

the Skeptic

Volume 15, No 2

Winter, 1995

a journal of fact and opinion



Thinking critically
Seeking the evidence
Challenging the claims

CONTENTS

4	Notices
5	Australian Skeptics Trust
6	Meeting Notices
7	National Convention
11	News and Views
13	CSF Finds itself Innocent
14	Is there Anyone Out There?
17	The Power of Magic
20	Review: Fuzzy Logic
25	Why Creationists Don't go to Psychic Fairs
26	Natural Myths
30	Troubled Bridge Over SA Waters
31	Don Vaniken Exposed
33	Review: Earth in the Balance
35	Incorruptibility: Miracle or Myth
38	Forum: Paul Davies on Time
43	Alternative Medicine
44	Review: Sceptical Magazines
45	Review: Two Books Worth Noting
46	Forum: Aliens and Asteroids
52	Astronomical Scam Exposed
50	Review: The Bible Defended
53	Necromancing in the Dark
61	Letters
64	I Want to Know
65	Sceptics' Bulletin Board

Editorial

The establishment of the Australian Skeptics Science and Education Foundation (see page 5) marks an important new phase in the evolution of Australian Skeptics and of *the Skeptic*.

For almost fifteen years, we have fought against the proliferation of anti-scientific and anti-intellectual dogmas in our society, and a lonely battle it has often seemed. Now, through the generosity of the late Stanley David Whalley, we can extend our influence by encouraging a wider appreciation of the value of scepticism and the scientific view of the world.

But the purpose of the money held by the Trust is not merely to enlarge that group of organisations that comprise Australian Skeptics. It has, as one of its aims, the encouragement of science and education in a broader community context. After all, a substantial percentage of our population is firmly convinced that the Universe is only 6,000 years old or that the

stars control our destinies and that is hardly a healthy state in which a modern community should find itself.

In countering this, we rely on you, our readers and supporters, to generate ideas about how we can encourage a wider participation in our broad aims and a greater readership of *the Skeptic*.

We are confident that we can assure you that the Skeptic will show improvements in its production to match the continuing improvement in its content. We have a good thing going here and, with your help, we will make it even better.

Barry Williams

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Notice to Contributors

As a result of a legacy left to Australian Skeptics Inc, (see story page 5) we have purchased some new equipment for use in the production of *the Skeptic*, which will enable us to produce a more professional journal.

We can now accept articles and other contributions on either a 3.5-inch or a 5.25-inch disc (or is that 3.25 and 5.5?) in almost any format, but would prefer them in unformatted Text. You can e-mail to us at the address shown in the Masthead in the left -hand column; you can send them via the Skeptics BBS (as explained by Alynda Brown on page 65), or you can send us a clean typewritten or printed copy.

Most importantly, from the weary Editors' (and amateur typists') viewpoint, we have acquired a scanner which allows us to scan any typewritten (or printed) document into the system without the necessity of retyping the whole thing. The scanner has been tested on items produced on (from the appearance of the print) 1938 Olivetti Portables, (as used by foreign correspondents in the sort of monochrome movies favoured by Bill Collins) and has come through with flying colours. Dot matrix printed documents cause a problem, but again, a little editing and they are ready to load onto the page. Ain't technology wonderful?

Handwritten items are still OK, as long as they aren't (long, that is).

We are also keen to publish photographs of items of interest to Skeptics - the UFO that landed in your back yard; you levitating over the Opera House; the ghost that haunts your house - that sort of thing.

Deadlines

As we have mentioned before, but will reiterate, the Skeptic has publication dates of **March, June, September and December**.

Our intention has always been to ensure that the magazine gets to most of the readers by the 1st of each of those months, or at least during the first week. Ideally, we would like to have your contributions by the 1st of the preceding month, with an absolute deadline of the **15th**.

Of course, we would like to receive your contributions throughout the entire three months after you receive this issue, but we are realists here at Skeptic Central. Usually, by the first deadline we have seven pages from contributors, so Harry and Barry fire up their computers, search for believable *noms de plume* and try to fill up the blank pages. Fortunately, we rarely have to use these last minute constructions (Harry's piece on why relativity doesn't work, under the name Alfred Einstein, is a gem whose lustre may never see the light of day, while Barry's theological ravings, ostensible from John Phil II, have to be seen to be believed),

And to you, our contributors and readers, we must express our thanks for all your contributions in the past and urge you to keep up the good work. Whether you be professional or enthusiastic amateur, the level of comment on a wide range of topics has, for the past several years, been outstanding.

We produce one of the best sceptical magazines in the world and the credit must go to our contributors, collectively among the most knowledgeable groups extant.

**Editors: Barry Williams
 Harry Edwards**

**Subscription:
 1995 - \$25.00 pa**

the Skeptic is a journal of fact and opinion, published four times per year by Australian Skeptics Inc.

Views expressed in articles and letters are those of the authors and are not necessarily those of Australian Skeptics Inc.

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NEWS

Australian Skeptics Inc Establish Scientific and Educational Trust

On December 6, 1994, Mr Stanley David Whalley, of Nambour, Queensland, died shortly before his 77th birthday. In his last will and testament, after making provisions for friends and relatives, he bequeathed the residue of his estate, consisting of a substantial share portfolio, to Australian Skeptics Inc.

On receiving notification of this bequest, we attempted to ascertain some facts about Mr Whalley and the reasons why he considered Australian Skeptics to be a worthy beneficiary. We have not yet discovered all the details of Mr Whalley, but we do know that he was from a pioneering family in the Nambour region, was largely self-educated, was an inventor, had a great interest in science, and subscribed to a number of scientific and medical journals. As far as we can tell, he was never a subscriber to *the Skeptic* but he had obviously heard of Australian Skeptics and approved of what we are trying to do.

According to friends to whom we have spoken, he was greatly troubled by the attempted introduction, by the Queensland Government of the time, of creation 'science' into the state's education system and by the proliferation of 'mystics' in our society. Shortly before his death, he informed a friend and neighbour that he would like to leave a "fair whack" of his estate to someone opposed to the teaching of creation 'science' and confided his interest to another friend in "...a group down in Sydney that is trying to stop the mystics". The neighbour, a retired teacher, sought out our details of Australian Skeptics Inc from the local library, confirmed that we were the group Mr Whalley referred to, whereupon Mr Whalley added our name to his will.

At the time of going to press, the full extent of the bequest is not known, but it is a considerable sum of money, consisting mainly of a large number of shares in a variety of companies. We hope to have a more complete story on Mr Stanley Whalley in the next issue.

To protect this bequest and to ensure that it would be put to the best use in countering creation 'science' and other irrational beliefs, the committee of Australian Skeptics Inc, after wide ranging discussions with Skeptics in other states and with other supporters with legal and financial skills, decided that the best interests of skepticism, critical thinking and promotion of the scientific view of the world would be served by the establishment of a trust. This has now been carried out and as a result, the Australian Skeptics Science and Education Foundation is now an established entity.

The Australian Skeptics Science and Education Foundation.

Five long-standing supporters of Australian Skeptics were elected as a board of trustees:

Mr Ian Bryce (engineer/scientist);

Mr Rafe Champion (writer);

Mr Harry Edwards (retired builder)

Dr Richard Gordon (medical practitioner)

Mr Peter Rodgers (bank officer).

At a meeting of the Trust on March 22, 1995, the trustees elected Harry Edwards as Chairman of the Board and Secretary, and Peter Rodgers as Treasurer.

Mr Paul Ward-Harvey (solicitor) will act as legal advisor, and Mr Robert O'Reilly (accountant) as auditor.

The board decided:

That the bequest be invested, and that part of the interest therefrom be distributed annually to the individual state Skeptics bodies on a *per capita* basis and that the remainder be distributed in the form of grants to applicant groups and individuals. The goals and money distribution as determined by the trustees are as follows:

Goals:

- (i) To financially assist the Australian Skeptics groups to promote their principal aims;
- (ii) To provide grants to encourage groups and individuals promoting critical thinking, science and education;
- (iii) To establish science and education scholarships;
- (iv) To invite applications for funding projects from Australian Skeptics groups.

Money distribution:

- (i) In the first year a minimum of ninety per cent (90%) of the bequest to be held in perpetual trust and invested. It is intended that generally the amount to be distributed in any one year shall not exceed the income of the trust. However, in extraordinary circumstances additional amounts may be spent, provided that at least ninety per cent (90%) of the capital at the beginning of each year be left untouched.
- (ii) Monies from the trust may be distributed as follows in amounts to be determined:
 - (a) on a *per capita* basis to Australian Skeptics groups;
 - (b) as grants to applicants pursuing similar objectives to Australian Skeptics;

(c) as grants for the establishment of science and education scholarships, and

(d) as grants for projects likely to promote interest in Australian Skeptics and its aims.

(iii) Applications from Australian Skeptics groups for grants in addition to that of a per capita grant shall also be considered by the Board of Trustees.

(iv) Trustees will only consider applications for grants accompanied by a detailed plan. Successful applicants shall, on completion of the project for which the grant was approved, render unto the Board of Trustees a statement detailing all relevant expenditure, periodically when required. In the event that the full allocation has not been used the difference shall be refunded to the Board of Trustees.

(v) In the event that the monies available for distribution are not fully taken up by the end of each year, the residue shall be reinvested as part of the capital fund.

The Trustees believe that by retaining and investing the major proportion of the legacy this will ensure for many years to come a regular income to promote the aims and objectives of Australian Skeptics.

The Australian Skeptics Science and Education Foundation, Australian Skeptics Inc and all the various state bodies are very grateful to the late Stanley David Whalley and will seek to put his generous bequest to the best use by promoting critical thinking and science education and in countering the tide of irrationalism that threatens our society. When our intentions were made known to one of the executors of Mr Whalley's estate, she expressed the view that she was sure that what we planned would have met with Mr Whalley's total approval.

Subscribers will notice that one of the benefits of this trust will be an improvement in the appearance of the Skeptic in future issues. At present, a proportion of the subscription fees have been needed to keep the organisation running. Now, with an independent source of revenue, more of the subscribers' funds will be available to improve production of the magazine. At the same time, we will endeavour to keep and increase the high standards of the items we present. Skeptics are invited to contact their state bodies with suggestions for projects that will best serve the purposes of the Trust.

Skeptics who are considering making provision in their will for the continuing work of the Trust, can contact them at:
 Australian Skeptics Science and Education Foundation,
PO Box 331
Newport Beach NSW 2106
Tel & Fax 9997 1327

Dr Susan Blackmore

Dr Susan Blackmore, Senior Lecturer in Psychology at the University of the West of England, executive member of CSICOP, researcher into the paranormal and the human mind and author of several books on the topic, will be a special guest at this year's National Convention in Melbourne.

After the Convention, she will make a number of appearances at meetings in other states.

Details are as follows:

South Australian Branch

Dinner

Skeptics' dinner with Dr Susan Blackmore

Thursday Evening June 15

Lecture

Dr Susan Blackmore will be speaking at

Horace Lamb Lecture Theatre, Adelaide University

8pm, Friday June 16

For further details phone :

(08) 277 6427 (by Monday 6th June)

Western Australian Branch

in association with

Curtin University Department of Psychology

Presents "The Scientific Investigation of Paranormal Claims"

An evening with Dr Susan Blackmore Curtin University Social Sciences Building (401) Room 245 7.30 pm, Monday, June 19

NSW Branch

Presents a public meeting with Dr Susan Blackmore
 "A Skeptic among the Psychics"

Manly Warringah Leagues Club Auditorium

563 Pitwater Rd

Brookvale

7.30 pm, Friday, June 23

For further details: Tel (02) 417 2071

Fax (02) 417 7930

The 1995 National Public Convention

Roland Seidel

For this year's convention we have a glittering array of intellectual illuminati and a fabulous venue. Our keynote speakers cover between them the universe without, the cosmos and alien life, and the universe within, the very nature of consciousness and identity. You will hear from people at the coalface of medical research on the amazing placebo effect, the illusions of chiropractic and the dangers of alternative cancer treatment. We have an extraordinary survivor and an equally extraordinary fighter of notorious cults. We have two scientists to talk about ignorance and folly: one looking at those outside science where folly has the excuse of ignorance; and one at those inside science where folly has no excuse. We even have two esteemed economists to debate the rationality of economic rationalism! All this in the historic splendour that is Melbourne University.

Let me introduce the speakers to whet your appetite.

Professor Paul Davies

A singular man who really needs no introduction but, just for the record, Paul Davies is Professor of Natural Philosophy at the University of Adelaide, a position created especially for him in May 1993. He is one of a handful of people in the world who can demonstrate a good command of modern physics and runs a research group in quantum gravity which is currently investigating superstrings, cosmic strings, higher-dimensional black holes, and quantum cosmology.

He likes to focus on the deep questions of existence and became notorious recently for his ideas about God in his book *The Mind of God*. He has published over 100 research papers in specialist journals, in the fields of cosmology, gravitation and quantum field theory, and has written more than 20 books. With other interests in contemporary and traditional art, history, politics and economics he is very much the Renaissance Man, although he is rubbish at chopping wood. His new book *Are We Alone?* will be the topic of his talk wherein he takes that necessary step beyond the question of whether aliens exist or not to consider the consequences of real detection. How would it change our views of the origin of life, of miracles, of religion, of our place in the universe? Which of the major religions will have the most difficulty accommodating the discovery? Why are we so interested?

It is exciting to find a commentator who can transcend the mundane questions that can never be more than an exchange of "tis" and "'tisn't" to address the consequences of the resolution of the mundane.

Dr Susan Blackmore

Now and again an individual emerges who manages to turn on a brilliant light in the gloom where we have long been groping. Hypatia, Charles Darwin, Einstein, Jimi Hendrix and Susan Blackmore! These are intellectual giants who manage to clearly articulate what the rest of us struggle to get our brains around.

Susan is Senior Lecturer in Psychology at the University of the West of England, Bristol, where she teaches a course on the psychology of consciousness. She has degrees in psychology and physiology from Oxford and a PhD in parapsychology, with research interests in ESP, belief in the paranormal, astrology and divination, out-of-body and near-death experiences. She is a council member of both parapsychological and skeptical organisations, has received (among other awards) the Distinguished Skeptics Award from CSICOP; has authored three books: *Beyond the Body (Out of Body Experiences)*, *The Adventures of a Parapsychologist* and *Dying to Live: Science and the Near Death Experience*; spoken at many conferences around the world, and appeared on countless radio and television programs.

When I read her book *Dying to Live* I was stunned by her clarity of thought and the robustness of her models of brain function and consciousness. As a teaser, one can construe from her model that the self, what we think of as "I", is a mental model constructed by the brain, informed on a need-to-know basis and given the impression that it is in control. Meanwhile the brain is constantly filtering information, inventing information, making decisions and letting the self take credit and assigning reality to perceptions to suit its own agendas. Volition may be an illusion!

Susan certainly has compelling alternative explanations for the tunnel effect, the realer-than-real experience, the life-flashing-before-you experience, the joyous in-the-presence-of-god experience and the I'm-now-a-different-person response. She identifies flaws in the "other-world" theories and shows that the biochemical explanations are simpler, more consistent, more widely applicable and predictive, and explain many of the details that no other theory can. For instance, why is the brilliant light more often golden?

Susan's other talk is on *The Adventures of a Parapsychologist*, another of her books. Here she lets us in on her earlier thinking and work where she more sympathetically embraced paranormal ideas. I haven't read this one yet but I gather that she successfully read Tarot cards for some years

and seems to have tried everything. A criticism often levelled at skeptics is, “how do you know if you haven’t tried it?” Well, Susan Blackmore is very well credentialed in her skepticism! She has been training in Zen for many years and extols the Tibetan Buddhist view of life and death, and after seeing a program on the Tibetan Book of the Dead recently, I can see why. Her approach is much to be recommended in all areas deserving of skepticism; there is little point arguing whether magic exists or astrology works but much to be gained from asking why people can be so convinced and what are the consequences of such beliefs. The mathematician in me finds the juxtaposition of these two speakers a remarkable syzygy. One, who from a deep intellectual understanding of the hardest of science, has gestated from his human experience a clear conviction that there “must be something more”, and the other, who from a deep experiential understanding of the most ineffable of human experience, has gestated from her application of science a clear conviction that there “can be nothing more”.

Professor Ian Plimer

This man is a must see! Who has not heard him speak is still in the wilderness. You can’t come away from a Plimer ear-bashing without feeling a mixture of bewilderment, excitement and ignition. Ian has managed to be provocative in all his endeavours, as Head of Earth Sciences at Melbourne University, as an international authority on Geology, as the bane of all Noah’s Ark hunters and as both lampoon and harpoon to that exquisitely misnamed phenomenon of Creation Science (where’s the fun in fundamentalism?).

His debates with creationists have been so electric that none will face him now. His recent book *Telling Lies for God* is a no-holds-barred assault on the creationists who, interestingly - very interestingly - have not made the litigious response that is common to such groups. Ian is to receive the 1995 “Humanist of the Year” award for precisely this activity.

He has spoken at other times on the doom of the planet, showing how misrepresenting facts and figures can support the most outrageous of propositions, on the exaggeration of the Greenhouse debate, showing how poorly informed the general public is by the media and the media (prophets of doom, charlatans and fools).

This time he will use a very recent survey of scientific literacy to provoke and astound - and probably to scare the intellectual pants off us. I was shocked to hear from Lewis Wolpert that 30% of Britons believe that the Sun goes around the Earth (Science Show interview recently). What further shocks are in store for us?

Dr Grahame Coleman

The Placebo Effect has come in for a lot of scrutiny recently. It has always been a part of any system of medicine and may be the only part of some. Grahame is Head of the School of Psychology at Latrobe University and his own research has been in circadian rhythms, animal behaviour interactions and

behavioural endocrinology. Recently he was involved with researchers Nick Voudouris and Connie Peck in work where the mechanisms and theoretical framework of placebo were sought. I have read some of the papers they produced and was astounded at the scope of the subject.

Briefly, there are currently three substantial mechanisms proposed: conditioning, where associating an inactive treatment (skin cream) with a real intervention (pain killers) can allow reduction of the intervention and its side effects without compromising response; expectation, where the experiences reported correlate more strongly with what was expected than with what was real (placebo alcohol can intoxicate and disguised alcohol can fail to); and endogenous opiates, where your brain decides to medicate.

This is amazing stuff! Not only does it illuminate the major misunderstanding in alternative medicine (after you have subtracted conditioning, expectation and endogenous opiates there may be nothing left!) but promises to expand medical practice in a very civilised way - fewer drugs and less sharp things. To quote Connie Peck: “.. the importance of investigating the placebo effect in its own right is advocated in order to better understand the long-neglected psychological aspects of the therapeutic transaction.”

Professor Tony Klein

Tony Klein is Head of Physics at Melbourne University and another of those people who outrageously confound the popular view of scientists as dusty, dreary old codgers. He is ebullient and beaming, a sartorial wit. He ain’t no Piltdown Man, but he knows plenty of tales of those who are.

I don’t know any of the details of Tony’s talk on Fraud in Science so I’m guessing here but Science has its fair share of charlatans and misguided fools. The phenomenon of the scientist going funny in old age is almost a characterisable syndrome: Conan Doyle and Linus Pauling. I was speaking to a psychologist friend recently who suggested that it comes from excessive strain on the psyche resulting from pushing the rational too hard, driven by fear of the irrational which merely submerges to rise kraken-like and compelling as fatigue sets in. (Gees! Psychologists, eh?)

Then there are the dastardly tricksters driven by lust for power and the well intentioned seduced by the right reason to do the wrong thing. The Piltdown hoax is attributed by Frank Spencer in *Piltdown: A Scientific Forgery* to none other than Sir Arthur Keith, the then authority figure in anthropology, who needed to verify an idea he had on evolutionary sequence and to advance his career. There’s Piazzzi Smyth who probably began pyramidology and our very own Willie McBride. And just what is this cold-fusion thing anyway?

Dr Ray Lowenthal

“On eye of newt and bone of shark: the dangers of alternative cancer treatments”. Cancer is a very scary disease and people are often driven to try alternative treatments. The world of

alternative cancer treatments includes intensive meditation, visualisation, so-called immune stimulants, vitamins and pseudo-vitamins, anti-viral resonance frequencies, neural therapy, 'endosymbiotic life', ozone, shark's cartilage, 'organic' food, homeopathy and crystals. They are claimed to be non-toxic (some are decidedly toxic), effective (not after you subtract placebo and marketing), proven (the evidence is flimsy at best and usually non-existent) and natural (a semantic con). Many are very expensive.

Ray will consider a wide range of these treatments looking at the claims they make and the rhetoric that is offered in support of those claims. Director of Medical Oncology at Royal Hobart Hospital and Honorary Clinical Professor in the School of Medicine at the University of Tasmania, he has published about 90 papers in the medical and scientific literature, mainly on clinical trials of cancer therapy, care for cancer patients, the home cancer treatment service and the dangers of alternative cancer treatment.

Dr Steve Basser

Stephen is a foundation member of the Australian Council on Science and Health and has that clarity of perception that makes for very solid research. See *the Skeptic*, Vol 13, No 2, for his comprehensive investigation of acupuncture from history and theory through to practice and testing. And see the previous issue for his experiences in attempting an open dialogue with advocates of acupuncture. Stephen's work is characterised by these qualities: a capacity to gather vast quantities of research materials, a firm resolve to engage advocates of the system in a cooperative effort, and an uncommon understanding of the rigour with which testing must be carried out.

This time he will scrutinise Chiropractic. I had always wondered what the difference was between a Chiropractor and a Manipulative Physiotherapist and apparently it's the theory of Subluxation. Apparently this asserts that the bulk of health disorders are the consequence of "subluxations" of the spine which can be put right by a Chiropractor. Professional Chiropractors vary in their allegiance to this theory from the skeptical to the downright loony. I am anxious to see what light Steve can throw on this, certainly it will be superluxation.

Senator Sid Spindler/Des Moore

Well, you should have at least one really controversial item so that we can start arguing among ourselves. How Rational is Economic Rationalism? We've heard it in the press and from politicians but what does it really mean? Sid Spindler, a foundation member of the Australian Democrats and now a Senator for Victoria, will critically examine the assumptions behind the idea arguing that they are badly flawed. Meanwhile Des Moore, a Senior Fellow of the Institute of Public Affairs with 28 years experience in the Commonwealth Treasury, is well qualified to defend Economic Rationalism. During his time there he was, at one time or another, head of most of the

main policy areas and is now a member of the Melbourne-based think-tank, Institute of Public Affairs.

Dr Ed Ogden

Forensic physician with the Victorian Police, President of the Association of Police Medical Officers and Fellow of the Royal Society of Melbourne, Ed specialises in the application of clinical medicine in Law and touches on a number of areas of interest to Skeptics. In 1993 he completed his MA in Advanced Studies in Criminology with a thesis titled "Satanic Cults: Ritual Crime Allegations and The False Memory Syndrome".

He has been involved in many cases of alleged cult abuse, including that of the Hamilton-Byrne group "The Family". My rudimentary understanding of the history is that in the seventies Anne Hamilton-Byrne gathered a number of doctors and psychologists, even from the highest levels of the profession, got them committed to some 'new world order' scheme and used them to begin collecting babies. "The Family" flourished for 25 years and there are, possibly, still some professionals committed to the idea. Ed offers a provocative perspective on how cult activities are conducted in Australia and on the myth of the world-wide Satanism conspiracy.

Sarah Hamilton-Byrne

Sarah spent sixteen years of her life contained within "The Family", under the watchful eye of Anne Hamilton-Byrne. I think she actually left the cult before community services groups intervened and that she learned soon afterwards that she was two years older than she thought she was. She has recently completed a medical degree has just released a book, *Unseen Unheard Unknown*, recounting her experiences in the sect. I've heard Sarah on the radio a couple of times and always found her impressive so I look forward to seeing this remarkable young woman in person.

