably by using children because "their breath would be lighter".

Some strange ideas of today

It is amusing to look back upon how naïve and unsophisticated people were 150 years ago. Sadly, my experiences over the last few years are disturbingly similar, encompassing, as they do, both the genuinely misguided and others who gave rise to the term "to mine the shareholders", which is sometimes far more lucrative than the supposed orebody at your feet. I once represented a company when a vendor was trying to sell them a device remarkably similar to that mentioned in the 1855 example above. The device was claimed to be able to extract gold from rock without the need to pulverise the rock at all. You simply dialled up the relevant wavelength for gold, pushed a button, and away you went. In order for the vendor to part with any information on the process, and before giving any demonstration, he required \$50,000 up front. Needless to say, my recommendation to the company was to hang on to their money.

One example of the 'misguided' group was the managing director of a gold exploration company who came in with a box of rock samples (which happened to be a very common unmineralised slate) which he claimed were ore-grade. He wanted the university to confirm the grade, which would then be used to raise capital to mine the orebody. This is a common occurrence with many groups seeking credibility through university certification or association. The sample had been analysed via a very obscure method that one of the directors had insisted on using, but had been conducted by a NATA registered laboratory (and therefore presumably credible). The laboratory reported grades of 7g/tonne (7 parts per million) in several different samples. This is a respectable grade when you consider the volume and tonnages of the supposed ore. Based on this the company directors calculated that at this grade (7g/tonne or 7 ppm) given the dimensions of the slate belt (150km x 20km) and the average density of the rock (2.2 g/cm³) and a reasonable mining depth (being environmentally conscious, they were generously planning to mine only the top 100m) they had discovered a resource of 4,620,000,000,000 grams or around 148 billion ounces of gold, valued at around \$A75,000,000,000,000 (\$75,000 billion) and easily the

biggest gold mine ever discovered. This is even more significant when it is noted that the total gold ever won from the earth is, in comparison, a trifling 4 billion ounces, (which, by the way, would occupy a cube less than 20m in size). This company firmly believed that they had found a deposit to eclipse all that have come before, in an area where geologists, oblivious to the wealth beneath their feet, had been exploring for 100 years. On the strength of these assays the company had spent a considerable amount of money acquiring tenements. Unfortunately, I was never able to reproduce the assay. I tried atomic absorption analysis and obtained a mere 10 ppb (parts per billion), I tried instrumental neutron activation analysis and obtained 12 ppb, I tried radiochemical neutron activation analysis and obtained 12.42 ppb, but could never get close to the 7 ppm they required (a factor of around 1000 higher than my assays). Finally, I obtained the company's own gold assay recipe and tried that. Lo and behold, using the company's own gravimetric technique (based on weighed yield) it became clear that the measured material was not gold but fine clays that were carried through the procedure. In reality the samples had no gold. Well, that is not strictly true; they had around 12 ppb, so a cubic kilometre of rock would contain around 20 tonnes of gold, but just try getting it out economically! A cubic kilometre of sea water, for comparison, contains around 8kg of gold, worth around \$120,000, but also not currently economic to mine.

I was never able to convince the directors of the flaw in their technique. They said that the sample they gave me must have been the only barren one. In these sorts of companies the directors are usually accountants, lawyers or stockbrokers, but rarely geologists and so have a generally poor background in science. I vividly remember the day one of the directors, in the field, decided lineament analysis was a breeze (lineaments are important structures that control the location of the gold lodes) and proceeded to draw on the aerial photographs all of the structural lineaments he could see. One of these 'lineaments' later turned out to be an old track while another was a deeply incised gully and another a fence line (shades of the Martian canals).

It is worthwhile considering the quasi-scientific logic in targeting a slate belt. Slate is known to contain large amounts of graphite, a form of carbon. As this particular slate belt was in a known goldfield (which had historically produced 3 million ounces of gold), then clearly gold fluids had been circulating at some point in time. Carbon is known to adsorb gold-cyanide complexes. Ergo, carbon-bearing slates should be full of gold. All we have to do is find the right technique to get the gold out! It is these quantum leaps in logic that characterise not only these misguided companies, but also many new age philosophies.

Invisible gold

Invisible gold is a term you will hear, from time to time, which means different things to different people. To geologists, the term refers to gold that cannot be detected by conventional methods. It is a relative term, really, in that in the days before powerful microscopes, anything microscopic was invisible. These days, if you can't see the gold with an electron microscope, then some peo-

ple consider it invisible. It is a term I detest, because there is always a technique that will make the gold visible, either directly (scanning electron microscopy, optical microscopy) or indirectly (atomic absorption, mass spectrometry).

A type of gold deposit discovered in the 1960s (Carlin-type gold mineralisation) is characterised by gold so fine (sub-micron) and contained in pyrite, that by conventional microscopic methods the gold is not visible. However, it is visible to indirect analytical methods, such as those mentioned previously. There is a trend, however, amongst some mining companies, towards the belief in an ethereal form of gold that is not only invisible to all methods of observation, but also invisible to all of the quantitative analytical methods. The argument, therefore, is that the gold assays for this particular type of ore are far too low which has enormous implications for the prospectivity of entire regions as well as of individual mines.

I became involved with a publicly listed mining company a few years ago where the managing director believed they had a problem with the head grade (grade of gold in the ore) from one of their producing gold mines. It appeared that the head grade did not agree with the tonnes of gold produced. In fact they claimed they were producing more gold than expected. At the same time, the exploration samples that the managing director himself was collecting were returning ore-grade assays from his own laboratories and negligible gold from the commercial laboratories. This led the managing director to proclaim that all methods of gold assay were wrong (curiously all low and all by the same proportion) because the gold was 'invisible'. I spent an awful lot of time, and his money, assaying rock samples by every method available, producing reams of data. As my work was directed in an ad hoc way by the managing director himself there was no coherent strategy to the research. A clue to the origin of some of these strange results was revealed when, while sampling in the field with the managing director, he practised his method of sample processing: the samples were split into size fractions by running them over the Wilfley table at an operating gold mine. A Wilfley table acts as a sluice and separates light fractions (eg clays, quartz) from heavy fractions (eg gold) by washing over a series of riffles. Unbelievably, the fact that this table, which was used to concentrate high-grade ore, would be contaminated with gold was never considered. To demonstrate that this might be occurring, I had a large volume of barren quartz run over the table and, when the assays came back with several grams per tonne gold, the data was presented to the managing director. Rather than the expected "whoops", his response was "there's gold everywhere and no-one else can see it!" Another oft-repeated mistake was to analyse multiple aliquots of a sample which had near detection limit levels of gold and to add the results up. This has the effect of adding analytical noise and background, giving erroneously high gold assays. Towards the end of my involvement in this project, this series of unconnected, unrelated observations (excluding data that did not support the theory), driven by people ignorant of fundamental scientific principles, was being touted as a revolutionary

new 'gold process', access to which was later sold to a major mining company for a very large sum of money.

I'll see that when I believe it

In the last 5 years or so, a plethora of new acronyms have sprung up in the exploration industry, relating to devices which purport to be able to find concealed orebodies (eg GEOGAS, DESME, CHIM, MOMEQ, NAMEG, etc).

These devices typically emerge from the former Soviet Union or the People's Republic of China and, much like the diviners that the Skeptics test occasionally, these devices work remarkably well over known deposits when the user is aware of them. The techniques are generally black box methods but based on a fundamental principle of long-range migration of elements from the source to a collector at the surface of the earth, by creation of an artificial 'electrical field' or by 'pumping through' a collector.

I first became aware of these methods at a conference in Townsville where a Chinese researcher presented his data on the GEOGAS method. In this method a small hole is dug in the ground and a 'special' collector suspended above a pump, which supposedly pumps air out of the ground and passes it over a collector, claiming to sample gas from as deep as 35 km.

The researcher presented a 1:1 correlation between instrument 'hits' and known orebodies over the whole of China, at a sampling density of 1 sample per 800 km². A questioner from the audience asked what level of gold was found on the collector over what period of time and the response was that the level was 15 parts per billion collected in 5-10 minutes. The next question was "aren't you worried about depleting your orebody" which brought gales of laughter from the audience of geochemists as a 'back of the envelope' calculation would show that at these rates you could just about gold plate objects suspended in the hole!

It is typically extremely difficult to obtain any serious information on these devices, principally due to very poor communication skills and a professed secrecy to prevent stealing of ideas. Information on the devices consists of obscure pseudoscientific gibberish such as "... distinguishing of aureoles from deposits in CHIM method is accomplished by means of electromobile occurrence forms of metals with their selective electrochemical extraction directly in the Earth".

Nonetheless, the basic premise, that orebodies interact with their surroundings, generating haloes and leaving clues to their presence is sound. I am reluctant to discount the methods completely, even though it does seem to me that the evidence in the form of the data is beyond the current scientific capabilities of the instrumentation.

Significantly, a more recent objective study of the GEOGAS method itself, wherein activated carbon collectors were buried above known orebodies in Spain for periods of over 100 days, has suggested that positive anomalies can be detected after such a period, although the limitations of such a technique in exploration are self-evident. In the absence of any supporting double-blind evidence for these techniques I remain

sceptical, although I am conscious of the famous words of Ernest Rutherford “anyone who expects a source of power from the transformation of the atom is talking moonshine”.

It is worthwhile noting that the oldest method of exploration for gold is that of panning the streams and looking for visible gold in the tail. This method, with modifications such that the concentrate is assayed and what was ‘visible’ then is not what is ‘visible’ now, this technique is the most prevalent exploration method for sampling large areas rapidly.

Gold will always attract people on the fringe and people who are too easily parted from their money with promises of untold wealth. This is hardly surprising as the features of gold are reflected in many adherents of new age philosophies; it is dense, it is precious and it is malleable.

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Investigation

A matter of perspective

Barry Williams

Among the more lunatic of the conspiracy theories that exercise the minds of those who like that sort of thing is the one that holds that the entire Apollo Moon programme was a hoax set up by NASA and Hollywood.

Recently we were pointed to a web site that claimed, *inter alia*, that because the photographs taken by the astronauts on the Moon showed no stars, that was evidence that it was all staged on a giant movie set. It didn't seem to have occurred to the conspiratologists that all the Moon landings took part during the Lunar day (it would have been far more dangerous to have people on the surface during the Lunar night) and that it would be very unlikely that any stars would have been visible because of the overwhelming effect of sunlight. They seem to think that the only reason we don't see daytime stars from Earth is because of the atmosphere, which does have some effect, but the main reason is the bright sunlight.

As part of this conspiracy, the photo shown below is adduced as evidence. The shadows of the two astronauts are claimed to point in two different directions, which would be impossible if the Sun was the only source of illumination, but quite possible with studio lighting.

Of course, if you study the picture closely you will see that both shadows do, in fact, point in the same direction and the seeming discrepancy is a trick of perspective, caused by the rearmost figure standing on a slight rise. This also accounts for his shadow being much longer than that of the other figure.

Of such “evidence” are conspiracies constructed.



Why meddle with the masses?

Colin Keay

One of my physics heroes, Freeman Dyson, has recently won the million-dollar Templeton prize for progress in religion. He is the third physicist in five years to win the prize: the first being Paul Davies, a recipient well known to Australian Skeptics. Freeman Dyson would most likely have shared the 1965 Nobel physics prize for his work on quantum electrodynamics had it not been for Nobel's limit of three winners for any one prize. He is highly regarded for his work in cementing together the diverse contributions of the three who did win that prize: Feynman, Schwinger, and Tomonaga.

For most of his working life Dyson has been a highly esteemed member of the Princeton Institute for Advanced Study, for some of that time in the company of Einstein. Over the years he has written many thoughtful, and enjoyable, books on science and social responsibility including *Weapons and Hope* which is the sanest account of the arms race ever written. In this context he belongs to the Princeton "Coalition for Peace Action" which campaigns against arms sales and nuclear weapons while at the same time he strongly advocates civil nuclear power generation as well as maximal use of solar power.

Clearly Dyson is a person of great intellectual depth. He is a Christian, which helped him gain the Templeton prize, but quite opposed to religious fundamentalism. He sees the Bible as a work of literature, not in conflict with science. He has many scientific friends who are atheists or agnostics with whom he is happy to differ on matters of belief. To Martin Durrani, writing for *Physics World*, he confessed that he attends church services "more for the fellowship and the music than what you actually learn".

There are a number of paid-up Skeptics who do, or could, share Dyson's approach to religion. Speaking for myself, I became an atheist upon discovering that the bonhomie of fellowship on Sunday was frequently not maintained during the week. I have some unpleasant memories of pious believers who happily shafted me during working hours, and I'm sure that goes for many others who have turned away from religion, and doubtless a few remaining within their fold. During religious observances, there are the ceaseless supplications and appeals to the vanity of an Almighty, whose attitudes to sacrifice leave much to be condemned in both testaments. Sorry, but I've never found any god willing to come to my aid when needed. As for TV's religious services with ceaseless appeals to the chequebook, they are beneath contempt.

Notwithstanding all that, I personally must admit to a certain religious education over the years. Most Skeptics of my acquaintance appreciate the superb artistry of the greatest religious paintings and can admire them as works of art without for one moment believing the subject matter as anything other than sheer fiction. And

the same goes for sublime church music such as some of the masses written for the Roman Catholic Church services. Although to me the translation of their text ranges from infantile to obnoxious, thank goodness it is written and sung in Latin so I can enjoy the music without dwelling too much on the meaning of the words. Ironically, for a long time the Catholic Church retained Latin in its services for just that reason!

Returning to the thoughts of Freeman Dyson, he believes there is "something there" and that "the world has some kind of mind of its own." That is a view atheists can share with him, but perhaps not agnostics. Most thoughtful people, Skeptics or not, must sometimes feel glad to be alive and in quiet moments of contemplation be sincerely thankful for the joys and satisfactions that life may offer. It is along with such sentiments that the glories of the music of religious masses can be deeply appreciated just as much as sacred art and church architecture.

Some of the inspiring masses may be too strong for easy listening by those not very fond of classical music. For starters may I suggest a mass that hooked me on that genre. It is Gounod's St Cecilia Mass, which musicologists consider takes too many liberties with the form. It must be the only mass including a Turkish March! But it is so tuneful I can find myself humming its melodies for days on end. Go for the Paris Conservatoire version on EMI CD which won a Grand Prix Disc award. Those wanting to venture further may like to sample some of Haydn's easy listening London masses, my favourite being the Mass in Time of War (In Tempore Belli).

So there, I'm a Skeptic who does not deride the positive virtues of a belief system that has inspired great works on one hand but on the other hand has brought much agony to the world. So I happily confess to enjoying many religious masses. If the excessively godly knew about me it would be extremely distressing to those of them who regard Skeptics by definition as unwashed philistines.

Getting back to the canonical text of the mass; in my view its fawning invocations diminish the grandeur of the music even though at one time they provided inspiration for the composers. Wouldn't it be much more sincere if the words of the mass gave praise for the wonders of nature, our beneficent planet, the myriad stars and their life-giving stardust that made us? It would take a genius to pen such fitting words to match the music, yet I must confess that I know atheists who are horrified at the very thought of tampering with such great works of art as the best Catholic masses. Even so, the words fail to move me like the music and singing do. Maybe worship may turn full circle: I recall that the earliest religions paid homage to a star - our own Sun.

Continued p 17 ...

Shock! Skeptics learn little from creationist

Peter Barrett

On Sunday 30 July, Colin Groves and I attended a talk which was intended to convince us that evolution was a myth. The talk, attended by some 50 people, was given by New Zealand expatriate Peter Toth, described as "Canberra mathematician and scientist". He had been in his second undergraduate year, he said, when he attended a talk by Duane Gish which convinced him that (etc, etc, and so forth).

The talk was divided into four parts, dealing in turn with the Origin of the Universe, the Origin of Life, Evolution, and the Age of the Universe.

Origin of the Universe:

This was probably the least controversial part of the talk, in that the speaker said little that a scientist or a Skeptic would object to. Except that he used the creationists' usual misrepresentation of the Second Law of Thermodynamics (things tend towards maximum entropy) to mean that intelligent intervention was necessary to overcome entropy on the local scale. This simply isn't true, as all that's required to overcome entropy locally is an input of energy.

Origin of Life:

The speaker went into considerable detail to explain how complex even a single cell is. This appeared to be his area of expertise, and he slapped overhead after overhead onto the projector, as though trying to overwhelm us with information. At the end of it, he made the straw man argument that scientists are trying to convince people that the cell, complex as it is, emerged perfectly formed from out of the chemical chaos of pre-life Earth; this was so unlikely it couldn't have happened this way. Moreover, he talked only about eukaryote cells (those with nucleus and mitochondria), and didn't mention the much simpler prokaryote (bacterial and Archaean) cell.

Evolution:

Mr Toth was very impressed by the fact that all creatures are equally distant from each other in a genetic sense, whereas evolution, he assured us, predicts that the DNA of amphibians should be intermediate between those of fish and those of mammals, an argument obviously taken directly from Michael Denton's (1986) *Evolution: A Theory in Crisis*. Denton, perhaps wilfully, did not understand the nature of molecular evolution, and neither did our hero, 14 years later. But Denton did at least acknowledge that mammals are closer genetically to each other than to reptiles, mammals plus reptiles form a group relative to fish, and so on. Mr Toth's charts showed that too, but his hand rushed furiously about the chart, jabbing at one genetic distance after another, and gave most of the audience no time to see what it really did show.

There followed a digression on the tricks one can play with the English language by changing word order – because a small change in the word order in an English sentence can produce a big change in meaning, so a small change in genetic information can produce a big difference in organism. On this basis, he claimed, the similarity of genetic information between humans and apes is essentially meaningless. (Can you say *non sequitur*?)

Other creationist favourites mentioned were the lack of intermediate fossils and Darwin's own problem with the development of the eye.

At this point we were shown part of a video. The first part of the video showed the infamous Paluxy River "man tracks". The narrator, Barry Setterfield (recently employed at Monash University according to Peter Toth), described how a couple of geologists had been convinced that the tracks were made by humans. The second part of the video showed all sorts of human artefacts supposedly recovered from various rocks allegedly hundreds of millions of years old. However, the quality of the video was so poor that it was impossible to know what we were looking at.

Age of the Universe:

The speaker now turned to alleged problems with the human fossil record and the age of the Sun. The problems with the human fossil record, of course, only occurred because of unusual interpretation of the evidence by creationists. For example, the Laetoli footprints discovered in 1978 by Mary Leakey were described as *Homo Sapiens* footprints, while some 6000 year old remains from Australia were assigned to *Homo Erectus* (he used some tables from Marvin Lubenow's (1992) *Bones of Contention*).

He showed that using current population growth rates, the Earth's current population could be reached with a starting population of two starting 4300 years ago (supposedly the time of the Biblical flood). He then moved rapidly on to problems with the age of the Sun, centred around three quotes from the 1970s regarding the amount of helium in the Sun. Apparently, the amount of helium in the Sun is sufficient to allow it to be no more than 6000 to 10000 years old. Not only that, but the depth of dust on the Moon, based on calculations made in the 1950s, provided a similar age for the Moon.

An hour and a half had now gone by. He now asked for questions, and politely reminded us of each part of his speech. Permission for questions proved to be a mistake on his part, as various people in the audience obviously knew more than him about some of the topics he covered.

Experience was a great assistant, as the two questions I asked were questions I'd been made aware of in

previous talks. Firstly, I asked what population of the Earth his formula would produce for earlier times in human history. After all, it took a few tens of thousands of humans in Egypt to build the pyramids, and they must've been active not very long after the Flood. Secondly, I asked about the lack of information since the 1970s about the Sun's helium problem. This was explained as an ongoing problem which scientists have tried to keep quiet about.

Colin Groves pointed out the straw man argument about the development of the cell, saying that scientists do **not** believe the cell developed out of nothing, but itself developed from a long evolutionary process. He also described a large number of transitional fossils now known to science, such as the fossils of the earliest whales. He took the speaker to task for the antiquity of his sources – the overheads of certain fossils, purporting to demonstrate the non-evolution of birds, whales, and so on, were taken from Denton, and were even then twenty years out of date. For example, said young Groves, warming to this theme, a whole slew of very early whale fossils, with fully developed limbs and feet, had been discovered in the 1990s. "I'd like to see that," quoth Mr Toth, and was rewarded with approximate references to papers in *Nature* on *Basilosaurus* and *Ambulocetus*. Mr Toth's attitude didn't encourage confidence that he would spend the morrow in a university library, combing through back copies of *Nature*.

Another person asked why the fossil record shows change over time – if everything was created together, dog "kind" (a favourite word of creationists) fossils should be apparent all through the fossil record. The speaker responded with another familiar creationist notion, that the more developed creatures fled to higher ground to avoid the Flood, but then couldn't explain how the flowering plants outran many animals.

Most interestingly, he was then challenged on the age of the Earth, by an old-Earth creationist (those who accept the scientific theories on the age of the Earth but don't accept evolution). Finally, another old-Earth creationist ("Last question – ah, Jonathon!" "Good to see you again, Peter, and my question is...") took him to task over the Paluxy River man prints and the Moon dust theories. Jonathon opined that Peter did himself no justice by using well-debunked "evidence" to support his assertions.

Conclusion:

Mr Toth's talk lasted for over one and a half hours, and the questions about half an hour more. Following this, we all gathered for coffee and further discussions. It was pleasing to see that maybe half the audience was sceptical in some form. Some of the remainder were old-Earth creationists, while others were undecided, possibly both Christian and non-Christian. I explained to one undecided Christian that many of the speaker's arguments were long discredited. He asked me what the current major issues were in creation-evolution debate. After a moment's thought, I concluded that things hadn't changed, and that creationists keep using the same discredited arguments, relying on a fresh audience every time.

His talk was full of mistakes. He persistently confused reptiles and amphibians, told us that the most

primitive mammals (according to evolution) are rodents, and said that there were birds in South America with teeth (he was evidently thinking about baby hoatzins, which have claws – not teeth!). It was obvious that he was just parroting what he'd read in Gish or Denton, and had not bothered to check with any authoritative source, and had not really tried to understand it, either. As a result, his answers to questions were often quite unconvincing. A good speaker would've been able to deflect these questions more skilfully. Probably the greatest damage to the credibility of his argument was his frequent response to our questions of, "Yes, that's a good point."

In my opinion, the speaker failed to demonstrate that evolution is a myth. Nevertheless, it's important to note that our questions did not establish the validity of evolution. An unbiased listener could easily have departed thinking that evolution was still unproven; it's difficult to see how the questioners could've done this differently, given that they were in the position of shooting down his case, rather than building up their own. At best, the questions indicated that creationism was not a viable alternative to evolution. The fight goes on.



... Masses from p15

Of course the religious fundies regard us Skeptics as not merely ignorant but agents of Lucifer as well. When the Hunter Skeptics were founded thirteen years ago it was imagined that a public debate with the local creationists would be a good start. The debate changed the views of nobody in the audience, but it did garner us a few new members. The biggest laugh came at the end, when the moderator declared the contest a draw and the debaters shook hands. A tall woman rose in the middle of the theatre and screeched "Hallelujah! The Lord God came into this hall tonight and routed the forces of Satan!" The troops of darkness present failed to hide their merriment.

So where are we at? I believe the world would be a better place without divisive religion. But it seems in the nature of mankind to need a spirit of reverence to behave ethically and respect the bounty of life itself. This could be fostered in part by felicitously worded masses. Unlike the fundies I have not yet failed to discern some divine spark in any Skeptic I've known. Some call it humanity. But sad to say I've noticed its absence in some pious individuals who have their souls dry-cleaned on Sundays solely to remove the stains from their actions during the previous week.

Which, as I said, is one reason why I became an atheist.



Brindleberry: the weight loss herb?

Martin Caon

I was attracted by the huge red apple in an advertisement for *maxislim* (weight loss tablets in a recent edition of the *Adelaide Review*). The apple boasted that the capsules had an apple cider vinegar base with brindleberry extract and vitamin B6. Advertisements for slimming products have long been a source of amusement for me. They typically claim:

- That their product is new and different from the last thing you tried;
- The product is natural and hence safe;
- It is scientifically proven;
- You don't have to do anything (such as exercise) just swallow the capsule;
- They all cost money;
- That the cocktail of ingredients are included because one ingredient enhances the effect of another.

I had not seen this trio of ingredients before (and the 12 cm high apple had hooked me into reading the ad). Quite often in a popular discussion of nutrition, a piece of information that has appeared in the scientific literature about a chemical is seized upon and added to another piece of information about human biology to produce an unsubstantiated conclusion. This is known as the 1 + 1 = 3 technique. The technique can be repeated for another chemical to give another wobbly conclusion. This is the principle that Two Wrongs Make A Right. Such thinking outside the square can result in a new formulation for a weight loss supplement. I resolved to find that piece of scientific information. In particular, I asked myself "what was the 'well known slimming herb brindleberry'?" that was contained in the capsules.

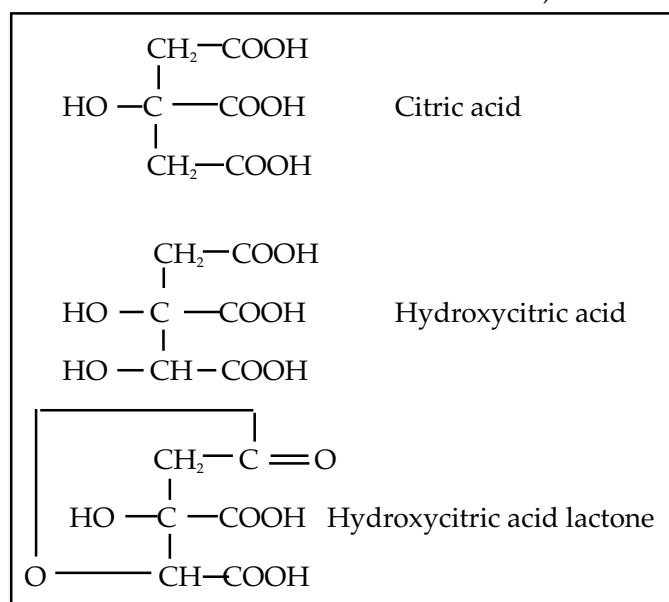
I had heard of raspberries, strawberries, blackberries and blueberries but not of brindle coloured ones. My dictionary did not know about brindleberry either. I asked my search engine about brindleberry and was directed to the website of Dr Sandra Cabot MD (the Doctor who understands)¹, the QuickResults WWW site², and the Herbal nuREDUCE 'XP' page³. I knew that I was in the right cyberplace. Apparently "Brindle Berry" is VERY well known in the weightloss community and is present not only in *maxislim* capsules but in *metabocel* and *Herbal nuREDUCE* (to mention just three). According to Cabot, Brindleberry is *Garcinia quaesita* but QuickResults and nuREDUCE call it *Garcinia cambogia*. *Garcinia* is a widespread genus of tree in the tropics – *Garcinia mangostana* produces mangosteens. I presume renaming *Garcinia sp.* a "berry" and referring to it as a "herb" evokes a more appropriate response in the tar-

get population and makes it more marketable than if it is called a tropical fruit. In any case the good stuff is "hydroxycitric acid" and is found in the dried and ground rind of the "berry". It is referred to as HCA by the weightloss industry. nuREDUCE also incorrectly calls "brindleberry" tamarind but I can forgive them for that as the Herbal Information Centre General Store⁶ proclaims that their *Citrin* product made from Malabar tamarind has HCA in it.

Hydroxycitric acid

In the early 1960s Lewis⁸ isolated hydroxycitric acid from *G. cambogia* (it also occurs in *G. arteroviridis* and *G. indica* but not *G. mangostana*). The hard, dark brown, dried fruit rinds contain about 20-30% hydroxycitric acid lactone (see structural formula for the difference between this and HCA). Apparently, unnamed (but presumably Lowenstein, see below) "researchers found that HCA inhibits the enzyme which converts excess blood sugar (ie glucose) into fats. It also reduces the production of fat and cholesterol in the body. It ... even accelerates the breakdown of excess body fat you may already store"².

Most people have heard of citric acid, but what is HCA? I asked myself. The chemical name of citric acid is "2 hydroxy 1,2,3 propane tricarboxylic acid" see the structural formula below (where the lines indicate a chemical bond but not all bonds are shown).



Since citric acid has a hydrogen atom bound to an oxygen atom (the hydroxyl group HO attached to the number 2 carbon in the structure above) it is an hydroxy acid. Citric acid is a chemical that is widely distributed in plants (eg citrus juice) and animal (including human) tissues and fluids. It is Australian food additive number

330. Hydroxycitric acid has an additional hydroxyl group. There are several distinct forms (stereoisomers) of HCA because the shape the molecule adopts depends on precisely how the additional HO group is located with respect to the HO group in citric acid. The lactone, instead of having the extra hydroxyl group, has an oxygen atom from one of the three carboxylic acid groups (the COOH) also bonded to where the extra hydroxyl group would go (see the diagram).

According to Lowenstein⁷ “the lactone is unusually stable and shows little or no inhibition of lipogenesis” (fat formation). HCA is extracted from the lactone by heating it to 90°C with potassium hydroxide for an hour (quite a natural chemical really). At this point I must congratulate nuREDUCE for pointing out that “This turns out to be a significant issue because some products on the market contain very little actual HCA. Items are being sold which are merely the ground dried rind of the fruit Brindleberry the form of HCA that has the least activity in the body”. In fact they don’t contain HCA.

The conversion of glucose to fat in the body

Glucose is preferentially stored as glycogen until the cells have stored as much glycogen as they can. Additional glucose is then converted into fat (triglycerides) in the liver (and fat cells) and stored in the fat cells. First, glucose is split (in ten steps called the glycolytic pathway, each with at least one specific enzyme) into two pyruvic acid molecules. These move into the mitochondria (small structures in a cell) to take part in the citric acid cycle (the Krebs cycle) where the pyruvate is converted into acetyl-coenzymeA (thanks to the enzyme pyruvate dehydrogenase). Acetyl CoA can’t easily move out of the mitochondria, so acetyl-CoA and oxaloacetate join to form citrate, which can. Citrate refers to any combination of citric acid and its ionised form. Citrate moves out of the mitochondria to be split back into oxaloacetate and acetyl CoA by the enzyme ATP citrate lyase. This reformed acetyl CoA is then polymerised into a fatty acid, then three fatty acids bind to glycerol (thanks to several enzymes) to form a triglyceride (fat) for storage. It is not stated which of these enzymes might be “the enzyme which converts excess blood sugar into fats” simplistically referred to by Quickresults and Cabot but they mean ATP citrate lyase.

This enzyme has been shown to be strongly inhibited by the stereo-isomer 2S, 3S 2 hydroxycitric acid, also written (-)-hydroxycitric acid (the other configurations of hydroxycitric acid do not inhibit ATP citrate lyase) by Lowenstein⁷. This inhibition is the piece of scientific information seized upon by the formulators of fat remedies. In brief, Lowenstein et al injected rats that had been fed a 60% diet of glucose for 10 to 15 days, with sodium hydroxycitrate (from *C. cambogia*). The injection was administered 3.5 to 4 hours after they began their feeding cycle. A second injection of radioactively labelled water was administered 45 – 60 minutes later (so that the synthesis of fatty acid could be monitored). Sixty minutes later the rats were killed and their liver examined for fatty acid synthesis. It was found that fatty acid synthesis was strongly inhibited (compared to the control rats).