The Bent Spoon Award

The question on everybody's lips is, of course, who will get the now famous Bent Spoon Award this year? We have two nominations so far:

Jeremy Griffith and Tim Macartney-Snape for the Foundation For Humanity's Adulthood. Jeremy Griffith is one of the "wilderness inspired" who, after six years in the bush looking for the Tasmanian Tiger, emerged with an insight that would blossom into the TRUTH. I bought his book in 1991 because it had evolution stuff in it and Tim was endorsing it. The idea is that all humanity's problems stem from conflict between the conscious mind (evolved 2,000,000 years ago) and the unconscious mind (in harmony with nature). It's a variation on the 'forgotten wisdom' theme blended with psychology and evolution but it is vague and oblique, the science is thin and borrowed and the "Adam Stork" character is quite silly. He is attracting young people (only they are fresh enough to understand) from high-class schools where Tim does the marketing. Just another groovy guru?

Bruno Grollo spent nearly \$3,000,000 on a property in Watsonia (Melbourne) to provide Transcendental Meditation with a local headquarters. I think that qualifies for a nomination, don't you?

Friday Night Get-Together

Poyntonz Hotel is becoming the Skeptical watering hole. We have fairly regular speakers evenings there and the habit of beginning the convention with a social evening is probably now a tradition. Come along for a meal or a drink or just to make a few new contacts.

Saturday Night Dinner

We still hadn't finalised our dinner speaker before going to press which is really annoying. I can't even advertise the contenders. But as a special bonus this year we have a Skeptical musical item. Yes, there are a few talented musos among us and we may be witness to the birth of a new idiom: Incredulous Music. Come and see the International debut and rub shoulders with the fabulous and famous.

Where?

Poyntonz Hotel is in Grattan Street Carlton (corner Cardigan St.) a couple of blocks from the University.

All talks will be in the Old Arts Theatre at Melbourne University (very plush!). Melbourne Uni is a bit labyrinthine so look out for the signs. The Old Arts building is a bit left of centre on the campus, north of the South Lawn, east of the Baillieu Library, south of Botany or through that little wiggly bit below Union House.

For the Saturday dinner you go out the other end of the Arts building, down Professor's Walk, past the Babel building (modern languages) and the Botany buildings to University House. I could never get in there as a student but I knew it was fancy.

How Much?

\$60 for the full three days (\$45 concession) or \$20 a day (\$15 concession). Please provide proof for concessions. The Saturday Dinner is \$28 per head and you will need to pre-book.

Return cheque / money order to **Australian Skeptics (Vic), Box 1555P, GPO Melbourne, Vic. 3001**

For more information:

Ph: (03) 9850-2816 Fax: (03) 9841 0581

Programme 1995 Skeptics Convention

Old Arts Theatre, Melbourne University

Friday June 9

6:00pm

Pre-convention social evening
Poyntonz Hotel, Carlton

Saturday June 10

8:30am

Registration & coffee

Old Arts Foyer

10:00am

Opening Speech

(TBA)

10:30am

Fraud in Science

Tony Klein

1:30pm

The Placebo Effect

Grahame Coleman

3:30pm

Adventures of a Parapsychologist

Susan Blackmore

7:30pm

Convention Dinner

(speaker TBA)

University House, Melbourne University

Sunday June 11

10:00am

Are We Alone?

Paul Davies

1:30pm

Alternative Therapies

Steve Basser

Ray Lowenthal

2:00pm

Annual Bent Spoon Award

4:00pm

Scientific Illiteracy

Ian Plimer

Monday June 12

10:00am

Economic Myth or Rationalism

Sid Spindler
Des Moore

11:30am

Near Death Experiences

Susan Blackmore

2:00pm

Cults in Operation

Ed Ogden
Sarah Hamilton-Byrne

4:00pm

Closing Speech

News and Views

Those whose inclinations cause them to hitch-hike along the information superhighway or indeed the potholed back roads that lead to it, may have recently come across a strange echo from the 1980s.

The longish memoried may recall the trance channelling craze that swept the world a decade or so ago.

As with ephemera of all kinds, the channelling phenomenon blazed in its brief moment of glory before suffering a meteoric decline (not withstanding the cliché mongers, there is no such thing as a meteoric rise, as any observation of meteorite tracks in the night sky will affirm). Presumably this decline came about when even the most doggedly devoted among the acolytes of discarnate, long dead or extraterrestrial entities realised that the enlightenment being offered contained substantially less intellectual content than the average government press release.

One of the most prominent practitioners of channelling in the 1980s was J Z Knight, who purported to channel wisdom from a warrior-king of Atlantis, one "Ramtha" who, according to Ms Knight, strutted the earth some 35 000 years ago, before going to better things in the Himalayas. (It's funny that these entities never seem to come from places like Canberra.) Ramtha, despite his former exalted situation in life and the advantages conferred on him by 35 millennia of contemplation, managed to deliver himself of stupefyingly banal prognostications on the human condition and the state of the world. Nevertheless, among certain sectors of the population, Ramtha was regarded as being the font of all that was profound and sage and her association with him seemed to provide Ms Knight with the wherewithal to purchase a substantial Arab horse breeding ranch.

Ms Knight and Ramtha visited Australia in the mid-1980s, although only one of them, we are led to believe,

required a passport. During one weekend in Sydney, 400 odd (and I do mean 'odd') citizens coughed up around \$700 apiece to be dazzled by the revelations of this monarch of a non-existent domain. This surely must rank as one of the most profitable fleecings in Australia's history, at least since the wool boom of the 1950s.

Fresh from her antipodean triumph, Ms Knight returned to the USA, and descended into well-deserved obscurity. That remained the case until recently, when she took legal action in an Austrian court against a German channeller who claimed she too was channelling the wisdom of Ramtha.

It would appear to the casual legal observer that an antediluvian entity of Ramtha's manifest sagacity and power could channel his thoughts through whichever medium he damn well chose, but this was not what the court found. Ms Knight won her case when the judge found that she had sole rights to promulgate the thoughts of Ramtha.

I freely admit that high among the list of some several million topics in which I am not an expert, are the intricacies and ramifications of Austrian commercial law, however, it appears to me that such a verdict must have been based on one of the following assumptions.

Either:

(a) Under contract law, Ms JZ Knight has a legally binding contract with Ramtha to act as his sole agent. If this was the case, then presumably this contract was produced as evidence in the court. (The validation of the signature may well have made forensic history.) In which case, Ms Knight must be the possessor of one of the most valuable documents in history; one that would surely rank alongside Jesus Christ's birth certificate or Odysseus' navigator's charter. One would think that a contract signed by a 350 centuries old king would be a document of such intrinsic value as

to make a Shakespeare first folio rank with a Harry Edwards shopping list.

Or

(b) Under intellectual property law, the court found that the character Ramtha was Ms Knight's intellectual property; the fruits of her own imagination; a copyrighted invention; a work of fiction.

I invite readers, who are more expert in Austrian law than I am, to correct me, but I know what I think.

* * *

An item from the "Just when you thought you had heard it all in human gullibility, something comes along to prove you wrong" Department, and our thanks goes to **John Postlethwaite** of Forestville NSW for bringing it to our attention.

John sent us (and several other readers rang us about) an advertisement, culled from a TV guide, headed "'Miraculous' Candle Rituals Give You Control of Your Life - Automatically!" and subtitled "Amazing book shows how to get fast and powerful results from burning candles".

The amazing thing about this new process is that any old common or garden candle bought from the local shop will do the trick "No oils, herbs or incenses" are required, only the book of rituals. There are 80 of these "easy to perform" rituals "guaranteed" may I add, with your money returned and an extra \$5 to boot if they don't work for you.

Among the things you can get with the rituals (and it doesn't matter if you are "Christians, Jews, Muslims or those of any other faith") are "Winning lotteries, contests gambling" (sic); "To arouse sexual desire in someone" or conversely "To overcome lustful feelings"; "To develop physic (sic) powers" and "To develop musical talent". And all of which comes to you courtesy of "the Great Benefits Forces and The Cosmos" no less. How? Well "spirituals believe that when a candle is

lit a light appears in the unseen world.” (And in the ‘seen’ world too, one would have thought.) “And when that candle is lit at the right time ... the unseen world vibrates to your wishes ...” Wow!

This wonderful book (“only \$19.95 plus \$5.95 postage & handling”) is available from Nu Life Publishing at 51 Old Barrenjoey Rd, Careel Bay 2107. Come to think of it, that’s not far from where Harry Edwards lives. Could our esteemed Assistant Editor be moonlighting? Naaah! Not Harry. Which brings to mind a test for our loyal readers. Can anyone think of an idea that is so absurd that no-one at all will believe it? Election promises excepted, of course.

* * *

Earlier this year, I thought it might be appropriate to nominate the Pope and hierarchy of the Catholic Church as worthy recipients of this year’s Bent Spoon Award. Not, I hasten to add, because of their religious beliefs, such being of a non-testable nature that puts them outside the ambit of our Aims. But they did tend to make quite a play of the “miracle” wrought by the late Mother Mary McKillop, which may very well be a testable claim. And more specifically any future “miracles” that might be attributed to that lady and which will, if my understanding of matters is accurate, cause her to become a fully fledged “saint” as opposed to the sort of apprentice saint status she now appears to hold.

But then I was given pause by a few things that happened. Queensland (the state of my birth), which has, since 13 years before my time, maintained a virginal purity in the Sheffield Shield stakes, was victorious in this year, and this was quickly followed by the Australian team’s victory, for the first time in more than two decades, over the might of the West Indies. Perhaps there is something in miracles after all.

I am not yet ready to commit myself to eating fish on Fridays, but if Australia is successful in the coming World Cup of Rugby, I might be forced to brush up my Latin.

* * *

Those among us who are interested in the minutiae of the democratic process will be enthralled to learn that, in the recent NSW election, the Natural Law Party (an offshoot of the TM movement) stood 17 candidates. Unfortunately, and despite their claims of increasing support in various other elections here and overseas, all 17 NLP candidates failed to recover their deposits (4% of the formal vote). It seems the electors of NSW are not yet ready for a levitation-led recovery.

* * *

There has been some excitement in UFO circles, and in certain sections of the media, about an “archival film” soon to be released at a conference in the UK. Purportedly shot during an autopsy on the bodies of aliens taken from a crashed UFO in New Mexico in 1947, it has been touted in certain UFO circles as definitive ‘smoking gun’ evidence that we are being visited by little grey men. Alas, all seems not to be well, as a press preview of some segments from the film, drew scathing criticism from the more skeptical among the UFO proponents. Details like telephones being shown that were not in use at that time and other anachronisms, indicate that this is just one other example of a rusty flintlock.

* * *

Newspaper recently carried reports of doubts being raised about the carbon dating test of the Shroud of Turin, which showed it to be a 14th century forgery. Problem is, the ‘expert’ quoted was none other than the Russian creationist Dmitri Kuznetsov, exposed by Ken Smith for scientific fraud in Vol 15, No 1.

Even the CSF seems to have had second thoughts about Kuznetsov, a man they had touted as an expert scientific witness when they sponsored his visit here in 1991.

Speaking of whom, if you want a copy of the CSF’s rebuttal of Ian Plimer’s book, *Telling Lies for God*, it will set you back \$30 for a photocopy. The book itself sells for \$17 (postage included), from Australian Skeptics.

* * *

Harry Edwards remembers some interesting research.

Readers may recall back in early ‘93, considerable correspondence was exchanged between myself and a certain Dr Jamal N. Hussein PhD, the director of the Paramann Programme Laboratory in Amman, Jordan. The exchange, together was some gruesome photographs, was reported in Vol 14, No 2, of *the Skeptic*.

Briefly, in his initial letter, Dr Hussein said that the project was started ten years ago (that is ten years prior to the date on his first letter - April 1993) by a group of scientists in medicine and experimental physics, dedicated to studying the paranormal immunity to pain.

He claimed that their research had discovered certain tribes-people who were immune from pain and bleeding, and who displayed remarkable healing abilities. The experiments consisted mainly of sticking sharp objects (knives, daggers, spikes and skewers) into various parts of the subjects’ anatomies, and coloured photographs of the human pincushions were submitted as evidence. Despite a request for videoed evidence such as simple surgical procedures one would thought to have logically followed after such a long period of experimentation, none were forthcoming. The matter was finally dismissed as another unsubstantiated paranormal claim.

Now the Canberra Skeptics have received a letter from Dr Hussein dated March 18, 1995, outlining the programme and enquiring whether they (the Canberra Skeptics) would like to conduct joint research. The letter was identical in every respect to that received by me over two years ago (and other like-minded groups around the world), including the sentence “this project was started ten years ago by...”

While there is sufficient information available to suggest that Paramann Laboratories is not a con job, the question is, how, why and by whom is the project being funded, in view of the negative results after so many years? ■

SHOCK INQUIRY RESULT!

CSF Finds Itself Innocent!!

Sir Jim R Wallaby

In a startling new development from the wilder fringes of the infantile-religion-posing-as-science front, the Creation Science Foundation has delivered its long awaited response to Ian Plimer's book *Telling Lies for God* (now in its fifth printing).

In a large (and expensive) advertisement on page 3 of *The Weekend Australian* (May 20-21), the CSF presents the report of a committee of inquiry into "certain allegations against CSF in the book..." and in other places, which the advert describes as a "... nationwide media "blitz"". The committee, consisting of a former Chief Magistrate of NSW and several ministers of religion, was invited by the CSF to conduct the inquiry. As far as we can tell, no evidence was requested from anyone other than directors of the CSF. The inquiry found inter alia that "... the CSF and its Directors have been often, and seriously, misrepresented".

Could this be the same CSF which was responsible for the now notorious Quote Book, withdrawn after considerable pressure from Australian Skeptics and others, because of its blatant misrepresentation of the positions of innumerable scientists on the topic of evolution? Or the same CSF which, in its noxious publications, has blatantly misrepresented the position of Australian Skeptics on many issues and has refused to print letters of rebuttal, or even of protest? No, it must be another CSF, because the inquiry also found that "CSF conducts its affairs in an appropriately open and thoroughly principled and ethical manner as befits a Christian ministry seeking to advance the Gospel of Jesus Christ". Or, perhaps, 'principles' and 'ethics' have a special meaning when used in the promotion of the Gospel?

The items contained in the newspaper advertisement were expanded upon in the May issue of the CSF's *Prayer News*, in which the editors, presumably in the name of Christian fellowship and charity, assailed various prominent members of other Christian denominations for their temerity in giving approving mention to Ian Plimer's book.

Curiously, for a committee consisting in the main of ministers of religion, it was not asked to investigate "...CSF's theological position which, as individuals from evangelical churches of different denominations, we may not share in all respects.", which theological position, it would appear to the casual observer, would be about the only thing this committee was qualified to investigate. Nor was the committee asked to judge "... the validity of the scientific arguments of creation versus evolution, except in so far as they related to allegations of deliberate scientific fraud.", which, as only one committee member appears to have any scientific qualifications (and that

in agricultural chemistry), is probably just as well.

Now let's see if we have got this straight. The Creation Science Foundation invited certain people to investigate certain claims made in *Telling Lies for God*; the CSF set the terms of reference for the inquiry (very narrow terms indeed); specifically excluded from the terms the charges in the book, that the creationist's 'scientific' claims were blatantly absurd, could not withstand even cursory critical scrutiny, were deliberately misleading and had neither scientific nor theological support; and the only evidence considered was that presented by the CSF.

I don't like to be picky, but had Ned Kelly had the right to select his own judge, jury and prosecutor and also the final say on what evidence would be presented at his trial, he would probably still be alive today (albeit a bit long in the tooth). Under those conditions, Jack the Ripper would have lived in history as Jack the Mildly Irritating.

The principles they find acceptable in promoting their messages lies entirely within the province of individual Christian churches (always providing they do not contravene the laws of our secular society). The CSF, however, does make the claim that their specious drivel has the imprimatur of science. Whether the 'scientific' claims made by the CSF constitute deliberate fraud or result from complete ignorance of science is, perhaps, moot but the fact remains that they are not science, and no amount of self-serving 'investigations' nor self-promoting bluster in paid advertisements will ever make them so.

It may be only coincidental, and it may have nothing whatever to do with the impact that *Telling Lies for God* is having on the collection plate, but both the advertisement and the turgid prose of *Prayer News* conclude with pleas for money.

Nonetheless, here at *the Skeptic*, we are nothing if not fair-minded so we intend to set up an inquiry into Ian Plimer's knowledge of theology. We seek support from among our readers for this vital task and would like to include at least one of each of the following experts on the panel: astronomer; biologist; butcher; nuclear physicist; palaeontologist; plumber; retired aardvark trainer; zoologist and a person who has been to church at least once.

If it is found that Plimer's grasp of theology is equal, or inferior, to the CSF directors' grasp of science, he will be burnt at the stake, with your humble servant having the privilege of casting the first torch.



SPECULATION

Is There Anyone Really Out There- Anywhere?

Mark Lawson

Despite all the work of people like Von Daniken and the myriad claims of abduction by UFOs, we have yet to come across any evidence of intelligent life outside Earth.

No matter where we look in history, archaeology, and into space with powerful radio telescopes there is nothing that even hints at non-human intelligence. No ancient structure that may have been built with still unknown construction techniques, no traces of a long-abandoned space base, no fossilised integrated circuits, no historical records of the sudden arrival of superior beings, no obviously artificial radio signals from distant stars. Nothing.

So where is everyone? Pre-humans probably started the long march to human-hood when the ice-ages began about 2.5 million years ago; writing in its most basic form is, perhaps, 5,000 years old; the industrial revolution is close to 200 years old and CDs have been a consumer item for about a decade. But none of those times mean very much when compared with the (to adapt a phrase from the Hitchhiker's Guide to the Galaxy) Mindbogglingly Long History of our Galaxy. The Earth is thought to be four billion years old; our galaxy 10-15 billion.

So one would think that if intelligence had arisen elsewhere, the creatures concerned would have had time to come calling, even given the vast distances involved.

Interstellar travel is indubitably difficult. Amongst other problems, interstellar dust is a major hazard for a craft travelling at 10 per cent of the speed of light; voyages will take at least several decades one way; and very special techniques will be required to transmit data back to earth. But despite those problems there does not seem to be any fundamental barrier to long-term robot missions, along the lines of the very successful Voyager missions.

Yet despite the comparatively primitive technology involved in the exploration of the galaxy, and the fact that any alien intelligences are likely to be well in advance of us (for the simple reason that they couldn't be far behind, on geological time scales, or they wouldn't exist at all); we have heard nothing.

Science fiction contains all sorts of suggestions to get around the stark fact of complete lack of contact. Perhaps the 'others' are waiting until we are more peaceful, or more advanced, or they are concerned over the effect contact will have on our

own culture, or perhaps they can't be bothered talking to us at all. Perhaps, as depicted in the classic film *2001: A Space Odyssey*, we will shortly trip an interstellar advanced intelligence warning system (in the film, it was a obelisk deliberately buried on the moon by travellers who happened past three million years ago), and a race that visited when we were mere apes will be alerted to the fact that we are now ready for the next step. Perhaps...

In fact, it is difficult to think of any adequate reason why an advanced civilisation in this galaxy - the other galaxies are too far away, even in the time frames we are considering - would not at least be able to send robot probes. Unless of course, the 'others', (there must be 'others', somewhere) are so far away that their robots have yet to check out this corner of the universe. Intelligent life may be very rare.

This is not to say that the Search for Extraterrestrial Intelligence (SETI) programmes that have been in the news of late, and which have been so ably championed by the likes of US astronomer Carl Sagan, are a waste of time. Far from it. They are at least worth trying, even if only to rule out possibilities and, of course, the programme might actually find something - either a genuine other-world intelligence or (somewhat more likely) a so far unnoticed astronomical phenomenon.

NASA gave up its SETI project in 1993, but since then a group of American millionaires have been persuaded to hand over \$A12 million (according to media reports) to fund a programme known as the Phoenix project. That project, which is scanning the areas around the nearest 1,000 stars similar to our own sun for radio signals, will also involve the CSIRO's 64 metre radio-telescope at Parkes. The CSIRO will receive around \$2 million (the organisation has also sold some signal analysing equipment to Phoenix) for scanning the 150 or so of those stars only visible from the Southern Hemisphere.

The money for Parkes is useful foreign exchange and, as I have said, there is nothing wrong with a systematic effort to discover near-by intelligent life. But it is worth pausing to consider the alternative presented by the one fact about ETI which we do know. Namely, as there is no hard evidence of contact - notwithstanding the TV-show *The X Files* (an excellent series, incidentally) and innumerable dubious abduction stories - we may well have to face the universe, or

at least this galactic cluster, alone.

This is hardly a new consideration. The nuclear scientist Enrico Fermi was amongst the first to point the problem out in 1935 ("Where are the extraterrestrials?")- since then it has been called the Fermi Paradox - but it is also a fairly bleak line of thought that make this writer wish for a confirmed contact. (As an SF fan I also resent the fact that physics does not allow for a handy faster than light drive.) In addition, the conclusion runs contrary to much of science since Copernicus showed that the earth moved around the sun. Subsequent scientific discoveries have since emphasised how ordinary and remote our own star is, and how the human race is just another species of animal that somehow became self-aware.

But the possibility that humanity might be almost alone does not imply some sort of divine guidance - that humans, as such, are the chosen ones - it may still all be the result of dumb luck. After all, we are able to question our existence because we did pick the lucky number in the lottery of intelligent life. All the other entrants never even knew the contest was on because they did not win - if you see what I mean.

How did we win? Again, it's very difficult to say as there is only one fact to work from, but as we are deep into speculation anyway a few more guesses will not hurt.

The first stop in the tour of possibilities is the question of how many other planetary systems there might be, and the best guess is a great many. The only confirmed planetary system to date is known to revolve around - of all objects - a millisecond pulsar labelled B1258+12, 1,400 light years from earth. Inferred from measurements of faint wobbles in the pulsar made by Dr Aleksander Wolszczan of Pennsylvania State University, the planets could not support life.

After observing tiny changes in position and velocity in other stars, scientists suspect that a number also have sub-stellar companions (ie planets), but detecting a planet even the size of Jupiter at interstellar distances is so difficult that no announcement has been made. The calculated masses of the inferred planets are also so large that it is possible the scientists are observing a double star system where one star did not make it into the stellar class. (See: 'Worlds Around Other Stars', *Scientific American*, January 1991.)

Other, smaller, pieces of evidence for the existence of other planetary systems, are the mini-systems of moons orbiting the giant planets of Jupiter, Saturn and Uranus. The spacing of orbits of the moons in the gas giant systems also follow a sequence similar to the Titus-Bode law (better known as Bode's law) for the planets of the solar system, where the orbital radius of each planet is 1.7 times that of its inner neighbour. (The sequence is very rough and breaks down at Uranus.)

With planets and moons apparently forming regular systems so readily, planetary systems are likely to be reasonably common. However, it is difficult to make any estimates about frequency of occurrence of such systems as the present disk-model of the solar system, so lovingly quoted in basic

astronomy text books, is entirely useless for making predictions.

All the new observations made by Voyager I and II came as a complete surprise to scientists - a point I observed directly as a science journalist at the time of the Voyager II encounter with Uranus. Also, computer models devised using the disk model are so useless that, among other problems, they cannot explain Mercury. (See: *New Scientist*, 'Mercury The Impossible Planet', June 1, 1991.)

As Mercury fits in with the pattern of Bode's Law noted above, and that law also predicted the existence of the asteroid belt between Mars and Saturn, the disk model's failure to explain the planet's existence should lead to its being dropped. But scientists have apparently not been able to think of anything better, so the disk theory has survived. One alternative model offered by Dr Andrew Prentice of Monash University does have considerable predictive success but is howled down by other researchers in the field, because they don't like the mechanism it uses.

Whatever a layman may make of all this, there seems to be little doubt that planetary systems are reasonably common. Systems must then exist in this part of the galaxy with the right-sized planet at the right distance from the sun and - a recent suggestion - with a Jupiter-like gas giant in the array of planets to attract most of the system's stray comets. Otherwise major comet strikes of the type that marked the end of the Cretaceous age (although whether the collision actually wiped out the dinosaurs is another question) would become too regular to permit life to evolve.

The incubating planet may have to be in exactly the right place in relation to its own sun to achieve the right beach weather, but a perhaps far more crucial starting condition is that the planet must also have a hot core.

Of the four dwarf planets (Mercury, Venus, Earth, Mars) the earth is the only one with a strong magnetic field - a much stronger field than would be expected by comparing magnetic fields with size and distance from the sun, for all the solar system's planets out to Uranus. As that magnetic field is generated by magnetic currents deep within the earth's nickel-iron core, the comparison indicates that our planet has an unusually hot core.

The strong magnetic field resulting from that hot core is useful in holding the all-important ozone layer in place to protect surface life from ultraviolet light, but a more important result is that the planet possesses considerably more volcanic activity and more plate tectonics (continental drift) than the planet might otherwise have been expected to possess.

That volcanic activity, particularly fierce when the earth first formed, sustained Earth's initial atmosphere of carbon dioxide long enough for organisms capable of generating oxygen to evolve. Without that additional CO₂ from volcanoes, and as occurred on the volcanically less active Mars, the carbon dioxide would have dissolved into the proto-oceans and the rocks. Stripped of its atmosphere, the earth

would then have frozen. This now widely accepted point only came into focus after recent, detailed exploration of Mars.

Aside from the additional volcanoes, the hot core combined with a (comparatively) thin, light outer skin of rocks resulted in a continually moving series of tectonic plates, with the plates grinding together in some places and opening up to allow fresh surface rock to develop in others. Just what happens when one plate is pushed under (subducted) another plate is still a matter for debate (for a recent, major contribution on the mechanism of subduction, see *Nature*, March 9, 1995 pages 115 and 154). But the results include further volcanic activity, as well as the creation of mountain chains and ocean basins.

Changes in continents have effects well beyond the creation of interesting scenery. The uplifting of the Tibetan plateau and the Rocky Mountains, for example, are thought to have changed climatic patterns but in what way and when are still matters for debate. A minimum age on the rise of the plateau of 14 million years was announced only in March (*Nature*, March 2 1995 pages 17 and 49).

Changes in climate and the separation of gene pools caused by movements in the crust are, in turn, thought to be major influences in the long evolutionary struggle.

One example of that effect, and one that is now also reasonably well accepted, is the creation of the rift valley in Eastern Africa, which started opening up about 20 million years ago. The rift, a substantial natural barrier to the movement of animals, separated a distant ancestor ape into two groups operating in different types of terrain.

For various reasons not fully understood, after the earth's climate turned distinctly colder 2.6 million years ago (in archaeology and paleontology, dates are vague and variable), the Western side of the rift remained jungle and the ape species on that side evolved into Chimpanzees. The apes on the Eastern side, in quite different terrain tending towards open savanna found it easier to walk between groves of trees. Some other event, possible more volcanic activity (see 'Where Humans Began', *New Scientist*, June 4, 1994) gave that ape yet another push to evolve into *Homo Erectus* and *Homo Habilis*.

All of the above is still very much a matter for argument, (Scientists, please don't jump down my throat) but it can be seen that there are big advantages in having a hot core. The resulting constant shifting in continents and climate means that the evolutionary dice were constantly re-shaken and thrown until they hit on the right combination for intelligence. South America had just as many ape species as Africa at the same time, incidentally, but the conditions for intelligence occurred only in the geographically more diverse Africa.

So why then is the earth's core so hot? One suggestion that seems to make sense has been made by Jerome Pearson, chief of the structural dynamics branch at the US Air Force Flight Dynamics Laboratory. In an article in *New Scientist* ('The lonely life of a double planet', August 25, 1988) Mr Pearson pointed out that the earth-moon combination is, in fact, closer to being a double planet than any of the planet-moon

combinations we can observe in the solar system. The moon is much larger, when compared with the earth, than say Io compared to Jupiter or Titan to Saturn, while the two moons of Mars are little more than orbiting rocks.

Pearson suggests that our near double planet combination may be the result of a mischance during the last stages of the formation of the earth - a mischance that is likely to be extremely rare. The earth and the moon were originally meant to be one large planet but somehow narrowly missed one another to form a double planet with the earth as the senior partner. There are competing theories on how this mischance occurred that are not worth repeating here - the theoretical confusion may be a result of our present, very poor understanding of solar system formation - but it is known that the earth and the moon are related.

Once the mishap occurred, and as is widely acknowledged, the moon started orbiting very close to the earth, raising huge tides on both the earth's surface, and, effectively, in its molten core. The resulting gravitational poking and prodding of the core resulted in extra friction which heated the core well beyond what would be expected for a planet of its size. The rest, as they say, is history.

The result contrasts sharply with Mars which has very thick tectonic plates that now do not move at all. Without that movement in the crust volcanoes over the planet's surface hot spots, notably Olympus Mons, have grown to enormous sizes. Earth has similar hot spots, but as the plates have kept moving the spots have produced chains of volcanoes.

All the above is, of course, little more than a chain of speculations on why we have not yet encountered other forms of intelligent life. Until astronomers have cleared up a few of the uncertainties by directly observing a few planetary systems, or an alien race or two drops in for tea, such speculation is also little more than an interesting waste of time.

But speculation or not, the conclusion is depressing. What happens if there is no-one else and all there is to being human is to live out an existence in a tiny speck of the Cosmos?

The best reply I can give is to quote that well known American sage and philosopher Woody Allen, when he answered a somewhat different question, in the film *Hannah and her Sisters*. In that film Allen plays a Jewish television producer hypochondriac struggling to find the meaning of life. He finally realises, while watching a Marx Brothers film, that perhaps the answer does not matter.

"What if the worst is true?" says his character.

"What if there's no god, and you only go around once and that's it. Well, you know, don't you want to be part of the experience? What the hell, its not all a drag.

"I should stop ruining my life searching for answers I'm never going to get, and just enjoy it while it lasts." ■

BELIEF

The Power of Magic

Kirk Straughen

Introduction

What has prompted me to write this article is the observation that belief in magic pervades not only our society, but all societies, irrespective of their location in space and time. I shall proceed to give an account of magic's theory and practice. After having done this, I shall then explain how the idea of magic may have originated, why the belief persists, and address this question: do occult powers exist? This article is a general investigation of magic, and will not address a specific branch such as necromancy or witchcraft.

Theory of magic

Magic can be defined as a rite and verbal formula projecting human desires into the world on a theory of human control to some practical end.

The verbal element in magic is extremely important in some societies, and is regarded as the fundamental constituent, and the believed source of occult power. In Oceanic societies, the form of words is thought to be fixed and invariable, so much so that a mistake in the recital is thought to spoil the effects of the magic.

In others, however, particularly in Africa, the form of words is variable, and consists rather in a conversational address to the "medicine" (magic objects or compounds) to perform its work, the occultist modifying his phrases as he sees fit. According to Africans, the power of the magic resides in the medicine rather than the spell.

The verbal element in magic is due to the idea that a name is part of that to which it belongs. Therefore, words, if used in a special way or context, can effect the objects they represent.

Anthropologists have classified at least four different forms of magic: imitative, contagious, sequential, and divinative. In imitative magic, the occultist seeks to bring about an event by symbolically causing it to happen. The following example of imitative hunting magic is described by Frazer in *The Golden Bough*:

"The Indians of British Columbia live largely upon the fish which abound in their seas and rivers. If the fish do not come in due season, and the Indians are hungry, a Nootka wizard will make an image of a swimming fish and put it into the water in the direction from which the fish generally appear. This ceremony, accompanied by a prayer to the fish to come will cause them to arrive at once."

Contagious magic is based on the idea of association. It is believed that by performing acts on something that is related to or has been in contact with a particular object or being, one may gain control over the original. An example of contagious magic is the following Malay curse as described by Frazer:

"Take parings of nails, hair, eyebrows, spittle, and so forth of your intended victim, enough to represent every part of his person, and make them up into his likeness with wax from a deserted bee's comb. Scorch the figure slowly by holding it over a lamp every night for seven nights and say:

"It is not wax that I am scorching, it is the liver, heart, and spleen of So-and-so that I scorch."

After the seventh time burn the figure, and your victim will die."

Contagious magic assumes that things which were once related or in contact continue to be connected.

Sequential magic includes most beliefs and actions dealing with supernatural cause and effect which are neither imitative nor contagious in nature. It operates by assuming that when one event occurs after another, the first must have caused the second and will continue to do so. Most superstitions can be classified as sequential magic, and the following example relating to sneezing is taken from the *Encyclopaedia of Magic and Superstition*:

"In parts of Europe three sneezes clearly indicate the presence of four thieves, while in Estonia, if two pregnant women sneeze simultaneously they may look forward to twins. Many Japanese believe that to sneeze once means that you are blessed, twice that you are guilty, and thrice that you will be ill."

Unlike imitative, contagious, and sequential magic, the magic of divination is not concerned with causing or preventing the occurrence of various events. Its aim is to predict. Towards this end a large variety of devices and procedures are used, and the following Babylonian example is mentioned in the *New Larousse Encyclopaedia of Mythology*:

"After he had offered sacrifice to Samash the soothsayer would observe the various shapes assumed by oil poured on the water in the sacred tub, or examine the liver of the sacrificial victim, or decipher what the gods had decreed from the position of the stars, the movement of the planets, the appearance of meteorites."

Practice of magic

Analysis of an act of magic reveals several characteristic features. There is a definite practical aim to be achieved, and there is a human performer of the magic. This person, in order to perform the magic, has frequently to be in an appropriate condition - he may have had to abstain from sexual relations with others, to have refrained from eating certain foods, to be in solitude, or to be clothed in ceremonial garments.

There are normally three elements in the practice of magic:

The first element is represented by the instruments or medicines; the second is the rite; and the third is the spell. The instruments can be of a technical kind. For example, a Polynesian canoe builder who wishes to kill any borers that might be in the timber of the craft he is constructing, cuts the wood gently with his adze, and recites a spell to destroy the insect. However, not all instruments are tools in the conventional sense. Such examples are the quartz crystal of the traditional Aboriginal healer, and the pointing-bone of the Central Australian witch-doctor. African magic makes great use of medicines, which have to be gathered and manufactured under special conditions. These medicines are often kept in special containers which are thought to possess some magic virtue, or at least be an index to the kind of medicine they contain. The following example is a magic formula from northern Nigeria, and is taken from the *Encyclopaedia of Magic and Superstition*:

“Cut off the head of a snake and in it plant the seed of a swamp dock. Bury the head in a grave which must be seven days old. Pour water on it for three consecutive nights. When the plant has grown to a height of three or four feet, go again to the graveyard and strip naked. Pull up the swamp dock and use it as a girdle. If anyone attempts to attack you, the girdle will become a snake that will bite your enemy.”

The rite has almost infinite variety, but in essence its function is to bring the magic and its object into contact. The spell. Where the form of words is fixed, certain conventions usually apply. Here, for example is a translation of part of a Maori karakia (spell) used at the kumara harvest, and is mentioned in the *Encyclopaedia of Magic and Superstition*:

“This is the spade that descends,
This is the spade that reverberates,
This is the spade that resounds, Penu, Penu, the spade Penu.”

This extract is typical in its reiteration of a particular phrase and in its reference to a phenomenon, in this case the spade, Penu, sacred in tribal tradition. In spells figures of speech and references to mythology are common, and some of the words are cryptic and archaic in form, having no meaning apart from their particular magical context.

The words of the spell are not meant to convey information but to be a mode of action, and an expression of human will.

Origins of magic

The idea of magic probably originated in the Paleolithic period

(c 1.8 million years ago). Strong evidence of this belief comes from the cave art of Upper Paleolithic people which is centred on south-western France and northern Spain with other sites located in southern Spain, Portugal, Sicily, and eastern France.

Much Palaeolithic art is found deep in caves, beyond the reach of daylight, and this suggests that this period of art reflected more than mere enjoyment of art for its own sake. Humans in Paleolithic times obtained their food primarily by hunting, and the role of magic appears to have been directed towards this end.

It appears that the hunters believed that they could gain magical power over their quarry, either by representing it on a cave wall or floor, or by enacting a ritual hunt in front of a representation of the quarry. For example, at the Isturitz in the Basses-Pyrenees is a sculpture of a bison in sandstone. On its flank is a deep vertical incision, at the side of which an arrow is cut. It is even possible that the original fracturing of the head and feet was the result of intentional mutilation which completed the ceremony.

The idea of magic may have arisen because humans are often tempted to attribute random events to their own actions.

Psychologists call this belief the illusion of control, and it probably results from our attempt to make sense of coincidences. This often results in the misapplication of the association of ideas relating to cause and effect. For example, imagine that one of our Paleolithic ancestors, who in a fit of rage said: “I wish that So-and-so would die”, and then broke one of So-and-so’s possessions. If this person then died of an accident or illness, it may have been very tempting to attribute this event to human action (many contemporary primitive people attribute death to sorcery rather than natural causes), and it is from these types of coincidences that the idea of imitative and contagious magic may have arisen.

Sequential magic, like other forms of magic, arises from mistaken assumptions about cause and effect. An unusual occurrence closely followed by another event may leave a profound impression on a person’s mind, and lead them to believe that one event caused the other.

The idea of divination may have developed out of the observation that the changing of the seasons is accompanied by changes in the heavens, the migration of animals, and the flowering of plants. The seasons manifest their coming by signs, and our ancestors may have assumed that because some future events can be predicted by the observation of natural phenomena, that all events can be predicted if a person knows which sign or omen to look for.

Belief in magic

In view of the fact that magic has had an extremely long history, why is it that its fallacy has not been perceived during the great expanse of its existence? First, some of the results aimed at by magic do actually occur, either as a result of coincidence, the placebo effect, or because there may be some real virtue in what is done or in the medicines used. For example, henbane (*Hyoscyamus niger*) which contains the alkaloid scopolamine

had various magic as well as medicinal uses, the latter being as a painkiller.

Secondly, in many cases trickery is practised by the occultist to deceive his fellows. For example, a South American Witotos shaman who is attempting to cure a patient with an illness that is not responding to his herbal medicines, will, in a darkened house at night, stimulated by coca and tobacco, work himself into a frenzy, shaking his rattle, beating the floor, and uttering intermittent shrieks and howls, until he summons the spirits with whom he is to converse. Their presence is made manifest to the onlookers by the cries of animals which seem to come from all sides - by virtue of his ventriloquistic skills. Eventually, having diagnosed the illness with apparent supernatural aid, he collapses with exhaustion. On recovering, he commences his treatment. He breathes on the affected part, sucks it, spits out a black liquid, and through sleight of hand produces some object, such as a thorn or a stick, as the material embodiment of the offending spirit.

Thirdly, positive cases count more than negative ones; and fourthly, there is the belief in the existence of counter magic. If a rite fails to produce the desired result, then it is argued that the proper conditions have not been met, or that some one has magically conspired against it.

Perhaps another part of the answer to magic's persistence is that the sphere within which it purports to cope is essentially the unknown and the unpredictable. Most people crave certainty in their lives, and magic claims that humans can assert power over nature, allowing them to go forward with their aims in the conviction that through its use they can command success.

Occult powers

In the previous section, I outlined some of the reasons why magic appears to work, but these explanations aside, could there exist occult powers of which we are unaware? I shall now address this question.

One of the major problems faced by the theory of an occult force, which is neither matter nor energy as we know it, is how the material world and the force can interact to produce a tangible effect. In order for this event to occur, a mediating force would need to exist that is capable of bridging the gap between the disparate worlds of nature - matter and energy governed by natural laws, and supernature - incorporeal forces that exist on a non-material plane governed by unknown laws. Perhaps the problem will become more apparent after I give a brief account of modern physics.

Physicists have discovered that the great diversity of our universe stems from a handful of essential building blocks, the subatomic particles, and that these particles interact in a few basic ways. Physicists speak in terms of the four fundamental forces (gravity, electromagnetic, and the strong and weak nuclear forces) that take part in these interactions between the particles and mould the Universe into the form we observe.

These forces are all that is needed to explain the workings

of the everyday world, the Universe at large, and the inside of atoms.

Gravity is the most familiar force, and holds matter together in the form of planets, stars, and galaxies.

The electromagnetic force binds matter on a much smaller atomic scale. It holds the atoms themselves in place alongside their neighbours, and thereby underlies many of the physical properties of matter in bulk, such as melting and boiling points, compressibility and elasticity. It is also responsible for chemical reactions, allowing atoms to combine in different ways to form a huge variety of molecules.

The role of the strong force is to bind together the constituents of atomic nuclei, and the quarks within the individual nucleons; while the role of the weak force is altering basic particles. It may change the charge of a particle, as when a neutron decays into a proton, or it may involve interactions in which there is no change in charge.

Each of these forces acts like a cog in the intricate machinery of nature, from the microcosm of subatomic particles to the macrocosm of stars and galaxies. I do not think that it is unreasonable to ask how and where an occult force could mesh with the forces of nature, and if it is even necessary to postulate such a thing, considering that natural explanations can account for seemingly magical events.

The occultists will no doubt argue that supernatural forces exist, but science has not developed the proper instruments to detect and measure them (if such forces can be measured, then could this be evidence for their material, and therefore natural nature?). This might or might not be the case, but until these forces have been shown to exist, wild and speculative claims that they do should not be made. Science does not make claims that phenomena exist until the evidence is firmly established.

If the occultists then argue that this force is not detectable due to its incorporeity, then are we not entitled to ask how it can affect the material world? If they insist that it can, then in my opinion this is analogous to saying that I can pick up a feather with the shadow of my hand.

Occultists appear to live in a world of speculation and imagination. Imagination can be very useful in devising theories, and it can be a powerful tool for the advancement of knowledge. But without a solid factual foundation, imagination in itself cannot support the multitude of occult speculations.

To date there is no experimental evidence to support the belief that occult powers exist, and in view of this fact I think that it is justifiable to apply Occam's razor - the principle that the fewest possible assumptions are to be made in explaining a thing. Therefore, the natural explanations for magic's origin, apparent successes, and persistence remain the most likely to be true.

REVIEW

Fuzzy Thinking About Fuzzy Thinking

Scott Campbell

Fuzzy Thinking: The New Science of Fuzzy Logic
Bart Kosko, Flamingo, 318 pp, \$17.95

Bart Kosko is an electrical engineer at the University of Southern California, and is the guru of so-called 'fuzzy logic'. This book is his attempt at writing the fuzzy logic 'Bible'. Fuzzy logic is mostly derided in academic circles, but has caught on in computer design in Japan, and is starting to filter through into pop culture.¹

Kosko claims that we should abandon the rigid and narrow 'bivalent', or 'black-white' Aristotelian logic of Western civilization, which dominates science, maths and philosophy. Instead, we should take our wisdom from the Buddha, and embrace fuzzy logic, or fuzzy maths, which was first developed by another electrical engineer, Lofti Zadeh, at (surprise, surprise) Berkeley in the 1960's.

What is the difference between 'Western bivalent' logic and fuzzy logic? Well, Western logic accepts the laws of logic. One such law is the law of the excluded middle: A or -A. In other words, a proposition A is either true or false. This amounts to saying that a thing either has a property or it does not have that property. Western logic also accepts the law of noncontradiction: -(A or -A). That is, it can't be that a proposition A and its negation are both true. This amounts to saying that something cannot both have a property and not have that property. These two laws really come to much the same thing.

First year logic students often think that they can show that such laws are wrong. For example, one might think this. The law of the excluded middle entails that a thing is either hot or cold. But this thing here is neither hot or cold, it is warm. This example, though, does not show that the law is wrong. What the law entails in such a case is that a thing is either hot or not hot. If it is warm, and if you aren't counting warm as hot, then it is not hot. 'Cold' is not the negation of 'hot', if 'cold' does not include all not-hot things. We could call this mistaking an opposite (in this case, cold) for a negation (in this case, not-hot).

It seems that these laws must be true. It does not seem to be possible to make sense of the world if they are not. It does not seem to be possible that, for example, a thing can be both hot and not-hot at the same time (cases where something is hot in one part and not hot in another do not count). And if these laws were false, it follows logically that any statement at all is true, such as 'Uri Geller has psychic powers', and also 'Uri Geller does not have psychic powers'. It even follows from

the falsity of these laws that the laws themselves are true. Make sense of that if you can.

This is the reason why the laws of logic are held to be necessarily true, and a prerequisite of our thinking. Kosko, however, claims that Westerners, especially scientists, mathematicians and philosophers, accept them all too blindly, and once we see how they could be wrong, we will change our minds. This claim shows an almost complete ignorance of the centuries that philosophers have spent pondering why these laws must be true, or whether they are true, or whether they are just conventions we have adopted. Most agree, though, that it seems to be impossible to coherently reject them, although some have tried, unconvincingly. It soon becomes apparent that Kosko, despite claiming to know a great deal about philosophy, knows very little about it.

The claims that Kosko makes for fuzzy logic rest on a mass of confusions. Let's look at an initial argument. Suppose you hold an apple in your hand. He says this is '100% an apple. Or 100% of the apple is there. Or your apple belongs 100% to the set of whole apples. As you bite chunks out of the apple, the percentage falls from 100% all the way down to 0% when you have eaten the apple. About halfway through the process you hold the half apple or 50% apple'.² What Kosko is saying that the apple is initially 100% an apple, but as it is eaten, it becomes, for instance, 90% an apple, and then 80% an apple, and so on. So if we ask halfway through the eating whether it's still an apple, the answer isn't a black-white 'yes' or 'no', the answer is fuzzy. It's 50% an apple. The statement 'this is an apple' isn't either true or false. It's true 50%, and false 50%. The apple belongs 50% to the set of apples, that is, it is half in the set, and half out.

There hardly seems to be an argument here, merely some claims. Let us look at what's wrong with what he has said. First of all, he says it's '100% an apple. Or 100% of the apple is there. Or the apple belongs 100% to the set of whole apples' as though these 3 claims all said the same thing. But they don't. We can agree that 100% of the apple is there, and that as we eat it, less of the apple is there. And we can agree that at the start it belongs 100% to the set of whole apples, given that we hold that it's a whole apple, and a thing either belongs to a set or it does not (a supposition which Kosko claims to show is false).

But it does not follow that as we eat it, that it becomes 90% an apple, and then 80% an apple, and so on (and that it's 90% true that it's an apple, and 80% true that it's an apple, and so on). As we eat it, it's still an apple that we are eating, it's just

getting smaller. Halfway through, it's still true (100% true, to use Kosko's terminology) that it's an apple. It's also false (100%) that it's whole apple, and it's true (100%) that it's a half-eaten apple.

So what Kosko tried to do, in effect, was sneak his fuzzy claim in with the other claims as though it said the same as the others, so that it appeared that our reasoning is in fact fuzzy (in his sense of 'fuzzy'). But in fact his claim says something different from the others, and when you look closely at it, you can see that we do not talk in this way. We do not say that something is 90% an apple (unless we just mean that this is 90% of a whole apple, which is not the same thing), we do not say that something is partly in the set of apples and partly not, and we do not say that 'this is an apple' is 90% true.

So Kosko has not shown here that our reasoning is 'fuzzy', and that Western logic is wrong. Is it even possible that a statement could be 90% true? I cannot see how this makes any sense, if it is taken as going against the laws of logic. There are, of course, cases where it is acceptable to speak of claims being 90% true, but such talk is simply loose talk, which is acceptable in normal conversation, and does not show that the laws of logic are false.

For example, one might say that the claim 'Those people are all state cricketers' is 90% true if 90% of them are state cricketers, and 10% are not. Strictly speaking, though, the claim is wrong. The claim that is true is '90% of those people are state cricketers'. What we are expressing by saying that the first claim is 90% true (when strictly speaking it is wrong), seems to be something like this: if we had said of each person in the group that they are a state cricketer, we would have been right 90% of the time. There is obviously nothing in this case that threatens Western logic.

The claims that Kosko makes also gain some apparent plausibility from the fact, which no-one would ever deny, that the concept 'apple', like many of our concepts, is fuzzy, that is, it is vague, with indeterminate or grey boundaries. It is not always clear what counts as an apple, because we don't have precisely-drawn boundaries for what counts as an apple. Thus we might not always be able to decide whether, at the end of eating, a bit of the core and the stalk counts as an apple, or whether an extremely mutated piece of fruit from an apple tree counts as an apple.

But the fuzziness here is in our concepts, not in the world. The world isn't fuzzy. The things in the world have the properties they do, and they have them 100%, if one wants to talk that way. Once you specify your concepts, this becomes obvious. For example, the apple has a particular specific shape at a particular time. That is the shape it has at that time, full-stop. It doesn't partly have that shape, and partly not.

Kosko at times seems to realize that the fuzziness resides in the concepts, not in the world, but at times he specifically says that the world is fuzzy, or grey³ (or that facts, which are states of affairs in the world, are fuzzy, or grey⁴). Most of the time he just seems to be unaware that there is any distinction to be made. His whole position seems to be built around a

simple mistake that wouldn't be tolerated in a first year philosophy student.