Note that rats (not humans) were used and that the HCA was injected (not swallowed) after the rats had eaten (not taken before meals as the capsule manufacturers recommend). It is not known what effect the digestive process has on hydroxycitric acid or whether it is absorbed into the blood unaltered. It may be broken down or converted to citric acid. What is known is that when an HCA supplement was given to humans¹⁰ to test its efficacy, the following conclusion was reached: “These results do not support the hypothesis that (-)-HCA alters the short-term rate of fat oxidation in the fasting state during rest or moderate exercise, with doses likely to be achieved in humans while subjects maintain a typical Western diet (approx 30-35% total calories as fat).” A second trial¹¹ concluded “Our findings, obtained in a prospective, randomised, double blind study, failed to detect either weight loss or fat-mobilizing effects of hydroxycitric acid beyond those of placebo.” HCA does not do what the weight loss industry claims it does. A review of HCA as a weight loss agent, by Wheeler posted on the Healthcare Reality Check website¹² concludes charitably that “The usefulness of this product remains to be demonstrated.”

In humans, an excess of citrate is formed by the citric acid cycle when excess amounts of glucose are being used for energy. These ions then have a direct effect in **activating** acetyl-CoA carboxylase, the enzyme required to carboxylate (that is, add a carbon dioxide molecule to) acetyl-CoA to form malonyl CoA – the first stage of fat synthesis^{4,7}! I might be drawing a long bow, but we could suspect that taking extra hydroxycitric acid may put the pill popper on the path to storing more fat rather than the reverse. This has about as much chance as being correct as saying that taking HCA will reduce the amount of fat that humans synthesise.

Vitamin B6

I wondered what vitamin B6 had to do with weight loss. According to Cabot, “Brindleberry is more effective if it is combined with tyrosine, kelp, vitamin B6, zinc, chromium (more about this later) and capsicum such as found in *Metabocel*”. However Cabot does not support this statement in any way so it may be just her opinion or a way of selling more tyrosine and kelp. Vitamin B6 (in the forms of pyroxidine, pyridoxal or pyridoxamine) is required for the conversion of tryptophan (an essential amino acid) to niacin (vitamin B3). It is widely distributed in animal and plant foods, the amount required is small (about 2 mg⁴ daily) and deficiency is rare. In fact it is not safe to consume large amounts of this vitamin. The recommended upper limit in Australia should probably not exceed 10 mg daily on a regular basis⁵. *Metabocel* tablets contain 10 mg of vitamin B6 and the recommended usage is three tablets per day. This is thrice the recommended upper limit and is on top of that present in the diet.

Is it possible that by taking this extra citric acid and vitamin B6 that you could actually be worse off nutritionally (as well as poorer) ?

Chromium picolinate

The advertisement that originally caught my eye did not claim that the capsules contained chromium

picolinate (CrP), however other HCA supplements did. It had become clear to me that CrP was a heavyweight in the weight loss supplements line-up, so I investigated. Chromium makes up less than 2 mg of our body weight. It is a mineral that the body requires in small amounts (about 0.05mg daily) because it potentiates the blood glucose lowering hormone insulin⁵. Humans will suffer deficiency symptoms in its absence and it is toxic in excessive amounts. CrP is claimed to make you lose fat, make you more muscular and give you more energy. Chromium is poorly absorbed from the intestine but the addition of picolinate is claimed to enhance its absorption, and hence its bioavailability. However all these claims are disputed and not supported by the results of trials on humans⁹ except by the study of Kaats et al¹³. They gave their subjects (17 men & 105 women) 0.4mg of CrP daily (or a placebo) and measured weight, % body fat, fat mass and fat-free mass. **Both** groups lost some – but not much - weight (3 kg and 2 kg respectively), decreased their % body fat (by 2% and 1%), fat mass (by 2.8 kg and 1.5 kg) but not their fat-free mass. The authors concluded “.....that supplementation with CrP each day can lead to significant improvements in body composition.....”. They reached this conclusion despite stating that “A comparison of the between group changes revealed that ... the differences in fat mass reduction was the only change that reached statistical significance (p-0.023).” There are several grounds on which to criticise the methods of the study but others have done it better than I could. Instead, I will merely bring to your attention three points:

- The authors quite properly acknowledge that the study was supported financially by Nutrition 21 Inc., San Diego, California.
- Nutrition 21 holds the patent for chromium picolinate.
- The Federal Trade Commission (of the USA see <http://www.ftc.gov>) on November 7 released a press statement announcing that it had ordered Nutrition 21 to stop making unsubstantiated claims about weight loss, health effects and benefits proven by scientific studies for chromium picolinate.

So CrP doesn't work either. If you would like to ensure your intake of chromium try ingredients with brewer's yeast (a good source) and avoid products with picolinate.

Apple cider vinegar

Apple cider vinegar has a long history as a folk remedy and a devoted following. Try typing those three words into your web search engine and you will turn up a wealth of information. You will recall that Jill was able to repair Jack's broken head with vinegar and that Roman soldiers offered vinegar as a drink to Christ on the Cross ... and he rose from the dead. The July-August edition of *SA Motor* (the RAA's member magazine) carried an advertisement for a book titled *Honey, Garlic and Vinegar – Nature's wonder trio* (Willow books). Among the many therapeutic claims made for the recipes in the book was one for vinegar: “Find out how to double your weight loss using a special combination of

vinegar and garlic”. The November-December edition of *SA Motor* carried a “corrective advertisement and apology” from Nu-Life Publishing at the behest of the Australian Competition and Consumer Commission. Nu-Life declared “In fact there is no scientifically accepted evidence that either garlic or vinegar, alone or in combination, is able to assist in weight loss in the manner represented.” And “The books themselves are a collection of historical anecdotes, folk remedies and recipes and do not purport to guarantee any therapeutic effects of garlic, honey or vinegar. Nu-Life publishing apologises to any consumers who may have been misled by the advertising of the above books” I like apples, I like apple cider and I like vinegar on my salad, but weight loss, it appears, is not associated with vinegar.

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Notice

NSW October dinner meeting postponed

The NSW Committee has reluctantly decided to postpone the October “Friday the 13th” dinner meeting, planned to be held at the Chatswood Club on October 13.

The decision was taken due to the increased pressure of organising the World Skeptics Convention from November 10-12 at Sydney University, in which all members of the NSW Committee will be heavily involved.

These dinner meetings have proved to be a big success for the NSW Skeptics and a full programme of quarterly meetings will be resumed in 2001. Details will be carried in future issues of *the Skeptic* and *WatsOnWare*.



Wort's in a name?

Ken Gillman

St John's Wort (traditionally pronounced as 'wurt'), botanical name *hypericum perforatum*, is widely used as an antidepressant, especially in Germany. Issues concerning its use and effectiveness serve as an excellent paradigm for all the views and arguments concerning 'natural' vs 'medical' treatments.

The presence of so many specific receptor (and ion channel) blockers, especially in plants and invertebrates, is remarkable. It may be best explained by a 'Darwinian' perspective (there is now a journal of Darwinian medicine).

It may be worth recalling the days, not so long ago (around 1970), when the supply of 'digitalis' changed from that made by mixing large patches of foxglove plant extract to modern chemical synthesis. Prior to this, student doctors had lots of experience of cardiac arrhythmias because patients often came in with digoxin toxicity after changing from one batch of tablets to another: the differences in potency as a result of the imprecision of biological assays (used to standardise the potency) sometimes resulted in toxicity (or ineffectiveness). Such problems almost vanished after the introduction of synthetic digoxin.

Natural substances derived from plants can only cause effects on the body's workings by their chemical actions; in this sense they are 'drugs' and have the same problems and dangers irrespective of whether they come from 'nature' or are synthetic. Indeed it seems that 'nature' has contrived more harmful, noxious and poisonous substances than yet achieved by humankind. One botanist has estimated that there are 26 poisonous plants in a typical Australian garden. Lucrezia Borgia would be envious!

It is interesting to reflect on the biological achievements of the poppy plant and the extent to which its production of narcotics has effected its distribution through its extraordinarily successful manipulation of human behaviour; Darwinian principles in action? Perhaps it is arrogant for us to imagine that we know which plants really are safe to eat; do we actually know what long term effects they might have? (Dietary toxins have been posited as a cause of Parkinson's disease).

And so to St John's Wort. It may well have some small antidepressant action. It is probably in the same ball-park as moclobemide in terms of efficacy, or lack of it, but with less evidence. It probably has rather more undesirable side effects. I would suggest there is a strong tendency to under-report side effects which is likely to be greater for 'natural' remedies, so it is hard to make comparisons. There are clearly some less common, but quite serious, side effects reported including photosensitivity, cataracts and acute neuropathy.

St John's Wort has been reported recently to produce significant increase in plasma growth hormone and a decrease in plasma prolactin which suggests it may increase brain dopamine function in humans. It also

appears to inhibit serotonin and norepinephrine re-uptake. A reputable Oxford group have shown significantly increased latency to rapid eye movement (REM) sleep which is consistent with its proposed clinical antidepressant effect.

The existing literature may, I suggest, be viewed skeptically. There are vested interests in this area just as much as there are with established pharmaceuticals. The 'Josey' study identified four controlled studies appearing to demonstrate that St John's Wort was as effective as other antidepressant medications and more effective than placebo. The side-effect profile 'appears to be superior to any current US-approved antidepressant medication'. However most of these studies used methodologies significantly poorer than typical antidepressant drug studies, and many of those leave much to be desired. So I would suggest that 'appearances' may be deceptive. Much better quality evidence is still required (and this is also the case for many antidepressant drugs). More rigorous trial standards and methodologies are required across the board.

Ref

Subscribe to *Psychopharmacology update notes* to see a fuller analysis and references.

Psychopharmacology update notes: www.psychotropic.com



Useful web sites

As a service to readers, we would like to recommend a couple of web sites that will be useful to anyone who hears about a paranormal claim, or a potential urban legend and can't find an answer from our site, or which have no particular Australian connection..

The Skeptics Dictionary:

Run by Bob Carroll (interviewed by Richard Cadena in Vol 19:3), this site contains a wide selection of Skeptical articles and information on a many topics.

It can be found at:

<http://skepdic.com/>

Urban legends

These are always with us and, with the introduction of the Internet they travel the world, mutating at a rate that no biological system could match. The best site to check their validity is run by Barbara and David Mikkelsen of the San Fernando Valley Historical Society.

It can be found at:

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

Readers should bookmark both these sites and use them whenever they strike a curious claim that seems to be too good to be true.



Winners and losers

Richard Lead

Psychic Money

Our grizzled editor enjoys slagging accountants, yet practitioners of this noble calling hold an advantage over Skeptics engaged in less glamorous professions. We see the money.

I was recently consulted on a fairly trivial GST matter by a person running a telephone psychic business, and what triggered my interest was the way the spoils of battle are split.

We have all seen advertisements for telephone psychics in the Murdoch fish wrappers, sundry trashy magazines, and on midnight television. For \$4.95 per minute 'Australia's most respected and accurate psychic' (which seems to be how they all describe themselves) will advise on love matters, lucky lotto numbers, and so forth.

How is this \$4.95 per minute divvied up?

Telstra	\$0.80
Telstra (fee for bad debts)	\$0.20
Entrepreneur 1	\$1.00
Entrepreneur 2	\$1.30
Entrepreneur 3	\$1.65

The \$4.95 per minute is collected by Telstra, which keeps \$0.80 for itself, plus a further \$0.20 as a sinking fund for bad debts. The remaining \$3.95 per minute is then paid to Entrepreneur 1 (for ethical reasons I cannot identify the parties, but Telstra is not an alias), who takes its cut and passes the remainder down the chain as indicated. What Entrepreneurs 1 and 2 contribute to the business is unknown, but I suspect these payments are franchise fees for using the networks of Australia's more prominent psychics. The actual 'psychic' on the end of the phone receives between \$0.75 and \$1.00 per minute from Entrepreneur 3, the rate determined by how long the caller can be kept on the line.

The Australian Skeptics is aware of people who have racked up telephone bills in excess of \$10,000 due to their addiction to these \$300 per hour services. I confess surprise that our 51% government-owned Telstra is prepared to wear the resulting bad debts for a flat \$0.20 per minute. Regular readers may recall the instance back in 1996, when the formidable Kathy Butler, the (then) president of the Victorian Committee, infiltrated a telephone psychic group and worked a single



The author
(from a portrait by Kilmeny Niland)

shift as a psychic. The non-psychic Kathy was given a script to read to the hapless callers. Kathy's main task was to keep the caller on the line for as long as possible, for quite transparent reasons.

The *Sydney Yellow Pages* carries over 100 listings for these services. The market must be strong, as they all seem to have passed on the 10% GST in full. This particular telephone psychic now charges \$5.45 per minute.

Meltdown

This column, titled "TulipTel.com" (19/1), boldly predicted the impending collapse of the Internet share bubble. This prediction was hardly original to me, and in fact I believe most of the investors who were wiped out knew it was inevitable. It is the 'one more sucker' principle - buy

something worthless for a dollar, hoping there is a bigger idiot out there who will buy it from you, for two dollars, tomorrow.

It was all such fun to watch. In the US the major underwriters of Internet IPOs (initial public offerings) were each making US\$500 million per year from underwriting fees, so they had no vested interest in hosing down the dot com mania. Companies with virtually no income were floated, and immediately capitalised for tens of millions of dollars as speculators drove their share prices ever higher. In April this year, the last sucker entered the market, triggering its collapse. It was the largest and fastest peacetime transfer of wealth in history, with Internet stock losses alone exceeding the entire 1987 crash. Some US\$560 billion (we become insured to large numbers - that's almost A\$ 1 trillion!) was transferred from the losers to the winners. And who were the winners? I was peripherally involved in the dot com circus. Several entrepreneurs sought my advice on tax-effective ways of structuring their shareholdings when their dot coms were listed on the stock market. These people made no secret to me of their 'pump and dump' intentions - float the company, then off-load their own shares to the punters as soon as possible. As we all know, there are now some extraordinary wealthy people who did just that, and some very poor former investors now holding worthless shares after the music stopped. I know a number of the losers, and my

helpful free advice of 'cheer up, poverty is character building' didn't seem to have a cheering effect!

Will it all happen again? What a rhetorical question.

Predicting the Future

One of the disadvantages of being born to parents of our species is our inherited habit of acting like humans, and accordingly doing irrational things.

As we saw in April this year, millions of investors were wiped out in the Internet bubble. Would they have fared any better by letting professional fund managers handle their investments?

The US investment house Morningstar conducted intensive research into the performance of professional fund managers for the five years to 31 May 1994. In this stable investment period, before the Internet bubble started, the average yield for all US diversified funds was a sustainable 12.5% per year. Morningstar then analysed the yields actually achieved by individual investors in these funds during those five years. With millions of individual investors, there were obviously millions of starting dates and millions of closing dates, as investors entered and exited the various funds. Amazingly, the typical investor lost money, receiving an average return of a negative 2.2% per year!

How do we explain this?

A thought-provoking piece about the 'Curse of *Sports Illustrated*' was published in a recent edition (my apologies, but I can't track down the article to properly attribute its author). It seems that once an athlete appears on the cover of *Sports Illustrated*, his/her career immediately takes a dive. As the author correctly pointed out, there is nothing paranormal about this, merely the statistical principal of regression to the mean. An athlete must have recently performed outstandingly to make the cover of a sports magazine, and following a period of outstanding performance, he/she can be expected to revert to his/her normal performance in due course.

It's the same with investment fund managers. Outstanding performance in one year is usually followed by less than outstanding performance in the following year. Individual investors entering the market for the first time naturally tend to invest with last year's hot-shot fund manager. When this produces a disappointing return, they switch fund managers to the latest high flier, usually with similar results. So individuals receiving minus 2.2% in a 12.5% average yield environment is explainable in terms of regression to the mean.

Some years ago I was the tax manager of Australia's largest superannuation fund, with investments of around \$15 billion. Naturally, with those sorts of funds to play with, the investment yield is critical. The investments were handled internally. The trustees decided to appoint professional external fund managers to beef-up the yield, so the hunt began to find the top performers. We took the investment returns of every Australian fund manager over the previous fifteen years, and ranked their performance each year by quartile. If investment returns were not random, a fund manager in the top quartile in one year would not be expected to be in the bottom quartile the following year. But that is just what we found. There was insufficient statistical correlation

in year-on-year performances to confidently choose any one fund manager over any of its competitors.

All of which sends us two clear messages. There are many areas of life where the past can be used to predict the future. Investment performance is not one of them. Regrettably, the foolish behaviour of investors is.

This columnist is now heading off to a tax haven (one with warm weather and good restaurants) to set up Madam Zelda's 'how to get rich without working' \$4.95 per minute telephone psychic service. No GST, so I can undercut my Australian competitors.

Ethics, you say? Isn't that a county in England where they play cricket?



Poesy

The Tap

Mark Newbrook

*I was sitting one night in the bar at Mahone's
On the part one should kiss, all a'drinking my wine
And hearing the beeping of cellular phones
And the skeptical chatter of colleagues of mine.
I drank more and more, and eventually knew
That without due relief a disaster would come;
So I rose and repaired all serene to the loo
And settled me down where the used chewing-gum
And the sordid graffiti disfigure the door.
But at once came the sound of a watery flow
Though no footsteps had sounded outside on the floor!
And peering forth quickly I cried out: 'Oh, no!
The tap was turned on, though no human was there!
'Tis the ghost of Mahone's, as predicted by Drew;
He's come once again, to raise customers' hair
And convert them to nuttery, haunting this loo!
But next came the sound of a scarce-muffled curse
And a bellow that surged, as it seemed, from the ground:
'Hey, Roger, these pipes here are just getting worse!
When I tighten the nuts it just adds to the sound,
And I bet that the water's now flowing again
As it did when that plumber came round in July
And we thought he'd succeeded in fixing the drain,
But it's all shot to shit and I cannot tell why!
I completed my chore and returned to my post
And resolved that in future I'd hesitate first
Before thinking I'd found any genuine ghost;
It might well be another pipe, straining to burst!*



The Phaistos Disk

Mark Newbrook

The Phaistos Disk is a flat disk of baked clay, 16 cm in diameter, which was found in 1908 during the excavation of a Minoan palace at Phaistos in Crete dated at around 1700 BC. It is inscribed on each side with a text apparently running from right to left and spiralling in from the rim to the centre (but see below). Depending on how they are counted, there are about 240 characters in all, representing 45 distinct types, some pictorial and some apparently abstract; they are divided into 61 groups by broken radial lines. Very remarkably given the early date, the signs were impressed into the clay when it was soft by means of a set of cut punches, so that all tokens of a given type are effectively identical. Neither the Disk itself nor the characters resemble any other items yet discovered in the Aegean at all closely, and both the intended use of the artefact and the interpretation of the text remain mysterious.

Since 1984 three very different full or partial 'decipherments' of the Disk have been accessibly published, either in print or on the web (two of them in the last couple of years). To misquote Mark Knopfler, two of them must be wrong! Very probably, all three are wrong. At the very least, despite the strong advocacy of the authors in question, there is no good reason to accept any of them.

There had, in fact, been many previous efforts by scholars and amateur decipherers to interpret the Disk, starting with early ideas based on the similarity of some of its symbols to those of a local hieroglyphic script which itself cannot be read.

a) In 1931, F. G. Gordon, who interpreted the later and then undeciphered Linear B script as representing a language allied to Basque, read the Disk in the same terms, producing a strange story of dogs, dogfish and circling paths.

b) In the same year, Stawell translated the Disk as a prayer in Greek, though her Greek was not archaic enough and the 'decipherment' involved a novel acrophonic method.

c) Later Ktistopoulos decided that the text was in a Semitic language and dealt with gods, stars, prophecies and the white of eggs.

Meanwhile work was progressing on the better represented scripts Linear A and B, and the latter was finally deciphered as early Greek (a surprise!) in 1952, by the brilliant and superbly erudite amateur, Ventris. This gave encouragement both to his academic colleagues and to other amateurs less well versed in the relevant languages and methods, but Linear A, the hieroglyphs and the Disk have resisted decipherment to this day (though the increasingly fringe linguist Cyrus Gordon was confident that he had deciphered Linear A as Semitic). The pre-Linear-B scripts are all thought to belong to stages of the Minoan civilisation, and are generally regarded as representing some unidentified language used in the area before Greek (which would explain why

they resist decipherment). For more on all this, see Chadwick's highly readable *The Decipherment Of Linear B*.

More recent 'decipherers' (or partial 'decipherers') of the Disk include:

d) the Danish scholar Hagen, who believes that he can identify month names in the text and, like Butler (see below), interprets the Disk as a calendar;

e) the American arch-epigrapher Fell, who found Polynesian elements and accordingly proposed early contact over very long distances;

f) the Bulgarian Georgiev, who read the Disk as a story in Luwian (Anatolia) about the fabled Cretan King Minos (his account was seized upon by promoters of the *Oera Linda Book* who sought to link it with their nationalistic Frisian fantasies);

g) the Latvian Kaulins, who advances the outrageous hypothesis that his own mother tongue is the oldest in the world but reads this particular text as a geometric proof in rather odd Greek, written in an Egyptian-based syllabary;

h) the Russian Rjabchikov, who (more predictably) reads the Disk - and Linear A - as early Slavic, more specifically as instructions for rituals; he also believes that Etruscan was close to early Slavic.

There are more. Many of these more recent proposals are rehearsed on websites and some are supported with considerable erudition or at least the appearance of same. But they are all a long way from presenting an overall reading - or even a partial one - that will actually hold up; and naturally they all completely disagree with each other.

The first of the three new more complete and more accessible 'decipherments' of the Disk was Fischer's, in 1984 (i). Fischer, a Polynesian languages expert based at Auckland, has published extensively on his claims, including book-length treatments in 1988 and 1997 (the latter book also deals with his 'decipherment' of the Easter Island Tablets). With some but not all qualified commentators, he concluded that the Disk text is clearly acrophonic and tried to arrive at the phonetic values of the symbols by comparison with the other local scripts, with no assumptions as to the language represented. These other scripts are predominantly syllabic in character, so the values adopted here were also syllabic. Fischer's decisions are by no means all obvious, but his later 'decipherment' persuaded him that almost all of his initial identifications of phonetic value were in fact correct.

Like Ventris, Fischer gradually came to the idea that he might be dealing with early Greek or at least Indo-European. But he knew that the earlier date of the Disk would make it even harder to convince scholars of this than in the case of Linear B (for historical reasons) and that the Greek would have to be even more archaic.

One problem for both decipherments lies in the poor fit between a rather small syllabary which could represent only open syllables (consonant-vowel) and the sound-system of Greek with its many consonant clusters and syllable-final consonants. This leads in Linear B to frequent homography (eg, *pater* 'father' and *pantes* 'everybody' both appear as *pa-te*), and Ventris was thus unable to demonstrate that the language really was Greek until he could explicate many of the longer sequences as intelligible wholes. In these sequences the chance of accidental fit was lower. Elsewhere, Ventris' interpretation was sometimes supported by pictorial logograms/ideograms. Fischer, working with one short text and what appeared to be an equally restricted syllabary, did not have these advantages; he was forced to guess more often.

And, perhaps even more crucially, Fischer's knowledge of historical linguistics and of Greek did not match that of Ventris (though he certainly tried, and his 1988 book has a very scholarly appearance). His first specific claim involved a vowel shift confined to his 'Minoan' dialect of Greek, which had created what appeared to be the 'wrong' values in many words. But not all of the ancestor forms he posited were archaic enough or otherwise plausible, and he also seems to have misconstrued some of the relevant phonetics and phonology (though it must be said that his 1997 book is more popular in style and in places suggests a higher level of error than actually exists). Elsewhere he posited many blatant exceptions to this and other rules, to suit the requirements of specific cases. Fischer also had to propose a 'flip-flop' rule, exchanging two vowels in certain environments; but such changes are rarer and more contentious than he apparently thought. And he had to posit some non-obvious consonantal substitutions (some in the spelling, some in the language itself) which, while not impossible, cannot easily be accepted without independent evidence. In respect of the grammar, his proposed constructions suggest a limited 'feel' for Greek (eg, his *phthos kros* 'initial sum', presented as a key piece of evidence in support of his 'decipherment', does not seem feasible as Greek) and in places he apparently misinterpreted basic sources (eg, *hos* 'to [a person]' is actually a very rare form; Fischer must have misunderstood his lexicon).

The translation offered involves a published announcement, or the transcription of a speech, by the commander of a Minoan naval force, urging his troops

on to battle (apparently near Naxos) against invaders from Anatolia.

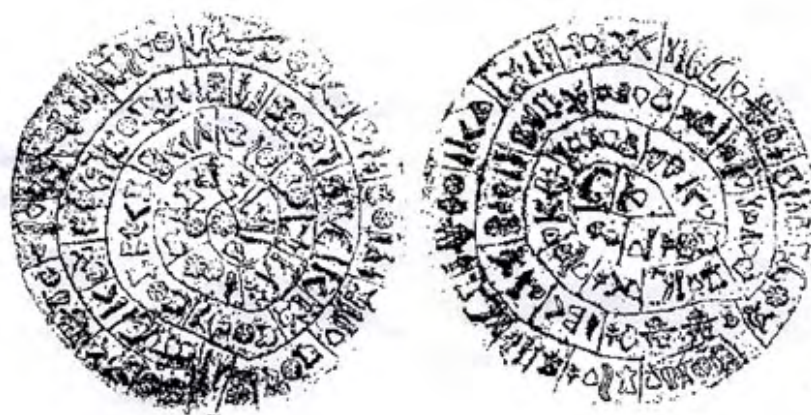
Fischer's Easter Island material, though equally contentious, has met with a fairly warm reception and has appeared in refereed journals; but his 'decipherment' of the Disk has not met with general acceptance among classical philologists in the 15 years since it was proclaimed. This, and his problems with the material as detailed above, have not persuaded him that he might be on the wrong track, and his tone in his more recent book is quite arrogant in places. He adopts a patronising attitude to Ventris' collaborator Chadwick (a very experienced philologist and decipherer); he is apparently unwilling to consider the possibility that

Chadwick's rejection of his 'decipherment' might not have been motivated by bias against novel ideas but rather by genuine doubts about the methodology and/or the results.

In 1999 another book on the Phaistos Disk was published by Butler (j). Butler is an enthusiastic and widely-read amateur who stumbled on the story of the Disk and was re-

minded of a Mayan calendar disk. He became convinced that the key to the text lay in the numbers of symbols rather than in the symbols themselves, and eventually decided that the primary meaning of the text was mathematical rather than linguistic. He is prepared to allow for a second, perhaps less important, linguistic reading; but arranging the text in this way would presumably have complicated matters enormously for the compiler, and no such text is known (in any event, Butler does not say much more about this second reading).

Specifically, Butler interprets the Disk as an astronomically explicit calendar. However, actual records of Minoan astronomy are virtually nonexistent. Butler is thus forced to rely on speculation, deriving much support from Ovendon & Roy's contentious suggestion that the zodiac must have been first recorded somewhere in the latitude of Crete at around the time to which the Disk is dated. The interpretation of the Disk in these terms goes beyond the basic zodiac to include planetary movements. Butler's reading involves some individual identifications of symbol-sequences which are not implausible, but also, perhaps inevitably, a good deal of special pleading. This latter is very typical of numerically-based interpretations of ancient artefacts, and arguments of this kind typically prove nothing. Butler may know more mathematics than most who



The Phaistos Disk
A continuing mystery, or all things to all researchers?

advance such arguments; but, before his interpretation could be accepted, a careful analysis would have to be conducted in order to determine the number of different interpretations of the Disk which could be made to work (given the rest of our knowledge of the Minoans) to the degree that Butler's interpretation works, when manipulated in the same way and to the same degree as Butler manipulates his numerical reading.

It must also be noted that on the evidence which is actually available the observational astronomy of the relevant period, even in Egypt, was almost certainly too inaccurate to support Butler's case. His 'decipherment', if valid, revolutionises our interpretation of the science of the period, and it must stand or fall in its own terms.

In this very context: in order to handle some anomalies in his thesis, Butler argues that the Minoans were especially concerned with measurements of distance. Drawing off the scholarly but controversial work of Thom, he posits cultural links between Minoan Crete and geographically remote cultures of the period, especially that of the builders of Stonehenge III; and some of his figures suggest to him that the Minoans may have known of Thom's 'megalithic mile' and indeed may have known the circumference of Earth (!). Extrapolating further, he incorporates some highly implausible notions, including the possible reality of Atlantis (in the Atlantic) and the possession by the Minoans of extensive knowledge of the outer solar system. Almost inevitably, he compares his ideas on this front with the case of the Dogon (on which see Newbrook & Groves in *The Skeptic* 19:4) and with Swift's alleged knowledge of the moons of Mars in 1726. In fact, he goes so far as to suggest (like the Afrocentrist Adams) that some early human cultures, in both the Old World and the New, possessed telescopes; he actually translates the mysterious Quiche word *quilpi* as 'telescope'! This shift to the fringe as the book progresses is very disappointing; by the end, the reader may be forgiven for thinking that serious scholars will probably pay rather little attention to Butler's ideas in the years ahead.

The third (and least full) of the three recent major 'decipherments' has so far been presented mainly on the web, on a site set up on 15/12/97 (k). It is attributed to the American brothers Keith and Kevin Massey, who are also fervent advocates of the authenticity of the Kensington Stone (indeed, they believe they have proved its authenticity). Their Disk enterprise is presented as a 'project' rather than a finished decipherment; others are invited to join in and help. But the Masseys believe that they already have the basic answer: the script, in their view, resembles Proto-Byblic script (mainly used to write a Semitic language) more closely than it does any Aegean script, and on this basis they have assigned phonetic values (consonantal values, because of the nature of Proto-Byblic) to many of the Disk symbols. This, of course, conflicts sharply with Fischer's interpretation. The Masseys claim that their method is more objective than those of others, but it is far from clear that this is really the case.

They go on to report that they tried Semitic languages at first, but eventually came to the view that the text is Greek, albeit written in a script not otherwise known to be used for that language or in the relevant

area. As for Fischer, but perhaps even more so given the script identified, one might question the plausibility of this thesis and demand strong evidence.

One important difference between the Masseys and other Disk-'decipherers' is that they read the text left to right and outwards from the centre (see above). It is interesting that Greek readings of the text have been proposed for readings taken in either direction! The Masseys regard the text as an inventory of goods similar to most of the Linear B tablets (see below on numerals).

The Masseys have made an effort to learn about archaic Greek, but they are clearly not experts and do not feel confident enough to invent a dialect as Fischer did. Some of their comments are rather naïve and unsophisticated; eg, they seem happy to insert *w-* more or less where it suits them to do so in words beginning with a vowel, on the ground that 'Archaic Greek as presented in Linear B...insert[s] (*sic!*) and include[s] the consonant /w/ in places where it is not today (*sic*; is 'in classical times' intended?) present and is not expected'. Some of the other forms posited seem to be related to known Greek forms in rather arbitrary and inconsistent ways. The Masseys take 16 of the sign-groups, those including a symbol resembling a slash, to be numerals, and a great deal of the partial 'decipherment' seems to rest on the specific sound values implied by these identifications. But even they admit that they cannot yet read the whole of this short text; and at present there is no good reason to accept their proposal.

Like most amateur workers on the Disk, those responsible for these three 'decipherments' do not refer to each others' works at all; and, while Butler and the Masseys have published only recently, it is alarming that neither of these refers to Fischer, even in an attempt to debunk him. Where they do refer to other authors, it is to the mainstream, although Fischer and especially Butler seem to regard cautious mainstream scholarship as rather hidebound and fit mainly for debunking (a familiar pattern!). In fact, there is little evidence that any of these 'decipherers', or the earlier ones, have been aware of each other at all. Being isolated, private workers or small clusters of the like-minded, each with a growing conviction that they alone are right, they do not see any need to talk to those who espouse other views, and so they do not observe that the same unreliable methods 'work' more or less equally well for all of their mutually contradictory claims. One can persuade oneself, using such methods, of almost **any** identification of a mysterious inscription with a known language. But this is not how to arrive at a decipherment that will stand up to scholarly criticism. Fischer is a serious academic in a related field, and it could be said that he, at least, should have known better.

The provisional conclusion must be that no-one has yet shown that they can really read the Phaistos Disk. It remains to be seen whether it can eventually be deciphered. There are cryptological arguments tending to suggest that the text is in fact too short to be deciphered unless a further lucky find, involving similar symbols, forces particular readings of substantial portions. For the moment, the Disk remains one of the more intriguing enigmas of early Europe.



π in the sky

Σιρ θιμ Ρ Ωαλλαβψ

Occasionally, during the long dark marches of the night when sleep evades me with all the persistence of a creationist avoiding a fact, I have pondered just what it is about π (pi) that causes it to have such a strange hold over people? We all know what it means - it is the ratio between the diameter and circumference of a circle, and is thus important in circular circles, by why is it so elsewhere?. We also know that π is usually expressed in equations as 3.141592... (the ellipsis indicating that there is more to come), which is accurate to six decimal places. As a schoolboy, I was told that a useful approximation was the fraction 22/7, which comes out at 3.142857... and is thus only astray by 0.001265, which is, in one of the most useful phrases to come from the American version of the English language, "near enough for government work". (As an observer of the workings of the US Government system for some years, I'd say that any value of π between 1 and 23 would have been near enough, but that is a different story.) To further confuse the issue, it is what the mathematicians call a "transcendental number" and to make it even more interesting, it is also an "irrational number"*. These names alone might help to explain a lot about the awe in which it is held by those with a leaning towards the mystical.

One of the more persistent threads in this argument is the one that holds that the Ancient Egyptians (or more usually, some projected high-tech Earthly predecessor race or even space-faring aliens, who built pyramids for them) knew all about π and, furthermore, they showed just how clever they were by permanently incorporating the evidence in the very structure of the Great Pyramid of Khufu. The reason for this is, apparently, so that after some 5000 years the human race would develop computers and suddenly slap themselves on their collective foreheads, and exclaim "By Golly! This is proof of the existence of ____" (insert the name of your own superior being/race here). Or so those who propose this notion would have us believe.

A variation on this theme is espoused by those "Afrocentrists" who hold that everything useful that we ascribe to the Greeks or Romans was actually stolen from the Egyptians (ie Africans) and that this is an example of European chauvinism and not-so-subtle racism. Neither of these claims would seem able to withstand much in the way of critical inquiry.

It has been a long established custom for European culture to claim a direct and virtually seamless transition from an original Greek culture, via Rome, to the present. The reasons for this are various, but arguably the major influence was the fact that the Christian religion, long the dominant cultural factor for much of European history, tended to rely on Aristotelian philosophy for the intellectual roots of much of Christian

thought. As a result, Greece was seen as the fount for much of the philosophy, democracy (of a sort), literature, etc that are central to European culture. Not forgetting the Olympic Games (as though a resident of Sydney could possibly forget that).

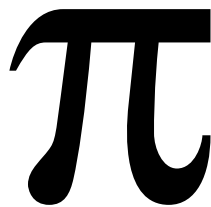
To some extent this is true, or at least contains elements of truth, however it is not quite as simple as that, and our view has changed quite a bit over the past couple of centuries. As scholars have gained wider knowledge of other different cultures, and recognised their contributions to the sum of human knowledge, it is doubtful if many even moderately informed people today would see matters in quite those terms. Greece, along with most other cultures, didn't suddenly spring into existence *ex nihilo*, but is a result of a blend of native and foreign influences of all kinds.

So it would be with mathematics. We still credit, deservedly, Pythagoras (should that be *πthagoras?*), Euclid and Archimedes as being the among the most influential of ancient mathematicians, whose work has carried through to modern times, but that is not the same as saying they invented mathematics. It is inconceivable that civilisations which preceded the Greeks by thousands of years could have achieved all they did without some grasp of mathematical concepts, including at least a practical knowledge of a general ratio describing the relationship of the diameter to the circumference of a circle.

Although our image of Egyptian construction might be dominated by massive angular structures, nonetheless the Egyptians built an abundance of round things. For example, all the free columns in their temples were made up of round drums of stone placed one on top of the other, and this was going on long before any civilisation that we would recognise as "Greek" had materialised.

It doesn't take too much imagination to conjecture that the master craftsmen of Egypt might well have derived a reasonably accurate approximation of π without ever having formulated it into an universal law. It does not require abstract mathematics to do this - a piece of string will do. Plus the sort of social structure in which learned practical knowledge was handed down from generation to generation. We should not forget that until very recently, in historical terms, every exalted structure ever built by all cultures relied, not on a theoretical understanding of structures or materials science, but on the accumulated knowledge gained by trial and error, and passed down through such agencies as craft guilds.

The reason why we celebrate Euclid, Aristotle and the others as founders of various schools of mathematics, particularly geometry, is not that we have



incontrovertible evidence that these individuals were the very first to think of it, but because their works have survived. As far as we can tell from the evidence that is available, the Greek mathematicians were the first to formalise these abstract mathematical concepts as universal axioms. Had there been any proto-Pythagori in Egyptian or Mesopotamian (or any other) cultures (and there might have been), we have no direct knowledge of them or their works, and so we cannot attribute anything to them. We cannot assume that they **must** have had a knowledge of π or Pythagoras' Theorem, or anything else, simply because some edifice might give (albeit with the application of a fair amount of convoluted "logic") a superficial indication that the builders were aware of these abstract notions. There might well be reasons that account for this apparent knowledge that are simply the results of practical applications of contemporary technology, so the principle of William of Ockham should always be applied before venturing to the wilder shores of speculation.

For example, some evidence suggests that the numbers 7 and 11 had significance to Egyptians of the Old Kingdom (the primary pyramid builders) and you don't have to fiddle with these numbers very much at all before you start finding relationships that point towards various derivations of π .

We do not need enlightened predecessor races to explain the skills of the Egyptians, nor do we need conspiracies to suggest that the Greeks must have stolen their knowledge from the Egyptians. It casts no slur on the intelligence of the Egyptians to say that they probably did not formulate an abstract concept of mathematics.

The reasons why any person or group of people were the first to do anything are almost as unlimited as they are diverse, and speculating without knowledge or evidence is not profitable. After all, the Egyptians did come up with concept every bit as revolutionary as formal geometry, and that was the nation state. The Egyptian state, from as early in their history as the Old Kingdom, was considerably different from, and more complex than the contemporary polities in its region. It was not a powerful city state with vassal entities under its control, it was a nation in a way that we would recognise today, and it gave rise to a bureaucracy that was no different at base from those we know to be essential to the running of any complex political structure. It was this organisational capacity that enabled the Egyptians to amass and control resources sufficient to carry out major public works like the Pyramids, using the skills and physical strength of a large part of the population. That factor is every bit as critical to the history of our race as is the formalisation of mathematical concepts.

It is easy, with the benefit of hindsight, to speculate how the world might have been different "if only". If only the Greeks, with their experiments revealing the energy that could be obtained from steam, had contacted the Chinese, who had far superior metallurgical techniques, then the Roman roads could easily have been railway lines. History shows, however, that railways were a product of the Industrial Revolution in England, almost two millennia later. Equally it is pointless to speculate that because the Egyptians could make

circular objects, they must have known about π . They might have, but they didn't need to. To suggest that not only did they know about it, but that they built a hugely expensive monument to celebrate the fact is not mere speculation, it is irrationality taken to a very high level. π in the sky indeed.

* In researching this piece, I soon realised that I hadn't a clue as to what transcendental and irrational numbers were, so I sought the advice of experts. I have appended the answer I received from Steve Roberts, who either knows whereof he speaks or is very good at bluffing (and if he is, I have no doubt someone among our readers will let us know). Among his many remarkable distinctions, Steve claims to know the one millionth digit of π and I'm not about to argue with him. After all, there are only 10 digits to choose from and, to me, any of them is as likely as any other (though I'm sure that someone will let me know if I'm wrong here, also).

Steve Roberts' exposition follows:

* Positive integers are 1, 2, 3, 4, 5, 6, 7, etc, to "just short of infinity" (**not** zero);

* Then there are -1, -2, -3, etc - the negative integers (We are already leaving the real world. Have you ever seen -1 sheep?);

* The infinite numbers are "plus infinity", "minus infinity" and zero. There are other worse ones, such as infinity to the power infinity, but I digress;

* Rationals are fractions such as $1/3$, $47/17$, $-999/101$ etc. When written as a fraction, the expression is tidy and comes to an end;

* Irrationals are numbers that are not fractions - mostly square roots, cube roots etc - These numbers are roots of equations, for example $x^2 - 2 = 0$ has two roots of $+1.4142\dots$ and $-1.4142\dots$. The decimal expansion of an irrational goes on randomly forever (otherwise it would be a fraction and hence rational);

* Imaginary numbers start with i , the square root of -1. There are other species in the imaginary zoo - quaternions and octonions etc - don't go in there, you lose your mind;

* Finally the transcendental numbers are e and π . I don't know of any others except for "any expressions involving e or π " ($2\pi+7$, etc); Transcendentals are not the root of any equation - you can't have $ax^2 + bx + c = 0$ where the solution is $x = \pi$

* There are other sorts of numbers beyond transcendentals - Conway invented "surreal numbers" - but it's time for bed.

Should any Greek reader (whether bearing gifts or not) have a desire to inform us that the author of this piece as printed does not read "Sir Jim R Wallaby", but "Please adjust your dress before leaving", we don't want to know.



Bureaucracy as a health hazard

Grant Stevenson

Grant Stevenson has discovered evidence that supports the contention first postulated in these pages by Sir Jim R Wallaby as long ago as 1991. In his article "Karl Marx's grave is communist plot - official" (11:1), the noble Sir pointed out that there was no need to hypothesise sinister conspiracies to account for the unaccountable actions of authority, bureaucracy was perfectly capable of causing mad results, simply by behaving in its normal fashion. Now read Grant's tale of woe.

Parenthood is full of challenges and situations where a clear head, an even temper and bit of clear thinking are a bonus.

I have two children – William, aged 4, and Emma, 15 months. Both attend a local child care centre. The centre recently advised that the kids need a CCB number. This stands for something like "Child Care Benefit" – and has something to do with that which is so lovingly named "the new tax system".

Of course, we didn't have one. Under the "old tax system" we weren't eligible for any child assistance, so the kids were not registered with the DSS; FBI; CRT or whatever the name of the appropriate department under the old dispensation. We needed to register with the Family Assistance Office (FAO). An added incentive was that we would now be eligible for a rebate on some of the child care costs. So Daddy obligingly collated all the documentation, presented at the local FAO office and was duly issued two shiny new CCB numbers.

So far, so good. But Lo! A letter from the FAO.

Dear Mr Stevenson

(and now I precis) .. our records are in such disarray that we are unable to tie the **immunisation** details you provided with your children's Medicare records. Give us "acceptable evidence" that the kids have been jabbed – or we'll cut you off at the CCB.

Lovingly.

FAO

So I call the FAO. "Yeh, we've got a problem here. The records we are getting from the Australian Immunisation Register (AIR??) don't tally up with our check of the details with Medicare. You need to call AIR and get them to send us your current immunisation details. If you don't, your CCB will be cancelled."

So I call AIR. "Oh! Our records don't include William's latest inoculations, and we've got nothing on

Emma at all! You need to call the administering GP and have him send the appropriate notifications to us."

So I call the GP. "Oh! Our records don't go back to August last year! You need to bring in your copy of the immunisation records so we can transcribe the details and send them to AIR."

Now, forgive me for getting narky – but wasn't this were I started – presenting my copy of the kids' immunisation records!!!

Throughout the above proceedings, the merest possibility of an escape route presented itself. And as the enormity of the task before me became ever more apparent, the allure of the escape became ever more appealing – by means of a curious device called a *Conscientious Objection Form*.

"This is going to be a bit of a bother" said I to the FAO. "What's this about a conscientious object form. Can I just short circuit all this if I sent in a conscientious objection?" "Oh, that'd be OK."

What? No more to it than that? No proof required that I am a conscientious objector, not just an opportunist or an anti-immunisation anarchist? No checking, questioning, anything?!

"This is starting to become a bit of a production," I said to the AIR. "What if I just sent in a conscientious objection?" "Oh, that'd be OK."

It's all so simple!

"This is a real pain in the arse," I said to the GP. "What if I just sent in a conscientious objection?" "Oh, that'd be OK."

Positively child's play!

But positively outrageous! Is the much discussed commitment to the immunisation of Australia's children nothing more than hot air? Are our political masters committed to this or not. The supposed purpose of this entire inquisition is to ensure that, as far as possible, Australian children are immunised. I (presume) the "conscientious objection" option exists to allow those with a "legitimate" objection to immunisation an out. The clear implication, however, is (or one would presume, should be) that the onus is on the conscientious objector to establish their *bona fides*.

My experience suggests that this is not the case. As I read my experience, the "burden of proof" (so to speak) falls, not on those who contest the irrefutable scientific evidence for the benefit of immunisation, but on those who do not!

Needless to say, I am not pleased. Both the Minister for Health, Dr Michael Wooldridge and the Minister for Family and Community Services, Senator Jocelyn Newman will be hearing from me.





World Skeptics Convention:

Register now.



Nocturnal visitors

John O'Neill

A common thread runs through many paranormal experiences occurring with actual visitations from non-human entities. It seems irrelevant whether these visitors are ghosts to some, extraterrestrials to others, and angels or demons to other people. That thread is that the visitations occur during the night, regularly on the brink between states of sleep and wakefulness.

Often the hapless victim is powerless to resist the entity. They may feel physically overwhelmed or mentally controlled. Far from writing this article to proclaim these occurrences simply as bunk, I am actually writing to confirm at least an element of truth to the claims.

My support comes from a first hand experience that I had a couple of months back. Living in a small country town on the cusp of extensive farm and bushland, I am certainly in a location ripe for visitations by extraterrestrials. Indeed a not too distant edition of *That's Life*, or one of that type of magazine, featured a two page article on a UFO visit in the next town along, just 27km down the road. I am not so sure how ripe I am for visitations by ghosts, angels, demons, etc, but maybe they are in that realm as well.

At home alone, I awoke in the wee hours of the morning to confront a disturbing experience. I perhaps should add at this point that I am not an especially sound sleeper, and waking during the night is not an infrequent experience for me. However what happened this night has, at least at the time of writing, only happened this once.

Lying flat on my back I attempted to roll over onto my side. Nothing happened. I attempted to move my arm to help push my body. Nothing. I attempted just to merely lift my arm. Still nothing. My body was utterly paralysed. I then attempted to speak (to this day I am not really sure why, given that I was in the house alone, but I guess when you cannot move, you want to do something; anything). At best I was able to produce a guttural groan. No recognisable speech, and absolutely no possibility of producing any noticeably loud sound. I had the feeling of some other entity being in the room, but did not know and could not see what.

At this stage I have to admit I was starting to panic. I am a fit, healthy, relatively young man. I lift weights three or four times a week, and am above average strength, yet here I was literally unable to even lift a

finger to help myself. Suddenly the thoughts started flooding into my head of all those stories I have read and seen on TV. The way alien abductees, are often paralysed by their captors before being examined or ushered off into the spacecraft. It all made sense how a victim could be taken from their bed, while their partner sleeping next to them remained blissfully unaware of the abduction occurring. After all, if that was what was happening to me, there was no significant noise, and as I have said, I could not have made any action or sound to arouse a partner.

Then it happened. These thoughts caused some type of skeptical connection in my mind. My thoughts raced onto readings I had done on the topic of sleep paralysis, in particular in Carl Sagan's excellent book *The Demon-Haunted World*. Suddenly my mind clicked up a gear as it realised what was happening, and I switched over from a very real and frightening semiconscious state into full consciousness.

Suddenly I could move and talk again, and I found myself alone in a dark room illuminated only by the faint glow of my digital clock. I pondered what might have been. If I had not been a Skeptic from way back, possessing that knowledge that helped my mind to switch into full consciousness, what could have happened to me? Would it have been possible that aliens could have abducted me, or a ghost paid me a visit? I was certainly primed for it and was not in a state to resist.

Despite having many years of sceptical understanding and reasoning, having actively pursued information in this area, I nonetheless had far greater exposure to stories of visitation and abduction than to possible explanations. Most people would only have the stories, and never have heard any

possible explanations. Even now looking back, despite the huge differences in physical control, there were only minor differences in mental alertness between the two states. There is absolutely no question about whether I was dreaming the incident; this was definitely a state of consciousness, yet I was massively suggestible, even to thoughts from the deep recesses of my own mind.

I have since gone back and revisited that material that helped shift me back into full consciousness and safety. I will quote here at length from *The Demon-Haunted World* (pp104-105, paperback edition):



Incubus

A common, though insufficiently well-known, psychological syndrome rather like alien abduction is called sleep paralysis. Many people experience it. It happens in that twilight world between being fully awake and fully asleep. For a few minutes, maybe longer, you're immobile and acutely anxious. You feel a weight on your chest as if some being is sitting or lying there. Your heartbeat is quick, your breathing laboured. You may experience auditory or visual hallucinations of people, demons, ghosts, animals or birds. In the right setting, the experience can have 'the full force and impact of reality', according to Robert Baker, a psychologist at the University of Kentucky... Baker argues that these common sleep disturbances are behind many if not most of the alien abduction accounts.

I must say I do not need Baker to tell me that these experiences could have the 'full impact of reality'. Following on from this quotation and my own experiences described above, consider the following defining experience of Peter Khoury, the coordinator of the *UFO Experience Support Association* in Sydney, recounted in *The Oz Files* by Bill Chalker (pp.199-200

...I was paralysed, I could not move any part of my body but for the exception of my eyes which I could move, open or close. My brain was functioning but I could not do anything physically. I tried to call out to family members but I could not force the words out. At this stage I started to panic thinking I would not walk again. I thought I was truly paralysed.

He then goes on to explain an experience with alien beings, including having a 'needle-like flexible crystal tube' inserted into his head causing him to blank out. He later regained consciousness, and recounted lost time and described a scab and puncture wound left where the needle insertion occurred.

It was never my intent in this article to attempt to debunk stories such as this. Indeed in a very real sense these stories stand outside the realms of science. They are one off occurrences that cannot be replicated and in most cases leave no investigable evidence, and are thus not subject to scientific inquiry.

Certainly Mr Khoury's story can be fairly easily explained away in a rational manner. Sleep paralysis explaining the paralysis. Hallucination explaining the experience with the extraterrestrials, followed by falling asleep explaining the blank out and the period of lost time. The puncture wound and scab could be from anything—a pimple, an insect bite or anything else in approximately the right location. The story also says he went to a family doctor following this experience for a checkup, but does not mention the doctor's verdict on this wound—a perhaps ungenerous assumption would therefore be that the doctor's analysis did not further support the story.

What I do not question is Khoury's genuineness about what he thinks he experienced. However I would

have to say that I think it highly likely that he experienced a situation similar to mine, with noticeably different outcomes. Sagan again, quoting the *Harvard Mental Health Letter* of September 1994:

Sleep paralysis may last for several minutes, and is sometimes accompanied by vivid dreamlike hallucinations that give rise to stories about visitations from gods, spirits, and extraterrestrial creatures.

Sleep paralysis is a very real phenomenon and may help to explain various paranormal experiences, but it is also interesting to further delve into its biological origins. Joseph Polanik, a researcher into sleep paralysis, identifies on his website the importance of sleep paralysis to everyone, and indeed then differentiates the phenomenon I have described above into a separate category known as *Awareness during Sleep Paralysis* (ASP). He says:

Sleep paralysis, by itself, has a very important protective function. About 4-6 times each night, whenever we cycle into REM sleep, the brain paralyzes (sic) the body to keep us from harming ourselves or others by acting out our dreams. This is sleep paralysis and it usually passes unnoticed. When we do notice we are experiencing Awareness during sleep paralysis.

So what may be occurring is that the person essentially experiences a period of REM (rapid eye movement) sleep while in a partially awake state, and thus the body is in a natural state of paralysis for a short period of time. It should be noted that the condition does not only occur when people awake during a period of REM sleep, but can also occur as a person is falling asleep.

Al Cheyne from the Psychology Department at the University of Waterloo in Ontario, Canada, on what is almost certainly the best sleep paralysis site on the Web, concurs with the sentiments of

Polanik. However he prefers to refer to the phenomenon as *sleep paralysis with hypnagogic and hypnopompic hallucinations or experiences*, which refers to various sensations that I will describe in more detail later.

REM sleep is generally accepted to be the time at which dreaming is most common and most vivid. Cheyne, following other researchers, proposes that sleep paralysis may occur during an anomaly in the functioning of the neural populations that control the onset and offset of REM, as well as the neural populations that control sleep itself. Pharmacological treatments for sleep paralysis add support to the proposed neural mechanisms.

While it is closely related to REM sleep, Cheyne states that sleep paralysis:

...differs from REM dreams in that during SP there is little or no



Angel

blocking of exteroceptive stimulation and there is no loss of waking consciousness... the sensory cortex may be receiving both externally and internally generated information. The peculiarity of the [experience] may, in part, be a result of the brain's attempts to integrate endogenous cortical arousal originating in the pons with normal sensory input.

While some people experiencing sleep paralysis may just suffer simple illusions, Cheyne says that most people seem to undergo "hallucinations and quasi-hallucinations". While auditory hallucinations tend to be more common and more compelling than visual ones, either way the experience can be convincing. He emphasises the fact that the hallucinatory experiences undergone during sleep paralysis are far more potent than just dreaming. An hallucination:

...does not seem to be merely an idea. It has the quality of objectivity, that is, something beyond the willing and wishing of the experienter. The "object" of the hallucination is taken to exist independently of the will of the experienter... A "full-blown" hallucination seems like a real experience and is believed to be a real experience.

Sagan also explains how hallucinations can be generated by electrical stimulation of certain parts of the brain, and how similar experiences can happen to people with temporal lobe epilepsy. Again he emphasises how real these experiences are to the people undergoing them. These hallucinations are:

...almost indistinguishable from reality: including the presence of one or more strange beings, anxiety, floating through the air, sexual experiences, and a sense of missing time... A continuum of spontaneous temporal lobe stimulation seems to stretch from people with serious epilepsy to the most average among us.

Cheyne goes on to explain how with education about sleep paralysis (or for some just their natural skeptical nature) experiencers, and especially repeat experiencers, may come to realise the hallucinatory nature of the experience. This however does not reduce the apparent reality of the experiences at the time. Some people indeed have such intense hallucinations that they cannot deny to themselves the reality of the experiences:

...they not only have vivid and complex imaginative experiences but are also convinced that these experiences have objective external sources. Such people are unlikely to describe their experience as one of sleep paralysis but perhaps as one of demon possession or alien abduction.

Many of the sensations felt by those experiencing sleep paralysis can be explained by its link to REM sleep.

The three most common sensations are the feeling of another being present (the so-called sensed presence) resulting in great fear, the sensation of a crushing pressure on the chest which may result in feelings of suffocation and fear of dying, and sensations of floating and out of body experiences.

The sensed presence may take on many forms—this will often vary from culture to culture and time to time. I have already suggested the possible link to aliens, and alluded to some other possible experiences like ghosts, angels and demons. Polanik raises some other common entities, which include the throttler, the crusher, the old hag, and the incubus or succubus (a spirit/demon that seeks sex with sleeping females or males respectively). Cheyne runs through several categories that the sensed presence may take on. Those mentioned by Polanik would all fit into Cheyne's 'evil presence' category, but some people will simply sense that 'something' is there,

while others will make realistic interpretations of the presence, such as that it is a housemate or partner. Other people will run through a series of possibilities, however overall a very high percentage of people associate the sensed presence with fear or terror.

The neural mechanisms explaining sleep paralysis in general also work well in explaining the sensed presence. Cheyne explains how during REM sleep motor output and sensory input are inhibited via the brain-stem, while the cortex is activated internally.

During sleep paralysis bursts of neural activity may feed into the amygdala which under normal conditions would quickly evaluate dangerous situations. However as the presence is internally generated the amygdala is unable to confirm or deny a threat through sensory input, and an apprehensive state of suspicion may be maintained for an extended period of time. These conditions may then give rise to a "thalamic" consciousness of an indefinite presence strongly associated with fear". As the paralysis continues, any further exogenous or endogenous stimuli, such as shadows or internally generated middle ear activity, will be interpreted as corroborations of the threatening presence.

The second common sensation of a crushing pressure on the chest is often linked to the sensed presence, for example sufferers often feel that the 'being' present is sitting on their chest. While this sensation is sometimes experienced in other forms than the chest pressure, including an associated feeling of being



The Nightmare, Henry Fuseli, 1781

choked, the general theme is a difficulty in breathing with thoughts of impending death.

Again this whole sensation is closely related to REM sleep causes. With paralysis of the body muscles, and the common REM respiration patterns of shallow, rapid breathing, hypoxia, and occlusion of the airways, breathing is quite different than normal. When conscious during sleep paralysis this experience can become quite frightening. This is then amplified when the individual tries to control their breathing, such as by taking deep breaths, and finds that they cannot do so due to the paralysis. These conditions may be interpreted as pressure on the chest and choking, with the possibility of suffocation. The sufferer may also associate these feelings with other sensations or hallucinations being experienced at the time, including the sensed presence and fear explained above.

The third common sensation is what could be termed the unusual bodily experiences. These include the sensations of floating, flying, and out of body experiences. These experiences can for some people be frightening like the other sensations, but some people report them as pleasurable or blissful. Indeed some people actively pursue sleep paralysis in an attempt to obtain these blissful sensations. Again the unusual bodily experiences can be associated with the sensed presence, for example a feeling that the presence is controlling the levitation or abducting the individual. Additionally it is not unheard of for individuals to report the seemingly almost contradictory feelings of the chest pressure pushing down on the body, and the feelings of floating at the same time.

Again these experiences can be linked to the REM neural mechanisms, where spontaneous activation of various brain centres, and in particular the vestibular nuclei, results in a contradiction with the proprioceptive feedback, and is interpreted as floating or flying. If the eyes are open during sleep paralysis this can lead to a further contradiction where the individual feels to be floating but can see that they are not. This, Cheyne says, "is resolved by a splitting of the phenomenal self and the physical body, sometimes referred to as an out-of-body experience".

Cheyne also gives very interesting figures on just how common sleep paralysis is, just in case anyone was thinking that this is a fairly rare occurrence happening only to somewhat unstable people. He reports that between 25 – 30% of all people have had a least a "mild form" of sleep paralysis, and the experience has recurred to about 20 – 30% of these people. In fact, so common does the condition appear to be, at least in mild forms, that he claims it is "entirely possible that almost everyone has experienced such a state but has scarcely noticed and soon forgotten the experience".

So sleep paralysis and spontaneous hallucinations may play a key role in the UFO visitation and abduction phenomenon, along with many other seemingly unrelated visitation and abduction phenomena, and yet the precursory conditions to these hallucinations may exist in almost everyone. As Sagan says:

There's no doubt that humans commonly hallucinate. There's considerable doubt about whether extraterrestrials exist, frequent our planet, or abduct and molest us. We might argue

about details, but the one category of explanation is certainly much better supported than the other.

The words of Peter Khoury, whose abduction experience I discussed earlier, seem to almost eerily echo the gist of the arguments presented about the reality and commonality of these experiences, and yet demonstrate the general reaction of society. He states:

When I tried to explain [to others] what had happened I was laughed at. I had no where to go for help... It was frustrating to experience something so bizarre, so strange, yet so real... What if you became a victim of the same circumstances? ...there are many individuals experiencing this phenomenon throughout the world.

In this world people experience all sorts of things and usually attempt to understand them as best they can. Often their attempts will fall short of what we may consider the most likely or most realistic explanations. In this article I have looked at possible causes for some relatively popular paranormal phenomena. Discounting the possibility for the time being that these experiences may be real (despite what many of those experiencing them believe) we perhaps should leave this story pondering why our society and our brains are structured in such a way that they allow these phenomena to occur so regularly and to so many people. It is easy to ridicule people that suffer these experiences, but really far more satisfying to attempt to understand them, and to help and educate them along the way.

I was perhaps saved from a paranormal experience simply by having educated myself. Thousands of others are not so lucky.

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All images from Al Cheyne's website where not otherwise credited.



**Moving on?
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information packed issue
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the Skeptic.**

ESP & the mind

Kirk Straughen

Introduction

Some people believe we are exclusively material beings living in an exclusively material Universe. Others believe we have a spiritual or paranormal component to our material bodies, and the Universe is dualistic - it possesses physical and paranormal dimensions. Many proponents of dualism claim their beliefs are proved by experiments in extrasensory perception, or ESP. Proponents of paranormal phenomena, of which ESP is an example, appear to be claiming those paranormal events:

... demonstrate powers of disembodied minds, are associated with some kind of consciousness, and occur without physical force or material stimulus.

(*The Oxford Companion to the Mind*, p. 577.)

The purpose of this article is to inquire if it is possible for human beings to possess abilities that transcend the limitations of matter - abilities that would prove there is a paranormal dimension to our existence.

What is ESP?

ESP can be broadly defined as the ability to perceive events using senses unknown to science, and can be divided into two categories: (1) Clairvoyance - the awareness of remote events. For example, being aware of a house fire many miles away. (2) Telepathy - the ability of one mind to communicate with another. For example, being able to broadcast one's thoughts like radio-waves, and have another person receive them.

Is ESP possible? In my opinion, the answer to this question hinges on the nature of mind - we know that matter exists independently from mind, however, can mind exist independently from matter? I shall now address this question.

The nature of mind

For many people, the human mind is regarded as a paranormal entity that dwells within the physical body. For people in technologically advanced societies, this belief is probably based to some degree on the knowledge that the Universe is composed of non-conscious physical particles, and therefore they find it difficult to believe a purely material Universe could produce conscious, free, and rational beings.

Thus, many people may come to see themselves as beings that can be divided into two distinct and contrary parts: physical (body), and non-physical (mind/soul). The question is: are minds and bodies distinct and separate things? If the answer is yes, then ESP might be possible, for mind would be a separate immaterial entity operating on different principles, and might not be bound by material constraints.

In the past many biologists and philosophers were of the opinion that the phenomena of life could not be explained by reference to purely physical processes, and

this belief led them to postulate the existence of an "elan vital" which, according to them, was necessary in order to animate inert and lifeless matter.

However, we now know life is totally explicable in terms of complex biochemical reactions that are fundamentally material in nature, and that matter has intrinsic properties which are conducive to the evolution of the Universe, life and conscious beings. In view of these facts, the postulation of a paranormal dimension to reality is superfluous to our understanding of the cosmos - the human mind is the product of a material Universe, and there can be no paranormal component to it because its cause lies in the physical nature of the human brain:

Just as the liquidity of the water is caused by the behaviour of elements at the micro-level, and yet at the same time it is a feature realised in the system of micro-elements, so in exactly that sense of 'caused by' and 'realised in' mental phenomena are caused by processes going on in the brain at the neuronal or modular level, and at the same time they are realised in the very system that consists of neurons ... Nothing is more common in nature than for surface features of a phenomena to be both caused by and realised in a micro-structure, and those are exactly the relationships that are exhibited by the relationship of mind to brain." (John Searle: *Minds, Brains & Science*, pages 22-23.)

In view of the above facts, the mind is merely a word we use to describe those physical events occurring in the brain that cause all aspects of our mental life. Indeed, the fact that brain injury and chemicals can effect our ability to think is good evidence for the material nature of the mind.

By contrast the proponents of ESP appear to be assuming that mind is a non-physical force and can be projected beyond the physical constraints of the body, discern aspects of the material world and other minds. This is not possible. Firstly, there are no organs within the human body that could generate a paranormal force to power ESP phenomena. Secondly, because we are material beings our abilities are determined by the laws of nature, and in order for our bodies to possess an energy unknown to science, we would need to be composed of matter unknown to science. The reason - energy depends on matter for its existence. In other words, in order for a paranormal abilities to exist there would need to be such a thing as paranormal matter. Now, we don't know if there is such a thing as paranormal matter. However, we do know that our bodies are not constructed from it, and this fact alone is, in my opinion, sufficient to rule out the possibility of ESP.