The claim that concepts are fuzzy is a commonplace, and doesn't threaten Western logic. This is not to say, though, that Kosko understands what is involved in concepts being fuzzy. If a concept has an indeterminate boundary, then it may be indeterminate whether something falls under, or belongs to, the concept, but this is not the same as partly belonging, and partly not belonging, to the concept.

The claim that the world is fuzzy, on the other hand, is the really radical claim attracting a lot of the attention (especially that of journalists and hip bookstores). But it's also the claim that doesn't make any sense.

At times, Kosko considers whether we might simply make our concepts more precise in order to lose the fuzziness of concepts, but he complains that this draws an artificial boundary.⁵ This may well be true, but this point is irrelevant to the issue. Concepts are 'artificial' anyway, in the sense that we make them up. If we make them up, what does it matter that we draw the boundaries how we like?

(Some might disagree that concepts have artificial boundaries, and hold that some concepts, for example, 'human', have boundaries set somehow by 'Nature' or 'God', maybe because there is some sort of 'metaphysical' divide between humans and animals. I don't agree with this myself, but if one holds this, one would then disagree with Kosko that drawing precise boundaries is artificial).

Anyway, the 'multi-valued' logic that Kosko champions has to make **exactly** the same sort of 'artificial' decisions. For example, to say that the apple goes from being 1% an apple to 0% an apple means one has to decide exactly when the thing is no longer an apple (even in part). But this means that one has drawn a precise boundary between an apple and a non-apple, which is just what Kosko was complaining was artificial! In fact, in all of Kosko's mathematical examples, he assigns precise values to things and draws precise boundaries. For example, saying what counts as 50% an apple and 50% not an apple draws a precise, artificial boundary. And later on, when talking about the definition of life, he even suggests that we take a poll to determine how much a foetus is alive, and how much it is not-alive. How this is supposed to be less artificial than the precise boundaries that the black-white logician is drawing beats the hell out of me.

A traditional paradox that arises for concepts with fuzzy or indeterminate boundaries is the Sorites paradox. Suppose you have a pile of sand. Taking away one grain of sand cannot change a pile into a non-pile, because this doesn't change the pile enough to count as a change from a pile to a non-pile. (If you disagree with this, then the argument to follow for fuzzy logic can't get started.) Suppose then that we begin taking away one grain of sand at a time from the pile. Eventually, we end up with some grains of sand that no-one would call a pile. So at some point the pile has become a non-pile. But if taking away one grain of sand at a time can't change a pile into a non-pile, then there could have been no such point.

Now, this paradox will probably seem easy to defeat. The usual reply is that the boundary between a pile and a non-pile is fuzzy, but that doesn't mean that there isn't a boundary. It's just a fuzzy boundary. We can tighten it if we want, or not. (Personally, I think that while this reply is essentially correct, it doesn't solve all the problems that arise from the Sorites paradox.) Anyway, Kosko and the fuzzy boys certainly don't think that Western logic has solved it. In an article on fuzzy logic in *The Australian*, it was reported that one way that fuzzy logic triumphs over traditional logic is that it solves the Sorites paradox: 'At what point does the pile cease to be a pile? The fuzzy answer is that it leaves the set of piles of sand as smoothly as the individual grains are taken away from it.⁶ That is, the more grains of sand you take away from it, the less it is a pile of sand (and the less it is contained in the set of piles of sand: Kosko does not think that set containment is all-or-none).

But this can easily be shown to lead to nonsensical conclusions. Suppose we have two piles of sand, A and B. A contains 100 000 grains, and B 10 000. They are both, according to this fuzzy reasoning, 100% piles of sand. Now, according to fuzzy logic, a pile of sand becomes less a pile of sand the more grains you take away from it. Suppose then that we take away 10 000 grains from A. This is one tenth of A, and so A is now only 90% a pile of sand. But hang on a minute, A contains 90 000 grains, so it's nine times as big as B, which contains 10 000, yet B is 100% a pile, and A is only 90% a pile (and it is only 90% true that A is a pile of sand, yet it is 100% true that B is). I can't see that this makes any sense.

(What does Kosko himself say about the Sorites paradox? Well, he makes much of the supposed failure of Western logic to solve it, and he makes much of fuzzy logic supposedly solving it, but conveniently for him, he doesn't say how fuzzy logic solves it.⁷)

Another argument that Kosko uses is this. The laws of logic entail that an apple is either red or not red. And it is true that some apples are red, and some, such as green apples, are not red. But many apples are red to a degree. They are partly red and partly not red (for example, they have green streaks). Thus, the laws of logic fail. 'This apple is red' may be true 70%, whereas the laws of logic entails that it is either true or false.⁸

This example hardly shows that the laws of logic are wrong. Strictly speaking, 'this apple is red', said of an apple that has green streaks, is wrong. If you take 'red' to mean 'all red', then how can you deny this? But, of course, in normal talk, we allow that 'red' can mean 'mostly red', and so we allow that the claim that 'this apple is red' can mean 'this apple is mostly red', and so, unless we are speaking strictly, we will say that this claim is true. When we are speaking strictly, we will say that it is false. Someone might claim that, even speaking strictly, that it is 70% true, but this just means that the apple is red on 70% of its surface, ie that the claim 'this apple is 70% red' is true. Again, no problems for Western

logic.

A further argument is this. Suppose a glass is 50% full. Kosko complains that according to Western logic, 'the question is not whether the glass is half empty or half full. If we had to say all or none, the question is, is the glass full or empty'?'⁹ But this creates a paradox, says Kosko, because it will not be true to say the glass is full, and it will not be true to say that the glass is empty, nor will it be false to say that the glass is full, nor will it be false to say that the glass is empty. Fuzzy logic, however, simply says that both statements are half-true, and half false. 'If, for some cultural reason we limit what we say to the two bivalent options of all or none, true or false, yes or no, then we pay the price and have a real contradiction on our hands, a case of A and not A.'¹⁰ Kosko seems to think that this example shows that Aristotle and all of Western logic falls to the Buddha's feet.

This is laughable. There is no paradox for Western logic here. The mistake Kosko has made is the 'mistaking an opposite for a negation' mistake, which, as I pointed out earlier, is sometimes made by first year students. 'Empty' is the opposite of 'full', but it is not the negation of 'full' (unless you are using 'empty' to mean 'not full'), and 'full' is not the negation of 'empty' (unless you are using 'full' to mean 'not empty'). Rather, 'not full' is the negation of 'full', and 'not empty' is the negation of 'empty'. (Similarly, 'all' and 'none' are opposites, but not negations).

Western logic thus entails that the glass is either full or not full (it's not full), and that the glass is either empty or not empty (it's not empty). It also entails that it's either half-full or not half-full (it's half-full). Where's the paradox? All I could think of here was a line from a poem of Auden's, printed in Robert Hughes's recent book *The Culture of Complaint*: 'Whole cosmogonies will be created out of some forgotten personal resentment'.¹¹ Kosko is like a little naked boy running into the street shouting 'the Emperor has no clothes'.

Kosko also makes much of the fact that some questions may not have black and white 'yes' or 'no' answers. One example he uses at lectures is to ask people to put their hands up if they are satisfied with their jobs. Some put their hands up all the way, some half-way, some two-thirds of the way, and so on. From this he concludes that black-white logic fails. But there is once again no problem here for black-white logic. The reasons that people might put their hand up only some of the way include the following. They are satisfied with their job to some degree, but they don't know whether this is enough to count as 'being satisfied with your job'. Or they are satisfied in some ways, but not others. Or they don't know if 'being satisfied' is an appropriate term to give to their feelings. None of this threatens Western logic. The problem is rather with Kosko's question: it is not well-defined. If Kosko explained precisely what he counts as 'being satisfied with your job', then we can give a 'yes' or 'no' answer.

Kosko also seems to feel that black-white logic cannot do justice to things being a matter of degree, such as how much you are satisfied with your job. This is completely wrong. We

can define two mutually exclusive categories, or sets. *S* is the set of people who are satisfied with their jobs, and *-S* is the set of people who are not. Within these sets are subsets. For example, in *S* there is *S1*, the set of people who are only a little bit satisfied with their jobs (and we will suppose that 'a little bit satisfied' is precisely specified, or 'well-defined'). Everyone in *S* is either in *S1* or not. Another subset in *S* is *S2*, the set of people who are very satisfied with their jobs. Everyone in *S* is either in *S2* or not. (Those who are in *S1* cannot be in *S2*, and vice versa, although some members of *S* may be in neither, for *S1* and *S2* are not negations, just as hot and cold are not.) What does all this show? It shows that just because we can distinguish between those who are satisfied and those who are not does not mean that we cannot also distinguish the different degrees of satisfaction.

(Another complicating factor that he fails to appreciate is the relativity of some of the concepts he uses in his argument, such as 'tall'.)

Kosko ends up running together a whole smorgasbord of problems from modern science, maths and philosophy. I counted ten. These are genuine and difficult problems that have perplexed scientists, mathematicians, logicians and philosophers for hundreds, in some cases, thousands of years, and no-one pretends that they aren't serious problems. Kosko claims that fuzzy logic solves them all. It doesn't solve any of them.

It would be too exhausting to sort out all of Kosko's confusions. As Ian Plimer points out in his new book on creationism, *Telling Lies For God*¹², it always takes ten times as long to sort out the mistakes made by pseudo-scientists as it does for them to make their claims, and the same applies to Kosko. So I'll just list the problems that Kosko claims to have solved.

1. Logical paradoxes. (For example, the statement 'This statement is false' cannot be false, for then it is true, but it cannot be true, for then it is false. Such cases are the only cases where it is at all plausible to claim that statements can be half-true and half -false, as some non-fuzzy logicians have claimed.)
2. Probability. (The particular problem here is that the 'subjective' probability of an event is relative to the knowledge one has, but, given determinism, the 'objective' probability of an event is 100%.)
3. The Sorites paradox.
4. Quantum uncertainty.
5. The justification of induction. (Do we have any rational basis for supposing that the future will be like the past?)
6. Truth. (What is it for a statement to be true?)
7. The fact that an empirical statement can never be completely accurate.
8. The problem of applying formal systems to the world.
9. The non-linearity of much of the world, as opposed to the linearity of many mathematical models.
10. The problem of capturing the whole of an analog signal digitally.

After reading Kosko mix all these problems together (many of which he fails to adequately explain) and pull the fuzzy rabbit out of the hat as the solution to them all, I felt like Jeremy Bernstein, who complained in his New Yorker review of Fritjof Capra's *The Tao of Physics*, that 'A physicist [reading this] might feel like someone on a familiar street who finds that all the old houses have suddenly turned purple.'¹³

Kosko's trump card for fuzzy logic is supposedly this: it works. Many computer-based products in Japan are using fuzzy maths, and not only are they working, they're working better than black-white products. So what's the story here? Well, Kosko provides some simplified examples of the sort of maths used in these products, such as with a thermostat-driven air conditioner. Some of it seemed to be clever, allowing much simpler instructions to drive the product than some standard ways. But all the maths seemed to be nothing that you could not do with black-white maths as well. It all seemed to be black-white maths in disguise, as many mathematicians have since claimed.¹⁴

You can smell the rat very strongly when Kosko starts talking of 'defuzzification'¹⁵ and 'fuzzy weighted averages'¹⁶, which are moves he needs to make to get the computer to tell the motor of the air conditioner what to do. The computer, of course, has to give the motor a black-white instruction, like turn on at such-and-such a speed for 4 minutes 30 seconds. As Kosko himself says, 'You can't hand a fuzzy set to a motor. You have to give it a number'.¹⁷ So Kosko has to 'black-and-whiten' all his fuzzy maths to actually get the product to work. He reports, revealingly, that some of his fuzzy friends have called this move 'Bart's apostasy'. He says 'Some of my fuzzy friends thought I had lost the faith when I first talked about this'.¹⁸ Perhaps they haven't had to get anything to actually work.

Some mathematicians, in quickly dismissing fuzzy maths, have claimed that it's just probability in disguise. Kosko gets a lot of mileage out of the fact that fuzzy logic is not concerned with what is probable, but with what is actual. It does seem to be true that fuzzy logic does have a different basis in some ways than probability, and what's more, a claim that something is just probability in disguise is vulnerable to the fact that there are basic problems in the conception of what probability is. But nevertheless, much of fuzzy maths seems to be probability maths in disguise.

One might ask at this point, if fuzzy maths is not really anything different to black-white maths, how is that Japanese fuzzy products are pushing ahead of non-fuzzy products in some areas? One of the reasons for this is that the fuzzy maths is being used in neural-net, or connectionist, computers, and these are providing advances in artificial intelligence that have nothing to do with fuzzy maths. Kosko, however, doesn't make it very clear that there is a difference, and more than once says things which suggest very strongly to the reader, especially a reader unfamiliar with artificial intelligence (AI), that fuzzy maths and neural networks go hand in hand, or even that they are the same thing, and that black-white maths and classical

AI are essentially tied, or even that they are the same thing, which is totally wrong.¹⁹

The other reason for the Japanese lead is that, as Kosko himself points out, the Japanese companies involved put all their effort into making the products work, unlike American AI efforts, which are overly theoretical.²⁰

Anyway, by this stage, it's become obvious that it's all a bit of a swizz. Kosko attracted his audience with some radical metaphysical claims, such as that truth isn't black and white, and that contradictions can occur, and even that the whole can be contained in the part, claims which no doubt appealed to the holistic beads-and-sandals set, as well as the sort of 'science' journalists whose enthusiasm for a science book is in direct proportion to how (supposedly) revolutionary it is.

But even if we accepted fuzzy logic, we don't get what was promised. We don't really get contradictions, despite Kosko's making a big play about the fact that 'A and -A' can be true. ('A and -A' he calls his 'yin-yang' equation, a name he says scientists and mathematicians are sure to ridicule.²¹ What, me ridicule?) He isn't saying anything like 2+2 doesn't equal 4, or that an apple can be, to use his terminology, 100% an apple and 100% not an apple. All he's saying is that a statement like 'That is an apple' can be true 50% and the negation of this statement, 'This is not an apple', can be true 50%. Which is just his odd way of saying that the apple is half-eaten. Big revelation. Is this what the wisdom of the Buddha comes to?

There are no full-blown contradictions, where a statement can be 100% true and 100% false, which is what the TM types and those who took too much acid in the 60s who bought the book might have hoped for. You can't derive any statement you like from Kosko's contradictions, as you can from a full-blown contradiction. So Western thinking would hardly crumble even if we thought fuzzy logic was right.

As I mentioned, one paradoxical-sounding claim that Kosko makes is that 'the part can contain the whole'²², a claim that is sure to win him converts among the terminally fey. Kosko himself admits that at first 'The very idea sounded like bad Eastern mysticism'.²³ (If Kosko knows what good Eastern mysticism sounds like, I'd like to know.) But reading what Kosko writes in regards to this claim reveals that what he really means is unbelievably trite. Take a small circle P which is contained in a larger circle W. We would all agree that W contains P as a part. But does P contain W as a part? Western Aristotelian logic (and plain common sense) tells us no, says Kosko. But Kosko points out that while it is true that P does not contain the whole of W (except where P=W), P contains a part of the whole of W. Which part of the whole of W? The part that is in P. So a part P can contain part of the whole W, namely that part of the whole that is P. In other words, P, a part of the whole, W, contains P, a part of the whole, W. That is, P contains P.²⁴

No kidding. Was this supposed to be some great threat to Western logic? Surely I had missed the great revelation that would turn my thinking upside down. So I read it again and again. Was I missing something more abstruse here? Was that

Koko the Clown or Kosko the Clown I had seen at that circus? What's Kosko earning on the lecture circuit in Japan? The re-readings turned up nothing. That was it. 'The whole in the part' means 'the part in the part'. The enlightenment of the Buddha has never looked so far away.

Kosko, being your classic self-styled anti-Western revolutionary, doesn't lack ambition. He has to use fuzzy logic to solve everything. He claims that it solves the problem of abortion²⁵ and clears up (in a fuzzy way) our ethical thinking.²⁶ His arguments here all seem to rest again on his mistaken assumption that Western logic cannot accommodate matters of degree. He then goes on to suggest that his theory explains why there is something rather than nothing. And he even gives us some vague speculations about God and the future.²⁷ The little naked boy is shouting 'I'm the Emperor'.

Footnotes:

1 See, for example, *The Australian*, computer section, 26 April, 1994. The article is from *The Economist*.

2 Bart Kosko, *Fuzzy Thinking*, London: Flamingo, 1994, p.24. All further footnotes in this article will refer to this book unless stated otherwise

3 For example, on pp.xv, 4, 5, 6, 8, 41, 49, 50, 63, 67, 80, 95, 96, 97, 165 to name a few references I discovered randomly.

4. For example, on pp.xv.

5 pp.15, 95, 126, 153.

6 *The Australian*, op cit.

7 pp.94-7.

8 p.27-8.

9 p.25.

10 p.26.

11 Robert Hughes, *The Culture of Complaint*, London: Harvill, 1993, p.3. Auden's line is from 'For the Time Being: A Christmas Oratorio', 1944.

12 Sydney: Random House, 1994.

13 *New Yorker*, October 8th, 1979; quoted by Martin Gardner in *Science: Good, Bad and Bogus*, p.377

14 For example, the piece in *The Australian* mentioned in footnote 1 tells of a Dr. Charles Elkan at the University of California at San Diego who claims to have devised a theorem showing that fuzzy logic 'collapses to more traditional sort of two-valued logic under close scrutiny.'

15.p.172

16 pp.176-7.

17 p.172.

18 p.177.

19 For example, on pp.17, 24, 159. See pp.201-35 for Kosko's account of fuzzy neural nets.

20 p.171. 21 p.26. 22 p.58.

23 p.58. 24 pp.56-9. 25 pp.242-53.

26 ch.14. 27 pp.270-81.

THINKING

Why Creationists Don't go to Psychic Fairs

Leigh Dayton

I have a friend who believes in the healing power of crystals. She is also convinced that “recording crystals” contain details of hidden arts of the ancients and views spiritual journeys to Peru as a good thing. As well, Noreen bones up on the lore of ‘lost’ civilisations such as Atlantis, while arguing that Velikovskian catastrophism has its points.

What is particularly worrisome about all this — aside from the embarrassing admission that one of my buddies is a die-hard New Ager — is that Noreen is a pharmacist. She studied biology and chemistry. She is full bottle on the scientific method and even touts it as an effective tool for exploring the who, what, when, where and why's of Mother Nature.

So what's going on in her head? What makes an otherwise sane, thinking human being turn to intellectual jelly and believe things that are obviously just plain silly and, in some cases, potentially dangerous?

Further, what about all those other even more deluded souls out there? You know, the folks who hang out for a call from ET or wait patiently for the spacebus to Alpha Centauri. This crowd **knows** that Elvis lives and worries about being abducted by a wily alien.

And going one step beyond these addled New Age aficionados, what madness lurks in the brain of a creation scientist?

Are the advocates of these assorted “pseudosciences” ignorant, stupid, mentally deranged or a hearty combination of all three?

Well, over the years, puzzled psychologists, sociologists and anthropologists have tried to shed light on the matter. Some, like psychologist Massimo Piatelli-Palmerini, lay the blame at the door of “natural errors in processes of reasoning”.

That is, Dr Piatelli-Palmerini and company figure that we humans have a hard-wired tendency to form patterns from the jumble of daily events and to jump to conclusions which are emotionally satisfying, though often illogical. Such processing errors mean that, *ipso facto*, weird lights in the sky become the headlights of a flying saucer or the advance guard of a visiting dignitary from the Beyond.

The media too gets its share of blame. Sensational, uncritical reports of astounding telepathic skills or the curative powers of newts on toast add to the muddle, many social scientists conclude.

Finally, the experts say education must take part of the rap for letting down the sceptical side. For example, a disheartening series of studies in Britain, Canada, the US and Australia reveal that the bulk of humanity has, at best, a tenuous grasp on the basic facts of science: the definition of an atom, the fact that the Earth orbits the Sun, the meaning of evolution and so forth. Clearly, science education needs to be smartened up.

OK, these hypotheses are well and good except that none of them explains why Noreen refuses to see the golden light of reason and steadfastly clings to her crystals and psychic odysseys.

I remained baffled by her mindset until last February when I ran into Raymond Eve, a sociologist at the University of Texas at Arlington. The occasion was the annual meeting of the American Association for the Advancement of Science in Atlanta, Georgia. There, the appropriately named Dr Eve presented a paper with the intriguing title “Differential Etiology of Pseudoscientific Beliefs: Why Creationists Don't Go To Psychic Fairs”.

In the paper he posed the argument that creationists and the rest of the pseudoscientific crowd are not always as irrational as they seem to died-in-the-wool sceptics. In fact, he said they often come to their wholly irrational beliefs by thoroughly rational means. The difference between a pseudoscientist and a real scientist, according to Dr Eve, is different “rules for knowing” what is “true” and what is “false”.

Dr Eve came to this peculiar conclusion after probing the minds of 338 students at the University of Texas, considered to be the most “average” university in American in terms of age, religion, economic background and other characteristics that scientists — and market researchers — cherish. The willing “subjects” for Dr Eve's study anonymously completed detailed questionnaires designed to tease out who thinks what and why.

After running the answers through the computer, Dr Eve found that creationists judge a thing to be true by reason of faith, tradition, revelation or authority. These “traditionalists” reject scientific inquiry totally. As one respondent told him:

Continued p 29...

FORUM

Natural Myths

Roger Scott

There is a long tradition of seeing nature as the highest ideal, as a source of moral messages, inspiration and goodness. The Harvard palaeontologist and science historian Stephen Jay Gould (1984, p32) has reasoned convincingly, using arguments going back at least to Darwin, that nature is not a source of moral lessons for humanity. This concept is a central inspiration for this article.

For several months recently on the way to work, I passed a sign with the words “LOSE WEIGHT NOW, CALL (NAME, PHONE NUMBER), ALL NATURAL”. Presumably, the “naturalness” of the process will ensure a safe and happy result. Health food shops sell many “natural” products. ABBA’s Frida is a committed conservationist, and apparently wears clothing containing only natural fibres. Pamela Stephenson campaigns against the use of pesticides in foods, preferring them to be natural and pure. ‘Natural’ childbirth is fashionable today. People get back to nature in various ways; one is to settle on a plot of land in the country and grow trees right up to the house, a risky practice in a country prone to bushfires.

In general, the natural is ‘in’. It may be due to the widespread loss of confidence in the ability of science and technology to improve our lot. Some people see science and technology, especially old science and technology, as a definite threat. It may have brought us wonderful achievements, such as antibiotics, the space shuttle, radio and television (including stump-cam), but it has also brought us nuclear bombs, Chernobyl, various types of pollution, napalm, agent orange, lead in petrol and thalidomide.

In a confusing and threatening world, it is much better to be sure, to favour the ‘natural’ option. The question must be asked - how much faith should we place in natural things? Does being natural mean being good, desirable or right? Does being unnatural mean being bad, wrong or undesirable?

There seems to be a very naive but widely held view that the world was a clean, ordered, tranquil, more or less perfect place before humans came along to stuff things up with their science and technology. The earth is not as congenial as some would want to believe. A large proportion of the species that have lived on earth have become extinct. The biosphere is subjected to radiation and radioactivity from space and from the rocks below. Volcanoes are very impressive atmospheric polluters.

The natural world can seem a very cruel place. Cats sometimes ‘play’ with mice before killing them. A well-known David Attenborough program showed a killer whale tossing a

live seal around (before eating it) in a way that would shock many people. Rivers and lakes dry and fish and other organisms dependent on the water perish. Occasionally tens of thousands of pelicans die around vanishing water in central Australia. However, are these really examples of cruelty in nature?

Taking the lead from Darwin and Gould, nature is neither cruel, kind, good or bad. Cruelty is a human concept, which along with kindness does not apply to the natural world. Neither do the concepts of good and bad. It is not ‘good’ or ‘bad’ that a lioness brings down a zebra and the pride then tears it to pieces. It is just the way the natural processes of evolution have resulted in lions feeding.