Scientific evidence?

Although ESP is impossible in principle, many proponents claim that parapsychological experiments provide proof of the phenomena's existence. However, the weaknesses in research methodology undermine this conclusion:

There are four basic weaknesses in parapsychological research. The first, and the most-often mentioned even by leading parapsychologists, is the failure so far to repeat the results of major experiments. Then there is the lack of theoretical foundation for the alleged phenomena - a fact that plagued J.B. Rhine, the father of modern parapsychology, to the end of his life. There is a lack of professionalism among some researchers, who seem to welcome and support any evidence that is dredged up. A lack of rigorous controls in experimentation has often been the target of skeptics. (H. Gordon: *Extra Sensory Deception*, page 9.)

After a century of parapsychological research there is still no conclusive evidence for the existence of ESP. Those experiments that have yielded positive results can be grouped into two categories:

1. Positive results that cannot be independently confirmed, and therefore might be due to forgery.
2. Positive results that are undermined by poor experimental design, and therefore might be due to errors or deliberate trickery.

Belief & Probability

If there is no evidence for the existence of ESP, then why do so many people believe that there is such a thing? One possible explanation may lie in the way people look for connections in chance and probability. Most people appear to believe in paranormal phenomena because of a personal experience, or because they consider the experience of others as proof of the phenomena's existence. This 'evidence' often takes the form of a feeling. The person "knew something was going to happen, and it did". Moreover, the event was "far too unlikely to have been just a coincidence", and therefore "natural explanations can be ruled out".

The conclusion that an event is paranormal appears to be based on a probability judgement, and psychologists have discovered that people use a range of heuristics rather than sound mathematical procedures when attempting to guess probabilities. Naturally, this method is far from accurate, and often results in fallacious conclusions concerning the likelihood of an unusual event.

For example, many people have had dreams in which a friend or relative dies, and the following day they hear of this person's death. Is this a paranormal event? How likely is it that such a dream will come true purely by coincidence?

Statistician Christopher Scott has analysed it this way. There are about 55 million people in Britain and they live about 70 years each. If each has one such dream in a lifetime there should be 2000 every night. Also about 2000 people die in each 24 hours. So there will be 4 million coincidences among 55 million people. In other words such an "amazing" coincidence will be expected about once every two weeks. (Susan Blackmore)

Most people who reject the coincidence explanation, probably do so because of two factors: Firstly, the paranormal explanation is more meaningful to them - it reinforces the traditional dualistic view of human nature. Secondly, very few people would have the inclination or the skill to calculate the probability of the event being due to chance alone.

Conclusion

ESP is impossible. The material nature of our being prevents us from interacting with the world through non-material means:

... every influence we have upon the outside world has to begin with physical changes occurring at our body surfaces ... That any further impressions we make on our surroundings can only be a secondary effect of these poor causes. That when and if our bodily activity is inadequate to have the secondary effects we may desire, there is precious little we can do about it. That we can achieve nothing at all external to us by means of purely inner unexpressed mentation. That thoughts without causally sufficient action by the body must inevitably fail in their ambitions." (Humphrey, N. *Soul Searching*, p. 218.)

Given that mind is dependent on matter, and is therefore bound by the laws of nature, ESP will probably remain nothing more than wishful thinking.

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Notice

2001 Australian Skeptics Eureka Prize

The Australian Skeptics will again sponsor a \$10,000 prize for critical thinking, as part of the 2001 Eureka Prizes. The Eureka Prizes, administered by the Australian Museum, are Australia's pre-eminent national science awards. The 2001 series promises to be the biggest yet, with at least two new prizes on offer - the Royal Botanic Gardens Sydney Eureka Prize for Biodiversity Research, and the Macquarie University Eureka Schools Prize for Earth, Environmental and Planetary Sciences. Total prize money available through the 2001 Eureka Prizes is in excess of \$110,000.

Skeptics - and others! - are encouraged to consider nominating/entering for the Australian Skeptics prize. The prize is awarded for "investigation into beliefs that owe little or nothing to the rigours of scientific method". As our Patron Dick Smith noted at this year's award ceremony, "the Prize brings to our attention the wide range of serious research being undertaken across Australia to challenge suppositions, assumptions, beliefs and just plain craziness".

Entries for the 2001 Eureka Prizes close on Friday 9 February 2001, with the winner to be announced at the award ceremony on Tuesday 15 May 2001. Further details and entry form for the Australian Skeptics Eureka Prize - and for all other prizes on offer for 2001 - will be available shortly from the Australian Museum's web at www.austmus.gov.au/eureka. Or contact Roger Muller on 02 9320 6230.

Skeptics World Convention

The World Skeptics Convention is fast becoming a reality, with all the organisers flat out getting things ready for the influx of local, interstate and overseas visitors. The number of registrations already received is encouraging us to think it will be a very successful event, and subscribers are urged to register for the Convention and the Sydney Harbour Dinner Cruise without delay.

As previously advised, the three main themes of the Convention will be Health, Wealth and Wellbeing through Critical Thinking, with one day allocated to each theme. To expand the topics of interest, there will be parallel sessions on Sunday, Nov 12, with one session concentrating on health issues, while the other will be looking at various pseudo-religious claims. Registered attendees can "mix-and-match" and attend particular sessions of either of these programmes as they wish.

There will also be displays and stalls set up by Skeptics bodies and others near the main convention theatre. Attendees are encouraged to visit these during the breaks in the main programme.

Programme changes

Some changes from the notice in the last issue:

NSW Premier, Bob Carr, has advised us that, due to other commitments, he will not now be able to officiate at the opening of the Convention.

The Cocktail Party scheduled for the evening of November 9 has been cancelled.

Our web page for the convention has now been moved to the main Skeptics web site and you can find us at:

<http://www.skeptics.com.au/skep2000>

although the previous site at:

<http://www.geocities.com/skeptics2000/>

will remain linked until the convention, and you can register through either.

Visitors to the convention will no doubt be delighted to hear that, despite the number of surgeons and other medical practitioners listed among the speakers, no surgery will be performed on Ms Sarah Moany during the convention. She will neither be opened, nor closed, regardless of any precedents set at a couple of minor sporting occasions scheduled for Sydney as supporting events in the lead-up to the Skeptics convention.

Although there will be no "Flame of Skepticism" carried from Buffalo to Sydney to light a cauldron, we cannot guarantee that none of the speakers will spontaneously combust during a presentation.

Awards

At the convention we will announce the winners of Australian Skeptic of the Year and the Bent Spoon Award. For the former award, readers are invited to nominate outstanding Australians who, as a result of their work, have contributed most to the attainment of

Skeptics aims of exposing unsubstantiated paranormal or pseudoscientific claims and promoting critical thinking. For the latter, they are asked to nominate "the perpetrator of the most pernicious piece of paranormal or pseudoscientific piffle" for the past year.

Nominators are asked to take into consideration the national or international, rather than purely local, effects of the actions of nominees. The Australian Skeptic of the Year and other awards will be announced by Prof Paul Kurtz, founder of the modern Skeptics movement, on Friday, November 10, and the Bent Spoon winner will be announced by James Randi on the same day.

Dinner cruise

The Saturday evening of the convention (Nov 11) will give visitors a chance to mingle with the speakers and other Skeptics in a relaxing and convivial Dinner Cruise on Sydney Harbour. As well as dinner, entertainment will be provided during the cruise as the vessel travels one of the world's most beautiful waterways.

Students of history will recognise the date as the anniversary of the end of WWI, the only time an Australian government was dismissed from office, and the day that Ned Kelly was hanged. No re-nactments are planned for the cruise.

The Science and Art of Wine Selection

An unusual event, to which all attendees are invited, will occur during the lunch break of the convention on November 10.

Brynn Hibbert, Professor of Analytical Chemistry at UNSW, and occasional contributor to *the Skeptic*, has developed an electronic sensor known as the UNSW E-Nose, which can detect and identify different varieties of wine based on sampling and analysing the various volatiles given off by the wine.

Brian Miller is the Marketing Manager of the Andrew Garrett Group of vigneron in Adelaide, and is a member of the SA Skeptics committee.

Brian will lead a team of wine experts who will challenge E-Nose in a test that will answer the question, "Is wine selection a science or an art?"

Brynn concedes that E-Nose is likely to be inferior in one aspect of the test, ie explaining wine in terms of "blackberry and saddle soap on the back palate" or the "amusingness", "cheekiness" or "pretension" of the vintage, but he hopes to overcome this deficiency by enrolling E-Nose in a short course of postmodern philosophy at his university.

Speakers

Speakers who have now confirmed their participation in the Convention and the titles or topics of their talks are listed opposite. Details and times of presentation will be constantly updated on our web site:

Warning
To ensure that the daily programmes remain within their very tight time constraints, all speakers at the World Convention will be tested for hyperbolic steroids.

Skeptics World Convention

Australia

Mr **Alan Cameron** AM, Chairman, Aust Securities and Investments Commission. - Legal protection

Assoc Prof **Simon Chapman** - The anti-immunisation threat

Dr **Roger Clark**, Aust Veterinary Ass'n - Veterinary Quackery

Mr **Nicholas Cowdrey** QC, NSW Director of Public Prosecutions - Legal remedies

Trevor Case, Psychologist: "The Need to Believe"

Dr **Geoffrey Dean**, Technical writer - "Case for and against astrology."

Prof **Stewart Dunn**, Psychologist - "Mind over cancer, fact or fiction?"

Prof **John Dwyer**, Immunologist - The battle with quackery

Prof **Maciej Henneberg**, Anatomist - "Towards the new millennium: The flight from reason"

Prof **Les Irwig**, "Smart health choices: Public health & evidence based medicine"

Dr **Colin Keay**, Astronomer - "Skeptical science scuttles scaremongers"

Richard Kocsis, 1999 Skeptics Eureka Prize winner, Psychologist - Criminal profiling

Prof **Ray Lowenthal**, Medical Oncologist - "Cancer quackery"

Prof **Ian Plimer**, Geologist - "Creationism and post-modernism, two peas?"

Dr **Joe Proietto**, Aust Soc for the Study of Obesity - "Weight-loss quackery"

Mr **Roland Seidel**, Victorian Skeptics - "How can you tell from make believe?"

Prof **Gillian Shenfield**, Pharmacologist - "Trust me I'm a Doctor - medical herbalism."

Ms **Rosemary Stanton**, Nutritionist - "Eating your way to health through dietary supplements."

Messrs **Steve Walker, Peter Rodgers** et al, Skeptical Magicians, - "But I saw it with My Own Eyes!"

Mr **Barry Williams**, Editor, *the Skeptic* - "A Nano-history of Australian Skeptics."

Prof **Barry Wren**, Australian Menopause Society - "Use and Abuse of Progesterone"

Canada

Prof **Barry Beyerstein**, Biopsychologist - "Whence cometh the myth that we only use only 10% of our brains?"

China

Mr **Lin Zixin**, Mrs **Shen Zhenyu**, and **Sima Nan** - Falon Gong and Qigong

Germany

Mr **Amardeo Sarma**, Shroud of Turin

India

Mr **Sanal Edamaruku**, The Godmen of India

Japan

Mr **Ryutarou Minakami** - The efforts of the Japan Skeptics

New Zealand

Ms **Vicki Hyde**, Chairentity, NZ Skeptics - "Raising a sceptical family"

UK

Dr **Caroline Watt**, Psychologist - "Critical thinking in parapsychology"

Dr **Richard Wiseman**, Psychologist - "Current research in parapsychology"

USA

Prof **Vern Bullough**, Historian - Therapeutic Touch

Mr **Barry Karr**, Exec Director CSICOP - "The Role of CSICOP"

Prof **Paul Kurtz**, Founder of CSICOP - "How Far Can Critical Thinking Be Extended?"

Dr **Joe Nickell**, Chief Investigator CSICOP - "Pious Scams"

Mr **James Randi**, Amazing Magician - "Win the \$1.75M Prize!" plus "The Return of Carlos"

Mr **Robert Steiner**, Author/magician - "Don't Get Taken!"

Dr **Lewis Vaughn**, "How to Think about Weird Things"



Further musings of an innocent abroad

Barry Williams

Having survived the rigours of Caledonian hospitality our intrepid travellers journey southward, pausing only to meet and dine with a group of Skeptics in the fair city of Manchester. No one said "Eh oop, trooble at t' mill", thereby destroying a lifetime of illusion. Dinner in an Armenian restaurant as a respite from genuinely appalling British public cooking (one illusion that's survived), though Armenian cuisine seems to be indistinguishable from what we would consider "Greek". Despite years of viewing dripping and gloomy dramas painting the North of England as being nothing but desolate landscape and hopeless people, we find it to be a bustling and cheerful part of the world, with remarkably friendly natives. Manchester is no exception (though Blackpool is best left unmentioned). Rather than resembling *Coronation Street*, we found an active and attractive city busily reinventing itself as a cultural centre.

But the call of Land of my Fathers is not to be denied and it's onward to Wales, where we quickly discover something about ourselves in the native tongue. At road crossings (bi-lingual, with Welsh first, as were all official signs in the principality, a distinction from Scotland where bi-lingual signs had the English version first) a sign proclaimed "Henoed", with the sub-script "Elderly People". And anyone who doesn't what "araf" painted on the road means is bound to find themselves travelling far too quickly into a corner. It soon became apparent that a predominance of Cambrian genes in the make-up is no guarantee of being able to get the tongue around the Welsh language, which abounds in "ll"s and "dd"s which are not pronounced as 'l' or 'd' (among many other idiosyncrasies).

Before leaving home it had often been jokingly suggested that if ever we became lost in Wales, we should walk into a pub and ask if there was anyone there named Williams. It is no joke. The family name appears everywhere, though we by no means manage to keep up with the Jones'. But then a farmer, whose fields abut our mid-Wales cottage in Talerddig, (pronounced Featherstonehaugh, we think) quietly informs us that "the Jones' were originally English" (his name was Evans, of whom he was but one of many) and thus they hardly count.

Wales is a truly beautiful part of the world, with soaring mountains that make up in ruggedness what they lack in height (Snowdon, the tallest, is of such low stature as to make Kosciusko look like an Alp by comparison), and the contrasts in scenery are sometimes most dramatic.

Travelling north from mid-Wales the road passes through Blaenau Ffestiniog, the source of the Welsh slate with which even the roofs of 19th Century houses in far Australia are often covered. Every hillside seems to have

been quarried, leaving large shards of loose slate that appear to be waiting for only a minor earth tremor before sliding into the valley, obliterating the town. Crossing a ridge, one finds, nestling in as picturesque a valley as one could wish to find on any chocolate box, the village of Betws-y-coed. Admittedly, this image is somewhat tarnished on the day we pass through, as it seems to have been invaded by the Welsh chapter of Hells's Angels. Picaresque rather than picturesque.

North Wales contains some of the large castles built by Edward I of England "to impress the natives" and though one hesitates to speak for the natives, they certainly impress this traveller. Conwy Castle stands as part of the fortifications of that walled town and was allegedly built in little more than a year. (It is said that the Egyptians worked hard to build a pyramid in 20 - they didn't know how easy they had it.) The castle is massive and, like the walls of the town, remains in pretty fair repair, but even in its prime it would have fallen far below the standards required of a des res. Here too, is another example of the work of Thomas Telford, the great engineer of the Industrial Revolution mentioned in previous musings, who built a suspension bridge that leads into the town.

Some 50 kilometres to the west is an even more impressive example of mediaeval fortification. Caernarfon Castle, with its distinctive hexagonal towers, the site of the installation of Princes of Wales since Edward first bestowed that title on his son of the same name (but succeeding number). In a town square under the castle walls stands a statue, in full declamatory mode, of the last Welsh Prime Minister of Great Britain, David Lloyd George (who, legend has it, knew my father). Further southward lies Harlech Castle, famed in song and story, but the intrepid travellers are content to view its majesty from without, three castles in one day proving too much for the arthritic knees of these particular henoed. Although these fortifications were designed to be impregnable to attack, all three had been taken by enemies at one time or another.

Castles bulk large in the "things to see" on this visit to Britain (they being fairly thin on the ground on our native turf), and the arthritis is given a fair work-out while climbing many examples. One thing becomes clear - all those cinematic "historical" dramas featuring Errol Flynn or his swashbuckling heirs and successors, are seriously in error. No one could possibly conduct a sword fight while climbing the steep and narrow spiral staircases in any castle tower we visit. The combatant on the lower stairs could certainly make mince-meat of the nether regions and lower limbs of the upper person, but he (the upper) would be reduced to bleeding or spitting on his opponent. Another illusion dashed.

South Wales, whence sprang the particular branch

of the Williams tribe that gave rise to this correspondent, is as different from the North as it is possible to be. This industrial region was once the source of the energy that fuelled the industrial and naval might of the British Empire - the coal known as Welsh anthracite. No one who has studied the history of that time could fail to be aware of the Rhondda Valley; villages and towns with the resonating names of Pontypridd, Treorchy, Merthyr Tydfil, Tonypany; harsh images from literature and film of blackened grim-faced men and weeping women as yet another disaster strikes yet another pit; the sinister pit-head winding wheels under dripping skies; vast mullock heaps of mine spoil, poised to envelop the small, dark homes of the miners; strikes and strife, as working men in a dangerous industry sought to improve their lot, against the interests of absentee pit owners; the voices of men raised *en masse*, in the glorious anthems of Wales. These are images that linger in the minds of many, still.

The truth, now, is otherwise. The Rhondda is still there, the towns and villages remain, but there are no winding wheels, no files of carbon-dusted miners trudging to work - the last tram of coal came from the last pit in the Rhondda on June 30, 1986 and it stands in the grounds of the Rhondda Heritage Centre, outside Pontypridd, which also contains the only remaining winding wheel. Coal mining is no longer carried on in Wales.

Hay on Wye straddles the border between Wales and England, and it, like many another British town, is a one-industry metropolis. Its industry, though, is unique - the second-hand book. To the dedicated bibliophile it is as Jerusalem is to the adherents of several less devout religions. Every second shop is a bookshop, the largest of which fills what was once the town cinema. Bliss! However, as our travelling companion dismisses the thought of seeking political asylum within its seductive borders, we are only permitted one day to sample the delights of biblio-heaven. We do manage to pick up a copy of the long-out-of-print proto-skeptical work, Bergen Evans' *The Natural History of Nonsense*, so it isn't an entirely wasted journey.

A traveller in the western part of the United Kingdom cannot but be bemused by the number of encounters he has with the River Avon, which gives the impression of being an extraordinarily meandering and lengthy stream. Stratford, the home town of the Bard, famously rests upon it, but so does Bath, lying a con-

siderable distance to the south west, and there seems to be no way that this river can cover the distance between the two without cutting across another river, something rivers are not noted for doing. The answer becomes clear after spending some time in Wales, where one discovers that "affon" is the Celtic (Welsh branch)

name for "river", and that is where the name Avon originates. So the River Avon is really the River River in some sort of bilingual stammer. A tour guide in Bath (one of the most pleasant of all British cities, and site of the last home of Captain Arthur Philip, first Governor of NSW) puts us straight when he says there are seven Avon Rivers in Britain (though there is only one River Severn, so far as we can tell).

Another thing that took our fancy was the number of those

small, three-wheeled cars, familiar to any Mr Bean fan, the Reliant Robin. They are everywhere, and not just the old version seen on TV, but far more modern models. Further, we are stunned to hear a radio documentary mentioning that the Reliant company is now the only car manufacturer still remaining in British ownership. This, in a country that produced the Rolls Royce, Bentley, Jaguar, Aston Martin and many more such classic marques!

On the way to our next cottage in the lovely Cotswolds village of Bibury we are sidetracked near Wroxeter to visit the baths that were at the centre of Viriconium, the fourth largest Roman settlement in Britain, and the largest remaining Roman ruin in the country. Past the site runs the improbably named Watling Street, one of the major British Roman roads.

Then on to the gorge of the Severn wherein lies what could arguably be described as the cradle of the Industrial Revolution.

Coalbrookdale is where the Quaker brass founder, Abraham Darby, first used coke to replace charcoal for firing iron smelting furnaces, thereby changing the world for ever and saving the trees of Britain from extinction. Coincidentally, he also founded a dynasty of Darbys who became the best known ironmasters in the world. The Iron Mu-

seum is a fascinating place for those with an interest in the history of technology and industrialisation and this whole narrow valley reeks with it. In 1787, dramatist Charles Dibdin, describing this area, wrote "...Coalbrookdale wants nothing but Cerberus to give you an idea of the heathen hell. The Severn may pass for the Styx ..." Today it is a thickly wooded, pretty valley with little to show that it was once the most heavily industrialised region on Earth.



Rhondda anthracite. The lend of the line.



The Iron Bridge over the Severn

At the end of the Gorge is the famous Iron Bridge, completed nine years before the First Fleet dropped anchor in Sydney Harbour, and still in use as a foot-bridge. It was the first bridge in the world to be constructed from cast iron (from Darby foundries, naturally - Abraham Darby III was the major shareholder and moving force behind its construction). We were surprised to learn that the bridge was designed by one Thomas Pritchard, destroying a life-long delusion that it had been the work of the other (other than Thomas Telford, that is) great engineer of the Industrial Revolution, Isambard Kingdom Brunel (why don't people have names like that any more?). It seems to be popular delusion, as the guidebooks are at great pains to point out the Iron Bridge is **not** a Brunel project - in fact it was constructed 27 years before he was born, and he wasn't **that** precocious.

No stay in this part of Britain could be complete without a visit to Oxford, but this visit is to be special as we have been invited to dinner by Richard Dawkins and his wife Lalla Ward. We had the great pleasure of escorting Richard and Lalla around Sydney on their visit to Australia a few years ago and are looking forward to seeing them again. Armed with patriotic bottles of good Australian wine (quite popular in the UK) we are delighted to find that Richard has also invited mutual friends. Roland and Annie Seidel (Roland is a former president of the Victorian Skeptics) are visiting to the UK as well. The English weather remains kind and we dine in the back garden around a table Richard has had constructed from a large slab of sandstone, complete with embedded small fossils. A delightful evening in Oxford; rarely could the dreaming spires of that ancient city have rung to such strident antipodean accents since a proto-PM set a world beer drinking record there.

Oxford itself is a disappointment after the mediaeval splendours of Cambridge. It is an industrial city, and while the Industrial Revolution produced great engineering works, it produced uninspiring public buildings. We see little of Oxford, as there appears to be a major road reconstruction going on that tends to channel all the traffic into going in the wrong direction. Could Oxford be planning a bid for a future Olympics?

A curiosity of the British passion for huntin' shootin' and fishin' is that pheasants are bred in captivity, pre-

sumably to be released shortly before the shooting season, with no time to learn the rules of the road. These, not particularly intellectually endowed, birds are to be found running all around the countryside, and more noticeably across thoroughfares, where they find *homo sapiens* armed with a motor car to be every bit as deadly as *homo sapiens* armed with a shotgun. We saw pathetic little bundles of feathers lying everywhere on the roads in our travels.

Onward to our last cottage in Dorset. It may be a holiday, but no Skeptic can possibly visit this part of the world without investigating some phenomena that drive conspiratologists and parnormalists into paroxysms of paranoia.

To Stonehenge, on a day that begins with drizzling rain, but which eases off into a thick fog as we reach the site. From the ancient British car park one approaches the henge through a tunnel under the road. Breaking out into open air to confront the huge monoliths looming through the mist is enough to cause a tingle to run up even the most Skeptical of spines. Tourists are now re-

quired to keep to a path that circles the stones as damage has been caused by over-enthusiastic visitors in the past (many armed with volt-meters if we are to believe the legends), but Stonehenge is still a moving experience, even from a short distance away.

Leaving the great Henge, the mist lifts to reveal a glorious sun-drenched day (the last we are to experience) as we head towards nearby Salisbury. On the way

we come across the great mound of Old Sarum. Originally the site of an Iron Age hillfort, Sarum was successively built upon by Romans, Saxons, and Normans, who built a motte and bailey castle and a cathedral here. It is a place that was continuously inhabited for thousands of years, before going into decline as the neighbouring Salisbury grew larger. Parts of the previous works from all stages of the past are visible, and the sense of history

is brought right up-to-date by RAF Tornados from a nearby base carrying out low flying exercises overhead.

Avebury, a much larger site than Stonehenge, has a whole village lying within the precinct of the stones. Not far off is the the large conical structure of Silbury Hill, a hill that is entirely artificial, constructed for what purpose no one is entirely certain. Large public works projects certainly seem to be something ancient peoples did, wherever they were located. Arriving, at



Momolith, with Stonehenge emerging from the mist



At home with Richard Dawkins

Notice

Australis 2000

Avebury, we are confronted with an ancient rite that has characterised rural Britain since time immemorial - an enthusiast marking out the creases on the local cricket pitch. In seven weeks in Britain, this is the only sighting that indicates that the great game is actually still played there. Later, in Hampshire, we visit Broad Halfpenny Down on the outskirts of the village of Hambledon, where, in the local Bat and Ball pub, the landlord John Nyren and others first formulated the Laws of Cricket. The ground is there, a monument celebrates its historical nature, a forlorn pavilion and sight screen testify to its purpose, but of cricketers there is no trace. Australia had, only a few weeks earlier, won the World Cup (as they were to do with the Rugby World Cup a few weeks later) and we are left with the sneaking impression that the Poms have just given up. Oh my Hornby and my Barlow, long ago.

While Stonehenge and Avebury are properly designated megalithic sites, not far away we find another that could be more accurately be described as minilithic. The Rollright Stones form a neat circle, but whereas their better-known giant counterparts raise questions (and often quite mad speculations) as to how their stones could have been moved over great distances, and erected, with Rollright, it is not stretching it to imagine two blokes and a wheelbarrow doing the job.

Stone circles and cricket aside, this is also the neighbourhood in which fields develop mysterious circles of their own. Well perhaps they do in the growing season, but we are there after harvest and the only things resembling circles to be seen are large crop cylinders. I try to formulate a theory that they are really alien eggs, but the travelling companion demands that I stop day-dreaming and read the road map. Although I am well aware that much of the South Downs consists of very chalky soil, it comes as a surprise to see vast expanses of recently cultivated ground that is almost white.

This white soil becomes more familiar as we see the many carved horses that dot the hillsides of Wiltshire; only one is of extremely ancient vintage, the others (certainly more horse-like) having been carved in comparatively recent times. Near one of the horses we come across the famous Barge Inn, home base for crop circle conspiracists of all persuasions. Unfortunately it, like the aforementioned Bat and Ball, is closed at that time of day, so we miss an opportunity to see cerealogists in their native habitat.

Later we visit another fabled chalk carving, the priapic Cerne Giant, but it is a different example of public mega-art that takes us by surprise. Travelling towards Fovant, we see what appear to be military badges carved into a nearby hillside. Something familiar catches the eye. There, side by side with famous British regimental badges, are the swords and bayonets of the familiar "Rising Sun" worn by Diggers on slouch hats since Australia has had an army. A plaque tells the story - these badges were carved during WWI and one of them was to commemorate members of the First AIF who had trained nearby preparatory to going to France. Quite a catch in the throat at that one.

But enough of the reminiscences; reader tolerance will stand up to only so much viewing of the editor's holiday snaps. As a result of this enjoyable holiday, one unexpected fact is brought home to this innocent abroad - I am a closet Anglophile.



Skeptics, after the World Skeptics Convention, you are invited to the International Humanist and Ethical Union Congress, *Australis 2000*:

Ethics and Values for this New Century: Conversations on the ethical aspects of changing personal, community and global relationships.

November 12-14

UTS, Haymarket.

Personal conversations led by Dr Philip Nitschke, Barry Williams et al

Community conversations led by Dr Alex Wodak, Lee Rhiannon, et al

Global conversations led by Prof Stuart Rees, Dr Doug Everingham, et al

Philosophical overviews led by Phillip Adams, Prof Venturini, Eva Cox, et al

Registration \$100; \$30 for pensioners and students

Fred Hollows Memorial Dinner

Presentation of Australian Humanist of the Year

Sunday, Nov 12

Regal Chinese Restaurant, Haymarket

\$30

A tourist programme will be run for visitors from Nov 13 to 19, including Sydney by Night; Manly Beach by Ferry; the Harbour Bridge, Opera House, the Aquarium and The Rocks; walking tours and bush walks to areas of interest to Humanists and others.

A children's and youth programme will be arranged if requested.

Full details and registration:

PO Box 617

Potts Point NSW 1335

Ph: (Rita Warleigh) 02 9690 1852

Convenor: Affie Adagio 02 9214 7529

<http://sydney.dialix.com.au/~hsnsw/a2k/>

Skeptics and other groups are invited to establish an information display.

What the punters need

Bob Nixon

In two previous articles in this series I have looked in more general terms at the contributors to *Your Destiny*. In this article I want to focus on a selection of the feature articles that have appeared in the magazine over the past few months. This is not a random selection, but I have made an effort to choose examples that are representative of the general thrust of *Your Destiny*.

It's fair to say that *Your Destiny* aims at an audience of those who need a degree of support or reassurance. Even more certain is that *Your Destiny* is designed entirely for women. The articles are weighted towards relationships, finding them, evaluating them and keeping them. For example, Angelica Danton¹ offers, "What's Missing in your Relationship" in the May 2000 issue of *Your Destiny*. Here she offers her view that problems within relationships are the result of events that occurred in previous lives. Angelica does not limit herself, however. Problems are explained in terms of astrology, karma, numerology, fire and water energy and spiritual links. I'm afraid I can't get the idea out of my head that in many ways this equates to the world of the alternative therapist. If one cure doesn't work there's always another option around the corner. If, for example, Angelica can't get a lead with her interpretation of the numbers in the names of those she counsels there is another method that might. The criticism is obvious, at least for me. Why doesn't a simple astrological chart just scream the answer? Why is there a need for a variety of techniques? It might be that astrology doesn't work; it might be that astrology does work but Angelica's ability with that modality is insufficient, it might be that Angelica simply lacks confidence in her abilities, so needs her initial opinion reinforced by other techniques. Whatever the reason, it seems to me that it can't be particularly helpful for the client to have the councillor bouncing from one paranormal technique to another until the problems emerge as a result of the discussion.

The same edition of the magazine has Allison Everard presenting her article "Give up your Ghosts". Like Angelica, Allison is a real life ghost buster, but it's a full time job for Allison. For \$150 a time she'll remove ghosts from wherever they haunt. The price for "entities" is \$500, although there is no indication of the difference between ghosts and entities. Allison feels, hears and sees these evil spirits. She describes, for example, her sensations as she relives a suicide by hanging, a slow and painful death. All very sad, of course, but one has to ask Roland Seidel's now famous question "How can I tell this from make-believe?" Allison goes through life with Jack, Michael and Peter, her spirit guides and she talks of them as real people, in fact from reading the article it's impossible to tell the difference between these beings and real people.

Not all spirits are evil, it seems. Allison seeks to help not only those mortals who suffer from the effects of

having a ghost in the house. She also wants to help the entities find their way to the place where they can learn and grow. She is able to do work astrally, meaning she does not have to be present at the scene. This ability to work from home may serve as a part compensation for the nasty images Allison has to endure in her work.

And nasty they can be. She's was hit with a psychic stick in one encounter, but this pales into insignificance against the "raw-feeders", the very worst class of entity. Fear not, I won't terrify you with the details of these nasty buggers, but be assured that Allison can deal with them, though it takes a bit of effort.

The August 2000 edition of the magazine, in a new format and with a new editor, continues the theme of relationships. "Love made Elementary" is Christine Broadbent's dip into the subject. The elements of the title are fire and water (air and water will be examined in the next edition, as will six of the twelve zodiac signs.) It's just another of a long line of astrological matchmaking attempts that seem so common in magazines like *Your Destiny*. The big revelation in this particular article? Sometimes opposites attract, sometimes they repel.

Then we have "Find that Orgasm" by Anne Cooper but since Skeptics are unlikely to have any interest in such a topic, I'll move on to "The Destiny in Numbers" by Robert Treborlang. Here we have an example of another staple of the women's magazine genre, the in depth look. This one is about numerology, or at least Mr Treborlang's version of it. This version uses only a person's initials. For me (R.M.N.) the magic number is 3, The Enthusiast in the table. The description (enjoys luxuries, wide variety of interest, zealous) is entirely accurate, so I'll not quibble. Of more interest was the description of our esteemed editor and Executive Officer, Mr. B. J. Williams, who pops out as a 7, the Perfectionist. He wants everything to be perfect, spends a great deal of time thinking about why they aren't and generally sounds like the sort of guy people will emigrate to avoid. This may or may not be the case.

In a stunning bit of editorial mischief making, Treborlang's article is immediately followed by Thomas Muldoon's regular feature "Your Numbers" which, in the Olympic Spirit, suggests that Mr. Williams is deeply into water sports, particularly the female events. He also likes to look at the ladies on the track and will continually pester them until he has a full autograph book. I trust the relevant authorities have been alerted to look for a bearded man with a perfect autograph book and an erection. Well, actually it doesn't say that at all, that's simply the description attributed to a "7" in Muldoon's method, which is different to Treborlang's, but it seems a shame to allow something as trivial as facts to interfere with an article about a magazine like *Your Destiny*.

Continued p 44...

Babbage: Grandfather of computing

Rob Hardy

The Cogwheel Brain: Charles Babbage and the quest to build the first computer, Doron Swade; Little, Brown and Company, London.

What if we had had computers a hundred and fifty years ago? It could have happened. The plans were drawn up for a computer that would have been very much like those of today, except it would have run on cogs, gears, levers, springs, and maybe steam power. We only got around to computers a hundred years later, but things could have worked out much differently, if the work of Charles Babbage had taken off.

Doron Swade knows just how well such an engine could have worked. He built one. Or rather, his team within the London Science Museum built a calculating engine that Babbage had designed. It worked, just as Babbage knew it would. Swade tells the story of Babbage and his amazing machines in this book. Babbage's accomplishments turned out to be futile in the end, but Swade shows us how there is much to admire in his quest, successful or not.

Babbage was one of those polymaths that Victorian Britain seemed so good at producing. He wrote papers on chess, taxation, lock-picking, philosophy, submarines, archaeology, cryptanalysis (he broke the famous Vigenere cipher), and many other diverse efforts. He was an unstoppable inventor and tinkerer; he invented (but didn't get credit) for the ophthalmoscope every doctor has used, and the cowcatcher installed on the front of locomotives.

He proposed a London aerial mail delivery system based on canisters that slid on wires strung between church steeples. Swade doesn't mention it, but Babbage was one of the originators of operations research, and his analyses of postal sales showed that Britain (and by extension, the US) would be better served by a one-stamp-fits-all system rather than the postal clerk having to determine postage to particular destinations. But what he loved most of all were his computing machines.

The great problem, as he saw it, was that the tiny columns of numbers in pages of huge volumes to tell logarithms, star location, and other mathematical functions, were full of flaws. Human computers had to do the calculation, then write down results, then the printer had to read off the numbers, and set them in type. The process was fraught with error at every step. He and his friend, the astronomer John Herschel, had the job of checking tables of astronomical numbers, and Babbage realized that each mistake they found could mean ships and lives lost. "I wish to God," he exclaimed in exasperation, "These calculations had been executed by steam."

Well, why not? The industrial revolution was flourishing, and steam was producing goods and transportation of astonishing variety. Why could information not be mechanically generated as well?

There had been machines to do calculations already; the slide rule was one, but its accuracy was limited. There were desktop calculators that could do basic arithmetic, but they were delicate, unreliable, and not suited to the sort of use that would produce pages and pages of tables. What Babbage had in mind was entirely different. He used the "method of finite differences," a way of getting results only by addition without the complications of multiplication and division. If the machine could do this one function, its use could be extended to many other mathematical applications. In making tables, the machine takes the first value, makes its calculations to get the second value, and having gotten that, takes it to make calculations of the third value and so on; thus, if it got the final value right, there was no need to check the rest for accuracy.

Babbage also planned that the machine should print results directly, or put them out in type that could easily be set. Tables would be calculated and printed with no room for human error.

Babbage designed such a difference engine, and sought funds to have it built. The treasury department came up with some money. Babbage had a skilled toolmaker who began fabrication of parts, and a substantial portion of his first difference engine was made and was demonstrated to work; it was a showpiece, demonstrated in soirees to Prince Albert and other influentials. It did not, however, pay for itself.

Babbage was a firm friend who was convinced his friends could do no wrong, and an implacable enemy who was convinced that those who opposed him could do no right. There were difficulties with his machinist, and with governmental funding (all of which are well detailed in the book), but the difference engine did not get completed.

That didn't stop Babbage. He went on to design the Analytical Engine, an astonishingly prescient representation of the computer. For years, in daily intellectual toil, Babbage drew up his plans, even when there was no reason to think the analytical engine could be built. Babbage designed his computer to be programmable by punched cards, to have a Store in which numbers were kept and a Mill which performed the operations on them; these correspond to the memory and the central processor in electronic computers. He drew up thousands of parts, and his intricate plans could have worked.

No one was very interested at the time, except for the remarkable Lady Ada Lovelace, who became Babbage's close friend and interpreter. She understood his plans enough to realize the capacity of the machine, and was able to make a statement that is at the crux of debates over artificial intelligence: "The Analytical Engine has no pretensions whatever to *originate* anything. It can do whatever we *know how to order it to perform*."

Of course, the Analytical Engine never existed, except in the mind of Babbage and in the intricate plans and drawings he made of it. Even though the first Difference Engine was never completed, Babbage made a series of improvements on it, the Difference Engine Number Two, which never took the first step into a physical existence until preparations for the 200th anniversary of Babbage's birth were being made. Swade and others proposed that the engine be built; partially this was to counter the argument that Babbage's engines could not have worked because their precision exceeded that which was available in the nineteenth century (modern techniques would not be used in the machine); partially it was simply to see how the machine worked, and if it would have performed as advertised. The difficulties in funding, in working with machinists, in getting governmental support echo the problems that Babbage had, but were ultimately successful. At the London Science Museum, the machine was constructed out of thousands of intricate parts, some whose shape was a mystery until the builders saw how they worked with the others; Babbage had been right all along. The machine is gorgeous, a bit larger than an upright piano, with gunmetal, cast iron, and steel parts that all function just as he would have wished.

Babbage is sometimes called the grandfather of the computer, but he is more like an uncle. There is no evidence that any of his intricate and visionary machines influenced the design of electronic computers. Swade's engrossing book gives a good capsule biography of a fascinating man, but more importantly, it shows a hands-on appreciation for the machines he had dreamed up. Babbage knew that his dreams were doomed for his own time, but he had an inkling of what was to come; he wrote, "The certainty that a future age will repair the injustice of the present, and the knowledge that the more distant the day of reparation, the more he has outstripped the efforts of his contemporaries, may well sustain him against the sneers of the ignorant, or the jealousy of rivals." He was right again.



... Punters from p 42

Which, I suppose is the point. The readers of *Your Destiny* are made to feel good about their future prospects. It matters little that the basis of these positive affirmations are more or less way out, or that the authors are much the same. It matters not one jot that all of the positive affirmations would suit the entire readership. The object of the exercise is to sell the magazine, and *Your Destiny* seems to do that reasonably well. Selling magazines means selling advertising space and it is this that will be the focus of the last in instalment of this series.

¹ Angelica Danton is the resident ghost buster at Melbourne's Haunted Bookshop. She previously worked as a lawyer. The ghost tour of Melbourne, run by the Haunted Bookshop, was the subject of an article previously in *the Skeptic*



Review

Of prose and cons

Barry Williams

The Big Con, David Maurer, Arrow Books, 2000

From my early youth I have been intrigued by the activities of confidence tricksters and some of the ingenious methods they have used to separate people from their money. I still have a book of short stories by the late 19th Century American master of the genre, O Henry, which bears the title *The Gentle Grafters*, and I regard the 1970s George Roy Hill film, *The Sting*, as among my favourites. In fact my interest in the subject might well have been a factor that first attracted me to the organised Skeptics movement. With this in mind, it was no surprise that when I recently saw the book in question I had to have it.

Originally published in 1940 by an American professor of English, David Maurer, the book has been reissued with a modern introduction and, though I had not previously been aware of it, there can be no doubt of the debt Hill owed it when he made his hit movie starring Paul Newman and Robert Redford.

It covers many small time cons, including the "thimble and pea" trick under various guises, but it excels in the major cons that were set up with all the attention to detail of a successful military operation. It covers the actions of the scouts who searched for suckers to be fleeced and the "inside men" who set up the bogus gambling premises or stock broker's offices where the cons were perpetrated, as well as the small part players and fixers who helped make the con a success. At the heart of all successful cons was a sound understanding of human psychology and the larceny that lay within the bosom of those who were taken. The old saying "you can't cheat an honest man" finds much support in these pages. The con at the heart of *The Sting* was a very real one, and the details in the film were accurately depicted, based on actions that had been carried out, with variations, many times in real life.

The era in which these cons flourished has long vanished and new ones have taken their place, but the sheer ingenuity of the actions of the old time con men makes a remarkable story. Reading this, one can't help feeling that, despite the illegality of the actions of the master confidence tricksters, the author has more than a sneaking regard for their skills, if not for their morals. Modern readers might be inclined to agree.

The author was also a linguist who made a study of the jargon of the American underworld during the first third of the 20th Century, and this book reflects this knowledge. Incidentally, it serves to show just how much our language has changed in the past half century or so, and one might almost suspect Damon Runyon of having been a collaborator in its production. Some of the prose is almost as incomprehensible as a foreign language, but the book repays the effort and it is a good and entertaining read.



History through a lens, obscurely

Grant Stevenson

The Crystal Sun: Rediscovering a Lost Technology of the Ancient World. Robert Temple, Century, London, 2000.

Regular listeners to Robyn Williams and *The Science Show* on ABC Radio National, with an interest in the history of technology, could not fail to be intrigued by a story that aired on Saturday 8 July – the ancient Greeks and Romans made regular use of lenses and telescopes – and archaeologists and classical historians have covered up the evidence!

The story of ancient optical technology is so large that one's immediate reaction is to believe that it is impossible! Otherwise, surely, everybody would know about it."

The Crystal Sun, p.5

Now this is the sort of conspiracy story that interests me. Theories about Egyptian architects and builders and how they managed to throw together a pyramid or two or derive the dimensions and layout of the same, are all very well. But for me, and I suspect for many people, the world of the Egyptians is such unknown terrain that the rationale behind their daily doings is all but unintelligible. This is not to say that their techniques are unknown or unknowable, but that their motivations are unfamiliar.

But the Greeks and Romans? Well to start with, we are their direct cultural heirs. Their motives and world views, as alien as they can from time to time be, are much more like ours. What is more, we know a whole lot more about them. We can read their literature, their technical treatises, their poetry, their philosophy. Its not even difficult to read and understand them in the original language. And we have studied the Classical world for much longer. Despite of the polemic lying behind the terms "Dark Ages", "Gothic", and "Renaissance" the classical period and its culture have been a common obsession through out European history. Europe did not "rediscover" Rome in the Renaissance. It



never lost touch with it. As is often noted, the time separating Augustus from ourselves is less than that which separated Augustus himself from Cheops.

By comparison, our interest in, indeed "discovery" of Egypt, is much more recent. And as much as we might know about the Egyptians, much of their world is still closed to us. Egyptologists may correct me, but is there extant a single Egypt novel? Lots of funerary texts, but anything like Plato, Aristotle, Cicero, Pliny, Vitruvius?

So when I heard the dramatic claim "the Greeks and Romans used telescopes!" my ears pricked up! The antennae became even more erect when I discovered who it was that was making the claim - Robert Temple.

Robert Temple was one of those fellows talked about when I was a boy! He post-dated Herr von Daniken by a few years, but most would feel pretty safe placing them side by side.

Temple's claim to fame was the book *The Sirius Mysteries*. Here he revealed his discovery that the otherwise primitive Dogon tribe of Africa possessed astronomical knowledge beyond their known technical skill. Specifically, they (apparently) knew of the major satellites of Jupiter, the rings of Saturn and of an invisible companion to the star Sirius.

How did he explain this? Extra-terrestrial contact! Needless to say, other commentators offered rather less dramatic possibilities!

Of course, one can not rule out a man's views simply by reason of earlier "errors." But it's reason to be on guard!

So what is Temple claiming?

Well, quite a lot actually – which is another reason to be a wee bit circumspect about accepting what he says at face value.

From the *Science Show* report, and the Preface (by Arthur C. Clarke) one could be mistaken for believing that all Temple talks about is lenses and telescopes. That would be more than enough for any one else to tackle in a single book. But not enough for Temple – he claims to have unearthed an entire cosmology based upon "optical principals". And, as one might expect, Temple's discoveries unlock the "real" meanings behind Classical Mythology, the construction of the pyramids and much else that is "unexplained"! But like most attempts to reinterpret the world in terms of a pet theory, Temple falls short.

But what of the basic claims – classical lenses and telescopes? Well, on count one, one might only say “So what”. Despite claims to the contrary, “lenses” from antiquity are well known and have been pretty widely discussed. This is evident from Temple’s own discussion of the subject. Quite what these might have been used for is, despite Temple’s claims, still unclear. The ancient use of “burning lenses” is well attested. Optical uses are less certain. Using lenses for fine work or reading is unattested, but not implausible. Temple’s claim for vision correction is more problematic. The idea is certainly interesting, and not impossible. Temple’s evidence is however not conclusive and what is more, the idea (despite his claims) is not original.

So what of count two – ancient telescopes? Wishful thinking comes to mind. *Science Show* listeners may recall his reference to “the clincher”! – a Greek pottery fragment actually showing a Greek using a telescope! And there it is – emblazoned on the dust wrapper! But what is it?

Well, to start with, the fragment in question is just that, a fragment of a larger scene. Of the single person who appears, only the head, upper half of the body and the right arm remain. What may be a left arm is also shown. It is unclear. Even so, enough remains to show that the person is a woman. With her right hand she holds or touches a rod or tube. This she appears to hold to her eye (it’s actually a little above the eye). This end of the “tube” is marked with two bands. The other end is lost – making a positive identification impossible. The fragment ends a little beyond her right hand.

A border pattern, suggesting that the fragment may come from that part of the pot under a handle, appears at the top of the fragment.

Women do not tend to be big players in Greek Art – goddesses excepted. But there doesn’t seem to be anything divine about this woman. Greek women do appear in Greek paintings, but they tend to take secondary roles – as mourners, musicians and servants etc. The position of the figure on the pot seems to bear this out. The main action and important figures are not shown under the handles where they can’t be seen. It seems unlikely, therefore, that what ever this woman is doing, it is a telescope that is being used.

It is more likely that she is a minor figure – performing a mundane task - framing the main (lost) action. What she is doing is unclear (to me). The object in question may not be held to her face at all. Just as the hand holding the object is outlined in black for clarity, the apparent separation between the “telescope” and the face may be a no more than a product of a defining outline around the face. The artist may have intended the object to pass behind her head. We can’t be sure about this either as the back of her head is missing.

And this is Temple’s star exhibit!

I found the rest of his “evidence” even less convincing. According to Temple it’s all pretty clear. I wish that I could be as certain of anything in this book as Temple seems to be about everything:

- clearly impossible without lenses p.58;
- could not have been done with the naked eye p.59;
- clearly been written with a magnifying aid p.60
- could only have been made by a craftsman using a magnifying aid p.87

This certainty is the greatest weakness of the book and Temple’s thesis. Conjecture may be an interesting but it does not prove an argument. That the book is a conjecture is evident from the opening lines of the Preface:

excellent rock crystal lenses had been known for several thousand years, and it **seems incredible** that (someone) did not make the obvious and simple experiment of looking through two of them at the same time

Preface by Arthur C. Clarke, p.xiii (my emphasis)

Incredible, obvious and simple it may have been, but that doesn’t prove that it occurred! History is full of the obvious and simple that did not occur!

In the mould of such books, Temple in the *Crystal Sun* launches a direct attack on mainstream scholarship, “conventional wisdom” as he styles it. The impression conveyed is more of a suitor spurned, than of a serious researcher striving to add the sum of knowledge of the past.

This is not an academic work and is not aimed at an academic audience. Its almost meaningless therefore to criticise his arguments for their lack of rigour. Even so, such fundamental failings as absence of scale on illustrations (purporting) to show work so small that it “could only” have been done with optical aids, are pretty frustrating.

Temple makes extensive use of literary sources, and many arguments are supported by obscure etymology. One would assume, therefore, that he would have some basic knowledge of the languages of his sources - particularly Greek and Latin. Yet he seems to entirely dependant upon translators and translations for his texts.

Moreover, for all his criticism of the failings of historians, he is not immune to the occasional lapse of his own. He paints a vivid picture of Nero watching the gladiatorial games in the Colosseum (caption to Figure 6, p.74). But the Colosseum, or Flavian Amphitheatre, was not built until after Nero’s death - commenced by his successor Vespasian and completed by Titus (the Flavian Emperors), on the very site of the lake Nero had built for himself in the centre of Rome. (Its popular name, the “Colosseum,” derives from its proximity to Nero’s colossal statue of himself.)

An overall assessment? Not a serious work. What did *The Science Show* see in it?



Blatant Plug

For those who like their philosophy books short, here is one from Rafe Champion, a long-time contributor and former NSW committee member. *Reason and Imagination* is hot off the press, a 200 page collection of papers from the philosophy of science to scepticism and cultural studies. .

It is available from the author for the sum of \$15 including gst, postage and handling, sent to 77 Holt Ave. Mosman 2088.



Making the past mysterious

Peter Hiscock and Mark Newbrook

Secrets Of The Stone Age, Rudgley, R., Century (London), 2000

It is clear that Richard Rudgley has a serious passion for exploring the 'mysteries' of the Stone Age. He is even aware that, at least in the case of some notable authors, that has been the pathway to madness. At the start of this volume he comments on the silliness of the popular theories that seek to explain Egyptian monuments as the work of extraterrestrials or visitors from Atlantis. One of his main objections to such theories is that they invoke the intervention of some unknown group of people (or at least sentient beings), instead of considering the more obvious possibility that such buildings were simply produced by the local peoples with ingenuity and hard work. Rudgley is inclined to a view of the ancient world that is more grounded in commonsense interpretations of archaeological residues, in which humans rather like us lived their lives. In the famous phrase of Peter White: "the past is human". At least at this level, then, his account of early human history has its feet on the ground.

Another worthy characteristic of this book is its fine production. It takes the form of a narrative by a travelling journalist, pitched at roughly *National Geographic* reading level. We would guess that middle to upper high-school level is the target audience. A number of the chapters take the form of a discussion of the views of some 'knowledgeable' person, who Rudgley has interviewed. This is a structure that serves the dual purpose of giving an insight into the reasoning for interpretations and providing statements of authority for Rudgley's text. Some of the chapters contain impressions of people who really are prominent archaeologists, such as the Americans Olga Soffer, Jim Adovasio, John Shea, and Randall White, the French art expert Michel Lorblanchet, the Turkish Ufuk Esin, the Israeli physical anthropologist Yoel Rak, the very British Andrew Sherratt and the dynamic Australian Robert Bednarik. Other chapters focus on more dubious authorities, such as an architect who interprets temples on Malta, a person said to be an archaeologist but identified only by the name 'Stringy'. But the text itself is well written and the many photographs are of very good quality.

The book is firmly focused on the archaeology of Europe, with chapters (or parts of chapters) on Egyptian pyramids, 'temples' on Malta, the Otzi 'Ice Man', the Catalhoyuk township in Turkey, the Palaeolithic Venus figurines and rock art of central and western Europe, Stonehenge, the Neanderthal burial sites of Europe, and objects from the Lower Palaeolithic sites of Bilzingsleben and Makapansgat. With the exception of the last named, all of these are in Europe. The reason for this Eurocentrism is unclear. Is it only Europe that has a Stone Age? Is it only Europe's Stone Age that has 'secrets'? Perhaps Rudgley, being of good British stock,

knows only about European archaeology? Or perhaps it is merely that Rudgley is marketing the book for people who are only intrigued by Europe's secrets!

A more important question is: what are the *secrets* we are told in this book? The answer is that Rudgley believes he knows two kinds of secrets. The first is that Stone Age societies are more complex than has been acknowledged; so complex that Rudgley uses the term *civilisation* to describe them. This secret was the theme of his earlier book *Lost Civilisations Of The Stone Age*, and may be seen as a rather confused way to credit earlier humans with creativity and tenacity (see our review in *the Skeptic* 20:1, pp. 48-50, 57). The current book revisits many of the same points, including the existence of surgery and art in all human societies, and the interpretation of archaeological objects as complex calendars and astronomical instruments. The arguments presented in this book are somewhat more clearly put than those in his previous attempt, and the current effort focuses more on some well presented examples than the earlier book. But the objective remains the same in both books, namely to convince the reader that civilisation (as Rudgley uses the term) is of high antiquity. Although his claims are not as extreme as those of Cremo and others of the *Forbidden Archaeology* school, they are nevertheless extreme. No intermediate or ancestral social system is allowed, no pre-human cognitive ability is acceptable. Any tool or practice that remotely resembles a modern one is taken as evidence for a fully modern-level of civilisation. For example he argues for sophisticated societies in discussing the existence of spear-like wooden artefacts in the Middle Pleistocene (say 3-400,000 years ago). Rudgley (p.171) argues:

These spears were tapered at both ends and deliberately weighted towards the front third of the shaft just like Olympic javelins are today. This precocious knowledge of aerodynamics hardly indicates an 'apeman' intelligence.

Should we be convinced? This kind of confident interpretation seems sound at first glance, but a skeptical mind will probe further. Are these objects spears, or might they be thrusting weapons, or digging sticks? Is the tapering a result of manufacture or is it natural? If it is tapered at both ends, which is the 'front'. Is the bi-directional tapering the only point of analogy with modern javelins, and is it even a functionally important trait? Does it require an understanding of aerodynamics to shape a spear (chimpanzees fashion wooden tools; are they ready for engineering school)? And so on. Statements such as this are found throughout, and while they are not radical enough to be considered pseudoscience of the kind practiced by so many authors of the 'civilisation-at-remote-periods' school, they do consistently push an extreme line without appearing to consider the possible ways of testing the interpretations, or the alternatives that might be proposed.

Rudgley is prepared to go further back. He argues that a kind of stone artefact, misleadingly called a 'hand-axe', made a million years ago is a form of art. He cites the Norfolk hand-axe containing a fossil shell as evidence of an artistic intent. This is an old argument, but it has always been countered by pointing out that, of the millions of hand-axes found in Britain, surely a few might contain fossils by chance alone. Rudgley also writes that all hand-axes might be considered to be art. As evidence he offers us the following comment (p.179) by a modern man who makes stone artefacts.

When I asked him what evidence there was for art before the Upper Palaeolithic times, he grabbed a hand-axe and said: 'This is art!'

Persuasive stuff indeed, even if it does fail to mention the view of many specialists in the field that the shape is a largely mechanical outcome of the manufacturing process; but Rudgley goes even further by citing (pp.184-185) the 'Makapansgat pebble', which has some indentations that make it look vaguely like a face, as evidence for early artistic feelings in even *Australopithecus*. The origins of art is a topical issue in archaeology and is hotly debated, and archaeologists certainly do not agree on the subject. But the advocacy of art millions of years ago is a bold suggestion that trained scientists would balk at. This reveals what is not at first obvious about this book, namely that despite the interview format and the continual reference to archaeologists the book is not a popularisation of archaeological knowledge, but a clever presentation of Rudgley's unusual and exuberant view of the human past. Readers should be prepared for this realisation when they arrive at Rudgley's statement (p.26) that "It has long been my belief that archaeologists should not have a monopoly in the interpretation of prehistoric life".

That brings us to the second kind of 'secret' that Rudgley presents to his readers. It is his view that the past is essentially religious, filled with the mysteries of strange cults, which guided and controlled the lives of hominids. Much of the discussion in the book concerns libation, animal sacrifice, mother goddesses, and so on, as discussed extensively - and very controversially - by Gimbutas and her followers in recent years. Every female image is either a 'mother goddess' or a 'priestess'; a status any calendar model would aspire to. Religious power is assumed to be the only power. For instance Rudgley concludes (p.37) that "No doubt the priesthood controlled the exchange of goods that took place not just within the community but also with other communities, both on the islands and beyond". Such absolute economic power vested in religious institutions is not readily observable in any historically recorded society (although such might have been the **rhetoric**). This proposal suggests a naïve understanding of the complexity of social systems.

There is a repeated emphasis on the idea that the 'ancients' worked with nature, not acted against it. This 'understanding' of nature is often encapsulated in religious views of the world, and at times Rudgley even implies that the mystical interpretations he believes ancient people had reflect the reality of the world. All this adds up to a version of the currently popular and very 'new age' view of ancient people being spiritual

and reverential towards each other and towards the world they peacefully lived in. This view is sustained by selectively emphasising evidence, for instance by mentioning the evidence for medical practices but failing to mention evidence of trauma from intra-group violence or disease and ill-health. The result is numerous statements about prehistoric world-views that create the image of a mysterious and ritualised past. Rudgley's own background, involving the study of religion and of psycho-active plants, presumably predisposes him to this view. Many readers seeking such a viewpoint may find the book rewarding, perhaps even fulfilling, and may treat Rudgley's speculations as engaging and plausible. Certainly the presentation of his arguments is both more subtle and more comprehensible in this volume than in his earlier book. But the uncritical interpretations, the logical leaps and the consistent advocacy of one particular view will still trouble skeptical and thoughtful readers. We feel sure that many readers would enjoy a more critical and balanced exploration of interesting questions (such as that of when formalised art arose, and why) rather than this palatable but ultimately unthinking form of prehistoric travelogue.

In this book, Rudgley is discussing events dated, on average, earlier than those which were the focus of his previous book. At this time-depth, there is, naturally, little in the way of marks on rocks (etc) that might be interpreted in linguistic terms; indeed, some of the known or posited events may predate the origin of human language *per se*, let alone writing! For the later periods, Rudgley is happy to embrace the dubious ideas of Gimbutas and others on 'Old European' writing (see the earlier review for critical comment on these); but even he realises that he cannot plausibly adduce written language as early as **this**. Accordingly, this is an aspect of Rudgley's thought which loomed large in *Lost Civilisations* but is conspicuously thin on the ground in the new book. There is material about calendars, and as noted, about visual art; but there are only a few oblique references to language (written or spoken).

It has been suggested (eg, by Bednarik) that the planning and the administration of transoceanic or even relatively short maritime journeys would require the existence of many highly developed abilities; and Davidson has included language among these. Indeed, this argument has been used in conjunction with evidence about the date of earliest human settlement in Australia and on other islands to establish a lowest possible date for the development of spoken language (or of some signed equivalent) of around 60,000 BP. The only proposals which represent further reductions on this are fringe or at least highly controversial even in purely linguistic terms; these include the claims of Ruhlen. Indeed, some scholars believe instead that language arose considerably earlier; Nichols suggests 130,000 BP, and others have (at least in the past) proposed even longer time-depths. Rudgley, drawing initially off Bednarik, posits long voyages at early dates, commencing at the relatively unremarkable figure of 60,000 BP but going on to endorse Morwood's proposal that stone tools found in Flores (Indonesia) imply sea-borne crossings to the island as early as 700,000 BP (*sic*). If the argument involving seafaring is deemed to hold up, we would seem to be faced with some very long time-depths indeed for the origin of language (although, as we have seen, Rudgley himself does not stress this

Review

A great read for the highly strung

Colin Keay

The Elegant Universe, Brian Greene, Vintage, Random House Australia, 2000, pbk.

When the journal *Scientific American* runs a two-page profile on an author and his goal of explaining the universe, through multidimensional string theory, it provides a massive incentive to rush out and buy his book explaining the subject. And, having done just that, I can report success beyond my expectations.

The Elegant Universe is the best exposition for the layman of frontier science that I have seen for a long time. Author Brian Greene is one of a small band of physicists developing a theory, and inventing the higher mathematics to describe it, that invokes the notion that all matter consists of tiny vibrating string-like subatomic entities existing in eleven dimensions. Take a deep breath. Not only does this concept explain much about the nature of matter but it also explains quantum gravity, thereby tying (stringing?) together relativity and quantum theory, a holy grail that has eluded physicists for more than half a century.

I must confess that I don't fully understand how quantum gravity pops out of the theory but its plausibility is present. The idea of invoking more than the four dimensions (time and three space dimensions) has been around since early last century, but having it achieve much has always been the problem - until now. Bringing into the picture the concept of minuscule eleven-dimensional vibrating strings has produced the necessary breakthrough. We humans cannot visualise anything existing in so many dimensions, but Greene guides us through the vital concept of "hidden" rolled-up" dimensions.

Speaking as a physicist, non-specialist in this area, I can happily testify that *The Elegant Universe* has given me a much greater understanding of what string theory is all about. It does so without mathematics, which is a remarkable feat. Clever use of simple diagrams gets the major points across with little pain to the brain. Jargon is kept to a minimum and there is an adequate glossary of the scientific terms employed.

This fat paperback claims to be an international bestseller. Having read and enjoyed it I can easily understand why. If you want a sneak preview of the physics of the twenty first century, have a read of this splendid offering.

aspect of the matter). Similar conclusions might be drawn from other recent archaeological finds in Japan, at least on some arguably exaggerated interpretations which suggest that they imply seaborne crossings to the archipelago as early as 400,000 BP.

However, this argument is not axiomatically valid (of course). One **could** try to develop possible scenarios involving seafaring without any particular ability, and specifically without language. And indeed the evidence and argumentation in support of such voyages - like much of his case - may not in fact be as compelling as Rudgley suggests. In particular, judgments about stone tools and what they show are often highly contentious. So this matter, while fascinating, remains to be resolved - if indeed the volume and quality of evidence ever permits its solution. Unfortunately for those with a specific interest in the linguistic side of the case, spoken or signed language - unlike written - leaves no direct archaeological evidence.

In summary, Rudgley has apparently improved somewhat as a scholar and a writer; but his evidence and his argumentation are still inadequate to support any strong version of his thesis.



Linguistics course

Mark Newbrook (Linguistics, Monash University and Victorian Skeptics) presented what is believed to be the world's first ever course on Skeptical Linguistics at the Australian Linguistic Institute at Melbourne University (3-14/7/00).

ALI occurs every second year. It is a system in which many linguistics courses at various levels are offered over a two-week period, and is based at a university in the city where the two major annual conferences have just been staged. Students complete six-hour or twelve-hour courses during this period, and may, if they wish, obtain credit from their home universities for a combination of courses by submitting assignments (which are marked either at their home university or by the course presenters).

Mark's subject ran for six hours (90 minutes on four successive days, 11-14/7). On the first day, he was assisted by Jane Curtain, who gave a 45-minute talk on Reverse Speech. A total of twelve students attended, one of whom sought credit by submitting an assignment (on graphology). This assignment may later become an entry for the Don Laycock Memorial Prize, and other students too expressed interest in this competition. This prize was set up in 1998-99 in memory of the great Skeptic and linguist Don Laycock who died in 1988. It is to be awarded each year for the best essay or research paper on a skeptical linguistic theme received by the panel, which includes skeptical linguists from around the world. Anyone may enter except professional academic linguists.

The material was well received by the students, and some other students who did not attend the classes bought the reading pack. The organisation of this course has given a boost to Mark's plans for the first comprehensive book on the subject, to be written in partnership with Jane Curtain, Alan Libert, Jacques Guy and other skeptical linguists.