Yet we seem to have a cultural prejudice that natural things really are always good. The corollary, that un-natural things should be distrusted, is equally strong of course. Immunisation is not natural, and that alone may explain why immunisation rates have dropped recently. There has been some anti-immunisation, pro ‘natural medicine’ propaganda recently which seems to have found a receptive audience. Health authorities are now trying to re-educate the public on the importance of preventing disease by immunisation, because some diseases rare ten or twenty years ago such as whooping cough are becoming less so. ‘Healthy’ natural tans have been fashionable for a while now. Lagging behind is the consequential and well-documented rise in skin cancer rates.

Sixty five million years ago, many species were wiped-out by some combination of natural (and thankfully rare) phenomena. Without this cataclysm, humanity would probably not have evolved. Words such as ‘good’ and ‘bad’ may come to mind in relation to these chance events, but they are simply inappropriate. Around two hundred and twenty five million years ago, an even higher percentage of species became extinct, possibly brought about by nothing more than continental drift. The scale of the extinctions in just these two events is almost impossible to comprehend, and there are of course many other natural extinction episodes in geological history.

So much for the natural events in the past. Currently, it is estimated that about one quarter of plants are poisonous. Oleanders are an example. They flourish in Queensland, where generations of parents have warned their children not to get the sap in their eyes or mouths. Some native trees in the bush contain fluoro acetate, and it causes significant stock losses. Better known as the active agent in the poison 1080, fluoro acetate is used to bait animals such as dingoes. While I am not advocating the wholesale spraying of food, it remains a

fact that most of the toxins we will ingest during our lives will come as substances occurring naturally in our food. These have evolved in plants as adaptations which help them survive.

The blue-ringed octopus, scrub ticks, box jellyfish, stonefish and many other animals have adopted the use of poison. Good natural stuff. As Darwin recognised long ago, there is a struggle for life. Organisms have evolved all sorts of adaptations as a means to survive, secreting poison being one of them. These natural adaptations are not good, bad, righteous, nefarious, virtuous, moral or immoral - the words are human concepts and have no part in the natural world.

Gould (1983, p19) has pointed out that imperfection of design is one of the better ways to recognise evolution. One of his favourite examples is the giant panda. Although its ancestors were carnivorous with five forwardly directed claws, the giant panda has evolved a sixth digit, a jerry-built thumb that helps it grip bamboo shoots. It is not great, but it does the job. It is certainly not perfect, but it is natural.

Tapeworms are also natural, as are thrush, botulism, syphilis, spirochaeta, AIDS and cholera. So too are tornadoes, earthquakes, volcanoes, landslides and tsunamis, non-biological natural phenomena that have taken a terrible toll of life. Science and technology does not have a monopoly on hazards to life.

Greenhouse myths

Few scientific and technological issues have been more widely publicised and discussed than the greenhouse effect. For those who are about to stop reading, (and if the editor lets it get any further), it will be suggested that current concerns are not scientifically based, are probably overdone, and are first cousin to the myths that natural means good and unnatural means bad.

A number of scientists and plenty of non-scientists have called for action to prevent drastic consequences. We are heading for a hothouse earth they say. Climates will change, rainfall patterns alter, polar ice caps melt and low-lying land flooded. No less a person than the prime minister was reported recently as describing the drought as a climate change phenomenon (presumably as a result of the greenhouse effect, a construction he apparently did not use). Humans seem to be seriously disrupting the natural order. How firmly has the case been established? When I hear a spokesperson for Greenpeace or a similar organisation speaking on this issue, I cannot help thinking that I am being sermonised in some sort of secular church, with its own deceptive dogma.

Many of my high school students accept without question the notion that the earth's climate is warming (as a consequence of human activity), and that we are headed for trouble. When I mention my scepticism, reactions vary from the most common, no reaction at all, to slightly raised eyebrows, or a bemused pity or even occasional mild hostility. Some actually want to believe that the world is in critical shape.

While the greenhouse effect is necessary to make the earth

habitable, it is an enhanced effect that is worrying people today. The claims go something like the following:

(1) recent (ie the last hundred or so years) additions of greenhouse-active gases to the atmosphere will result in the greenhouse effect strengthening;

(2) the main greenhouse gas is carbon dioxide;

(3) additions to the atmosphere of carbon dioxide have come about mainly as a result of the burning of fossil fuels and the clearing of forests;

(4) the consequences of climate change will include changes in rainfall patterns, thermal expansion of the top layer of the ocean, the melting of substantial quantities of polar ice and the flooding by the sea of low-lying land;

(5) Australia is one of the worst greenhouse polluters in terms of carbon dioxide released per person;

(6) industry must invest large resources in an attempt to reduce emissions of greenhouse-active gases;

(7) human induced climate change or global warming has begun. This is shown by increased atmospheric and oceanic temperatures.

Only (3) and (5) have a fair to good probability of being true. Point 1 has yet to be established with certainty. As for (2), Plimer (1994, p15) has noted that water vapour is a more significant greenhouse gas than carbon dioxide. The events noted in (4) have a very high probability of occurring some time in the future regardless of human activities. On the crucial point 6, why should industry invest large resources in reducing emissions when the case for doing so is far from clear? As for (7), this is by far the weakest of all the assertions above.

Scientists predicting global warming have neither established that it IS occurring, nor that it MUST occur. The late Roger Revelle put it well when he described the loading of the atmosphere with greenhouse-active gases as the greatest geophysical experiment ever conducted by humanity. However it is an experiment with numerous uncontrolled variables. These include changes in the energy output of the sun, periodic changes in the earth's orbit, natural emissions of greenhouse-active gases and a variety of interactions between the oceans and the atmosphere in which greenhouse gases may actually be absorbed.

Many of the scientists quoted or reported in the popular press have referred to rises in the temperature of the atmosphere and in ocean currents. They tend to be happier about oceanic data because it is not subject to the 'heat-island effect', which can be a problem with air temperatures. (Much of the data has been obtained in cities, which by virtue of their transport systems, large areas of light-absorbing roads, building air conditioners and the like may be slightly warmer than the countryside.) Is oceanic data any more reliable?

It is well known that Greenland was settled about 800 years ago, and was actually farmed for a while. This was in response to a warming of the climate. When the climate cooled, the Greenlanders had to abandon their settlements. No rational person would associate human interference with this climate

change event, and it is far from unique in recorded history. It was a 'natural' event. Nor would a rational person link ice ages with human greenhouse emissions. The existence of ice ages was first worked out by Louis Agassiz (1807-1873) around 1837 (Millar et al, 1990, p16). Not even creationists would deny that they predate industrial civilisation by many years. (Those of us old enough might remember that a concern of some climatologists about thirty years ago was the coming ice age. Daly (1989, p17) notes this older worry.)

Given natural variation in climate, would one not expect natural variation in ocean current temperatures also? Looked at in the context of changes over even quite recent time, observed changes of half a degree or so become very difficult (or impossible) to link scientifically with human greenhouse emissions. Perhaps the earth IS warming in response to human activities. Does anyone really know? One could argue that the more prudent approach would be to err on the side of the "earth is heating up" hypothesis (because if climate changes do set in, they will be essentially irreversible in the short term). However this is hardly a basis for a national emissions policy. The data presented so far to back-up claims of a heating earth have not established global warming.

Daly (1989) is critical of the claims for global warming brought on by burning fossil fuels. He acknowledges that scientists have established a mechanism by which greenhouse warming can occur. (Visible light passes largely unabsorbed through the atmosphere and is partly absorbed at the earth's surface, warming it. This in turn causes a re-radiation of some of the energy at longer infra-red [IR] wavelengths [which are invisible]. This energy can be absorbed by atmospheric gases such as water vapour, carbon dioxide and methane, but not by oxygen or nitrogen, the dominant gases of the atmosphere. When the atmosphere absorbs IR radiation, it warms. If the concentration of carbon dioxide [the greenhouse gas emitted in greatest amount] rises, the atmosphere should become warmer still. This heat energy will spread right around the globe, warming it).

Is global warming an inevitable result of large-scale burning of fossil fuels? Daly (1989, pp33-36) says no. Just as where one sound frequency will shatter a wine glass while others will not, the carbon dioxide molecule cannot absorb all IR wavelengths. A good deal of re-radiated IR energy escapes into space, unabsorbed by the atmosphere. There are 'windows' in the carbon dioxide blanket through which IR energy escapes easily. Daly claims that present-day concentrations of carbon dioxide are already almost fully absorbing IR energy at those wavelengths at which the carbon dioxide molecule is capable of absorbing IR energy, that is, the non-windows wavelengths. Additions of extra carbon dioxide will therefore make little difference. It is this last claim that needs to be addressed by those predicting global warming.

If lobbyists are asking industry to make major and costly changes, it would seem desirable for the scientific case to be made with greater clarity and certainty. One approach could

be to set up an experiment in which IR wavelengths matching those re-radiated by the earth, are passed through a long tube. It will have an IR source at one end and a detector the other end. The tube would contain average air except for the percentage of carbon dioxide, which would be varied. The amount of IR absorption could then be measured. This may seem an improvement, but actually does not in any way address variables such as interactions with oceanic water. Nevertheless, better data than at present are clearly needed.

An ABC *4 Corners* documentary on energy and the greenhouse effect was telecast late in 1994. It featured a flight around a coal-fired power station. Smoke stacks and cooling towers were shown, and very large masses of white, cloudy emissions were clearly visible, particularly from the cooling towers. Carbon dioxide is invisible. The clouds from the cooling towers were simply water vapour, but the viewing public was not informed. These images were accompanied by a narration supporting the as yet scientifically unsupported global warming scenario. Together they could easily conjure up ideas, for lay viewers (ie the majority), of an advanced industrial society seemingly at war with nature.

An Australian scientist interviewed for the program categorically stated that the earth will heat-up as a result of industrial emissions. This conclusion is no more than a guesstimate, and should have been presented as such. There is a spectrum of certainty to scientific conclusions. It ranges from fact, such as evolution and continental drift, to the much more speculative, such as a good deal of cosmology. Global warming predictions presently lie somewhere between the two, and possibly much closer to the latter. Let us hear how much extra IR radiation is absorbed for (say) each 1% rise in carbon dioxide levels. Let us hear discussion about past climate changes, how they arose and how they influence projections. What part will (or could) the oceans play? Let us hear more talk of probabilities, rather than of certainties.

Is climate change inevitable? Geology is well placed to provide as clear an answer as the scientific method can give, which is yes. Whether or not we control industrial emissions, the geological record shows that climate change is almost certain to occur again, for good or ill. Eventually the earth will prove less hospitable than it does now. It is therefore desirable that we do not stock the planet with the maximum number of Homo sapiens that it will hold during the more favourable times. Otherwise, when climate change does set in, many areas will be over-populated. This will produce famine and tensions that have historically led to war. Arguably, that may be natural.

Why has concern about the greenhouse effect been able to affect the community so strongly? We certainly do not want to live in a flooded world, but at least two deeper factors may be at work. First, those intertwined factors identified by Plimer (1994, p 17). The warm inner glow conferred by moral superiority is automatic once contumely is heaped on the greenhouse gas emitters. Secondly, the whole issue resonates

with a general disquiet about science and technology. By burning fossil fuels we are interfering with nature, it is not natural, and therefore must be a Bad Thing. However, natural does not mean good (or bad), and unnatural does not mean bad (or good). They are altogether different concepts.

The reason the existence of poisonous animals and plants is known is that people have died from them. We must treat nature rationally and on a case by case basis, rather than mindlessly genuflecting. Let the apostles of the natural climb down from their pulpits.

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...Magic from p19

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...Psychic fairs from p 25

"God said it, I believe it, end of argument." Such rules of proof would hardly satisfy the Nobel Prize committee, but they are consistent, Dr Eve said.

Meanwhile, he learned that fanatical New Agers who clutch crystals and sit under pyramids have quite different "rules of knowing", even though to questioning minds they may seem as other-worldly as those who view evolution as heresy.

According to Dr Eve, New Agers apply what he calls "postmodern" rules to questions of truth. They give the intellectual flick to traditional thinkers, arguing that a return to religious fundamentalism is certainly a bad idea. They even claim to respect Science (with a capital S) and frequently (mis)quote scientists to support their belief in, say, astral projection or past life regression.

But while they lean on science for credibility, Dr Eve found that these hybrid thinkers accuse scientists of an "excessive rationalism" which they say has led to militarism, consumerism, pollution, global warming and a host of social and environmental no-no's. He told the Atlanta meeting that a typical postmodernist believes that "spirituality" and "pagan religions" can help solve the world's woes.

To add to their mixed bag, Dr Eve said that typical postmodernists seek emotional comfort in "fantastic science" and plump for "metaphysical technology", rooted in pre-Christian and non-Christian world views: reincarnation, palmistry, channelling and numerology, for example. It is no surprise, then, that New Agers give creationists a wide berth and vice versa. Hence, the title of Dr Eve's paper.

If Dr Eve is right about all this — and there is good reason to suppose he is — life becomes more complicated for dedicated empiricists who struggle to bring pseudoscientists, of all stripes, to their senses.

The message is loud and clear. At least three different types of thinkers inhabit the Western world: traditionalists, postmodernist and sceptical modernists who want some solid proof with their ideological pudding.

The implications are equally loud and clear. Sceptics are wasting their time if they lump New Agers together with Noah's Arkers and then regale them with rational arguments and solid facts. Each camp will pull its ways of knowing to its chest and utterly dismiss the others with a dismissive snort.

So what can a poor empiricist do? One place to begin is with Chairman Mao's famous dictum: "know thy enemy...". By understanding each group's rules for knowing, Dr Eve says it is possible to subvert from within,

Excuse me, then. It's time to pull out the recording crystal and get in touch with my past life. If I play my tarot cards right, Noreen might come around yet.

Doing a Moonlight Flit?

Let us know your new address

We won't tell anyone else... Honest!

PUBLIC POLICY

Troubled Bridge Over SA Waters

Annie Warburton

Have I still got time to put in a nomination for this year's Bent Spoon Award? I hope so, because I'd like to nominate Aboriginal Affairs Minister Robert Tickner, for allowing the superstitious beliefs of a handful of people to dictate government policy. I'm referring, of course, to his decision to ban the construction of the bridge between Goolwa and Hindmarsh Island in South Australia.

Some aboriginal women told Tickner they believed their health and fertility would suffer if the bridge went ahead, although they wouldn't say why. It reminds me of the old Monty Python sketch about the fearsome Piranha brothers, in which a BBC-type journo quizzes one of their former associates on his unaccountable loyalty to Dinsdale Piranha (the violent one, not the one who used ... gulp ... sarcasm):

'I understand he nailed your head to a coffee table.'

'Oh yer, 'e did that, yer. I 'ad trahnsgressed the unwritten law!'

'And did he say what you'd done?'

'Er - no. But 'e gave me 'is word that it was the case, and that's good enough for me wif ol' Dinsie!'

In this case, the word of just one tiny group of women was good enough for ol' Robbo, even though it contradicted what had previously been said by other aborigines with a closer connection to the area, and despite the fact that these objections only surfaced very late in the piece, in response to what appears to have been a trawling expedition on the part of an activist anti-development lobby.

(For an illuminating insight into the background of this episode, see the article by Dr Geoffrey Partington of Flinders University published in the March *Current Affairs Bulletin* and reprinted in abbreviated form in the *Sydney Morning Herald* of March 13, 1995.)

But politics aside, and we all know that the Bent Spoon judges don't allow their lofty deliberations to be influenced by that grubby business, the Hindmarsh Bridge affair does raise an interesting dilemma for Skeptics.

I know for instance that in the fight against creationism, leading sceptics such as Ian Plimer are careful not to attack the religious precepts of mainstream Christianity, for the very good reason that the mainstream churches generally don't try to push their religion into the teaching of science. They are wise enough to distinguish matters of fact from matters of faith, which is as it should be.

On the other hand, I have heard a number of aboriginal activists maintain that their 'dreaming' cosmology should be taught in schools, not just as anthropology or history, but as

an alternative theory on the origin and nature of the universe. In my view this is no different from allowing the teaching of fundamentalist Christian creationism, and is an unacceptable intrusion of religion into secular education.

One could make a very good argument that the Hindmarsh affair is an exactly analogous example of religion intruding into public policy. One could also argue that giving tax-exempt status to Christian churches is an intrusion of religion into public policy, and that it would be discriminatory to fail to recognise aboriginal religious precepts by the same token.

So, is the Hindmarsh affair more akin to the teaching of creationism in schools, or to the tax-exempt status of churches? Is it an acceptable or an unacceptable intrusion of religion into public policy? This is a tricky question for sceptics, and made more so by a prevailing social ethic which recognises past injustice against the aborigines and fervently tries to make amends for it.

The danger, it seems to me, is that in expressing this new understanding of history we may fall into the trap of dismissing as 'bad' or 'worthless' all those attributes of western civilisation - rationality, industrialism, agricultural development, scientific enquiry, progress - which enabled our society and others like it to conquer and dominate indigenous cultures in the first place.

Now those very attributes, once considered virtues, are causing westerners a major collective crisis of conscience: look at what we did in their name - they must be no good! The advent of the atom bomb didn't help, and since Chernobyl you're not likely to get much of a hearing on the countervailing benefits of nuclear power either.

There is evidence for this new *zeitgeist* of guilt and self-hatred everywhere we look: in ecological mysticism and nature-worship, in the loss of faith in medical science and the flight to 'alternative' therapies, in the rise of New Age spiritualism and the consequent resurgence in popularity of associated Victorian parlour-pastimes such as astrology, divination, tarot-reading, 'channelling' and the like; and, strikingly, in the revival of the notion of the indigene as Noble Savage, whose very closeness to nature and lack of western-style civilisation somehow makes him (or her! or her!) a morally superior being.

So, where does all this leave the Concerned Skeptic who's left cold by both European Triumphalism and the Cult of the Noble Savage? As I often do when pondering politico-philosophical conundrums of great magnitude I turn to that

Continued p 32...

GENESIS (REVISED VERSION)

Shock! Horror!!

Don Väniken Exposed!!!

Harry Edwards

The editors of this magazine (tongue in cheek and fingers crossed) do not normally make disparaging remarks, denigrate, or otherwise take the mickey out of our contributors, albeit we sometimes slip in a less than flattering reference to each other.

We also feature a wide spectrum of views, opinions and scholarship, and on perusing our compliments file, conclude that our format is generally well received by our readers.

Occasionally, however, there crosses our editorial desk an unsolicited item of great moment, an item of such profundity, scholarship and containing such evidence of in-depth research that it fair takes our breath away.

We agonised long and hard about the propriety of publishing this contribution and, in the end, decided that it was our duty to share these profound observations with our loyal and long suffering readership.

We therefore faithfully reproduce, verbatim and down to the last full-stop, underlining and CAPITAL LETTER the following letter, which originated in the city of Tucson, Arizona, USA. In the interests of saving him some possible embarrassment, we will not reveal the author's name:

"Dear Editors

I have not gotten a chance to study one of your magazines but am aware of the material you publish such as things concerning the occult, and religion, U.F.O. and the unusual. I am a writer; not a professional but I am trying to be. I have some very unusual facts about ufo's and the Bible that has never been published, and I bet that no scientist or Christian has ever thought of. I am not a preacher, I am a realist. Someone into facts. I know how Moses and the Israelites crossed the Red Sea. The movie called the Ten Commandments is an exaggeration. You and your readers of your Magazine would be shocked, very entertained by what I have to say. I also know what took place 11,000 B.C. during the flood of Noah. It was not a world wide flood, but a local flood which I can prove with shocking and convincing evidence that has never been thought of or published before. I can also point out how ufo's were involved with Moses and several other Prophets in the Bible. Let me give you an example of my theories. Evolution, did it happen? Was evolution

the grand design of god? Scientist who believe that life took place and evolved through trial and error and evolution claim that it all began in a soup. the ocean, or a lake. "LIFE CRAWLED OUT OF THE WATER." Well, if you read GENESIS 1:20 it plainly states, let the waters team with life. What a simple way for ancient journalist to explain evolution. Then of course these creatures turned into land animals. The Bible verses parallel with modern day theorist because right after Gen 1:20, in Gen 1:24, it says, Now god said, let the earth bring forth living creatures. Yes, that's right, let the earth be the handyman of creation. Animals is the product of the earth's ground. Let the earth bring forth animals. Even the Bible tells us in its own little inconspicuous way that evolution did take place. My article does not try to attempt converting people to be a Christian, in fact it's completely scientific. I have placed a sample of my earliest proposal. Please read it. How much do you pay per word. please write me back. I have published a few articles in *Fate Magazine*. My book is now being published in Palm Springs, Cal."

With the letter, the writer enclosed two samples of his "earliest proposals." Again they are faithfully reproduced.

"New age beliefs is right up my sleeve. No one has ever written or thought of the things I know about God and the Bible being connected to ufo's and evolution. Don Vaniken's book called *Chariots of the Gods* has nothing on my scientific facts of ufo's and ancient man's involvement with them. Moses did not use magic or a miracle of god to cross the Red Sea. The Red Sea did not open up like we are lead to believe from the Movies that hollywood produced. The ancient people of the east were always crossing the Red Sea during a very low tide. Moses took advantage of one of these ocean tides that was out one morning. The tide goes out so far at times that you can see dry sea bed and sand for a quarter of a mile. In fact, according to Egyptian writings, The banks of the Red Sea had police stations operated by the Egyptian police 24 hours a day so that nomads and refugees could not cross into Egypt during low tide hours.

Almost like the American borders of Texas and Mexico. My article will explain all this in detail. The Red Sea is almost 200 miles across and a mile deep, give or take a few feet. Moses and the Israelites did not cross the large body of water, or the greater part of the Red sea, they crossed at Succoth which is called the Suez Canal. This area is shallow water, especially in 1400 B.C. When a tide takes place, the Sea bed is completely exposed and is easily used as a bridge to cross from Egypt over to the Sinai desert.

Noah's flood is easily explained. I don't like to call it a flood, in fact it was more like a great flash flood that takes place in deserts and dry areas of the world. Noah's flash flood was the greatest flood that was ever recorded. The Mediterranean valley was a valley of lush green trees and tropical vegetation. It was a valley of grass and villages. That's right, the Mediterranean Sea did not exist around 12 or 11,000 B.C. I can prove it was put there through a great flash flood event that wiped out everything in its path that lived in the area. The Babylonian people wrote about this great flood before anyone did. The Biblical flood involving Noah was a second version borrowed from the first Babylonian version. I can prove that UFO's were involved with civilization on earth during this huge flash flood. I can prove that it was not a divine miracle brought on by god to destroy all of mankind who sinned. I can prove that Noah did not, and could not collect all the beasts of the earth by two of each kind and put them on a boat. The Bible tells us that Noah took seven of each clean beast. Genesis 7:2 not two of each. Perhaps there is a contradiction in the Bible. Read my article to find out. Genesis 6: tells us that Sons of God and giants lived on earth with man and mated with the daughters of men. My article will explain this. Yes, UFO's were here long ago, and are still here today. I know why they have kept their selves secret in the last days. My article explains why this huge flash flood took place, and how. A map and details will be provided. there were never any miracles in the Bible, in fact everything is explainable. UFO's were the guys doing most of the miracles in the bible."

Always appreciative of those who devote their time to solving the mysteries of the universe and of nascent literary genius, I responded with words of encouragement as follows:

Dear Sir,

Thank you for your letter dated April 8 and the two articles. Our editorial staff was, to put it mildly, astounded by your revelations. We wholeheartedly concur with your claim that no one has ever written or thought of the things about God and the Bible's connection with UFOs as you have done. Your incisive exposé of the erroneous explanations

thrust upon us by Hollywood moguls and eagerly swallowed by a gullible public will be discussed at great length by our subscribers who, I am sure, will demand to hear more from you.

We do not pay for contributions; being an exclusive high profile scientific journal, space in our publication is in such great demand, that internationally famous contributors such as Sir Jim R Wallaby and Professor Iron Pillar of the Creative Science Foundation actually pay us to have their works published, such is our prestige among the scientific community.

In your case however, we were so impressed by the obvious perceptiveness you display that we will be pleased to publish any future contributions without charge, *gratis* and for free.

In the meantime, perhaps you would be kind enough to let us have copies of the articles you have had published in *Fate* magazine, and when published, a copy of your book to review.

Yours etc:

Well, there you have it folks, and remember you read it here first. An up and coming author who will put "Don Vaniken" to shame and who seems a certainty to win the Creative Science Foundation's award of the year. ■

...Bridge from p 30

unfailing source of wisdom, humour and insight: Monty Python.