Prescription drug dangers

Tony Trimmingham has written eloquently about his son's death from drugs ("The lure of the masterstroke", 20:1). This story is similar, but there are two main differences and there is a warning. Firstly, the son is still alive, **barely**, in this case. Secondly, the addiction was not from street drugs like heroin, but from prescribed drugs like panadine forte, Xanax, pethidine and morphine. Every bit of addictive drug used by this son came from a qualified doctor or a pharmacy on a prescription. The addiction is as real, as destructive and as complex to understand as that described by Tony.

Presently, the son is in detention awaiting testing by forensic psychiatry to determine if his actions were deliberate and knowing or done when his mind was out of control. If the former, he faces long prison sentences for his threats to harm people (although he did not harm anyone physically). If the latter, it's a mental home, which some say is the less palatable.

He started having bad migraine type headaches as a late teenager and his local GP would give him injections of pethidine and stemetil. We don't recall a word of warning that this could be dangerous, but we were thankful that he appeared to get some relief and would sleep off his attack. Then his use of these substances seemed to dwindle away. He went through Uni, two degrees in subjects with heavy maths content and did rather well. Then his headaches started happening again at about 30, when he was married with children. This normally active, healthy, likeable person became withdrawn, was unable to compete for or complete simple tasks, was absent without explanation for hours at a time and spent scarce money without account. Gradually, it became clear to his wife (a qualified nurse) that he was in the grip of addiction and later we were told. (They lived faraway).

A year ago they split up. The son came to stay with us. We were to see how difficult it was to drive past a hospital without a request to stop because of "the headache". We would see 40 panadiene forte disappear in a day, or up to 20 Valium. The standard dose of 100 mg of pethidine by intramuscular injection became like shooting a rhino with an air rifle. No impact was seen. Horrified, we asked him why he kept going to doctors. "They hand out narcotics like lollies, only they are free. Medicare pays for them, the doctor gets his 20 bucks and everyone is happy". Was this the reason he did not use street drugs? "Yes, they are not safe or supervised". There are laws in the States to deal with doctor shopping. In Victoria, for example, there is the Drugs, Poisons and Controlled Substances Act 1981, which among other things allows for a patient to be registered as one for whom a single physician intends to give named substances to a patient over a term longer than a few months. A patient so classified can not be given these substances by another physician. It is up to the individual physician to check the Register on his computer before prescribing or administering.

Well, the bad news is that they seldom do. I have been through the same experiences as the son, with similar headaches, and I have witnessed the "handing out like lollies". Unless I am missing an important point, the medical profession has many members who are breaking the law routinely, without the authorities seeming to exercise their duty to act.

If, as I do, you suffer from repeated severe headaches, you can witness this law breaking quite easily. It is a routine reaction for many physicians to start to treat you with prescription drugs. There is a familiar path whereby the strength of the drugs prescribed becomes greater and greater until we enter the realm of the notifiable drugs. Some attempt to notify, some don't. There is a class of physicians who will not treat you at all. They will not give addictive drugs under usual or perhaps any circumstances. These are hard to comprehend at first meeting, when you are desperate for relief, but in hindsight they are the better doctors. They have realised that many people have severe, repetitive headaches, for which addictive drugs are not the answer.

There are several treatments for migraine using non-addictive substances like Zomig or Imigran, and when these work well they can be the solution. However, there is a core of patients awaiting the scientific development of a new drug which will work for them. These people are particularly at risk of narcotic addiction.

Such was the case with our son. Over the longer term, moving around with his work, he encountered a number of physicians, the majority of whom took him down the series of experiments that ends with pethidine. He became addicted, either psychologically or physically or both. His repetitive headaches did not go away and soon he was visiting a doctor daily. Not the same doctor, but selecting from a group of a couple of dozen, all of whom had reached the pethidine stage. Some of these were quite blatant. I recall a physician at St Kilda whose opening line was "Please be seated. Which drug would you like today?" It is hard to have respect for a person like that.

There comes a stage at which the doctor shopping becomes evident. At this stage, the classical reaction is to try to "dry out" the patient by withholding pethidine and substituting drugs like the minor depressants such as Valium, Xanax and other benzodiazepenes in this group. Their problem is that they are also addictive. Take Xanax for a month and you are likely to be hooked. They do not give the "buzz" that narcotics can give, when they are taken at normal dose. The patient is likely to seek the buzz by taking not 2, but 20 at a time. Withdrawal from this level is horrendous. There can be fits, hallucinations, and other bizarre happenings.

At some stage in the scenario, psychiatry is likely to be used. The psychiatrist is likely to have his/her own

Article

An ethical dilemma

Paul Jewell

selection of drugs, many of which are still new and on the learning curve. It is likely as well that neurologists will be involved, maybe with their selection of favourite potions. Before long, the patient is taking a mixture of substances, some without the knowledge of other physicians, whose combined effect is a bewildered patient, a sick person made sicker.


It is important to note there is little evidence that addiction can be cured by any of these drugs. It is also a misconception that addicts can be treated by isolation, the so called "drying out" or "detox" process. At the end of it, as for many just-released prison inmates, the first act of freedom is to secure a fix. Rather, the chances of recovery seem higher when the patient is required to partake of a normal place in society, with obligations like getting a job and getting to work on time. A cure in isolation runs the risk of resumption at the thought of facing up to society again.

At this stage of my incomplete comprehension, it seems that the cure for an addict has to come from within. Maybe there will be a sudden shock, such as an accident or a divorce or an incarceration, which makes the addict realise how low you can go. Those who have given up smoking might comprehend that it is easier if you are driven by a reason to stop. In my case, having been at risk of addiction, the sight of my son in its grip was enough to stop me. Addiction is not a passive thing. You cannot simply say of an addict "I will treat him/her as before, with a mental allowance for what I see of addiction".

No, the addict is driven to positive things, many of which are most objectionable. For example, when I refused to let my son drive, he called in the police and threatened mayhem. He told his mother that she had 6 seconds to get out of his room, or he would bash her. These acts are entirely alien to his normal nature, which is close and friendly. He is capable of losing contact with reality, doing awful acts and then not remembering them afterwards. He "loses it". I could not face being like that myself.

What lessons are there in this story?

1. If you suffer from repetitive, severe headaches, try only the drugs such as Zomig, Imigran and dihydroergotamine and their relatives which have shown some linkage to migraine. Do not take narcotics or bendodiazepenes.
2. Do not believe that narcotics or diazepenes other mind-bending drugs can cure you. Avoid doctors who wish to try them.
3. If you seek occasional relief from severe headache pain, take occasional doses of the above. First, however, register yourself as a person doing so, to be lawful, and avoid physicians who try to use them more than a couple of times a month.
4. Do not rest your faith in psychiatry, acupuncture, faith healing or the like. The record shows that very few people have a good outcome. The odds are against it being you who succeeds.
5. If you meet medicos who dispense narcotics with gay abandon, report them to the authorities. They are killing our children.

The writer of this piece is a subscriber who has asked to remain anonymous as some of the matters discussed may be the subject of litigation. 

I thought it might be interesting to share an ethical issue that has been identified in a different form by a student of mine. What do you think of this?

The question

1. Aromatherapy is an effective therapeutic treatment that has definite biophysical effects on the body.
2. The presence of aromas can often be smelled by people in the vicinity of the application of the therapy.
3. If #1 is true, then those who inadvertently smell the aroma of an aromatherapy treatment must also be receiving that treatment.
4. If #3 is true, then individuals who inadvertently smell the aroma of aromatherapy treatment are also receiving the treatment without informed consent.
5. Question: Is it then ethically justifiable to carry aromatherapy, in any form, when it is possible for someone else to unwillingly /inadvertently smell the aroma, particularly when aromatherapists themselves identify possible harmful effects of some substances for some people.

I look forward to your response!

My reply

The answer to your question (5) is that it would not be justifiable to submit people to therapy without their consent, nor subject people to harmful effects.

However, I am not convinced of the truth of premise 1 "Aromatherapy is an effective therapeutic treatment that has definite biophysical effects on the body."

This puts aromatherapists in an awkward position. Either aromatherapy has no effects, in which case they should not be providing it, or it is effective, in which case they should be very careful that only consenting clients get it.

By the way, how do the therapists control their own exposure to the aromatherapy they are supplying, or do they just ingest all the aromas they are supplying to their clients?



I know they're out there - they keep writing to me: Some readers' thoughts on SETI

Re "Demotion v devotion – Sagan, SETI and pseudo-science" (20:2), I still have a problem deciding whether Paul McDermott is serious in his comments rubbishing SETI, or whether the article is a plant to elicit comment.

Paul criticises the effort put into the SETI program because, to date, there have been no successful contacts with alien intelligences. But isn't this the whole point of the search program? Since when is it good scientific judgement to cancel an experiment before it is concluded just because the sought results are not yet forthcoming? Is not it the aim of a scientist to conclude the experiment before making conclusions about what the outcome may be? It may be at the end of the day we find no other intelligent life (I personally hope this is not the case), but if that is the result of the SETI program, then a momentous conclusion can then be declared to the world – but only after the program is concluded, not just as it starts!

If we follow McDermott's thesis to its logical conclusion, then all scientific endeavours that look difficult should be terminated – pity those working on nuclear fusion, or those who fantasised about travelling to the moon in the 1800s.

Was Quantum Mechanics theory a waste of time when devised during the early 1900s? It certainly had no practical application at the time – it has taken over 50 years before real life products could be built with the conclusions of this theory – and our lives will be dominated by products that rely on QM in the near future. 50 years is not so long to spend on the SETI program. And like most scientific endeavours, the cost is completely insignificant – if McDermott is worried about wastage, he should look first at the horrific social wastes of smoking, gambling and bright neon advertising signs that pale SETI expenses into insignificance.

Do you really think that scientific benefits of SETI are worthless in the short term? Where do you think that some of the technology for signal processing that are being installed in the latest mobile phone technology (GPRS, etc) came from?

NASA clearly places a very high emphasis on life in the Universe. All of the current NASA programs are part of a mega project to determine the essentials for life, and how life develops to intelligence. Look carefully at the wording of NASA releases, and go to their web sites for confirmation. From Earth studies to intense studies of the Solar planets, and evolution of the stars, the data is being co-ordinated to determine the likelihood for intelligent life in the universe, and how life progresses from pre-solar system dust to intelligence. Clearly NASA has a high regard for the SETI endeavour. And what if SETI is a failure at the end of the day? Then we will have valuable information on the limits to life's ability to create intelligence – this is itself an extremely valuable piece of information.

McDermott criticises the techniques used by SETI, claiming that we can not know the form of intelligent

messages, and hence the SETI program has a natural design flaw. Not so – SETI is looking for "non-natural" signals, and hence does not need to know what an intelligent signal looks like – it merely needs to know what natural signals look like (hence some of the current NASA programs), and by deduction the rest are *candidates* for intelligent signals – to be studied in further detail later.

One of the fundamental parameters of the human condition is our unstoppable drive to explore – our curiosity. The scientific urge is partly a desire to find out new things. SETI is a reflection of one of these urges, and satisfies in many people what may be satisfied in others by a good novel or play. But it also has other benefits. SETI is a High Risk/High Reward project, but this alone should not stop the program. Not all of human endeavour is typified by Low Risk/Low Return in which McDermott seems more comfortable. In fact some of our greatest strides forward have been made by taking great risks. We should encourage those humans who want to extend both themselves and the rest of us by taking risks. How many fine athletes or fine actors would there be to entertain and exalt us if we said to them at their tender age of 8 or 9, when they started out in their chosen career, that there is only a 0.5% or 0.25% chance of success, so you may as well give up now? The human spirit is enhanced by people taking chances in the face of likely failure, and good luck to them.

Showing support for (US) Senator Proxmire, is a dangerous admission in scientific circles. He has been an arch enemy of any significant scientific project that cost serious money and did not show immediate positive benefits, especially before his next election. It is because of extreme cost budgets and project delays imposed by people like him that we now have a hobbled and completely under-designed Space Shuttle program, which has resulted in tragic accidents and the current problems caused by under-designed components.

Paul, you want us to understand the Universe as it really is. Intelligence is the ultimate achievement of the Universe, the ability of the Universe to contemplate its own existence. This is, in some ways, far more significant, than its ability to move massive amounts of material long distances, or to create remarkable displays of colour on a galactic scale. But understanding how nature has come to be aware of its own existence, in the form of human beings and hopefully other intelligent life, is a significant tool in understanding the Universe as it really is, to use your own words, Surely we must endeavour to expand our sample set beyond one (humans)? Sometimes the majesty of the Universe can be determined by pointing a device and looking – the Hubble and Compton telescopes have shown us that. But these projects and the projects that will soon follow were not designed on a whim – they were designed over years of trial and error – lets take a small peek,

and see what we find. The spectacular discoveries that are now changing the way we perceive the Universe are based on small beginnings that have led to completely unexpected discoveries. So to with SETI – lets start in a small way (which we have), and with the results of these programs and other scientific results, we can design better SETI programs that have a better chance of success. Grow and develop your mind, do not close in on comfort zones!

We should support scientific endeavours like SETI, the High Risk/High Reward endeavours, that may not pay any dividend for years, but offer the potential for remarkable and historic results. Lets not write off people of vision just as the experiment gets under way in earnest, especially as we spend far more money on supporting wasteful activities such as destroying pristine woodlands, artificial flowers or tourist souvenirs that snow on the Eiffel Tower, none of which is likely to contribute to an improvement in society's values.

**Scott Marshall
Turrumurra NSW**

More thoughts

Paul McDermott's forum article "Demotion v devotion" is thought provoking, but left me feeling uncertain as to exactly what his point was. I find myself asking the following questions:

1. Does he mean that there is so small a chance of finding intelligent extraterrestrial life that it is a pointless exercise even trying?
2. Does he mean that there is *no* possibility that equivalent or superior intelligence exists at all?
3. Does he mean that it is too expensive an undertaking at a time when monetary resources for science are spread fairly thinly?
4. Does he mean that scientists are abrogating their responsibilities to the Scientific Method by searching for something for which he claims there is no proof?
5. Or is it a mixture of all of the above?

Scientists are certainly split as to whether terrestrial conditions are unique throughout the Universe or that life is perhaps a natural corollary of existence. The truth is that, at this stage, no one (on Earth) knows. The Drake Equation, an attempt to quantify galactic intelligent ETs, really tells us nothing, as our current knowledge is insufficient to put meaningful values into the equation. Paul states: "The accumulated knowledge about terrestrial life drops the probability of complex organisms like human beings living elsewhere, to negligible levels." This claim would be disputed by many eminent scientists throughout the world far more knowledgeable than I. In fact this is a very subjective conclusion. It's not the *idea* that needs to be tested via the Scientific Method, but rather the *methodology* used to gather evidence that may or may not support the idea.

Let me deal with question three first - money. It is my understanding that, in the past, government money has been allocated to SETI projects on a reasonably substantial scale. However, this is, in the main, now cancelled and the vast amount of such funding comes from private sponsorship. Projects like SERENDIP, run at the Parkes radio telescope facility, are riding on the

backs of other projects and their cost is minimal. It would be naive to suppose that private funding would be otherwise directed to more humanitarian research in the event of SETI ceasing.

Looking briefly at questions one and two, let me apply a little twisted logic. We have thus far discovered evidence for some forty (Jupiter-plus sized) planets orbiting other suns, yet very few, if any, astronomers would argue against there being probably billions of planets within our galaxy alone. The next generation space telescope will almost certainly confirm the existence of Earth sized planets. There is not one scintilla of evidence to support a claim that Earth holds a special role in the Universe, in fact, quite the contrary. Earth is an insignificant speck orbiting an average star in the outer reaches of an undistinguished galaxy in a small galactic cluster in the back blocks of nowhere. Probably one of the most important insights of astronomy is portrayed in the Principle of Mediocrity. From the viewpoint of every other one of the countless billions of planets that probably inhabit the Universe, we (ie the human race) are alien life form. So from a universal sense, our very being is proof of extra terrestrial existence. Our world and our bodies are made up of the most common elements found in the universe, so the advocates of a cosmos teeming with life refuse to accept that for all its ordinariness, when it comes to the one thing that matters - intelligence - Earth is unique. Paul seems to criticise Seth Shostak for ignoring the Fermi Paradox which basically asks, "if aliens exist, why aren't they here?" Perhaps the answer to that question lies in another question - we exist, why aren't we there? Question four is an interesting one. It begs the question that if SETI had as its aim to prove that ET does *not* exist, would it be subject to the same criticism?

Paul is critical of Sagan *et al* for lack of Scientific Method in support of their reasoning for SETI. There is far more to being a scientist than applying the Scientific Method, which is merely a tool, albeit an indispensable one. Science is exploration, it is adventure, it is mystery, but more than anything, science is imagination. If this sounds too romantic, think about Columbus. While not a scientist, he still had to collect data, make observations, draw conclusions and put them to the test. His geographical conclusions, based on his Scientific Method, were wrong, leading him to grossly underestimate the width of the Atlantic. He intended sailing to India, Japan and the East Indies. He failed. But he had imagination and a sense of adventure, supported by a fair helping of greed, and he changed the world forever.

Science history is replete with examples where imagination leads the way. Only after hypotheses are produced is it essential to subject them to Scientific Method. The theory of neutron stars was first proposed in the 1930s and was largely ignored for thirty years. If time and effort had been spent looking for observational support of the theory, by Paul's reasoning, that time and effort would have been wasted because it was pure supposition. Yet we now know that neutron stars are a reality and have expanded our knowledge of the life cycle of stars.

Einstein's Special Theory of Relativity is said to have been kick-started by the great man musing about what a beam of light would look like if he were travelling

beside it at the same speed. Again, by Paul's argument, that is bad science because the proposition cannot be subjected to the Scientific Method. Fortunately, Einstein was not deterred by such minor irrelevancies and his perseverance revolutionised science - having in its finality withstood all the rigours of the Scientific Method.

Aristarchus over 2200 years ago proposed a heliocentric universe rather than a geocentric one. This flew in the face of both logic and observation and was rejected until Copernicus came along some 1700 years later. The Aristarchus proposal was rejected, not for religious reasons, but because it failed the test of Scientific Method (and thus rightly so). My point is, however, that he was right and we wasted 1700 years as a result.

So forty "wasted" years on SETI pales into insignificance. There is precious little or no evidence in support of gravitational waves, super string theory or eleven dimensions. These are mainly mathematical possibilities, yet money and time are spent in their investigation. Possibly the greatest two words we can utter are "what if?" Apply the Scientific Method vigorously but in its proper place, recognise our flights of fancy as the truly wondrous gifts they are - be they in the poet or the scientist - and allow our imagination a free rein, for therein has always been the future of the human race. As Senator Kennedy once said speaking of his brother "Some men see things as they are and say 'Why?', I dream dreams that never were, and say 'Why Not?'"

**Ross Brown
Fisher ACT**

Further unSETIing thoughts

A frustrated comedian I once knew (his name was Marchant) frequently said that "the SETI project is a direct consequence of the failure to find intelligent life on Earth". I happen to believe, along with Paul McDermott (20/2 p. 52), that SETI is unlikely to turn up a "Little Green Neighbours" (because Allah is merciful) but I also accept that my attitude is based on a hunch and not on any pretence at a rigorous analysis of facts. (A hunch is not a prejudice or a wild guess but an attempt to make preliminary sense of a crock of woolly data; many thinkers had a hunch that tobacco contributed to high rates of lung cancer long before this correlation was demonstrated rigorously).

We can mumble on *ad nauseam* about the incidence of gamma ray bursters and killer meteorites and the average number of planets around stars and how often emerging troglodyte communities are humanely destroyed by their galactic neighbours as soon as the first episode of *Bay Watch* emitted by the former is detected by the radio telescopes of the latter. The fact is that we don't know and that speculation is inadequately constrained by the factual framework.

One cannot meaningfully extrapolate a line from a single point or apply statistics to a sample set of one. So far so good, but McDermott's suggestion that SETI is unscientific is puzzling. Consider the famous hypothesis of Marchant (the Skeptic 2000); he said "If I sit on my porch with a bottle of good red every night until I

die and I assiduously watch the moon I may see the upper left hand corner knocked off by a bolide". Now the philosophers may cry that this is no hypothesis at all but, whatever label you may wish to put on it, it is a meaningful idea even though it can be tested only by exhaustion.

Contrary to McDermott, many important scientific ideas and facts have been established (I avoid the word "proven") by exhaustion. A famous example is the Law of Thermodynamics that in effect says that one cannot build a perpetual motion machine. That Kilimanjaro is the highest mountain in Africa was established by exhaustion.

A wonderful example revolved around the prediction by Du Toit in about 1920, that the Table Mountain Group in South Africa would one day prove to be fossiliferous. Generations of geologist before him had, for over a century, searched this enormous and widespread formation without finding a single specimen. The textbooks repeated the mantra that "the formation was barren". Du Toit was undeterred. "Only exhaustion will do", he said in effect. Several more generations of students turned over another billion tonnes of sandstone and found nothing. One day in the late seventies Andy Moore kicked a rock on a remote mountain track and it rolled over to reveal a trilobite, which, for its sins, was promptly deported to the British Museum, because the colonial boys, having never seen a Silurian fossil before, had absolutely no idea what to do with it. Du Toit was right but I fear McDermott would have cut his funding eighty years ago. (By the by, Du Toit was one of the few geologists of his day who supported Wegener's preposterous idea that South America and Africa were once joined).

To return to SETI, I suggest that the fact that it has not yet picked up a broadcast from another solar system is no ground for condemning it as unscientific. The negative results from SETI are useful. We can now say with some confidence that there are probably no TV sets within a few light years of the Earth. Here I am not attempting to be facetious; the longer we hear nothing, the more confident we shall become that there are few civilisations like ours out there. Not necessarily zero but few and with each decade of silence we can confidently say "fewer". Whether this tells us anything about civilisations that do not use radio transmissions is moot. One must also bear in mind that SETI may, through serendipity, turn up an important discovery that is not related to alien life. It could lead us to a previously unknown class of pulsars, for instance.

In summary, I disagree with McDermott in his assessment of SETI as unscientific and as a waste of time. But I'll bet my bottom dollar that he is right in his hunch that all we shall hear in our earphones for the next century will be the hiss and crackle of the echoes of the eons. Most of me hopes so. If it turns out that there is a bunch of mindless gastropods near Betelgeuse taking part in a TV show called *Snail of the Century*, I'm going to have to kill myself.

**James Marchant
Richmond TAS**

Might as well kill yourself, James. After that final ex-cruciating pun, it will save me the trouble. **Ed**

A reply to Richard Dawkins

After reading your open letter to the Prince of Wales, I felt that it would be remiss of me not to question some of your ideas.

I am worried at the ease with which scientists state that genetic engineering and selective breeding (or in your own words, artificial selection and artificial mutation) provide us with the same end result. Both examples of selective breeding that you use are false analogies. You ignore the crucial difference between genetic engineering and selective breeding. Selective breeding is set within the natural boundaries imposed by nature, ie; genes can only be passed on within a species. Selectively breeding wheat from grass and dog breeds from wolves over many generations is simply not comparable to genetic engineering. To use an example, geneticists have spliced genes from a fish into a strawberry. In the entire history of life on this planet, I'd bet a large sum of money that fish genes have never been passed on to a strawberry, let alone in the space of a generation.

Genetic engineering and selective breeding are not the same thing and selling genetics as such, is a complete disservice to science. I am in no way against genetics, but the ease with which this kind of statement is made does not help the debate. Science is rushing ahead into the future at such a rapid pace that ethics and morals are having a hard time keeping up. New technologies have been pushed onto the public without their knowledge or consent. These technologies have not been debated, questioned and then justified nearly enough. Concern about genetic engineering from public figures and the general public is exactly what is needed. Propaganda from both sides is not.

After reading through the lecture, I did not see a single instance where Prince Charles mentioned or even implied that he preferred any alternative philosophy over science, as you assert. In Charles' own words, 'I'm not suggesting that information gained through scientific investigation is anything other than essential.' It is obvious that he is for science, but believes that it is not much use on its own. It seems, from the response of many scientists, that it is a crime to mention any way of thinking other than science. The implicit message in Charles' lecture was of the need for the ethical and moral issues to be debated. That one should not take intuition and the 'heart's wisdom' out of the discussion.

You drew our attention to *The Demon Haunted World - Science as a Candle in the Dark*. Now I would draw your attention to a line from this book. 'The notion that science and spirituality are somehow mutually exclusive does a disservice to both' (1997, p 32). Indeed we are all human, not machines, and as such it is physically impossible to exclude feelings from any debate.

Some of the greatest scientific breakthroughs and ideas would never have come about without the intuition of the discoverers. The name René Descartes, rings a bell. What a society deems as right or wrong has never been decided without people using their hearts as well

as their minds. Charles is merely asserting that what is deemed right or wrong in applied science should be no different. Just because we can do something, it doesn't mean that we should. There is no scientific consensus on any of these issues, so this in itself tells us that nobody can say with 100 percent certainty that their view is right. We are certain that the Earth circles the sun but we are not certain that GM crops are safe.

You also briefly touched upon Prince Charles' wish for more science directed towards traditional systems of agriculture. You ask if nature would be a good role model. *New Scientist* magazine recently told of a report by Britain's Soil Association (which admittedly promotes organic farming) that found organic farms can support five times as many wild plants, including 57% more species, compared to conventional farms. Birds, insects and other arthropods were in greater abundance in number and variety (*New Scientist* 3/6/2000 p20). I submit this as fairly persuasive evidence that nature is a good role model, especially when it comes to having a lot of it.

Which brings me to my final point of contention. You state that if we want to sustain our planet into the future, the first thing we must do is not take our advice from nature. You come to this conclusion from your own area of expertise of which I am certainly not qualified to dispute. Natural selection may favour short-term gain over long-term planning, but you defeat your own argument in stating 'working within each species'. This is exactly right. Natural selection works within each species. This is an extremely reductionist view of nature, which in the case of single species works extremely well. But nature itself is not a single species. It is a complex system made up of many complex ecosystems. Thus to break down nature into components parts of individual species, is to not look at nature as a whole.

The ultimate failing of only using this reductionist view of nature was demonstrated by Biosphere 2. This was meant to be a miniature version of the Earth's natural systems. This closed system, created by humans, showed us through its failure that we do not understand how nature works. As David Suzuki points out in his book *From Naked Ape to Superspecies* reductionism provides only part of the whole picture. When we broke aspects of nature down into their component parts... we lost sight of the patterns of nature and the symbiosis within ecosystems, the way every part has a purpose. 'At this point in time our only option for the survival of our species (and hopefully a lot of others) is to recognise, that while nature might not think or plan what it is doing, the stewardship of earth is in far more capable hands with nature than with us. Through our indifference we have shown time and time again that as an overall species we simply don't know and don't care.

Life/Nature has gone through many extinction periods since it began and has managed to bounce back rather well. 99% of species that have ever lived may be extinct and the human brain may be able to see across

the valley, but so far we have not come close to proving that we know better than nature. As Norman Myers states in *The Sinking Ark*, 'we don't even have that basic grasp of what makes our planet tick – let alone how to keep it ticking.' I too warm to the Socrates quotation that both you and Prince Charles use, 'wisdom is knowing that you don't know.' Though many scientists will nod their head in agreement on hearing this quotation or even utter it themselves, action speaks louder than words. I for one am yet to see this action. The simple fact is we don't know all the potential dangers and problems that genetics could bring. If we did, biotechnology companies might be able to obtain insurance. And our continued use of fossil fuels is just one example, which demonstrates that *Homo sapiens* certainly has no sense of long-term stewardship of the planet.

Many scientists get so caught up in their own work that they fail to see the big picture or dismiss criticism by non-scientists simply because they are non-scientists. One of the greatest scientists gave us all warning when he said, 'Concern for man himself and his fate must always be the chief interest of all technical endeavours ... in order that the creations of our mind shall be a blessing and not a curse to mankind. Never forget this in the midst of your diagrams and equations.' (Albert Einstein. Caltech, 1931). I believe that many have.

**Theo Clark
Mt Gravatt QLD**

Another reply

Richard Dawkin's open letter to Prince Charles, reprinted in *the Skeptic* Winter, 2000 (20:2) advances the proposition that human interference in the fundamental processes of nature is possible and necessary. He declares "We must "fight against the naturally selfish and exploitative tendencies of nature". "We must stop listening to nature." We can do better without nature, it seems, because our brains are large enough to cope with the task of managing human evolution.

The Christian Bible and Ten Commandments and Communism with its literature and Manifesto are undoubtedly monumental ideologies conceived by great intellects to better manage human evolution. While these ideologies gained huge followings the matters they addressed remain the subjects of continuing concern and debate. We must therefore accept the fact of their failure. While human attempts to chart a less painful course for development founder, the brutal driving force of nature continues to produce worthwhile results. To illustrate an example of this I cite the case of the invasion and rule of India by Britain.

British investors pursued the expansion of their wealth through the exploitation of India's physical and human resources. Prior to the penetration of British capital and its coercive armed forces, India was little more than a collection of isolated despotic feudal regimes with predominantly peasant work forces. These regimes were no match for the power of British capital and its armies. Under their impact exploitation of the peasants by the feudal aristocracy largely gave way to exploitation by investors. While a cursory examination of this outcome might suggest that, for the peasants, there was

no obvious gain, the greater productivity of capitalist methods and the freedom to struggle for a larger share of the wealth produced, provided improved living standards for an expanding population. Such an advance was not possible under feudalism. The lack of freedom for its ruled populations stifled innovation and denied the embrace of opportunity.

The competitive thrust for dominance and the expansion of personal wealth are the forces that operate to eliminate obsolete economic formations and production methods. "Red in tooth and claw" nature employs the much-reviled greed as an evolutionary tool to attack the roots of poverty. Nature's harsh discipline, it seems, is necessary to advance the productive structures that sustain life. The paradoxes of enslavers being liberators and greed the mother of plenty mock the audacity of those who proclaim the superiority of their ideological artefacts over nature.

Confident that the right ideology is near to hand, Professor Dawkins proceeds "we can chart a course away from extinction... ". It seems that those who now direct their prodigious intellects to conceiving the instruments for destruction, will, under the influence of this new ideology, submit themselves to the less lucrative employment of avoiding extinction. Reliance on ideology to reform those scientists who compete for dominance and the best of the "short-term gain" is, I suggest, not a viable option.

Finally, should we be unduly troubled by a diagnosis of the human condition that suggests a prognosis that few would anticipate with pleasure? While I think "no" I am not so bold as to deny the possibility of immanent extinction. Overall I am confident that nature is amenable to a solution that we can comprehend. At this stage of my reasoning I hold the view that human greed and the pursuit of dominance are the liberating forces that can defer the matter of extinction. How we might harmonise human activity with these forces may, the editor permitting, be the subject of a future article.

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Editor's comment

As Skeptics we should always be careful in debates of this type to avoid seeking only opinions that simply justify our own prejudices. In the particular case of GM crops, both (or several) sides tend to proclaim "science" as supporting their case, though the cases themselves often appeal more to such basic human emotions as avarice or fear. A pitfall is to anthropomorphise "Nature", rather than to recognise that "nature" is merely the description we apply to the circumstances that pertain at any particular time, resulting from all that has gone before.

We know what we do about nature because we have invented the tool, science, that allows us to do so, and nothing else works so well. "Nature" has endowed us with the skills to intentionally modify "nature", rather than to leave it to "natural" causes. We should always be careful about how we modify "nature", but we should never be afraid to do so.

After all, as we are part of "nature", it is the natural thing to do.