Specifically, I recall the episode in *The Life of Brian* where John Cleese, as ringleader of the Judean Liberation Front, is haranguing his little band of followers who are met to plot insurgency against their Roman overlords.

'What have the Romans ever done for us?!' he shouts.

Brief pause.

'Aqueducts?' says one of the foot-soldiers. (Eric Idle, I think.)

'Apart from aqueducts!'

'Roads, baths, sewerage, trade, education, law, order, public administration -'

'Alright! Alright! But apart from all that.....?!'

In other words, and I tremble as I contemplate the gross political incorrectness of what I am about to utter, might there not be a case to argue that for all the cruelty and neglect, the European colonisation of Australia has brought some benefits to the indigenous people? And that there's still a lot to be said for those old-fashioned Western values of rationalism, science and progress?

Whaddya say, fellow Skeptics? Does Ticklers deserve the Order of the Bent Spoon, or should I just proceed forthwith to the nearest public pillorying-place and be done with it? ■

REVIEW

408 Page of Pulp Masquerading as Brainwork

Geoffery H. Sherrington

Earth in the Balance; Forging a New Common Purpose.
Al Gore, Earthscan Publications Ltd, 1992, London

Once, I was introduced to an audience as a person "... so sceptical that he would demand a bacterial count on the milk of human kindness."

In keeping with this image I now offer some gratuitous comment about the Australian Skeptics. Doubtless I am qualified to do this, because I have been a subscriber for more than a month, have attended one meeting, read three issues of *the Skeptic* and intend to become financial again soon.

Question: Why do Australian Skeptics devote so much effort to tiddlers like Mr Simon Turnbull, Mr Ken Ham, B App Sc, Dip Ed and spoonbender Uri Geller when the real damage is coming from bigger fish to fry?

For example, try some research into the Vice-President of the United States of America, Al Gore. Here is a little bait for your hooks.

The book *Earth in the Balance; Forging a New Common Purpose* is copyright by Senator Al Gore and dedicated to his sister, Nancy LaFon Gore Hunger, a somewhat unfortunate name. (American ladies have been through a phase of strange names. I am reminded of Gough Whitlam's *Fabius Maximus* Latin grandeur and wonder if the US First Lady should be *Hilarious Clintonis*. Al Gore is married to a lady whose first names are 'Tipper Aitcheson' and that in itself is cause for worry.) His book is even more cause.

Remember a few years ago when rabid environmentalism was rampant and a winning attribute for the sensitive new-age politician seeking high office, like our own Barry Cohen and Graham Richardson? This was the period when Al Gore presented a breathless world with his *magnum opus*. After he became V-P the book suddenly seemed harder to buy, almost as if he regretted some of its contents, but that is pure speculation on my part and I have not phoned him lately to confirm this. We all know that it is unscientific to tear a book apart by quoting a few passages out of context, but it's great fun so let's get stuck into it right now.

In all sincerity, Gore looks to Chaos Theory and Relativity Theory as twin planks to a better environmental future. After a discussion of Chaos Theory which I find hard to comprehend "many are now convinced that in a similar way, the insights of Chaos Theory will soon be absorbed into political science

and social analysis" !!!, Gore writes at page 48: "A second scientific model that may help us is Einstein's Relativity Theory. Bear with me: although complicated, Relativity Theory can easily be explained with a picture showing how time and space are shaped by mass. An especially dense mass like a 'black hole' is shown as a deep well, with space and time arrayed around it in a grid that slopes down to the centre. [Readers of the Skeptic who have ever read a popular scientific explanation of Black Holes will almost certainly be familiar with the diagram described. Ed]

Our political awareness often seems to be shaped exactly like this grid, within which a large historical event such as World War II is like the dense mass that exerts a powerful gravitational influence on every idea or other event close to it in space and time

Even future events can exert a gravitational influence on our thinking. In other words, time is relative in politics just as in physics The potential for true catastrophe lies in the future, but the downslope that pulls us towards it is becoming recognisably steeper with each passing year Sooner or later the steepness of the slope and our momentum down its curve will take us beyond a point of no return. But as the slope becomes steeper and catastrophe's pull becomes stronger, our ability to recognise the pattern of its pull is greatly enhanced."

Serious words, these, from an expert in pulling.

What does he think about education (apart from possible remorse at his personal lack)? Try page 356

"Specifically, I propose a program involving as many countries as possible that will use schoolteachers and their students to monitor the entire earth daily, or at least those portions of the land area that can be covered by the participating nations. Even relatively simple measurements - surface temperature, wind speed and direction, relative humidity, barometric pressure and rainfall - could, if routinely available on a more nearly global basis, produce dramatic improvements in our understanding of climate patterns As the schools gained experience and confidence, the range of activities in the program could be expanded to include, for example, soil sampling (to map soil types, monitor soil erosion rates, and measure residues of pesticides and salt) and an annual tree census, using sampling techniques that monitor deforestation and desertification."

Al Gore's view of Democracy, at page 359:

"Similarly, representative democracy operates on the still revolutionary assumption that the best way for a nation to make political decisions about its future is to empower all of its citizens to process the political information relevant to their lives and express their conclusions in free speech designed to persuade others and in votes - which are then combined with the votes of millions of others to produce aggregate guidance for the system as a whole."

There is of course no conflict between empowering citizens to possess information, and telling them at school which information they will be allowed to possess. For to do so would be propaganda, for which the sneaky National Coal Association is lambasted from documents mysteriously leaked to Al's office. At page 360 —

"In discussing information and its value, it is also worth remembering that some self-interested cynics are seeking to cloud the underlying issue of the environment with disinformation. (The Coal Association Strategy memorandum notes that) ... 'People who respond most favourably to such statements are older, less-educated males from larger households who are not typically active information seekers ... another possible target is younger, lower-income women who are likely to soften their support for federal legislation after hearing new information on global warming. These women are good targets for magazine advertisements.'"

We have to assume that Al's hands are clean, that he has never looked at a demographic survey of voting intentions, that he has never commissioned one, and that pigs fly.

There are 408 pages in the paperback version of this book and almost everywhere you turn there is an insult to someone. What really gets me down is the cynicism of the book, the way that Gore attacks people for doing precisely what he is doing, but in opposition. Here is some more, from page 305, discussing how to save the world with a five-point plan —

"The first strategic goal should be the stabilising of world population, with policies designed to create in every nation of the world the conditions necessary for the so-called demographic transition - the historic and well-documented change from a dynamic equilibrium of high birth rates and death rates to a stable equilibrium of low birth rates and low death rates."

I thought that death rates were caused by people dying every so often, but Al seems to know a political way to control the rate. So did Adolph. Then on page 162

"Every so often we read about a newborn baby literally thrown into a garbage can or a trash compactor because the mother is for whatever reason overwhelmed by the prospect of raising the child and despairs of finding the understanding and assistance she needs in our society. Throw-away children: nothing could better illustrate my strong belief that the worst of all forms of pollution is wasted lives."

Al Gore has four children, Karena, Kristin, Sarah and Albert. If each of his children in turn had four of their own, and then these grandchildren all had four more each and so on, there would be over 1,000 offspring with some Al Gore

chromosomes in about 100 years. They could all play meaningful roles in the preservation of planet Earth, for example by conducting birth control clinics for other people less blessed than they, or teaching pupils how to measure pesticide residues in proximity to black holes.

The RRP of this book is \$39.95 Australian and the back page carries the logo of the WWF with its black-and-white panda. It also carries selected quotes from reviewers. The review I like best is from *The Independent* on Sunday -

"The whole darn' thing ... even more daring than Star Wars."

I invite you to read this book then to picture its effect on the education of the current crop of school-goers. It reminds me of the segment from *Fawlty Towers* when Basil encounters a shrink, who remarks in an aside — "There's enough material inside that brain to occupy a convention of psychiatrists for a whole week." It sure covers a galaxy of topics, from maths to physics to botany, biology, zoology, chemistry, you name it. Unfortunately, the treatment given to these topics would cause serious hand tremblings among establishment specialists and the spilling of an odd drop of after-dinner port on the academic gown. It's a zany book, but I'll bet it's popular among a lot of teachers. Use the force, Al.

Now heed this warning. People consumed by the lust for power do not write books like this for fun. They write them because they are part of their agenda for reform. Laugh at the words if you wish, then be sure to work bloody hard to ensure that they do not become reality in your children's lifetimes.

Looking closer to home, *The Australian* front page of December 8, 1994 carries the main points of a plan the Prime Minister endorses to raise civic awareness among children -

" All State and territories should make provision for a sequential program of civics education across the compulsory years of schooling.*

** All governments and political parties should support civics and citizenship education programmes as a national priority between 1995 and 2001. * The government should provide funding of about \$311 million over 3 years for curriculum support materials [GHS: = propaganda] and contribute a similar amount to professional development for teachers."* [GHS: Why are they allowed to teach now if they are so ignorant?].

This proposal just happened to lob on my desk as I was writing. It is not about the same topics that Al Gore has mastered so comprehensively, but it shows the government method of dictating what shall be taught. I have little confidence that the producers of the Australian school propaganda will have a better grasp of their subject than the visionary Al.

Acknowledgment: I thank a teacher named Edith Foster who taught me scepticism at the age of 8 years. She sure knew the right propaganda to dish out. ■

WHAT ROT?

Incorruptibility: Miracle or Myth?

Harry Edwards

Incorrupt: Unaffected by decay.

To the religious, the bodily incorruption of certain saints and the beatified is a reality. Their apparent ability after death to defy the ravages of nature is, in many cases, well documented, and quoted by believers as miraculous. Whether or not there are mundane reasons for the unusual or prolonged preservation of a human organism without artificial aids is the subject of this article.

Saints and the beatified proliferate within the Catholic church and are defined by The Council of Trent as :

“The bodies of holy martyrs and others now living with Christ, bodies which were His members and temples of the Holy Spirit, which one day are to be raised up by Him and made glorious in everlasting life, are to be venerated by the faithful; God gives men many benefits through them.”

Prior to this, the term “saint” referred to those members of the early church who had rejected sin to live in a state of sanctity, and later, to those who had died as Christians and who were in heaven and able to intercede with God on behalf of the living. Under Gregory IX (pope 1227-1241) papal approval became the only legitimate means of conferring sainthood. The conditions were diverse - a heroic service of virtue or piety, the foundation of a holy order, martyrdom or a life of exemplary conduct and humility. The most comprehensive work of all those venerated as saints by the church throughout history runs into twelve volumes, many being far removed from the sanctity one would associate with them. That some are considered to have found favour in the eyes of the Lord and are chosen as God’s intermediaries to administer to the living is beyond the ken of the sceptical.

Long associated with saints are the legendary tales of supernatural powers attributed to their anatomical parts and material possessions, giving rise to a universal trade in religious artifacts, most, if not all of which in the eyes of the objective examiner, have been seen to be spurious.

Incorruptibility is not confined to the saints; claims have been made on behalf of other mortals, one of which will be subject to closer scrutiny later in this article, but first let’s take a look at a few of the historical, traditional and conventional methods of preserving the carcass (holy or otherwise) of one who has departed this world, and the part mother nature has to play.

The art of preserving dead bodies from decay dates back to ancient Egypt, and stems from the discovery that prehistoric corpses buried in shallow graves uncovered by grave robbers

showed no signs of decay. The hair, skin and soft parts were entirely preserved, a natural phenomenon due to the hot desert sand being in direct contact with the skin. This discovery probably led to, or confirmed the Egyptians’ belief in a life after death and led to the practice of mummification. Unfortunately, the first attempts at preservation were not successful, the corpses being entombed in rooms filled with air which assisted decomposition. The art developed over the centuries using various embalming techniques - macerating the body in a salt bath, linen wrappings saturated with resin, and injections of molten resin. The Greeks and Romans too practised embalming although their methods appear to have been inefficient.

Many aromatic substances are reputed to resist putrefaction, and other recommendations down through the years include balsams, tartar, immersion in herbs, spirits of wine, waxed sheets, brine or alcohol, oils of lavender, camomile and turpentine. Modern embalming consists of the injection of several litres of a fluid containing formaldehyde. (A high profile and be-whiskered member of the NSW committee is reputed to use a facial preparation containing formaldehyde, but not with much success! [I spoke to Tim Mendham about this base rumour and he denied it utterly. **Ed**] [I think he was referring to you! **Tim**])

So much for the artificial methods of preservation, but what of the reports of alleged incorruption where it is averred that the body had not been treated in any way? We have already seen that prehistoric bodies found in Egypt have been naturally preserved for millennia in situations where air and decay organisms did not come in contact with the body, and elsewhere, burial in sandy soil in hot climates in Central and South America has produced natural mummification. Well preserved bodies have also been recovered from the bogs and peat marshes of Ireland, Scotland and Denmark - again in situations where the bodies were insulated from the air and decay organisms. Likewise, well-preserved prehistoric mammoths have been found in the permanently frozen ground in Siberia, one of the most complete and intensively studied carcasses being unearthed in 1899 from the bed of the Berezovka river in the same area. In recent times, there was great excitement and interest when the frozen and well preserved body of a 5000 year old male was discovered in the Austrian Alps.

It would seem then, that the exclusion of air is a significant factor when it comes to preserving a body; if a coffin or sarcophagus is hermetically sealed or in some way protected

from bacterial surroundings, decay will not set in or at least will be retarded.

The opportunity to scientifically examine an alleged case of incorruptibility is rare. Believers accept the “miracle” as a matter of faith, natural factors conducive to preservation are ignored and sceptics are not encouraged to proffer more prosaic explanations. Take for example the referral to the incorruptible Saint Bernadette Soubirous (1844-1879) of Lourdes fame, in *The Sublime Shepherdess, The Life of Saint Bernadette of Lourdes*.

“...The body was first exhumed thirty years after her death. On September 22, 1909, in the presence of representatives appointed by the postulators of the cause, two doctors, and sisters of the community, the coffin was removed by workmen from the place where it had been entombed thirty years before. On opening the lid, they discovered no odour and the virginal body lay exposed, completely victorious over the laws of nature.

Although the clothing was damp, and sawdust and charcoal surrounded the body, the arms and face were completely unaffected and had maintained their natural skin tone. The teeth were barely visible through the slightly parted lips and the eyes appeared somewhat sunken. Her perfect hands held a rosary which had become rusty, and the crucifix which lay upon her breast was coated with verdigris.

While the sisters were removing the damp robes, they discovered while the body was entire and without the least trace of corruption, it was nevertheless emaciated...The sisters with the best of intentions, thoroughly washed the body and re clothed it in a new religious habit before placing it in a new casket. After the official documents pertaining to the exhumation were placed beside the body, and the double casket officially sealed, the remains were again consigned to the tomb.

The second exhumation took place on April 3, 1919. The body of the Venerable was found in the same state of preservation as ten years earlier, except that the face was slightly discoloured due to the washing it had undergone during the first exhumation. A worker in wax who had frequently applied such a coating to the faces of the newly dead was entrusted with the task of coating the face of the Saint who had been dead forty years. The sacred relic was placed in a coffin of gold and glass and can be viewed in the Chapel of Saint Bernadette at the motherhouse in Nevers.”*

(* The date of the exhumation of Bernadette’s incorrupt body is cited in *Man Myth & Magic* [Ed. Cavendish, R.] 1971, No. 59, p 1653. as being 1925, the year of her beatification. If they can’t get the date right what of other details?)

Assuming the account of the proceedings to be accurate, I

pondered on the words “entombed” and “tomb”, which suggest that neither the first nor the second internment was a ground burial. The coffin would therefore, be less prone to rot allowing the ingress of air, bacteria and carnivorous creepy-crawlies.

“The clothes were damp and the body surrounded by sawdust and charcoal”, both the sawdust and the charcoal would have acted as absorbents and insulators thus providing an almost perfect environment for preserving the body. *“...the double casket officially sealed, the remains were again consigned to the tomb.”* Not having access to the details of the caskets there is no way of determining how airtight it was, but it was a “double casket” and one can rest assured, given the veneration of the remains, it would not have been made of three-ply or chipboard.

After the second exhumation, the face of the saint was given a coat of wax which will prevent deterioration almost indefinitely, and the body sealed in an air-tight glass coffin.

Even with the scant details available, I would suggest that the atmospheric conditions surrounding Bernadette’s internment would offer a more plausible explanation for her incorruptibility than one of supernatural intervention. There is also the possibility that some preservation techniques were originally involved but were either unobserved or unreported. A piece of paper left to burn on the charcoal while the casket lid was being sealed, would consume the oxygen thus creating a vacuum and retarding the prospects of decay.

Incorruptibility is by no means confined to saints. In an article which appeared in the *Rational Enquirer*, The Skeptics’ Newsletter for Western Canada, Leonard Angel, a professor of philosophy at the University of Columbia, recounts how he investigated the miracle which is reported in almost every Yogananda publication put out by the Self Realization Fellowship (SRF), the society founded and organised by Yogananda to propagate his teachings:

“After Death the Body of Paramahansa Yogananda Manifested a Phenomenal State of Immutability.”

The story in *Self-Realization Magazine* (Los Angeles) May 1952 issue; and in the national news weekly *Time*, August 4, 1952 reported that:

“The great world teacher demonstrated the value of yoga (scientific techniques for God-realization) not only in life but in death. Weeks after his departure his unchanged face shone with the divine light luster of incorruptibility. “Mr. Harry Rowe, Los Angeles Mortuary Director, Forest Lawn Memorial-Park (in which the great master is temporarily placed) sent Self-Realization Fellowship a notarized letter from which the following extracts are taken:

The absence of any visual signs of decay in the dead body of Paramahansa Yogananda offers the most extraordinary case in our experience...No physical disintegration was visible even twenty days after death...No indication of mould was visible on his skin,

and no visible desiccation (drying up) took place in the bodily tissues. This state of perfect preservation of a body is, so far as we know from mortuary annals, an unparalleled one...At the time of receiving Yogananda's body, the mortuary personnel expected to observe, through the glass lid of the casket, the usual progressive signs of bodily decay. Our astonishment increased day after day without bringing any visible change in the body under observation. Yogananda's body was apparently in a phenomenal state of immutability...No odour of decay emanated from his body at any time...The physical appearance of Yogananda on March 27th, just before the bronze cover of the casket was put into position, was the same as it had been on March 7th."

Professor Angel was impressed, but not convinced. He obtained a copy of Yogananda's death certificate from the Los Angeles Department of Vital Statistics which confirmed that Yogananda had died on March 7th, the certificate of death being received by the registrar on March 11 1952. However, the certificate also bore the signature "Kenneth I. Johnson", and the number 2641. It was contained in box #21, above which were the words "Signature of embalmer."

Confirmation that Yogananda had in fact been embalmed was found in the full text of Harry Rowe's letter in a little booklet entitled Paramahansa Yogananda, In Memoriam, put out by the Self-Realization Fellowship. It reads, "*Paramahansa Yogananda's body was embalmed on the night of March 8th, with that quantity of fluid which is customarily used in any body of similar size.*"

So what was the miracle?

According to the full text of Harry Rowe's letter the astonishment was only due to the fact that the funeral home staff had not used any creams in addition to the embalming fluid - a creamy pore-sealing emulsion that temporarily prevents the outward appearance of mould.

A check with two independent licensed embalmers elicited the following comments, "I'm sure we've had bodies for two or three months with good preservation. This is not unusual. Creams are not necessary", and "...that preservation for 20 days through embalming is not unusual. We can keep a body a month or two without interment...an embalming fluid with a lanolin base will have humecant which prevents dehydration, which is the major concern...a heavy glass lid as is described by Mr Rowe as being present on the casket, would prevent a great amount of air circulation, and that in itself would prevent most desiccation, so that would account for it."

Far from being "a demonstration of yogic powers", "a phenomenal state of immutability" or "a miracle through the grace of the Heavenly Father", it seems that any perception that a miracle had occurred was simply the result of misleading selections taken from a misleading letter.

Finally, let's speculate and assume that as so many apparently believe, immutability is the work of divine intervention to serve some unspecified purpose. What are the

big O's (omnipotent, omnipresent, omniscient) selective criteria? Piety? Sanctity? An exemplarily life? Service to the church? The performance of miraculous deeds? Self-mortification? Obviously some would not qualify such as St. Damasus I (366-384), an adulterer whose pontificate is noted for its wanton brutality and murder, and Gregory I (St. Gregory the Great, 590-604), who put the church's treasures before his followers when Rome was gripped by famine, approved of slavery, frequented the slave markets in Rome, showed an unusual interest in young, blond, fair-skinned, smooth-bodied boys from northern Europe, had the Palatine Library burnt and promoted belief in miracles and superstition.

What of the most revered and beloved of all the saints, Mary the Blessed Virgin? Surely unique in history as the first woman to be impregnated by an extraterrestrial and the only one believed by millions to have been beamed up from Earth. Why didn't she remain on Earth and qualify for incorruptibility?

St Joan of Arc (1412-1431), young, innocent, and a pillar of the church, albeit badly in need of psychiatric help, I would have thought been a suitable candidate for incorruptibility. However, the circumstances surrounding her demise was even too much for the big O.

So what are we to conclude about incorruptibility? In my opinion there seems to be no criteria, rhyme nor reason why a handful of the thousands of saints do not appear to succumb to the same ravages of death to which all organisms are subject. Like so many other "miracles" incorruptibility is accepted by the faithful with little or no investigation to ascertain whether or not an explanation exists more plausible than that of divine intervention.

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Attention!
The Convention, June 10 - 12

FORUM

Paul Davies on Time

Paul Kaufmann

I follow Professor Davies' advice and look to the beginning of things. In 1974 there appeared his *The Physics of Time Asymmetry*. (Unlike Professor Davies, I shall not look also to the end. Who knows what he and others will still make of these things?)

This appears to be a competent and thorough clarification and reconciliation of the notion of time, as it underlies or is defined in the major scientific fields in which time plays a major role, namely thermodynamics and statistical dynamics, cosmology, electromagnetic waves, and quantum mechanics. Much of it is necessarily technical. He considers the account of quantum measurement theory and the last chapter of the book (which refers to cosmologists' treatment of the so-called heat death of the universe - that it will cool to extinction) as more speculative than the rest, and largely conjectural. Possibly these parts were enjoyed by Prof Davies as a respite from the more rigorous and strict labour of a properly scientific nature involved in the rest of the book.

In the introduction Prof Davies claims that a reasonably convincing account of all the many and varied aspects of time asymmetry can be consistently given, without running into the contradictions and paradoxes so often encountered in the existing literature. This is only true if attention is restricted to the understanding of real phenomena, and excursions into essentially philosophical questions such as the 'subjectivity' of the asymmetry are avoided.

He is able to claim that the basic framework is available and that 'it is unlikely that any future considerations of detail will introduce anything qualitatively new'. A consistent and precise theory is possible and presented in the book. His approach is 'strongly rooted in the real world, and time asymmetry is analysed from the standpoint that it is the observed phenomenon in everyday life which needs a clear explanation'. Simply put, two notions - that of the ever-rolling stream (an 'all pervading motion carrying the contents of the universe irresistibly from past to future') and the moving present moment ('a universal now') which previously underpinned all physics, collapsed when the theory of special relativity posited time itself a part of the new structure of four-dimensional space-time, i.e. an event. The notions of the ever-rolling stream and the universal now are concepts which science does not use and does not need.

I must leave the body of the book to qualified people. (One needs, and I quote, 'beside calculus and higher mathematics, a working knowledge of special relativity and electrodynamics, Lorentz transformations, Maxwell-Lorentz theory, a

knowledge of contravariant and covariant tensor labels with indices being raised and lowered by the metric tensor, some thermodynamics and statistical mechanics, some general relativity theory, and a reasonable ability in quantum mechanics'.) We skip to the conclusion of the final chapter which speculates cautiously about the beginning and end of the universe. Professor Davies thinks that 'all the important aspects of time asymmetry encountered in the different major topics of physical science may be traced back to the creation or end of the universe' - I do not understand this. Can the science of physics help philosophers? He says that traditionally it was held by philosophers that 'the present condition of the universe [is] highly specific ... [and] creation of a very particular nature'. Now, he says, the opposite view is favoured, that the present state of the cosmos is a typical one. He shows that there is material in support of both points of view in the physical material of science. This is a question one should not be dogmatic about. He ends:

"It seems that we have reached the limits at which physics can supply useful information regarding the origin of time asymmetry. The remaining problems appear to be philosophical rather than physical [such as the meaning of an assembly of universes, how a single space-time can be asymmetric from within, and the problems of closed time and free will]. There is no doubt that these topics and others will continue to keep the philosophers busy for a long time to come."

One should not concede that there are only two possible approaches to these questions, the scientific and philosophic. Leaving that aside, how would the philosophers tackle those 'remaining' questions? As Professor Davies says, knowledge of physics does not help, except perhaps to the extent of providing some additional terminology and some useful general ideas. It may help to know something of the 'mind', language and meaning, sensations and biology, logic, etc, as would presumably a fairly intimate knowledge of the thought of past thinkers who ventured into this area - and there were few who did not. However, the spark of insight, experience and training which would allow the careful elimination of useless or superseded or contradictory ideas, bringing together and reconciling different schools of thought, which the reader is entitled to expect in analogy to Prof Davies' own reconciliation in the scientific area of the notion of time, would probably require a good deal more. My point is that an amateur in philosophy, no matter how skilled a scientist, is as unlikely to be able to enlighten us on the philosophy of time as an amateur in science, however good a philosopher, on the science of time.

Nor does it make sense to seek a reconciliation of the two approaches. The 'time' scientists talk about is a different concept from the one, or more than one, of the philosophers. As Professor Davies points out, the ideas of the 'ever rolling stream' and 'everlasting now' are predicates which are as important for the non-scientific approach as they are irrelevant for the science of physics.

There are many notions of time. The two notions which Professor Davies finds to be outside science are somewhat different in kind and use. The 'ever rolling stream', the concept of an inexorable uniform progress, seems to be an essential element of many 'philosophical' notions of time - no matter how little it is needed in science or how firmly it is rejected as a religious attribute of God. The 'everlasting now', a kind of compression of an infinite set of 'snapshots' or slices, seems to be a major element of the notion of 'spiritual' things and beings. Angels, gods and spirits of all kinds seem able to be everywhere at any time. The extent to which various notions of time and of spirituality enter religious thought is something else again. In physics as elsewhere, concepts of time may serve speculative, imaginary purposes without being seen as standing for anything 'real', on the lines of, say, irrational numbers or a sorting demon.

So, when the scientist and the philosopher use the word 'time' they use it with quite different meanings. Nor can it be said that one approach is any more 'real' or significant or useful than another. Nor that one is more important than another. If a notion of time turned out not to be 'useful' for science or philosophy it would presumably disappear gradually. Physics and philosophy must be internally consistent - they are logical constructs - but the explanatory concepts of each need not be the same as those of the other. They just talk about different things. One can think of this as grids imposed on the map of the real world. It is unacceptable to use the wrong grid for a particular purpose but none of the grids are 'wrong' as such.

Three years later Prof Davies published *Space and Time in the Modern Universe*.

Much of it is an update of the expositions of physics and cosmology for the layman which became so popular when Einstein had become a media personality. The introduction, however, promises a little more. There is a suggestion that ... space-time itself may collapse out of existence under some circumstances. The consequences ... for the nature and evolution of the universe are far-reaching and profound. These and other things are 'exciting and sometimes enigmatic discoveries'.

So much of the subject matter discussed overlaps with domains of human intellectual activity normally more associated with religion than hard science. Yet today, science is on the brink of suggesting answers to many questions so long puzzling to theologians and philosophers alike.

In Professor Davies' view the impact on society would be 'profound' because it could alter forever mankind's perspective of the universe or the place of humanity in the universe. It is

this linking of science, or at least of a science-driven outlook, with philosophy and theology - which he says in his earlier book is not on the agenda - that causes problems.

The notion that 'religion' will be upset by the 'new universe' is as exaggerated as the notion that 'mankind' is greatly concerned with these 'profound' cosmological matters. Christianity, like all religions, has weathered with ease vast turnabouts of views, starting with St Paul's abandonment of the chosen people dogma and the non-occurrence of the end of the world. Galileo, Newton, Darwin - after a little initial flurry, all is as good as ever. Of the billions of people in the world, how many, say, 200,000? would take a serious interest in the profound questions of Time; and how often, say, once a year on average?, would the remainder even be conscious that there is even a question. (I have sometimes wondered about these things, and I am grateful to Prof Davies for resolving various points which confused me: for instance, why the speed of light should be an absolute limit to the speed of anything. He says it is quite possible for things to move faster than light - there is a name, tachyons, waiting for such 'superluminal bodies' if they are ever detected or their existence deemed to serve as a necessary assumption - but the limiting factor is in the acceleration to such speeds which hugely increases inertia - mass. The energy required to overcome this inertia would be so enormous that the thing becomes an impossibility.)

There is a bias towards his speciality. He says biological change can be considered a branch of thermodynamics, as can modern information theory. Neurologists and biologists, and especially the new breed of information theorists, and the many thinkers who adopt a more anthropocentric outlook, tend to see this differently. Everything can be seen as a branch of physics, but then physics can be seen as a set of premises for the real questions of biology etc.

When he talks about black holes and the collapse of space-time, there is a notable shift towards the speculative, as he duly notes.

What happens at the centre of a black hole? Sometimes the question is waved aside with the remark that whatever occurs inside a black hole can never be of any consequence to the universe outside it. But such remarks do not discourage scientific curiosity and attempts to answer this fascinating puzzle. "... The theory of relativity is very beautiful and accepted by most physicists as the best description of gravity available. But all theories have their limits. ... We are talking of the world of model black holes, not the real world. ... As always when we extrapolate physical theory to its absolute limit we reach an absurdity [a 'singularity'] ..."

But here comes the flip.

"... there is no doubt that the prediction [!] of singularities in space-time has profoundly disturbing consequences."

He must mean consequences to the theory at its limits. Quantum mechanics and the notion of rotating black holes complicate the matter even further, but at this point almost all of us have to take the physicist's word on trust ('Quantum mechanics is much more difficult and abstract than the theory

of relativity, which prevents a lot of people without the necessary mathematical background from understanding its beauty and subtleties'). However, the amazing world of quantum mechanics, with its hundreds of types of subatomic particles of unimaginably short existence and small size, its matter and antimatter, is said to be 'not just an intellectual model', though, he says, the present theory does not 'build together' space-time and quanta very satisfactorily.

We have come a long way from 'observed phenomena ... in everyday life ... strongly rooted in the real world ...', and it is at this point that one's skepticism, like a good watchdog, would raise her ears and sniff the air. However, it should also be noted that this kind of speculating is a rather innocent, inconsequential and, to a certain type of intellectual, fascinating game. It hurts nobody. If people do try to 'draw conclusions' from big bang and antimatter and the rest, the scientists cannot stop them - Professor Davies for one is only too ready to go over the top himself - but there should be a clear warning 'This is fairyland!' When scientists, science fiction writers and founders and expounders of religions engage in the linking of scientific notions with the 'deep' questions of everything, the differences between them are only a matter of degree.

The next chapters, which go into cosmology in some detail, mix the solid science with the speculative science with little warning to the reader. Also, his ideas of the significance of these theories seem exaggerated to the rest of us.

"Before Copernicus, European thought placed the Earth at the centre of the universe ... Copernicus' discovery that the Earth moves round the sun shattered that illusion for all time, and humanity has never quite recovered from the shock."

I ask you! If he is right in saying that currently it is held that the centre of the universe is everywhere - there is no outside, no centre, no edge - it would seem that any 'shock' would in any case have been unwarranted. (Did the Church, in its infinite wisdom, get it right? The point is semantic and trivial in the extreme. As the universe is not known to be a simple geometric figure, the notion of a centre as in geometry is problematic. There are two centres for each of the elliptic orbits of each planet. For an individual, the centre of the world can be said to reside in that person. The notion of somebody observing the universe from no particular point in it or from a point outside it and at no particular time, seems pointless.) Although he emphasises the uncertainties and debates associated with all the different theories of 'the origin', he is also awestruck.

"Charting the course of the universe in these amazingly brief early moments must surely be one of the most awe-inspiring enterprises ever undertaken by science."

Mention awe in connection with any scientific enterprise - or any intellectual enterprise altogether - and the sceptic dog will start to scratch. As Professor Davies says himself,

"... much of the astronomical observational data are of a tentative and incomplete nature, and wide changes of opinion have occurred in the past. This may happen again."

The claim to predictive power of these speculations is mixed

with the assumed reaction of 'humanity' in the following comment on the death of the universe.

"There can surely be few predictions in science so profoundly depressing as this living death for the universe."

(There are very many greatly depressed people around. Ask any of them the causes and not one will mention this 'living death'. So, who is depressed by the thought of living death?)

He rejects alternative theories, such as Hoyle's creation field, with a demand for rigour - which, however, seems also to be missing in the speculations he favours.

The curious inversion of using biology to explain physics, and even cosmology, may appear intriguing to the reader. However, the idea has a philosophical basis only, and is not a physical theory. It cannot be falsified by experiment or observation.

An odd logical error pervades the following sentence: 'This initial randomness is precisely what one would expect to emerge from a singularity which ... is completely unpredictable'. (It makes sense to say that the only thing certain about the future is its unpredictability, but to predict randomness is another thing. More precisely, it is sometimes convenient or even justified to assume equal chances in the absence of any information whatever, but the general rule is if you know nothing, you know nothing.)

And 'reality' is stretched in:

"What if at some future date this pattern of asymmetry were to reverse? Such a bizarre situation is certainly possible [!] ... On the surface of a planet like the Earth everything would run backwards ... Its occurrence is no more remarkable than what we at present experience... in a time-symmetric universe, causes can come from the future as well as the past ..."

This reversibility which is inherent in the general theory of relativity concerns him.

[The future histories of objects apparently join up with past histories.] "It has never been clear just how physically meaningful such situations really are, but the implications of such possibilities for philosophy are profoundly disturbing. Free will in a closed-time universe could not exist."

By now the dog Sceptic is barking. One suspects that, once Professor Davies moves away from his scientific field and the ordinary scientific methods, there appears a kind of naivete and credulity - often seen when scientists investigate paranormal claims. This comes to the fore in his final chapters which debate the impact of space-time concepts on society. For someone who accepted a religious prize his views on traditional religion amaze. But they are also naively misleading.

"For thousands of years society was based on religion. During this time no universally satisfactory answers to the fundamental issues about the universe were given ... In contrast, a science-based society has existed for very few years. In that time many of the burning questions so long pondered by the adherents of religion have been quietly answered. No wars, no hatred, no oppression have resulted between the proponents of scientific opinions, because science does not

deal in beliefs, but in facts.”

There are many debatable statements in this - by now the dog Sceptic is baring her teeth - but the main mistake is surely to suggest that ‘religion’ sees ‘issues about the [physical] universe’ as fundamental. Among the key elements of religion are the behaviour of people and people’s attitudes in so far as they impinge on their relations with whatever transcendental authorities any particular religion favours. For instance, nothing that science may say about the end of the universe has any bearing on the Christian notion of the last judgment. But it is that, and not the physics of space-time, which are the concern of religion. Philosophy also is essentially external to the concerns of science. If science can solve questions of philosophy they were never really philosophical questions.

In passing it is worth while to contemplate the changing universal attributes of God. For long the dominant one was might, others were knowledge, love, justice, etc; now even more abstract ones are favoured such as process (Whitehead), progress, purpose, mind, consciousness, energy, life. Patently the Gods of one or another of such attributes conceived as universals are not the deities of religions as we know them. Professor Davies seems to favour purpose as evidenced by the complexity of the universe. He takes it for granted that the evolution of the universe is progressive. (The notion of progress has also bedevilled for a long time some exponents of the science of evolution. Professor Davies thinks that the chemical basis of life, biological substance, is an alternative physical state of matter whose formation proceeds naturally and automatically under the right conditions along the progression from gaseous, liquid, solid to biological. Accordingly it is essentially a matter for physics.) In his speculation on the chances of success of searches for extra-terrestrial intelligences he says that the ‘average lifetime of technical civilisations is millions of years’, hence we would be the youngest among such civilisations, ‘incomparably, perhaps incomprehensibly more developed scientifically, culturally and ethical than ourselves’.

Professor Davies complains about the pillage by new cults of assortments of scientific concepts. True, but what about the pillage by the likes of Professor Tipler and his *The Physics of Immortality*? (There are many now dabbling in these fields.) The trouble is that Professor Tipler, etc take to an extreme the speculative games with scientific notions which Professor Davies himself is so fond of.

What are the ‘facts’ in these kinds of speculations? Why is it better to promote the search for pure knowledge as Professor Davies says we should and which he claims to be characteristic of his type of science, than to promote research which does serve a worthwhile purpose and leads to relevant knowledge? To aim at practical use is in his view the curse of technology. He sees it as a justified boast that ‘the general theory of relativity is probably the only major theory of science which has (yet) no conceivable application in technology’. It is technology, in his view, which is responsible for ‘pollution, nuclear warfare, genetic engineering and mind control ... all

examples of the misuse of science in the form of technology’. Is such a view not incredibly naive?

He finds significance in experiments which simulate conditions 3 or 4 billion years ago and have been found to lead to synthetic organic molecules. ‘All terrestrial life, from bacterium to mankind, is composed out of combinations of a small number of such building blocks’. However, he concedes that ‘it is conceivable that alternative biologies could develop from an entirely different chemical base’; this uncertainty of biological necessity seems, in my view, to negate all speculation on directed development and the likelihood of life in areas of the universe with earth-like environments (‘... on general grounds we may indulge in some cautious optimism that inhabited planets may be rather a common occurrence’). He talks about the science of exobiology - the study of life beyond the Earth - ‘it has no subject matter but plenty of theory’! On that the dog Sceptic chokes and gives up her ghost.

He gives limited support to ETI searches. I have noted a peculiarity in other writers which Professor Davies tends to share when talking about future possible technical marvels. They make light of unbelievable difficulties but may simultaneously question the feasibility on some relatively trivial grounds. There is no sense of proportion.

“If speeds approaching that of light were achieved, the time dilation effect would reduce the travel time for the crew, and in principle this would enable voyages over thousands of light years - right across the galaxy - in a single human life time. ... the technological problems ... might be solved, but no-one is going to mount such a gigantic exercise without a very good reason ... the strongest argument against ... interstellar travel is its pointlessness.”

While space travel to find intelligence is excluded by Professor Davies as pointless, a ‘modest’ effort at interstellar communication is supported - ‘although the entire idea may be a waste of time and money’ - in view of its enormous significance. In my view a skeptic would not forget the practical point that, even if what appear to be deliberately produced radio waves from another star system were discovered, there is no way of deciphering them and, if the cause of the phenomenon remains unknowable, so does its significance.

Enough. From what I hear his many subsequent books continue along the same lines. His exposition of the discoveries and speculation of physicists is excellent but have hardly any bearing on the phantasies that he entertains and which are intended to show that the cosmological speculations have some vital bearing on human affairs. His views on religion, philosophy, social and behavioural matters, and the serious concerns of the mass of humanity are naive.

Attempts to link ‘philosophy’, ‘the world of spirituality’, the ‘transcendental reality’, etc etc with the world which is accessible to scientists can be done in various ways, none of which are convincing. A common one is to say that the boundaries of science are drawn too narrow. Another is to say that science itself has unacknowledged premises regarding reality and the forces of nature which must be questioned;

therefore science is no less speculative or untested as the religious or philosophical tenets. A belief in science requires a leap of faith no different to that required for transcendental religions. Another is to cast doubt on the validity of or the completeness of standard science. Scientists themselves say that their theories can be overthrown by subsequent testing. If the sciences were wrong in the past they can be wrong again. Another is to claim 'scientific' validity for hypotheses promoted to explain phenomena which are claimed to be inexplicable in ordinary science: out of body experiences, extrasensory perception, beings from outer space, and many other miracles.

The tests suggested to 'prove' such hypotheses are as a rule inconclusive and lend themselves to alternative explanations - if they are not straight-out false or fraudulent - and the proposed hypotheses would invariably involve a substantial revision or expansion of generally accepted standard knowledge. The kinds of things one is expected to accept may be 'culture genes' (from sociobiology, with a comprehensive mathematical apparatus), Sheldrake's 'morphic resonance' (with suggestions how practical tests of the 'science' could be set up), the 'reality' and detectability of souls, of consciousness, of spiritual beings, of 'intelligence' or minds, and more recently once more the final singularity/omega point theory. B. Alan Wallace, in *Choosing Reality: a Contemplative View of Physics and the Mind*, suggests Buddhist introspective meditation as a middle way correcting the limitations of physics without ignoring the facts of science. The point is that his constant references to scientific data and theories seem very competent.

Maslow's proposals to study creativity as a necessary extension of the scientific domain was well regarded in its day though now forgotten. There is much more. One may see these things, including, I suggest, much of cosmology and psychology, as fringe sciences. The 'science' of many of them cannot easily be refuted by reference to accepted knowledge; clearly, if the attempted refutation of such a theory is as complex and abstruse as the theory itself and relies on demonstrations which themselves are hard to interpret, the lay onlooker, who often tends to be attracted to such nonsense, is hardly likely to be convinced. These things merge one into another: from the solid theories to largely speculative elements of accepted scientific knowledge, to the 'quasi-scientific' theories, to the patently pseudo-scientific spoutings which any reasonable person with an average modern education can see to be silly, e.g. creationism, and the speculative phantasies which dress up all kinds of visionary notions in pseudo-scientific mumbo-jumbo, e.g. the physics of immortality and now the Anthropic theory.

There is no reason why scientists should not dabble in philosophy, profess religious principles, or write science fiction novels. However, to trade on one's scientific reputation to propagate religious, transcendental or similar 'philosophies', or, worse, to claim a scientific basis for such fancies, is unacceptable to healthily skeptical people. It is equally

important for the skeptic to expose the charlatanism which comes from respectable sources as that which, setting itself up in contradiction to views accepted by all thinking people, has little standing among reasonable people.

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MEDICINE

Alternative Medicine

Richard Gordon

I am often asked to describe the differences between alternative medicine and orthodox medicine and why it is important to understand these differences.

Standardisation

In order to preserve and restore health, orthodox medicine aims to use standard forms of prevention, diagnosis and therapy with proven reliability. Clinical diagnosis, for example, utilises the reproducible scientific tools of observation and examination. Medicine attempts to be consistently scientific in its approach.

The various forms of alternative medicine do not generally attempt to standardise the processes of diagnosis and treatment. Iridology, homoeopathy, astrology and dowsing are approaches which permit a considerable amount of individual variation in their application. Their practitioners claim that they have high success rates, while insisting that their methods are so individualised and unique that they cannot be subjected to rigorous evaluation.

Alternative or Complementary

Alternative medicine is by definition unproven medicine. Any successful treatment that has been scientifically validated automatically ceases to be alternative and becomes orthodox. Many folk remedies have followed this path.

Alternative therapists seem unable to perceive the logical fallacy in their argument that their methods can actually complement orthodox approaches. Suggesting a change of name from “alternative” to “complementary” does nothing to alter the fact that alternative medicine is basically unscientific.

Effectiveness

The successes which alternative therapists claim to achieve probably have more to do with the time they take and the interest they show in their clients, mixed with common sense advice about diet, exercise and rest, such as is available in any Reader’s Digest.

It is a serious indictment of some orthodox practitioners that they do not spend time with their patients, do not communicate empathy and do not provide sensible advice about lifestyle in addition to specific advice in their areas of expertise. Alternative therapists have seized the opportunity to fill this gap in clinical care.

Onus of proof

It is not the responsibility of orthodox medicine to prove that alternative medicine does not work. Proof of efficacy and effectiveness is the responsibility of its proponents, using the accepted methods of science, among which are randomisation and the use of control groups.

These methods are no more difficult for alternative practitioners than they are for orthodox practitioners. Many of the hypotheses that one might generate about alternative remedies are not too expensive to test, as claimed.

They simply require objectivity, time and careful construction. University Departments of Clinical Epidemiology have a keen interest in the use of valid evidence in medical practice. For example, Professor Les Irwig in the Department of Public Health at Sydney University has offered to help clinicians to prepare active and placebo medications and administer them blind to their patients (with their informed consent) in order to find out which treatments are most helpful.

Conspiracy Theory

There is no closed-minded conspiracy to suppress alternative therapies, as has been alleged. In fact, an open mind and a lively imagination are among the chief characteristics of the good scientist. Good clinicians are doctors who think clearly and critically, keep abreast of developments in medicine and share their knowledge with their patients in a cooperative effort to promote and restore health. Mysticism and elitism, both of which have characterised our profession in the past, should no longer have any role in health care delivery.

Doctors who practise alternative medicine because they believe in it are foolish. Doctors who practise alternative medicine, but don’t believe in it, are quacks. ■

On a similar topic, Mike Shearer, a teacher from Townsville, draws our attention to the following book that discusses alternative health methods.

Alternative Health Methods, Zwicky, John F *et al* Reader’s Guide to Alternative Health Methods; an analysis of more than 1,000 reports on unproven, disproven, controversial, fraudulent, quack and/or otherwise questionable approaches to solving health problems. 1992, American Medical Association ISBN 0-89970-525-1 ■

REVIEW

Sceptical Magazine

Barry Williams

Many of our readers will be familiar with the *Skeptical Inquirer* (SI), the world's first magazine dedicated to the critical investigation of pseudoscientific and paranormal claims, published by the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP). CSICOP, headquartered in Buffalo, New York, was the first organisation set up to specifically conduct investigations into these areas and has continued to do so with great effect. With the encouragement of the CSICOP board, many other US and foreign, and independent, sceptical groups have come into being over the past 18 years, among the oldest and largest of which is our own Australian Skeptics.

For the past 18 years the *Skeptical Inquirer* has been a quarterly magazine in (roughly) A5 format and has contained the work of many of the world's leading investigators of paranormal claims. Beginning this year, *Skeptical Inquirer* has changed to an A4 format, bi-monthly magazine, with a full colour cover. It continues to contain the same type of penetrating articles, reviews and news items from around the world and is a very valuable item for any enquiring Skeptic.

In 1993, a new magazine went into production on the west coast of the United States. Called *Skeptic*, it is published by The Skeptics Society and it, too, is an A4 format, bi-monthly magazine. It differs from *SI* in several respects, most notably in that each issue tends to cover several aspects of a particular theme and that it does not strictly confine itself to specifically paranormal and pseudoscientific claims. For instance, a recent issue contained several articles on the topic of the Holocaust and the claims of 'deniers' of that event. This too is a very worthy magazine and one which we can thoroughly recommend.

The British Skeptics publish *The Skeptic*, also a bi-monthly, which focuses on the British scene. It is somewhat smaller in size than our own magazine, is very well produced and is always full of informative and entertaining reading.

Among the other English language sceptical magazines, the *New Zealand Skeptic* is published across the Tasman and contains some very interesting and informative articles of particular relevance to our Kiwi cousins (most of them are not about sheep). Several of the US and Canadian local groups produce their own smaller publications, ranging from magazines to newsletters.

From the non-English speaking world, we have seen good quality magazines from Germany, Italy, Spain, and Argentina

and there are doubtless many more.

The proliferation of high quality sceptical magazines throughout the world suggests that there are many dedicated individuals who are concerned for the intellectual wellbeing of our species and who refuse to be taken in by whatever fad happens to be the prevailing anti-intellectual fashion.

Our own magazine is one of the three largest in the world and when I say that *the Skeptic* is among the best of all, I would like to claim that is an unbiased opinion, but you, the sceptical reader, will not believe me (and neither should you). Let me then quote Michael Shermer, editor of *Skeptic*, in an Internet discussion (March 22, 1995) about whether there was room in the US market for two quality sceptical journals:

"In fact, there already exist dozens of skeptical newsletters, and two foreign national magazines, both entitled *The Skeptic*, located in the UK and Australia. Both are excellent. Diversity and growth is a good sign for skepticism, science and critical thinking".