Further comments on depression

I am obliged to Garry Bakker for his interesting comments (20:2) on my brief paper on Depression (20:1) which was a summary of a talk I gave to Skeptics SA in Adelaide. His main argument seems to rest on the theme, suggested many years ago by Australian psychiatrist Sir Aubrey Lewis, Professor of Psychiatry in the University of London, that varieties of depression differ only in their severity. That reactive (neurotic) depression and endogenous clinical depression are simply opposite poles of a continuous scale. Aubrey Lewis questioned me on this very subject when I was examined by him for the Diploma in Psychological Medicine in 1948. So this argument has been going on for a very long time. Few psychiatrists today accept this view. A biochemical causation for mental illness is more readily accepted by psychiatrists as a consequence of their medical training, and recent discoveries in neuro-biochemistry. The continual scale is popular with clinical psychologists (who are not medically trained) as it justifies their only method of treatment, ie psychotherapy. This leads Gary to suggest that ECT may be indicated for any form of severe depression. This is a serious error, with which I disagree.

Gary seems to be unaware that a psychotic (endogenous) depression may be mild, and a neurotic (reactive) depression severe. He ascribes to me that severe depressions must be biological. This is his view, not mine. He disagrees with my term Endogenous Clinical Depression. This is widely used by psychiatrists and fully accepted in psychiatric journals. He points out that external stress is a common factor in endogenous depressions, and is not mentioned in my brief paper. In my talk on this subject I emphasised that stress is a common precipitant of endogenous depression, but it is not the cause. It renders manifest a latent illness.

I trust it is not necessary to point out to Gary that neurosis and psychosis are not the same illness, differing only in severity. Clinical Endogenous Depression is part of Manic-Depressive Psychosis (Bipolar Affective Disorder). Reactive depressions are neuroses. Briefly here are the differences between reactive (neurotic) depressions and endogenous (psychotic) depressions;

Reactive Depression	Endogenous Depression
Depression a symptom	Depression a disease entity
Gradual onset	Sudden onset
Unhappy mood	Novel, abnormal mood
Complains of depression	Complains of apathy
Full insight - seeks medical advice	Loss of insight - "not an illness"
Blames illness, spouse, circumstances	Blames self
Difficulty getting off to sleep	Early morning awakening
Copious tears	Few tears
Looks unhappy	Expressionless facies
No psychotic symptoms	Self accusatory delusions
Nil	Worse at night,better in morning
Nil	Slow thinking & movements
Nil	Weight loss & physical symptoms

These illnesses are so different in symptoms, prognosis and treatment that it is difficult to accept them as one and the same, differing only in severity. The clinical features of an endogenous depression are very characteristic, and anyone who has suffered from this will recognize the picture I paint. Let me describe it. The patient wakes up one morning feeling unable to face the day ahead. There is a sudden loss of interest and enjoyment in life, work, spouse, baby, music, hobbies. Life feels empty, purposeless, pointless. The mind seems empty. There is difficulty in making decisions, even with trifling matters. The patient is not sad, nor happy - just apathetic. Time drags - day and night seem interminable. Life becomes intolerable and agonizing. The patient retires from social activity, avoids friends. There is slowness of thinking, moving, speaking. Speech is an effort. The patient cannot cope with work, cooking, the baby. Never finished in time, important things are left undone. He or she becomes negligent of personal appearance, listless, indolent and everything is a huge effort. The patient is much worse in the morning and much better in the evening. The sleep disturbance is diagnostic - off to sleep quickly, but wide awake and agitated in the very early morning. The picture is one of pessimism, hopelessness and gloom, but without tears. Physical symptoms appear, with weight loss, anorexia, constipation (part of the body slowdown), amenorrhoea, loss of libido, and rapidly looking older. Delusions may appear, of guilt over imagined past misdeeds, disease, poverty, ruin, and marked self-blame. When the elderly develop this condition they are commonly misdiagnosed as suffering from Alzheimer's Disease. The great danger of this illness is the risk of suicide. Most patients give a warning to friends or family, but it is often not taken seriously. One must not accept uncritically the patient's explanation of his "nervous breakdown" as due to business failure or an unhappy love affair. The sequence of events is usually the reverse. Makes you depressed just to read about it, doesn't it ?

The most surprising aspect of Gary's argument is the suggestion that my paper was "propaganda", "defending professional territory", "biased", "psychiatrists competing with psychologists". This is an unfortunate attitude that should not enter scientific discussions. It behoves psychologists and psychiatrists to work together in harmony for the benefit of the most important person in our work - our patient.

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More about maps

Mark Newbrook's article (20: 2) "Skepticism on 'fringe' and 'mainstream'" identified a danger of automatically accepting "mainstream" denunciations of "fringe" thought, instead of applying a proper level of skepticism to these, quoting as one example the case of Wegener's theory, of Continental Drift "which was almost universally rejected as ridiculous when first proposed". The reasons for this rejection were twofold; Wegener was not a geologist, and there was no known geological mechanism to enable the Drift to occur, in fact contemporary geological knowledge indicated its impossibility. It was not until the discovery of sea-floor spreading in the 1960's that the mechanism was recognised and Wegener vindicated.

Another area, recently discussed by W.A.R. Richardson in *Skeptic* 19: 1, is the Portuguese Priority theory, the claim that the Portuguese charted the north and east coasts of Australia long before the Dutch or British. This theory has been in print since the mid-19th Century, but its proponents have not been professionals (historians, that is,—they include seamen and cartographers) and it particularly challenges the statement taught to generations of schoolchildren that "Captain Cook discovered Australia?". Richardson endeavours to refute the theory, but his refutation cannot be allowed to pass without comment. He is critical of the methodology of many supporters of it, particularly McIntyre (McIntyre, 1977) for his enthusiasm in marshalling subsequently disproved evidence to support his basic arguments, but this requires that his own arguments must stand up in detail. Many of them do not, and not just on points of detail. His own reasoning is suspect in critical areas of his argument and the logic of some of them is not strong.

An earlier discovery of Australia has certainly attracted its "lunatic fringe" (Phoenicians, etc.) but the Portuguese Priority theory is not a "fringe" one. It rests on four bases:

- Some world maps (the Dieppe Maps) drawn in the 1530s show a large continent south of Timor, in the general position occupied by Australia
- Some parts of the coastline of this southern continent show "some similarity in outline" (Richardson's words) with corresponding parts of Australia of the same latitude.
- Portuguese mariners are known to have reached the Cape in 1487, India in 1498, Malacca in 1511, Timor in 1517.
- It is therefore not impossible that Portuguese continued beyond Timor (why stop there?) and had some record of Australia, which for some reason(s) was known to the Dieppe cartographers but not to later ones such as Mercator. This reasoning accords with Occam's Razor: "arguments are not to be multiplied without necessity", meaning the simplest solution which satisfies the available data is to be preferred until disproved.

There is no hard evidence (apart from the maps themselves) to confirm this theory, but in the 19th Century an old wreck (the "Mahogany Ship") was observed near Warrnambool; one description of its construction suggests it could be a 16th Century caravel.

Richardson's logic is deficient in two arguments. He claims "... since exploration was only of interest to [the Portuguese] if it had prospects of commercial profit, there was no conceivable motive for their having come here", but if they had not investigated the prospects, how would they know this?. This is what the Dutch did a century later. Secondly, his description as "specious" two explanations of supporters for the lack of any hard evidence (maps apparently do not count!) to justify the claim, will not stand up either. In dismissing the argument that records of a discovery could have been lost in the destruction of the Lisbon earthquake of 1755, he says that "since there is not one iota of proof that any such evidence had existed there prior to the earthquake, the excuse is obviously invalid". Since any evidence which might have existed could have been destroyed, he cannot prove that the evidence did not exist. It is a common logical trap into which historians (and others) have frequently fallen, that a lack of evidence for something is, on its own, proof that it did not occur. His second "specious" point ties in with this. In rejecting as "supposed" the claimed Portuguese policy of secrecy, he is at odds with at least one reputable historian. The major and beneficial change of route to the Cape of Good Hope between the voyages of Diaz in 1487 and Vasco da Gama in 1498 was clearly the result of unrecorded exploratory voyages (Boxer 1973, p36). Whether the lack of records for these voyages results from a secrecy policy or the Lisbon earthquake we do not know. If Richardson claims that no records equals no voyages, then the ball is in his court to explain why Vasco da Gama, who deliberately set out for India, took a course that no-one had ever sailed before.

In any historical research the reliability or otherwise of one's sources is the prime consideration. Richardson notes that many coastlines on early maps were "extremely inaccurate, many misplaced, and a number fictitious". In an earlier paper (in Potter (ed) 1987 p.22) he notes that latitudes and longitudes were "notoriously unreliable", that information did not always get to cartographers who were endeavouring to construct small scale composite charts by piecing together the heterogeneous information they received. With unreliable sources one cannot, without external evidence, pick and choose which parts to accept or reject, although some historians, especially when pushing their favourite barrows, try it. Richardson rejects *Java-la Grande* as Australia, despite his admission that its east coast has "some similarity in outline" with the "corresponding" part of Australia; the corollary of this however, is that he cannot use an "unreliable" part of a map, as he uses the *cap de fremose* promontory, to prove it could not be Australia. The promontory itself could be an error for

any of the reasons he himself gives, (and without it the resemblance is considerably enhanced). His earlier remark about the reliability of latitudes and longitudes rather undercuts his claim that “believers” have to explain why the supposed Australia is 25° too far west. Forlani’s map of 1562 (Shirley 1984 pl.96) has very misshapen outlines of Sumatra, Java and Borneo and no-one would recognize in isolation the featureless lump west of Africa in Mercator’s 1569 map (Shirley, 1984 pl. 102) as South America, but these depictions are not doubted. Richardson, in his earlier paper (in Potter 1987, op.cit) would have us believe that that the Portuguese mariners who had found their way half way round the world charted Hainan the same size as the Paracel atolls and the Pulo Condor group as larger than either. This reconstruction would seem to be “extremely inaccurate”, to put it mildly.

I am aware of Richardson’s main point, the possibility of falling into paleogeographical traps. Having some experience in the transcription of Iberian documents dealing with land transfers at a local level dating from the early 13th to the 18th Centuries, the majority coincidentally from the first half of the 16th, I can speak with some practical knowledge on this. Reconstruction of apparent misspellings or misreadings is possible when the words appear in known contexts such as sentences, and the likely correct rendition can be fairly obvious. However with place-names on maps where there is no available external reference to the validity of the reading, any variation can only be hypothetical. His explanations for *Coste dangereuse* and *Coste des herbiages* as being based on incorrect transcriptions and translations from Portuguese into French, of Vietnamese placenames, cannot stand simply on his assertion. The only link he has to the Vietnam area is the *Aliofer/aljofar*-Hainan one. The assumption that the Dieppe cartographers in the case of *champa-herbiages* thought that their original Portuguese chart used a French word for which they simply provided a synonym, and in the case of *dangereuse* simply picked a similar looking French word for *dauarela* again needs more than an assertion. My own experience with the several different scripts used in the early 16th Century is that the *l-s* confusion in *dauarela - danaresa* he proposes is very unlikely as the usual candidate for confusion with long letter ‘s’ at this period is ‘f’, both of which have strokes below the line of writing while ‘l’, when not written as a loop, has its stroke rising above the line and never goes below the line in whatever script style is used. Occam’s Razor, and not just “sheer wishful thinking” suggests that when “dangerous coast” is used to notate a coastline with “some similarity” to that of Queensland the possibility of a correct identification should not be dismissed. Subject to correction, I note that the words for “dangerous” and “grasslands” in modern Portuguese bear absolutely no resemblance to *dauarela* or *champa* unless there has been a change in vocabulary since the 16th Century the possibility that the Dieppe cartographers simply translated the descriptive Portuguese terms they found on the original chart cannot be dismissed. The merging of *Sylla* and *cap* into *Syllacap*, which Richardson claims as the modern Cilacap (Tjilatjap), presents further difficulties as the south coast of Java,

comparatively ignored by local sailors and, he admits, unknown to the Portuguese, was not known over 30 years later in Mercator’s 1569 map. This identification also implies major changes in the pronunciation of Sundanese between the time of the Dieppe maps and a century later when it began to be recorded by the Dutch.

Richardson correctly specifies paleography and historical linguistics as skills needed by a cartographic researcher, but significantly omits cartography itself. Fitzgerald, formerly Director of Survey for the Australian Armed Forces, and therefore a distinguished cartographer, supports the theory that *Jave-le-Grande* is Australia (in Potter *op.cit.* p.9 ff) (although he differs from some of McIntyre’s interpretations, one of these quite markedly) and Richardson was happy to quote him when a point of detail supports one of his own interpretations (Potter p. 30). He politely denigrates Dr Helen Wallis for supporting the accuracy of the Dieppe maps; Dr Wallis was the head of the Map Room of the British Library with a special interest in the 16th Century French maps, as those who heard her lecture in Melbourne some years ago can testify. She might be considered, in his own words about unnamed others, a “foremost historian of cartography”, a specialist whose views carry some authority. We also have an opinion which for its balance when speaking of the Rotz Map and recognition of the difficulties needs to be quoted in full:

... an extensive country is marked to the southward of the Moluccas, under the name of Great Java; which agrees nearer with the position of Terra Australis than with any other land; and the direction given to some parts of the coast approaches too near to the truth for the whole to be marked by conjecture alone ... it should appear to have been partly formed from vague information collected probably by early Portuguese navigators from the eastern nations, and that conjecture has done the rest. It may, at the same time, be admitted that a part of the west and north west coasts where the coincidence of form is most striking, might have been seen by the Portuguese themselves before the year 1540, in their voyages to and from India”

The writer of this was Matthew Flinders (Flinders 1814, pp. v-vi), not inexperienced in charting unknown coasts in a leaky ship and aware of the problems of seamen who did so without the advantages of the recently invented navigational equipment he possessed.

Jave-le-Grande is a historical and cartographic puzzle, and different students will have different views.. It may be Australia, but we need more hard evidence before we can come to a firm decision either way. Contemporary historians have rather neglected the subject, (is there embarrassment at being upstaged by McIntyre, an amateur?) and Richardson is the only one to attempt a detailed professional refutation of the claims made for the Dieppe Maps. He rightly points out that it has attracted its share of comment from the “lunatic fringe” but guilt by association is not a valid research technique. Neither are terms such as “ridiculous” or “specious” or “incredible” to describe arguments of more serious writers. He admits that “The Portuguese may have reached Australia in the 16th Century”, but that “none of the supposed evidence so far produced is valid”. If William of Occam were called

Continued p 62 ...

Cannibalism: critical thinking or hokum?

In Richard Buchhorn's article "Cannibalism Lives", (19:4, Summer 1999), the author claims that he is a candidate for a prize in critical thinking. I am currently studying the concept of critical thinking. From my readings, I think it is a concept worth cultivating but I have reservations about the usage of the term in these pages. People who fancy their own intellectual skills should keep in mind that there are republicans out there like me who are unable to admire the emperor's new clothes.

Buchhorn opens his essay with a scare story about the idea of cannibalism infecting minds so badly that the victims do not realise that they are being manipulated or that their reason is deranged. Are we expected to take this rhetorical flimflam seriously? Buchhorn seems to have foolishly borrowed the idea of the "meme" which portrays ideas as mind-infecting viruses. This is not established psychology but speculative opinion. It is counterproductive strategy to use dubious or controversial psychological notions as explanatory tools in a supposedly serious essay in history.

Buchhorn's opening does no logical work in the argumentation. It simply adds to the burden of the author's accountability. I know the meme idea has the imprimatur of a certain Oxford biologist, a Skeptics' hero, who also tells wild stories about Selfish Genes swinging through the trees, but it is best left out.

The opening of an argument is important. Waving a three dollar note is one way of getting attention but is not recommended. Before he writes history again I recommend that Buchhorn reads David Fischer's *Historians' Fallacies*. There is a copy in the Queensland State Library. The book is not perfect but is good enough to raise your alertness. There are a number of bent-spoon-grade blunders in Buchhorn's piece.

Argument has a logical form or anatomy. It sometimes pays to start at the rear of an argument and work back to see what the fellow ate for his intellectual lunch that gave him so much trouble. Towards the end of his text there are a number of propositions referring to Nazism. None of these logically entail anything at all about aboriginal cannibalism or supposed prejudices, colonial and contemporary, about that subject. They are irrelevant.

To make them appear relevant, there is a preceding bridge of propositions referring to the notorious anti-Semitic blood libel. The bridge is rickety because it rests on two arguments from authority which are incurably unsound. The first is the citing of unnamed "respected" Jewish authorities who "independently" uttered the same opinion. How does Buchhorn know that they acted independently of each other? Why do independence and eminence, vaguely attributed, give weight to his argument? If three unnamed creationists independently uttered the same statement, would Buchhorn readily cite them with approval? He tells us nothing about these fellows. For example, what is the state of their historical scholarship, or their grasp of the

social psychology of prejudice? Why should we believe them, unnamed, unspecified? Buchhorn's underlying theory is that if you want to ask about the blood libel, never mind the historical evidence, just ask any old Jew, and the less you know about him the better you can weigh his objectivity. I find it odd that a member of the Skeptics movement, which is forever slandering religious folk as superstitious and gullible, suddenly finds three of them to be inordinately rational. There must be a safer, circumscribed brand on the market that I have not appreciated. Given the penchant of Australian Jewish leaders for rationalising the behaviour of colonial Israel goose-stepping all over Palestinian land we should be asking about their moral credentials too.

The second shaky pylon of Buchhorn's bridge really takes the breath away with its disdain for the reader's intelligence. Buchhorn cites a consensus of three former Labor prime ministers as proof that he knows what he is talking about. His theory is that if three eminent socialist politicians agree then they are onto something. You can ask them about Nazi history, the mass of Jupiter or genital warts, and providing they agree, you, dear scholar, are home and hosed.

I have read many texts in philosophy journals in the last 30 years, a good few about logic and truth. Not a single philosopher or logician has discovered Buchhorn's criterion of truth: a socialist consensus between an abusive pig farmer, a weepy adulterer and a statuesque loser. Did the reader notice that Buchhorn's authorities speak to him not directly like God to Jim Jones, but via the holy scripture of the mass media, that cess pit of mischievous inaccuracy and pop sociology?

Moving back into the anatomy of the text, we arrive at the mouth, and it really has scientific teeth, perhaps politically stained, but still recognisable teeth. Buchhorn quotes the anthropologist Pickering as a scientific authority. Out of respect for the timid reader's sensitivity to being drawn into scientific controversy, he fails at that point to mention Ron Brunton as a contrary scientific authority. We wouldn't want the Skeptics, that herd of open minds, thinking for themselves and weighing the pros and cons, would we? They enjoy doubt, can't get enough of it. When scientific experts disagree the Skeptics go into ecstasies of doubt, so do not disappoint them.

As Buchhorn likes denigrating the motives of those who believe that some Aborigines were cannibals, let us turn the tables on him. Are the scientific statements of Pickering in any way influenced by the possibility that if he says rude things about Aborigines ("your ancestors were a bunch of bloody cannibals") then vengeful tribal elders will not allow him back on their reservations to study their tribal mores, such as lying to us white fellahs in the Hindmarsh Island affair? No group likes a whistle blower, as an American psychologist studying homosexuals recently found to his cost.

Do Aboriginal leaders influence anthropological sci-

ence? Is it true that Aborigines influence field anthropologists so that the latter can get up in public or in court as scientific witnesses, recycling as expertise what they have been deceptively told? Is Pickering as independent as Brunton or "Dick's Three Wise Jews"?

Moving back further in the argument, we reach high intellect. Buchhorn quotes the eminent scholar Gilbert Murray. Here at last we have someone that commands intellectual respect, but the author throws him away. The Murray quote is intended to support the preceding generalisation, "the role of such myths in justifying the process and brutality of colonisation has long been recognised" (my emphasis). But a single case cannot logically support a generalisation of this scope. It just as readily supports, if it supports anything at all, the contradicting generalisation "... has hardly been recognised, with only a few cases of such supposed recognition".

Essentially Buchhorn's generalisation is dogmatic. It would take a lengthy text to demonstrate it because of its scope, but the author expects us to accept it as true on his authority and that of the lonely Murray quote which has as evidence no probative weight or direction. The reader is also left dangling as to the factual merit of the Murray quote. He was not always right.

In any case, you need strongly augmenting argumentation to carry the claim that colonists used prejudices and myths to rationalise their takeover. The hypothesis is worth checking, but wouldn't it be better to test it in a modern form by investigating, say, the behaviour of Javanese colonists in West Irian or Buchhorn's anonymous Jewish friends on the West Bank? Why stuff around in old history fatuously quoting this and that irrelevant authority?

In the section titled "An awful resonance" Buchhorn tries to insinuate a resemblance between Hanson's opinions and the ancient blood libel against Jews, and also a resemblance between a Nazi picture and a picture of supposed Aboriginal cannibalism. The relationships are not logically demonstrated. The word "resonate" in normal and scientific use has a defining causal sense to it. For example, we talk of echoes resounding. Buchhorn or his journalistic source has cleverly borrowed the word for metaphorical use, smuggling the insinuation of causality into a new context, namely historical prejudice and slander. This verbal sleight of hand is an empty substitute for the hard scholarship of proving a similarity between the circumstances of the blood libel and the circumstances of Hanson's opinions, and the circumstances of the Nazi picture and those of the televised "Cape of Dreams" scene.

The rule for analysing analogies is that you not only look at the similarities, which may be suggestive and vivid, but at the dissimilarities which may be less noticeable but factually important nevertheless. In my opinion the reason for this requirement is that perceiving analogies can be prone to salience and recency biases. Reasoning about cause and effect via analogy might also be prone to *post hoc ergo propter hoc* fallacies generated by the underlying inductive heuristic of representativeness. You have to understand where the analogy starts and where it should stop. In Buchhorn's examples, where it should stop is not only a matter of logic and fact but also a matter of fairness to the people

he is criticising. The reader should examine the Nazi case and the televised scene and their contexts of causes and effects, and decide if the later really resonates the earlier. Or are the dissimilarities, perhaps the respective motives, more important? As for the author, he can continue with his mass-media fed suggestibility but let us not call it good historical or psychological explanation.

We now come to the main issue. Some years ago I told Buchhorn that while I was a public servant I had access to a file that dealt with an Aboriginal murder and cannibalism case in Queensland in the nineteen forties. Buchhorn visibly paled at the suggestion that cannibals were on the loose at a time when he was a babe sucking at his mother's breast. Buchhorn said he would check the claim out. I asked him several years later (I gave him a lot of time) about investigating the record and he replied "aw, shucks no".

The file was confidential so beyond referring to it in general terms I cannot say much, but somewhere there are police and court records that might confirm my claim. I must stress that if this incident occurred then it is not necessarily some awful resonance of earlier practices. The culprits may well have got the idea from a Tarzan movie or from reading a field anthropologist's misleading ethnograph. Buchhorn cannot of course afford to investigate my claim as it might put his one-man industry out of business. Who, out of all citizens, has kept the pot of alleged cannibalism simmering in this country, and why? His piece is titled "Cannibalism Lives". Of course it only lives in the imagination of this local Toynbee out to defend the methylated bora rings of Aboriginal respectability. Hanson and her kind seem to have fallen silent on the issue but our resident scholar is still at it.

A word on prejudice. If a prejudice does not lead someone to an error in the conclusion of their reasoning then the charge of prejudice, in context, is irrelevant. This rule seems obvious but it is easily overlooked. Buchhorn has not demonstrated the existence of racial prejudice in colonists nor in the case of Hanson, let alone demonstrated that it has led to a misattribution of cannibalism. He has not even defined "racial prejudice" or "racism" so we cannot see if he even knows what to look for. People bandy these words about as political shibboleths.

Unfortunately we have a culture where the accusation of prejudice is used to silence critics of sacred cows and pet theories. It is a typical ploy of left wing intellectuals who are not content to show, if they can, rival beliefs to be false. They also like to "explain away" those beliefs as "bourgeois, reactionary, fascist, prejudiced" and so forth. Comparing the candid Hanson with scurrilous mediaeval micks and Nazi propagandists is one way of discrediting her. Doing it with half-baked analogies between past and present does not credit Buchhorn either.

I would also like to question Buchhorn's moral posturing. So he is opposed to prejudice is he? Two years ago a visitor to our Brisbane Skeptics' venue socially introduced herself by announcing how she hated creationists. What a clanger. Buchhorn did not reproach her but if she had announced that she hated Jews or Aborigines he would have objected. Critical thinking

requires an even-handedness in dealing with prejudice. No favouritism.

He also wrings his hands over "anecdotal evidence". At the January meeting the Brisbane Skeptics had a lively guest speaker who repeatedly supported her views with personal anecdotes. The appreciative audience added their own at question time. He raised no objection when the evening air was thick with "baseless anecdotes". In deference to Buchhorn's intellectual niceties I must remember not to tell him my family anecdote of a relative, a nurse, suffering at the hands of the Japanese army in Sumatra. It is merely a story in a colonial setting (Dutch) so it is immediately suspect. No one can verify the story now, so according to Buchhorn's logic it must be the sort of tale us white racists would invent about nasty Nips.

Finally we come to a false assumption that underlies Buchhorn's article. He believes that if a belief in a proposition has distasteful effects then that proposition must be false. Belief in Aboriginal cannibalism would have harmful effects according to him (although he does not demonstrate it), therefore the proposition "some Aborigines were cannibals" must be false. Worse, the people who believe such things are always prejudiced, never merely mistaken, and in other times would have been mediaeval anti-Semites or Nazi troopers. Now there's a counterfactual conditional that cannot be demonstrated. You see a similar ploy used by gay activists. You must not criticise them because that might have the effect of inducing violence and prejudice against them. That ploy, by the way, hides an unpalatable truth: in the USA in-group violence amongst gays is more common than "poofter bashing" by straights.

Overall I don't think that Buchhorn's article qualifies as strong critical thinking. On the other hand it is good to see him questioning popular claims before an audience of Skeptics who are addicted to doubt and can't get enough of it.

**John Snowden
Tarragindi QLD**

... Maps from p 59

on to adjudicate between Australia and Vietnam for *Javelle-Grande* he would surely agree with Matthew Flinders that Australia, on present knowledge, is the simplest solution until disproved. Richardson's arguments have not done this.

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**Alistair Tweeddale
Camberwell VIC**

Eternal Life

Ben Morphett

There are a great many people who spend a lot of time considering their eternal fate, especially with regard to appeasing the various gods and deities.

Many readers of this august publication will take a skeptical view of the matter, considering that it is all unverifiable, unfalsifiable, and thus wide open to reasonable doubt. However I have discovered a curious mathematical proof of some relevance to the question. It sheds some light on the nature of eternal life, and there might be some far-reaching theological consequences of this proof. It proceeds from the empirical study I have done of people's perception of the flow of time. This is a systematising of the frequently remarked notion that as you get older, the days and weeks and months go faster, until at the end, it all passes in the blink of an eye.

The results can be summarized in a simple differential equation:

$$ds/dt = k/t$$

(1) where s = perceived rate of passing time
 t = actual rate of passing time, (relative to ones Lorenz frame, of course)

k = an empirically derived constant.

Integrating, we find

$$s = k \ln(t_2/t_1)$$

(2) So we have a formula for arriving at a person's perceived elapsed time between 2 events at actual time t_1 and t_2 .

As may be expected, it is relative to the life span of the observer, and as you get older, you need more actual elapsed time to give the same perceived elapsed time.

The interesting point occurs when you consider the total perceived life span of someone of actual age T , which is:

$$s(0, T) = k \ln (T/0)$$

(3) which is infinite.

That is, whatever our age, we have all *already* experienced eternal life. The trouble with this, is that the first infinity years of our perceived life span took place in the first few seconds of actual time, as we were being born (or conceived?). Further, most of us have forgotten the first few seconds of our lives. (Perhaps it is well that this is so - they were quite stressful!)

What we have here is the matter being brought into the realm of empirical observation and a solid mathematical foundation for the first time. So we can conclude: we have all already experienced eternal life, but we have mostly forgotten about it. This brings into question the theological assertion that we will experience eternal life after we die (which, after all, is just after a period in our lives when perceived flow of time is slowest of all) and counters it with the possibility that we experience eternal life as we are born.

Sound of a tongue being extracted from a cheek. 🗿

Canowindra, the Skeptics and the wondrously witty Willises

Grant Stevenson

A two bob tale (one a Dr) of three Dicks, a Bazza, and a pair of apostles (Peter and Paul – the later so ecclesiastically minded as to bring his own Abbie!), Skeptics and miscreants all: granted a case of brown fossil fish, but caught in an eddie by a hunter fostering a martingale! Or Drawing a Lead to water and watching him head for the Red.

What are the Skeptics all about? What is it that we aim to do - in so far as we, as a semi-organised group, aim to do anything at all?

One of the most interesting and, I think, useful answers I have heard is that the Skeptics are a media lobby group. Borrowing from another context, I read this as a “leaven in the lump” statement:

- The kingdom of heaven is like unto leaven, which a woman took, and hid in three measures of meal, til the whole was leavened” Mt. 13.33; Also Lk. 13.20-21;
- Know ye not that a little leaven leaveneth the whole lump?” 1 Cor. 5.6; Also Gal. 5.9

Christians groups regularly use the idea of leaven in a positive and didactic way, and as justification for their action in the community – by the example of our lives we are spreading the Gospel message. (It’s a shame that the notion is often used as an excuse (or apology) for lack of action, but the principal remains!)

For skeptical purposes I paraphrase the idea as “Critical thinking is like yeast - as a small amount of yeast leavens the whole lump of dough – the demonstration of a small amount of critical thinking promotes a higher level of skepticism in the wider community.” Unfortunately, like the Christian groups, it is easier to use the concept as a excuse than as a programme for action.

Of the five stated “aims” of the Australian Skeptics, only two are, properly speaking, aims. These are:

- To stimulate inquiry and the quest for truth; and

- To encourage Australians and the Australian news media to adopt a critical attitude towards paranormal claims and to understand that ... to entertain a hypothesis does not constitute ... proof of that hypothesis.

(Of the other “aims”, two deal with (some of) the means by which we might pursue the above aims: to investigate pseudoscientific claims etc, and to publicise the results of such investigations. The fifth, to accept good evidence only, is a statement of methodology, not an aim.)

Like quiescent Christians, we might wait around, promoting critical thinking (in what at times appears a mire of muddle mindedness) by the example of our clarity of thinking and witty turn of phrase, or we might get out there and proselytise like mad! (a homeopathic image comes to mind – give the brew a damn good shake! - but to continue with the bread-making analogy, a thorough kneading, is more appropriate!)

In practical terms this looks like “go forth my boy, and lobby the media!” But it ain’t so easy! Everyone with an opinion wants to get their head on the Teev or voice on the radio! How do we approach the media in such a way that our message is interesting and useful to them, so that it in turn gets to their audience?

This was the subject of a Media training weekend lead by Paul and Abbie Willis on the 19th and 20th August.

And so it came to pass that fourteen Skeptics ((St.) Peter Bowditch; Alynda Brown; (Tricky Dick) Richard Cadena; Trevor Case; Laurie Eddie; Michelle Foster; Richard Gordon; (Stormy) Martin Hadley; Jenny Hunter; Richard Lead; Bob Nixon; (Dr Bob) Steve Roberts; Grant Stevenson; Barry Williams) descended upon Poppy’s Guesthouse in the unsuspecting central NSW town of Canowindra.

Canowindra (“ka-noun-dra” - to confuse foreigners and tourists like

me!) is one of those absolutely lovely towns upon which the encrusted patina of its past still heavily lies. But, as so often, it is a bitter sweetness – a once thriving rural community that is now, if not comatose, at very least, sleeping very deeply - its very preservation the result of the world passing it by. The chance discovery of one world’s great fossil beds close by has scarcely changed this. Balloon joy flights seem to be one of the main industries now; a troop of Skeptics (Australian who?) something of a novelty and a causing something of a blip in the takings of the Royal Hotel!

So how do we increase our media presence? Much becomes clear when one recalls that most of the media exists to entertain. Commercial media sell a product (air time) to advertisers and although one of the reasons people may watch, listen to or read such media is for information, the bottom line often remains entertainment. Serious broadcasters and publishers may have a defined educative and informative role, but even here, the need to be entertaining must be borne in mind. The point, therefore, is not how can the media serve us, but how can we serve the media! (- so that they in turn help us to get our story out!)

As well as the nitty gritty of Media releases; interviewing techniques; and mysteries of “the sound byte”, the weekend opened many other avenues by which we might serve the media better – creating an agendum for action rather than providing quick fix solutions. Key tasks that emerged included the establishment of a National Skeptics Media Strategy (including a co-ordinated approach to media releases), creation and maintenance of a Media Contacts List (something my committee have been nagging me about for ages!) and a Guide to the Expertise of the Australian Skeptics and its members.

Acta Sceptica Victoriana

Grant Stevenson

It's interesting how events "come together" – those small, inexplicable coincidences. The more credulous among us see meaning in them – someone or something is trying to tell me something.

Finding and creating patterns and connecting events seems to be a fundamental part of being human; our propensity for "finding" connections where none exist - a small price for such a marvellous ability!

Were I of a more credulous disposition, the events of the last weeks might have persuaded me to see such connections too. Everywhere I (seemed) to turn, "Immunisation" has jumped up at me. Is there a message here? Not really! It's a pretty normal topic for a Skeptic and the parent of young children.

The point? My life and my interests "put me in the way" of discussions about certain subjects - just as the interests of us all "put us in the way" of certain types of events. Unless we are aware of this (factoring in our love of patterns), is it any wonder, when these events "happen" upon us, that so many people suddenly see all sorts of mysterious meanings!

Dr Steve Bassar on anti-immunisation

The call took me by surprise. "I'm calling to tell you why I'm **not** coming to Dr Steve Bassar's talk on Immunisation. The benefits are unquestioned, the battle won!" Wow! The caller's eyes would have popped out of his head!

Misrepresentation, half-truths and lies are stock in trade for the anti-immunisation campaigners.

These were the subject of Steve's address to the Vic. Sceptics third Dallas Brooks Hall Dinner on 28 June. Never let the plain facts stand in the way of a deeply entrenched doctrine! Along with every parent trying to weigh up the pros and cons in the so-called immunisation debate, there's at least one Skeptic who needed to hear this talk!

My dismay at the plain misrepresentation of the anti-immunisation crowd came on top of the gross indifference that appears to exist at an official level to immunisation - see the separate story elsewhere in this issue. I suspect that, for all the harm the nutters can do, indifference remains the greatest enemy to our children's wellbeing!

Vic Sceptics Science Symposium

Any illusions I might have had that the popular media's reporting of science would redress this sort of problem were soundly beaten down by Graeme O'Neill's, Vic Sceptics Symposium address – a sobering exposition of the realities behind much "science" reporting – ill informed, poorly resourced journalists; editorial "fringe" agenda; marketing imperatives (controversy sells).

There is some hope, but as speaker Paul Willis advised, the quality of science reporting from even the quality media is demand driven. Fortunately (for us), the media listen to our (the buyers') views. We are, after all, their customers. Supporting science reporting with feedback and comment (good and bad) is the best way of ensuring that the media take science seriously.

And making science presentation

engaging, for even the most difficult of audiences (like High School kids) need not be hard. The Vic Committee's own well-perforated Dave Davies (custodian of the Bed of Nails) showed us how.

A "Sappy" tale at Dallas Brooks Hall on 27 September

You have to love and hate acronyms! NORAD, NATO, ANZAC, PUS! PUS? What's PUS? We're not talking about the yellow-white stuff inside pimples are we?

Well no! Although ... considering Dr Andi Horvath's views about PUS (in this instance we mean "The Public Understanding of Science") we might as well be! Andi reckons that the fixation scientists, science educators and scientophiles in general have with PUS not only misses the point ... like its namesake, it's on the nose!

SAP, she believes, (Scientists' Awareness of the Public) is much more to the point, and, as sap is the lifeblood of the tree, so SAP must be central to our approach if science and science understanding is to flourish.

Dr Andrea Horvath (better known to Melbourne 3RRR listeners as "Dr Andi" of *Einstein-au-go-go*) is Manager of the Human Mind and Body Program at the Museum of Victoria and will be the speaker at the third Dallas Brooks Hall Dinner at 7.00pm on Wednesday 27th September 2000.

As usual, bookings are required for what promises to be a sticky (!) but captivating evening. \$40.00 covers a two course dinner and all non-alcoholic drinks. Email or Phone 1800 666 996 by Friday 22nd September.



...Canowindra from previous page

And as good a run as we generally receive from the media, we still have to deal with some negative perceptions: including that of being a bunch of middle aged men with beards! There's a bit of navel gazing still to do on this! (but the navel of one of those middle aged bearded types is not my first choice!) [You leave my navel out of this, Mr

Stevenson. Architecture not good enough for you, now you want to be a philosopher? Ed]

In all it was a most enlightening and fulfilling weekend – one that all participants agreed should be followed up with a further get together early next year – possibly in March. But one deep mystery remains. What was it that the Victorian Presi-

dent saw in Belubela River? Was it, as he claims, a Platypus, or as other more clear thinking observers suggest – the distal extremity of a tail flute or flipper of the Monster from the Belubela Lagoon? [Or even the pate of a pink pachyderm, courtesy of a surfeit of roseate beverages? Ed]



Philosophy of science

Lawrence Trevanion appears to be under the impression that not only he is some sort of master stylist, but that he is knowledgeable about philosophy. I will leave others to judge of his prose style, but I can assure him that the latter is not the case. There is little point in me replying in any detail to his recent efforts; in fact, his article on postmodernism in a recent issue of *the Skeptic* - the reference of which I fear to give, in case it results in lawsuits from readers against me for mental cruelty - seems to have been written in a state of delirium.

But a few points need to be made in response to his letter in the last issue (20:2). As far as I can make out, he is saying here that Hume's argument against induction was only intended to show that we cannot gain certainty in empirical matters. As anyone with even the most crude acquaintance with Hume's arguments for inductive skepticism, or with philosophy of science in general, will realise, this is simply not true. Hume was claiming (at least in his earlier work; later on, happily, he seemed to have given up on inductive skepticism) much more than this - he was claiming that no (universal) empirical statement can even be said to be probable. That is the controversial claim that excited the interest of certain types of twentieth-century philosophers, such as Popper. That is what Stove takes issue with. If Trevanion was right about Hume, though, Stove's argument with Hume would be entirely futile, as Hume would believe just what Stove believed. And if Trevanion was right, Popper's invocation of Hume would be a mistake so bad that not even Popper could possibly make it.

Trevanion is also under the impression that relativism is 'the view that there are no absolutes' (okay, okay, here's the reference: 19:2, p.54). What this means is hardly clear, but if it just means that we cannot gain certainty, it is not relativism (nor even anything particularly controversial). Relativism is rather the view that there is no objective truth, and that what is true for one person/society/species may not be true for another. By this, relativists do not just mean that what is believed to be true by different people or societies may vary, for that is a harmless

Letters are welcomed from contributors who wish to comment on articles that have appeared in the Skeptic or on any matters that might be of interest to other Skeptics.

We reserve the right to edit contributions for the sake of brevity, clarity or mere whim.

triviality. They mean, rather, that there is no truth over and above these beliefs.

It is hardly surprising that Trevanion makes such a mistake, though, given that he boasts that he cannot be bothered to read the source article in the debate (see 19:2, p.54). Not so bothered, though, that he couldn't find the time to write some 5000-odd words (emphasis on the 'odd' here) of his own. Trevanion's 'argument' in his recent letter consists mainly of a constant reference to the distinctions between 'Truth' and 'truth', and 'Certainty' and 'certainty', distinctions he unfortunately neglects to explain. (The reader will forgive me for neglecting to explain the difference between 'Rubbish' and 'rubbish'). Not that I desire he attempt any explanation in print; indeed, I have no greater wish than for the world to be spared any more of his febrile divagations. I commend to him, though, Kenneth Tynan's article 'Punctuation as an Aid to Loose Thinking', especially point 10: "The Capital Letter. Old friends are best: this still comes in handy for the writer wishing to imply enormous respect for certain jumbo-size abstractions (eg. Death, Nation, Dark Gods), which he would prefer not to define".

**Scott Campbell,
School of Philosophy
University of New South Wales**

Lies, damn lies and lie detectors

May I add a psychiatric comment to Ben Clarke's interesting paper (20:2) on polygraphs or "lie detectors" as they are popularly known?

Basically these machines measure the body's physical reactions to anxiety. For example minimal sweating, which is invisible, but sufficient to reduce the skin's resistance to a small current will move the meter needle. The problem is that psychopaths, who form a large part of the criminal population, do not have a stress reaction when they lie. This is because they do not suffer the pangs of conscience. They have no guilt, no fear, no anxiety. They can lie easily, with a clear conscience, and thus fool the machine.

On the other hand, a person suffering from an anxiety state will sweat readily under the stress of this examination. And anyone with a depressive state will fail the test because of the feelings of guilt and self-criticism in this condition. Thus the machine will find the guilty psychopathic liar innocent, and the innocent anxious or depressed subject guilty.

So I am glad to note Clarke's final comment that Australian courts will continue to rely on the jury rather than the polygraph.

**Sydney Bockner
Adelaide SA**

Genome project

One wonders at world leaders casting the latest scientific triumph, the mapping of the human genome, in the glow of a story from the Old Testament. It is doubtful that they understand that they and the people who did and didn't vote for them are a passing form of ape. It is easy to see why these leaders think scientists must not play God (particularly the Old Testament version). But what scientist would want to play God and have people argue endlessly over whether they exist or have done anything?

Scientists do have an obligation to do something. Their responsibility is not to any particular form in biology but to biology itself - its balance, its preservation and its increasing diversity.

If scientists ever master genomics, and it is by no means certain they will, then they must dare to enter a new phase of evolution: where an organism can foresee what changes it needs to make and then make them. This strategy will depend partly on the

quality of foresight, but it promises to be much more successful than natural selection.

Who would not re-design humans if they could? A high priority would be to alter the absurd, painful and dangerous fight between hips and head, which we know as birthing.

In the mean time, let us make informed compassionate decisions and not leave it just to belief, fashion and money.

**Lawrence Trevanion
Kaleen ACT**

Sex, gender and the like

I think it's a male thing. I don't write to praise the vast majority of articles in *the Skeptic* that I approve of and enjoy, but leap to the keyboard when something annoys. Sydney Bockner's assertion "You can't change your sex" (20:2) annoys. The thesis is that a "sex change" is impossible. The argument goes that you can't change the combination of X and Y chromosomes you inherit, so you can't really change sex. When people "change sex" they really change gender role.

I think I am annoyed because the article expresses not so much skepticism as fundamentalism -- genetic fundamentalism. As it is written in the genes, so it must therefore be. The genotype of an organism is its genetic code. Its phenotype is the actual organism, how the genotype has been expressed. Not all genes get expressed. The genotype is not a blueprint for the construction of a phenotype. It is a program which will control development of the phenotype within whatever environment it finds itself. Programs are fun things. Very subtle changes can lead to very big changes in their behaviour.

The X/Y chromosome method of sex determination is not universal. Crocodiles have their gender determined by the temperature of their incubation. This is an example of how the environment can alter the execution of the program. Counting chromosomes is a very crude way to assess the meaning of such a complicated program as a human's genotype. The chromosomal definition of sex (XX = female, XY = male) is not a perfect predictor of the gender of the person. It is the gender of the person that is all important.

Genotypes can not be happy, sad, fulfilled or have their desires thwarted. If a person's brain has a gender that doesn't correlate with her/his ugly bits, hormones and surgery can help improve his/her prospects for happiness. You can't change the genotype, but you can change the external phenotype. In doing so, you can even make things better for people in a real and practical sense.

Arguing the toss of a chromosome is irrelevant.

**Andrew Rock
Upper Mount Gravatt Qld**

Financial "wizardry"

I had a discussion recently with a retired relative who was giving advice to a younger relative (age 19) on investment, and the advice seemed to be that he should consult a particular consultant, who is 'an absolute financial whizz'.

His services to her had included putting her on to an investment in which she had placed \$80,000 some seven years ago. Their fee had been \$6000. Each year since then, the investment had returned \$5000. Its capital value was now worth, as she revealed with fanfare, \$81,000. That's more than the original sum!

My reaction was to say, 'but that's only 6.25% pa'. And I observed that there are probably better returning investments, even among the 'secure enough for a retiree' category. I was howled at, but she couldn't fault my arithmetic.

To cut a long story short, she made a few more points: The fee had reduced the investment to only \$74000, so the return was actually better than 6.25%. Also, this investment is 'DSS-friendly' - it doesn't affect her Age Pension (of limited use to a 19-year old!). And anyway, he's 'an absolute financial whizz'.

I tried gently to get to the bottom of this DSS-friendly business, but without much success. I suspect that a lot of the vehicles by which one can retain one's entitlement to an Age Pension rely on just plain fraud, but I really don't know. I am aware that a return of capital doesn't affect pension entitlement, but she didn't grasp the notion and especially didn't appreciate

that return of capital can't go on forever.

Further, an entrance fee of 7.5% seems to me to be on the high side. Still, after that fee, I guess they are earning her around 7.5% pa, which is better than 6.25% pa. But it's a strange logic to credit a business with earning back the money you paid them in the first place.

The real points of all this are two. Firstly, the 'absolute financial whizz'. Arithmetic seems irrelevant, as does any kind of investigation of the real nature of the investment. She seems to be convinced that this adviser knows all and that all she needs to do is abdicate all decision-making to him, and whatever he says must be good. It seems a good Skeptical point to make that self-described experts may not be all they seem. The second point is that finance and, in particular, superannuation, are very complicated. This isn't of itself a matter for the Skeptics, but it does open the way for charlatans, or (as is probably the case for my relative) honest but underperforming advisers who are good at self-promotion.

**Daryl Colquhoun
Canterbury NSW**

Richard Lead thunders:

Thanks Daryl. Believe it or not, it is legally possible for multi-millionaires to receive a Centrelink age-based pension. All they need do is contribute the bulk of their money to a superannuation fund, and subsequently draw down a lifetime complying annuity from that fund. You would need rocks in your head to do this, but the prospect of free money from Centrelink is a powerful lure for otherwise rational people.

So it sounds to me this is what your relative has done. The financial hot-shot charged \$6,000 to put her money into a public superannuation fund. And when she carks it, the money is lost forever and is kept by the trustee of the fund. I am not a betting man, but I have a bottle of domestic champagne which says the hot-shot adviser did not warn your relative of this.

For a cost representing a small fraction of her \$6,000 establishment fee, your relative could have established her own SMSF (Self-managed Superannuation Fund) and qualified for the same Centrelink age-based pension. And when she eventually decides to go and live with Jesus, the balance of her account will be available to her family. No invest-

ment funds will ever be lost. So the \$6,000 establishment fee is an insignificant part of the problem.

Daryl is correct - superannuation is very complex. And within this complexity, the Porsche-driving salesmen are doing quite nicely. The Australian insurance/superannuation industry is a fair target for the Australian Skeptics.

More millennial musings

I thought that discussions about the true ending/beginning of the millennium had ceased, but Alan Moskwa, in his letter "Another View" (20:2) has raised it again.

It is technically true that 31 December 1999 did not signify the passage of 2000 years from the birth of Christ - the historical accuracy or authenticity of which is irrelevant here. However, the reason for that lies in the fact that the year "zero" was not used when the corrections to the old Julian calendar were originally conducted, effectively making Christ one year old on the day he was born!! This means he was *entering* his tenth year when he turned ten, and should he be alive today in a mortal sense, then he would have to wait till the *end* of the year 2000 to reach that grand old age. (To my simplistic mind, it seems that this problem could easily be overcome by treating 1 BC as the missing zero and the start of the first millennium.)

However, I don't think this is Alan's point and therein, I believe, his logic slips. The hundred runs cricket analogy is not really a good one, as it does not compare like with like. However, if we stick with it for a moment, it can still be effective. If Alan were to enter the Adelaide Oval and see 100 against Steve Waugh's name, he would know that, indeed, Steve had completed yet another century. Steve would not have to complete another run to notch the hundred. Similarly, when 100 or 1000 clicks over on the calendar, the 100 or 1000 has already been achieved.

We really only have to look at our own birthdays. When a baby reaches his first birthday, he has completed one year of life and is entering his second year. As he reaches ten, he has completed ten years, and is entering his eleventh year. As he turns 100, he has completed 100 years and is starting his 101st year, and as the year 2000 clicks over on his desk calendar, he has completed 2000 years of glorious

living and is eagerly entering his 2001 year.

So, had our sixth century monk, Dionysius Exiguus, known about zeros, all this confusion would have been averted and we would now be in the year 1999 and just starting to oil our rifles and pack our provisions in preparation for the end of civilisation in a few months time.

(Incidentally, great address, Alan, I'll willingly concede the argument and throw in a large sum of money for an exchange of houses!!)

**Ross Brown
(Boring) Fisher ACT**

The immortal soul and religion

The obsolete concept of religion is often refuted on the grounds that there is no credible evidence for the existence of a God. But it is impossible to prove that there is no God when the proponents of that God don't actually claim that he intervenes in daily life in a way that is testable. How can you prove a God who does nothing doesn't exist?

However, I do believe that it's possible to prove that a human soul is a meaningless concept; and if there is no soul, then there is no afterlife (or reincarnation), so what purpose can religion serve? (Religion once was the only explanation for the existence of the Earth and life, but that is now fully within the realm of science.)

Suppose that we do have an immortal soul. Once it leaves the body, what would it be capable of?

Science has explained in great detail how our ears work in concert with our brains to allow us to perceive and interpret sounds. But our disembodied soul would have neither ears nor brain; it could not hear.

In the case of our eyes, science has demonstrated how light is focussed by the cornea and lens to form an image on the retina, and how the cone and rod cells of the retina detect the light, convert it into nerve impulses and transmit them to the brain. The brain then interprets the innumerable nerve impulses, uses our experiences to decipher the areas of differing light intensity in the images, examines the differences between the images coming from each eye, and produces 'a

picture in our heads' that is meaningful in terms of objects, movement, textures; things with which we are familiar. A soul of course, having no eyes, could not see. Very similar arguments can be made regarding the other senses: smell, taste, feel.

Scientists, partly from studying victims of stroke and brain injuries, and by other studies, have thoroughly demonstrated that memory is a function of our brain. Memories can be lost due to brain damage, they can be invoked by electrical stimulation of selected areas of the brain. A disembodied soul, then, could remember nothing.

Similarly, studies of victims of brain injuries have shown that damage to particular regions can have profound effects on personality and character. A person can become unrecognisable, by his/her behaviour, following serious brain damage, even when capable of otherwise living a normal life. Personality and character are therefore functions of our brains.

Thought is a more tenuous concept. I don't think that it is possible to point to one part of the brain and say that here is where we think. However, it is possible to demonstrate that components of thought are associated with areas of the brain; for example I believe that there is a small area named for Einstein, where higher mathematical thought processes take place. There is, I believe, sufficient evidence to indicate that, without a brain, a disembodied soul would be incapable of thought.

In summary, a soul would have no sensory input, no memories, and could not think; it would have no personality or character; a soul could not do anything that we would recognise as definitively human and would not carry anything recognisable from the human in which it originally resided. How then, given what science has shown us, could a soul carry the essential me?

Following a number of similar lines of evidence proves, I believe, by *reductio ad absurdum* that the concept of a soul is meaningless and achieves nothing. Using Ockham's Razor one discards concepts that are meaningless and achieve nothing. Ergo, there is no immortal soul. When my body dies, my memories die, my thought processes die, all of me dies.

I'd be interested in comments sent to my email address.

**David Clarke
Crystal Brook SA
daveclarkecb@yahoo.com**

Skeptical about Skepticism

This letter is not an affirmation that God exists. Nonetheless, it is difficult to persuade a logician of the truth of a negative, eg "There is no God". To show that God does not exist, it is first necessary to know of every item that does exist, and to ascertain by searching that God is not among these items.

Obvious exceptions to this line of thought are negatives which may be established with less than a universe of facts e.g. "in simple arithmetic, two plus two does not equal five". Given the definitions of integral numbers, by the use of the fingers of one hand, it can be shown that two plus two equals four. By definition, four does not equal five, or indeed any other number, hence the negative proposition is proved.

If the practice of Skepticism consists only of showing that a claimant has not established his claim, eg "water divining works", then it has an element of sterility. What if it is important to the claimant actually to find water? The present writer is skeptical about the effectiveness of water divining, but usually can find water with or without apparatus, on any large area of land with an extensive water table.

This illustration introduces the factor of emotion, which appears to cloud human judgment readily. Human need requires comfortable presuppositions to be true. If a Skeptic is emotional about his skepticism, perhaps because he is indignant at the apparent falsity of the believer's claims, his judgment may be no less confused, and his discussions of the issue in speech or writing no less emotive.

An added difficulty is the vested interest parties in a dispute have in winning. Few are capable of a calm dispassionate appraisal of the other person's facts evidence and reasoning, particularly if these are accompanied by nastiness or dishonesty.

The rules for establishing truth and reality are, therefore, as follows. Statements in support of a claim must be supported by objective evidence. The validity of evidence must be weighed dispassionately. Witnesses on whom we rely must agree. Witnesses whom we refute must prove unable to sustain their case against rigorous logic. Those who manage to follow these rules may come near the truth, or they may not. "May not" applies when

both sides fail of objectivity and rigour.

In this case, the best we can do is try to assign probability on the basis of the achievement of each proponent. This is subjective, since the analysis of most non-trivial matters quickly becomes confused. Showing up one's adversary as biased or foolish may create the illusion that we are right, and this may be what is most important to us, but the truth remains obscure.

What then may we conclude? Let us Skeptics be at all times objective, clear-thinking, conscious of the rules of evidence. Let our emotional well-being depend on our achievement in arriving at agreed probabilities rather than the satisfaction of seeming to establish a position. By all means debunk the claims of emotional illogical proponents of unprovable theories. But let our motivation be the desire to help them, not to humiliate them.

The writer is skeptical about skepticism because, like everyone else, he cannot finally avoid the difficulty of assembling all necessary evidence, of incomplete logic and of emotionally clouded thought. After he has done his best, he is less willing than most to reject what is supportive, comforting and encouraging to himself and others.

Ian McDowell
Holmesglen VIC

Quackery

As a subscriber to *the Skeptic*, I was pleased to have visited the quackattack website. When it comes to looking after our health and well-being, never let our search for a cure fall into the hands of lay practitioners or the health professionals that become quacks because of the new age garbage.

In regard to the article why do health professionals become quacks I would like to add a few more mythical factors that prove that it would be better if health professional improve within their field and that quacks and lay practitioners get re-educated with real science and seek help from real specialists when in doubt about anything.

There is no such thing as leaking gut syndrome. When a pharmacist-turned-naturopath mentioned it to me at one consultation I realised that I had better go to my local doctor instead. It

was simply a case of diarrhoea due to improper food combination and sometimes a virus. The naturopath used a fake diagnostic machine and later spiritual advice. My local doctor would never try such things.

The expense was too stressful that the naturopath has now lost a client.

Reflexology or reflex zone therapy has it's pitfalls. The Head of the International Institute of Reflexology ,USA, when I asked him how can you scientifically explain how this therapy works, answered that some things work but can't be explained. They just happen. With science many things can be explained. He can keep his ignorance and gullibility. Most of us don't need them.

Seasonal affective disorder. Does someone know a disorder better than the DSM-IV? Can this be that humans want to hibernate when the weather does not suit them? I think this is an excuse that someone wants to be sick and blames the weather.

"I can't explain it to you because you didn't study the subject". "The therapy will not work for you because you don't believe in it". These are two of the excuses that I heard from a quack and a lay practitioner that encourage any scientifically inclined person to stay away from them.

Beware of these three pseudo sciences diviniology, magicology and miracology. Whenever intentional ignorance is allowed to flourish, myths and misconceptions become too popular. You wouldn't take your health problems to quacks who invent obsessions.

I hope to receive some comment from my opinions in the future.

Julian Salciccia
West Brunswick VIC



Notice

Freecon 2200

As many Skeptics are also Science Fiction fans, we are happy to give a Blatant Plug to this free convention.

Skeptical Science Fiction fans are invited to attend FreeCon 2200, a day of Science Fiction and Fantasy at Bankstown on October 21, 2000.

If you read SF or Fantasy and want to meet other people with the same interest, then a Freecon may be for you. You don't need a costume or to buy an autograph; we meet to discuss the ideas behind SF&F irrespective of how it is presented (books, magazines, TV, movies, comics, live theatre or games) You won't find 'Sci Fi celebrities' at Freecons as we are not a fan club for any TV show or actor.

Further conventions will be held at North Ryde in December and at the Australian Museum in Feb/Mar 2001.

Details available from the web site:

<http://members.optushome.com.au/aussff/Freecon2.html>

or from:

Freecon Committee

C/- PO Box 2

Bexley North 2207



About our authors

Peter Barrett, president of Canberra Skeptics, works for the AFP in Canberra, so watch it.

Kathy Butler is a geneticist and a member (and former president) of the Victorian Skeptics committee. We'd like to mention that she is also the mother of two, but we avoid journalistic cliches like the plague.

Martin Caon is Senior Lecturer in Biophysical Science in the School of Nursing at Flinders University, SA.

Ken Gillman is a Senior Lecturer at the PsychoTropical Research Unit at James Cook University. (Does that mean he studies people who "go troppo?")

John Happs is an education consultant in Perth and is president of WA Skeptics. So far as we can ascertain he has never been a multi-millionaire, making him unique in his home state.

Rob Hardy practices psychiatric medicine in Louisiana, USA, and is a regular reviewer for *the Skeptic*. We think he's keeping a professional eye on us.

Peter Hiscock is an archaeologist at ANU, Canberra, where he finds much grist for his professional mill.

Paul Jewell is a philosopher at Adelaide University and is thus well placed to meditate on ethical dilemmas.

Colin Keay presides over the Hunter Region Skeptics, when he is not attending international astronomical conferences.

Richard Lead, treasurer of NSW Skeptics, is sick and tired of the puns we make about his name, so his density and malleability shall go unremarked here.

Ben Morphett is a software engineer from Sydney, which probably explains his fascination for obscure maths.

Mark Newbrook is a linguist and Rugby League fanatic, which must make him a lonely figure at Monash University.

Bob Nixon is chief investigator for the Skeptic and works for a large oil company. He denies that he is personally responsible for current petrol prices (but then he would, wouldn't he).

John O'Neill is a teacher from Melbourne. No wonder he has nocturnal visitations.

Shane Reeves is a geologist at Melbourne University. He claims to know Ian Plimer, but we have published him anyway.

Grant Stevenson, president of Victorian Skeptics, is an architect, and is often described as the Frank Lloyd Wright of Melbourne, but only by close members of his family.

Kirk Straughen is a clerical officer from Brisbane and is a regular contributor.

Sir Jim R Wallaby likes to think he has the figure of a Greek god. We think Bacchus is the model, but suspect he is Roman.

Barry Williams, boy editor and world traveller, looks forward to meeting many readers at the World Convention in November (unless he gets a gig as Santa in the meantime).



Are you a Skeptic?

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

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

*It conducts investigations and publicises the results.
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Clues

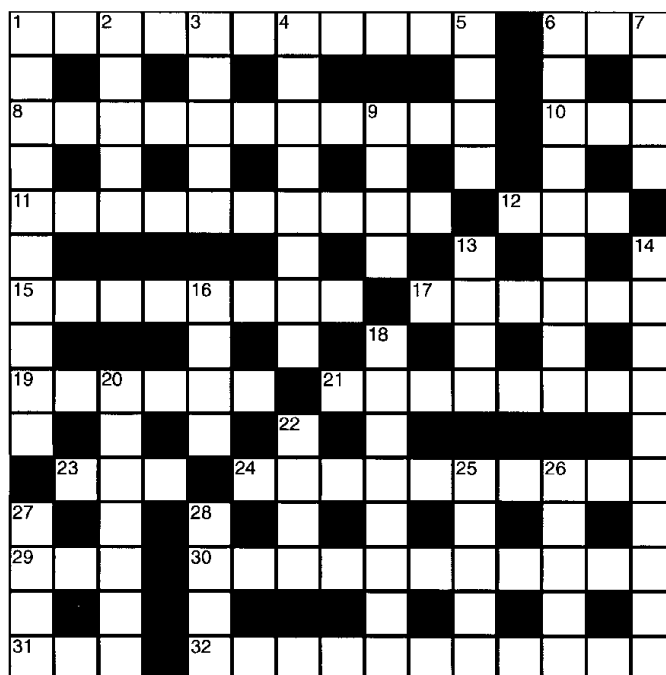
Across

- 1.&6. It's, like, a renewal, Leonardo baby. (11,3)
8. Educated Edward's inspiration in anticipation. (5,6)
10. Mind control will be established shortly. (1-1-1)
11. Putting the chopper into kin calms you down.(10)
12. Request found in a *Skeptic*. (3)
15. Yeah, stir her emotional state. (8)
17. Fancy breads worn by male Skeptics. (6)
19. Rubbish acquired at every birthday. (3,3)
21. Put Dad about the Old Man and to figure it out.(8)
23. Crows call to the boat (3)
24. Overcrowding costing one confusion. (10)
29. You - get out! Preferably in a flying saucer. (1-1-1)
30. Expediency requires a strong drink before promoting world government philosophy. (11)
31. Crazy Elk hides loot in Albania (3)
32. Japanese electronics co employs Cartland as a sorcerer? (11)

Down

1. Genderless 1A, in 2D? Come again? (10)
2. The birthplace of Seth Efrica? (5)
3. Tally in the blind experiment. (5)
4. Bubbly trips badly before Zag's mate, (8)
5. Call-back among the wise choices. (4)
6. Spinner will molest, mar and generally mix up.(8)
7. Internally threaded cranks? (4)
9. Mako goes into a frenzy. (4)
13. Net income in time share. (4)
14. Crazy moron rates this as a stellar career. (10)
16. Progenitors, for example Gilbert and Sullivan. (4)
18. Bounder makes orang A O K. (8)
20. Wizard provides military security. (7)
22. Ceremonial display in pompoms. (4)
25. Shrine of a ram in South Australia. (5)
26. Hippie has one fifty one in current account. (5)
- 27.&28. Too much light leads to a bum exposure of a celestial event? (4,4)

The Skeptic Cryptic Crossword No 8 - Spring 2000



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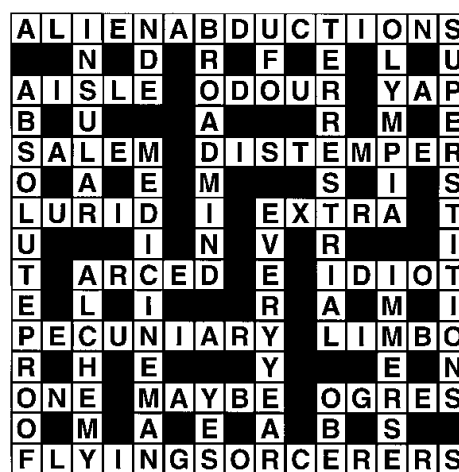
Entries will not be opened until November 1 and the first correct entry opened will be the winner. The prize will be a book by Richard Dawkins.

Enjoy this issue and we look forward to meeting many of our subscribers at the World Skeptics Convention.



Copy deadline for the next issue is November 1.

Solution to Crossword No 7



The winner of Skeptic Crossword No 7, and a copy of Richard Dawkins' *Climbing Mount Improbable* is Jack Whitton of Noosa Heads, Qld.

The Whelm Index continues to improve with each issue, and No 7 has been the best yet by a significant margin. Keep it up.