A sentiment with which we can only totally agree. Magazines mentioned available from:

Skeptical Inquirer
Box 703
Amherst NY 14226-0703 USA
or
PO Box A2324
Sydney South NSW 2000

Skeptic
PO Box 338
Altadena CA 91001 USA
or
GPO Box 1555P
Melbourne VIC 3001

The Skeptic
PO Box 475
Manchester M60 2TH
United Kingdom

The New Zealand Skeptic
Secretary NZCSICOP
150 Dyers Pass rd
Christchurch 2
New Zealand

REVIEW

Two Books Worth Noting

Barry Williams**Round in Circles: Physicists, Poltergeists, Pranksters and the Secret History of the Cropwatchers;**
Jim Schnabel. Hamish Hamilton, London 1993

For those of us who have long been bemused by the phenomenon of the strange patterns that have been appearing in English crop fields each summer since the early 1980s, this entertaining book gives us chapter and verse of both the phenomenon and the remarkable characters who have given it life. Jim Schnabel, an American journalist, who studied at Bath and Oxford Universities in England, became interested in the 'mystery circles' in 1989, an interest which he indulged at great length and which resulted in this book.

Schnabel is an amusing writer and the chapter written in 'mock Hemmingway' style had me holding my sides. If the book has a fault, it is one that is becoming all too common in modern journalism, that of occasionally describing conversations and thoughts to which the author could not possibly have been privy.

He has catalogued the history of the phenomenon and the many and varied organisations which arose to study it, listing the improbable alliances as the 'meteorological phenomena', the 'extraterrestrial messenger' and the 'mystical other realm/earth crying out in agony' proponents sought to find common ground, and the subsequent (and inevitable) fallings-out as the egos involved strove for advantage and public recognition.

The pages abound with Japanese physicists, sinister Maltese mystics, UFO proponents, meteorologists, dowsers and sensationalist media hucksters. He describes, sympathetically, the activities of confessed circle hoaxers 'Doug and Dave' and gives details of his own extensive activities in creating hoax circles.

In the end he leaves us with little doubt that the 'intelligence' behind the crop circle phenomenon is of a far more mundane, earthly kind than that which the believers can bring themselves to accept.

I bought my copy from a remaindered table for \$9.95 and can thoroughly recommend it to anyone who has an interest in the subject. ■

The Hippopotamus,
Stephen Fry, Arrow Books, 1994 pb \$12.95

Stephen Fry is the larger half of the duo who brought us *A Little Bit of Fry and Lawrie*, shown on ABC TV last year and who appeared in various guises in the *Blackadder* series, as well as the eponymous Jeeves in the most recent incarnation of Wodehouse's *Jeeves and Wooster*, which I don't think has been shown on Australian TV, but is available on video cassette.

It is not, however, for his thespian skills that I recommend this author. He is, unusually perhaps for someone involved in the theatre, a confirmed sceptic of all things paranormal. He has contributed articles to the British Skeptics magazine, *The Skeptic* and is an acknowledged supporter of sceptical activities in the UK.

In *The Hippopotamus*, he turns his considerable literary skills to the question of faith healing and to the desperate and often hysterical need-to-believe that surrounds it. His protagonist, described in a review as "an old, sour, womanising, cantankerous, whisky-sodden beast of a failed poet and drama critic" (and who among us Skeptics is not?) is all of that, but is also one who keeps the real world firmly in focus while all around him strive to explain inexplicable happenings in terms of 'Grace', 'strange energies' or 'healing spirits'. He is not a particularly sympathetic character, but then that is all too often the lot of the sceptic, as most of us would recognise.

Fry's language and style are fruity and this is definitely not a book to give to your maiden aunt (nor uncle, for that matter) nor a member of the Creation Science Foundation, but his eye for the idiosyncracies of the confirmed believer is penetrating and accurate. Overall, it is a very funny book and, as HL Mencken put it, "One horse laugh is worth ten thousand syllogisms".

It is a thoroughly recommended read for all sceptics, as well as being a very useful antidote for those of our friends who subscribe to the view that "if so many people believe in it, then there must be something in it". ■

BLATANT PLUG

The publishers of Sky & Space magazine are opening a series of Sky & Space Shops throughout the country, with the first being located at 80 Ebley St, Bondi Junction 2022. We are delighted to include a mail-order catalogue from Sky & Space as an insert in this issue. Our Editor has been invited to contribute a column to Sky & Space.

FORUM

In which Skeptics can assert, challenge, debate, dispute, refute, discuss, wrangle, plead, or generally argue the toss about items which have appeared in *the Skeptic*, or ideas which they wish to propose.

Asteroids and Aliens Revisited

In “Asteroids and Aliens”, (Vol 15, No 1, p 9,) the author, Dr Duncan Steel, comes to the conclusion that the UFO named 1991VG, discovered late in 1991, is unlikely to be an asteroid and unlikely to be a man-made object because of the circumstances existing when 1991VG was observed. Since the events:

Asteroid (A), man-made object (B), and Alien Vessel (C), are the only alternatives, he concludes that the probability for (C) is “substantial” (p10, line 36). In spite of this high probability, Dr Steel refuses to believe that the observed object was an alien vessel.

Briefly, my reply will be that Dr Steel’s conclusions are due to a confusion of two probabilities:

(1) The probability $P(A)$ that an asteroid may be observed in circumstances similar to those when 1991VG was observed, and

(2) The probability $P(A/R)$ that, given that 1991VG (=R say) has in fact been observed, the discovered object was an asteroid.

[Similar meanings are attached to $P(B)$, $P(B/R)$ and $P(C)$, $P(C/R)$]

Dr Steel’s probabilities, based on astronomical knowledge, should be accepted; but they must be assigned to $P(A)$ and $P(B)$, not to $P(A/R)$ and $P(B/R)$. It will be shown that $P(C/R)$, (the probability that the observed 1991VG was an alien vessel) is small and $P(B/R)$, (the probability that it was a man-made object) is large. There is no need to abandon scientific consistency; we can continue to believe in the event with the largest probability i.e. that 1991VG was a man-made object.

It is plausible and can also be shown mathematically that the probabilities $P(A/R)$, $P(B/R)$, $P(C/R)$, assessing whether the observed object R (= 1991VG) was an asteroid, a man-made object, or an alien vessel, are related to the prior probabilities $P(A)$, $P(B)$, $P(C)$. Dr Steel has investigated only $P(A)$ and $P(B)$ although $P(C)$ must also be estimated before $P(A/R)$, $P(B/R)$, $P(C/R)$ can be calculated.

It would be easy to impress the statistically inexperienced with Bayesian formulae, but I believe such an important issue should be explained to a large group of interested Skeptics. This is indeed possible by means of a few simple examples and quizzes no less amusing than those found in a journal

such as the *Reader’s Digest*. It will also become clear where the fallacy in Dr Steel’s argument lies. Here then are a few problems that the reader may attempt to solve. Answers and comments are given below each problem.

Problem 1 is a warming-up exercise to get used to statistical terminology. Problem 2 is crucial; it clarifies how the error in Dr Steel’s paper could have arisen. Finally, Problem 3 illustrates how the appropriate probabilities can be derived in a simple and elementary way.

Problem 1: For your birthday, your sister bought you one lottery ticket in a lottery with 10,000 tickets. She also told you that she was able to get you the ticket with one of your three lucky numbers, 7, 77, 777, but did not tell you which one of the three she bought. Let A be the event that you win first prize and R the event that the newspapers publish that ticket No 77 has won first prize. Find $P(A)$, the probability that you win first prize, and $P(A/R)$, the probability that, given that your ticket is 7 or 77 or 777, you win first prize.

Answer: $P(A) = 0.0001$, $P(A/R) = 1/3$.

Problem 2: In 1920, long before the time of hormone-assisted pregnancies, Mrs Miracle, a woman in her sixties became pregnant. Let C be the event that such a woman conceives (ie becomes pregnant). Let B be the event that such a woman has a boy (male birth), G that she has a girl and M that she has a multiple birth.

(a) Define in words the probabilities $P(C)$, $P(B)$, $P(B/C)$, and assign (by common knowledge) approximate numerical values to $P(C)$, $P(B)$, $P(G)$, $P(B/C)$, $P(G/C)$, $P(M/C)$.

(b) The following faulty reasoning leads to an obviously wrong result. Discover at what stage of the argument the reasoning goes astray.

The Wrong Reasoning: The probability that a woman in her sixties has a boy is very small and so is the probability that she has a girl. But Boy, Girl or Multiple birth are the only alternatives. Hence the 3 probabilities must add up to 1. Hence the probability for a multiple birth must be almost a certainty, ie any woman in her sixties is almost certain to have a multiple birth!

Answer: (a) $P(C)$ is the probability that a woman in her sixties conceives; $P(B)$ is the probability that a woman in her sixties has a male pregnancy; $P(B|C)$ is the probability that a pregnant woman in her sixties carries a boy.

$P(C) = 0.001$ (about one in a thousand); $P(B) = P(G) = 0.00045$, less than half of $P(C)$; $P(M) = 0.0001$ (very small indeed).

(b) Boy, Girl, Multiple Birth are not the only alternatives for a woman in her sixties. The most important alternative is to have no birth at all. This probability, $P(N)$, is the only one that is large.

Problem 3: A manufacturer has 4 machines making ball bearings. Machine (A) produces 10,000 bearings daily of which 1% are rejects (R). Hence the probability that (A) produces a reject is $P(R/A) = 0.01$. Similarly, machine B produces 20,000 bearings with 2% rejects, C produces 100 bearings with 50% rejects, and D produces 69,900 with no rejects. Hence $P(R/B) = 0.02$, $P(R/C) = 0.50$, $P(R/D) = 0$. All bearings produced in one day are collected in one box, and one bearing is selected at random from the box.

(a) What is the probability $P(A)$ that the drawn bearing comes from machine (A)? [Hint: count the number of bearings produced by A and compare with the total number of bearings produced by all machines.]

Similarly, find $P(B)$, $P(C)$, $P(D)$.

(b) The bearing drawn is found to be a reject. What is the probability $P(A/R)$ that it was made by (A)? [Hint: count the number of rejects made by (A) and compare with the total number of rejects made by all machines.]

Similarly, find $P(B/R)$, $P(C/R)$.

(c) Show by common sense that $P(D/R)$ must be zero.

(d) Show that the probability of drawing a reject in a single draw is $P(R) = 0.0055$ [Hint: Count all the rejects and compare with the total number of bearings produced.]

(e) Use the given probabilities $P(R/A)$, $P(R/B)$, $P(R/C)$ and the probabilities $P(A)$, $P(B)$, $P(C)$ found in (a) to verify that

$$P(R) = P(A).P(R/A) + P(B).P(R/B) + P(C).P(R/C)$$

$$\text{and } P(A/R) = \frac{P(A).P(R/A)}{P(R)}$$

and write down similar equations for $P(B/R)$ and $P(C/R)$.

Answer:

(a) $P(A) = 0.1$, $P(B) = 0.2$, $P(C) = 0.001$, $P(D) = 0.699$

(b) $P(A/R) = 2/11$ (=100 divided by 550), $P(B/R) = 8/11$, $P(C/R) = 1/11$

(c) If a reject is found, it cannot come from (D) because (D) has no rejects. Hence $P(D/R) = 0$

(d) The total number of bearings is 100,000.

(e) $P(A).P(R/A) + P(B).P(R/B) + P(C).P(R/C) = 0.1 \times 0.01 + 0.2 + 0.02 + \dots = 0.0055 = P(R)$.

Comment: Part (e) of Problem 3 shows that the probabilities $P(A/R)$, $P(B/R)$, $P(C/R)$ can be deduced so long as $P(A)$, $P(B)$, $P(C)$ and $P(R/A)$, $P(R/B)$, $P(R/C)$ are known. It is plausible (but can also be shown mathematically) that this continues to be so, even when A, B, C, and R have other meanings, eg when A is the event of observing an asteroid under circumstances similar to those existing when 1991VG was observed. B is the event of observing a man-made object and C is the event of observing an alien vessel. R is the event that,

on a random night and under circumstances similar to the night of 1991VG, a flying object is observed. The frequency of observing an A may in the past have been such that $P(A) = 0.01$ is a reasonable assumption, and similarly $P(B) = 0.02$. Again, $P(C) = 0.001$ may be a reasonable assumption considering the huge distances to be travelled by space ships from distant planets to reach the Earth.

It is for astronomers to assess the numerical values of $P(A)$, $P(B)$, $P(C)$; I would not be surprised if they estimate $P(C)$ to be much smaller than 0.001

The next probability astronomers will have to estimate is $P(R/A)$ (which now represents the probability that an asteroid is actually seen after it has arrived). $P(R/A) = 0.01$ may not be unreasonable, given that the asteroid is not expected and observers may not look in the right direction or the sky may be overcast. But again, it is up to astronomers to estimate this probability as best they can.

In this short note, we can only illustrate the basic procedure; the example in Problem 3 shows $P(B/R)$, (the probability that the observed object was a man-made object) is by no means small. It could well be the largest of the 3 possible events and hence the event B would be the most likely to have been observed.

Hans Weiler
Croydon NSW

Another Anti-Alien Argument

I write in response to "Of Asteroids and Aliens" by Duncan Steel (*the Skeptic*, Vol. 15, No. 1).

Duncan Steel's article, which follows an article by Harry Edwards labelled pseudoscience, is a good example itself of pseudoscientific analysis. In it Steel reaches a conclusion that he says he does not believe, namely, that an object observed by Spacewatch has a good chance of having been an alien probe. If he does not believe the conclusion, then he should have been sceptical of the argument he employed to reach it.

In fact the argument is flawed. It involves estimating the probability, given an observation, of a particular origin for the thing observed. Specifically, what is sought is the probability that an object observed to be in a solar orbit similar to the Earth's was an alien probe. In statistical terminology, such a probability is a type of conditional probability called a posterior probability, and its calculation is the subject of a theorem called Bayes's Theorem, named after Thomas Bayes (1702-1761).

In simplified terms, one can conclude from Bayes's Theorem that if a solar orbiting object of any one kind is just as likely to be observed by Spacewatch as any other, then the posterior probabilities are equal to the prior probabilities, that is, to the probabilities prior to the observation. If there are slight differences in the chances of observing the various kinds of

object, then the posterior probabilities will differ only slightly from the prior probabilities. This elementary consideration should have forewarned Steel, for it means that the probability of the observed object's being an alien probe can differ only slightly from the (prior) probability that an alien probe is in solar orbit, which is, of course, negligible.

Steel's error arose from a misunderstanding of the probabilities with which he was dealing. Specifically, his probabilities A, B and C appear to be probabilities of both observing an object and that the object observed is of the relevant kind; these probabilities do not sum to 1, as Steel thought they should, but to the probability of observing an object, which is quite small.

I am not offering the above comments as a complete analysis of the situation described by Steel, but only as a quick means for discovering the kind of result that one might expect from a more detailed analysis. The situation described by Steel is complicated by several factors, the chief being, perhaps, that the observed object appeared to flash. A proper analysis of the situation would require a better understanding of it than Steel's account of it permits. I have however, attempted such an analysis, in order to show how it can be done, and will send it to anyone interested.

Dr D. Culpin
Wahroonga NSW

Against Circular Reasoning

Lewis Carroll, in "The Hunting of the Snark", had the Butcher giving the Beaver a lesson in arithmetic:

*Taking Three as the subject to reason about -
A convenient number to state -
We add Seven, and Ten, and then multiply out
By One Thousand diminished by Eight.*

*The result we proceed to divide, as you see,
By Nine Hundred and Ninety and Two:
Then subtract Seventeen, and the answer must be
Exactly and perfectly true.*

In "The Annotated Snark" Martin Gardner described this as being "a sterling example of circular reasoning": no matter which number one chooses as "the subject to reason about", the answer comes out to be the same as the input. My two antagonists (Dr D. Culpin and Hans Weiler; there may be more by the time that this rebuttal appears) have fallen into

the same trap. Indeed they make not one, but two circular arguments each: one is "the observation of 1991 VG was a fluke, therefore it was a fluke", whilst the other is "it is very unlikely that there are alien spacecraft in the solar system, therefore it is unlikely that any observed object is an alien spacecraft".

Both Culpin and Weiler make the error of assuming that I have confused the prior probabilities with the posterior probabilities. Since he is economical with politeness, and also makes the most mis-statements of fact along with the introduction of opinions and biases for which there is no evidence, I begin with the criticism by Culpin. In a fairly-exhaustive analysis, which he offers to send to interested readers and which would make a useful tutorial for beginning students of probability theory, Culpin goes through the necessary background theory. This is not really of importance to any but the most diligent reader, since one can take Culpin's statement in his letter concerning Bayes's Theorem at their face value; indeed I had implicitly assumed this in my original article, and thought it too obvious to mention. The problem, however, is that no matter how correct an analysis, the result depends upon the veracity of the input; computer programmers often use the acronym GIGO for this (Garbage In, Garbage Out). Culpin has put in garbage in that he has assumed that I took there to be just one alien probe in orbit about the Sun, and that is 1991 VG. That assumption is incorrect. Let us see why.

The point of significance here is that Bayes's Theorem leads to the conclusion that, all other things being equal, the posterior probabilities are in the same ratio as the prior probabilities. It is the posterior probabilities that we are after, and we derive those from a consideration of the prior probabilities.

Laying aside matters that might confuse us in this simple verbal analysis (like whether the object in question flashed or not; note that an image showing its flashing has been published, in the European Southern Observatory's *The Messenger* magazine, No 66, p 66, 1991), I simply note that my analysis of the probability of the Spacewatch team observing any specific object on an orbit like 1991 VG is about one in 100,000 per annum. This is the prior probability of discovery for each similar object on such an orbit, and for reasons previously expounded (flashing, very Earth-like orbit) I, along with others, have argued that 1991 VG is artificial in origin. Culpin then makes the mistake of assuming that the prior probabilities sum to a small figure, an assumption for which there is no basis: it is the first of the circular arguments, "it was a fluke, therefore it was a fluke".

In fact we have only one measure for the sum of the prior probabilities of any observation being made: one such object was observed in five years (and note that by "such object" I mean the only object observed to flash, and the only one on such an orbit, that being radically different from all others observed). That's **all** we have: there are no other search programs that can render useful data in this context. Since there is a one in 100,000 per annum chance of discovering

such an object, and five years of observations turned up one, this implies that the total number of such objects is about 20,000. That figure is highly uncertain, since it is based upon a sample of one, but it is the **only** measure that we have. In reality the population of such objects might be just one (the one we've observed already; its discovery was a fluke), or it might be rather more than 20,000. Time will tell, as observation programs continue. If only Spacewatch were to do the searching (as now), and if they continued in the same way as they have the past few years, then the probability of turning up at least one more object in the next five years is 0.632 **if** there is a population of 20,000 objects as the present information indicates. Thus **if** Spacewatch found no more such objects in the next few decades then we might be justified in interpreting 1991 VG as having been a fluke discovery (to be explained), but at this stage there is no basis for such an assumption. In reality, we might expect new and improved search programs to answer the question rather sooner, but one should recall that in my original article I noted that there is a get-out to any attempt to negate the hypothesis in this way: that was the "1991 VG was actually a controlled alien probe" scenario.

Our best estimate at this stage, then, is that there are 20,000 artificial objects in orbits like 1991 VG. At the present time (as discussed below) we know of no candidate man-made object, but we might allow that some unknown force had brought one of our rocket bodies back close by the Earth. At best one could invoke all anthropomorphic objects launched into heliocentric orbits, but still one has only a minority out of that 20,000. The point is that we **know** how many man-made objects are out there - and we know of none on orbits like 1991 VG, although the possibility cannot be excluded - but we have **no idea** how many alien ones there might be, apart from the implications of this singular observation. Going back to Bayes, one derives a large value for the posterior probability that 1991 VG was an alien probe, based only on the assumptions that (i) The observation is a measure of the real universe; and (ii) It was an artificial object. This compares with Culpin's assertion, based upon nothing but personal bias, that "the probability of the observed object's being an alien probe ... is, of course, negligible". There is no "of course" about it. One must stick to the facts as they are known, and beware of circular arguments.

In passing I note that the reader might think that my own argument is circular, but I point out that this is not the case. It is based upon the only information which is available, to which extent one might better describe it as being a "bootstrap argument." It is also certainly a weak argument, due to the scarce data, but I have explained my reasons for taking it up both in my earlier article, and below.

At this juncture it is likely best to take a paragraph spelling out which probabilities are which. Let $P(A)$, $P(B)$, $P(C)$ and $P(D)$ be the prior probabilities for observing, in an orbit like 1991 VG, an asteroid (A), a man-made body (B), an alien probe (C), and no observation at all (D), all over a period of

five years. The single observation in five years of operation implies that our best measure of $P(D)$ for any other five years is 0.368 ($= 1/e$). Thus $P(A) + P(B) + P(C) = 0.632$. There are reasons to believe that the object was artificial, so that $P(A)=0$. We have absolutely no previous knowledge that could indicate $P(C)$. We do have previous knowledge of man-made spacecraft launches, and none are known which have left a body on an orbit like 1991 VG, so that one could take $P(B)=0$. However, it is possible that some unknown effect has left a man-made body on an orbit like 1991 VG. If N such bodies had been inserted into such orbits (and we would need to assign a some small - but incalculable - probability for such an event to each), then $P(B) = N P(O)$, where $P(O)$ is the probability of observation, which I estimated at one in 100,000 per annum. Note that this expression is just an approximation for a binomial expansion, this being valid since N is a small integer and $P(O)$ is small; this saves the editor from needing to insert powers here! This vaguely-estimated (ie, small) value of $P(B)$ gives us our only handle on $P(C)$. Given the condition R that an observation was made, the posterior probabilities are $P(A,R)$, $P(B,R)$ and $P(C,R)$, and these sum to unity. $P(A,R)$ is zero since $P(A)=0$, but note that one could argue about this. Bayes's Theorem then says that $P(C)/P(B) = P(C,R)/P(B,R)$, and thus one estimates a substantial value for $P(C,R)$. I refuse to countenance trying to assign a value for it, since (i) I have noted above that we have no idea (at least at this stage) of what N could possibly be; and (ii) I recognize that a sample of one can give us little confidence (but can give us something to argue over).

Weiler makes a number of comments that are in error, especially towards the end of his article, but the reader will hopefully be able to discern them and so I will not pick them out. One of his examples is very useful in the present context, however, since it clearly indicates where both he and Culpin went wrong. Weiler's Problem 2 is a nice, if trivial, example of the use of Bayes's Theorem, but it is the **wrong** example for application here. Weiler defines $P(C)$ as the probability that a woman in her sixties conceives, and then assigns (as he writes "by common knowledge") a value of 0.001 to that probability. The result obtained hinges on that value. In the case of 1991 VG, however, there is no prior/common knowledge. The situation is similar to having observed only one woman, and she was pregnant, so that one must assign $P(C)=1$ unless one has other information (which, in that case, of course we all do, but in the case of 1991 VG we do not); then with $P(C)=1$ one derives a quite different result. Examples used to clarify the situation for readers should be appropriate for the puzzle under consideration; Weiler's Problem 2 is inappropriate and therefore obfuscatory. Even here, as I point out the fallacy involved, that example will leave the wrong taste in people's mouths, for many will think that we know 1991 VG to have been a fluke, like observing one woman in her sixties who happens to be pregnant. Weiler's Problem 3 would provide the basis for a useful illustration of the problem in hand if only he had not lapsed into a circular argument

($P(C)=0.001$ assumed again, with no basis whatsoever; and he has performed the equivalent of assuming that an observation of an object is unlikely - "it was a fluke, therefore it was a fluke" - whereas the only information that we have is that an observation was made).

I have deliberately not made mention so far of whether it is reasonable to suggest that there might be 20,000 alien space probes with orbits about the Sun bringing them past the Earth from time to time. My reason for that is to let the reader sit with his/her mouth open, amazed that I should suggest the ludicrous possibility of such a thing, since the reader's bias will be saying "that's ridiculous; we would know about them by now." OK, you tell me how. I have already pointed out that the Spacewatch program is the only search program that could have spotted 1991 VG, and it has been operating only since 1989. It's not surprising that no-one else has seen one, then.

What about them coming to us? One might expect such objects to hit the Earth from time to time (assuming that they are uncontrolled): if there are 20,000 of them, then about one per decade would arrive in the atmosphere, and even if a substantial part survived intact this means that a crash in a populated region of the globe occurs only about once per century. I note that my interest in 1991 VG was first sparked by the fact that, because of its Earth-like orbit, its terrestrial impact probability is much higher than any other known body in heliocentric orbit. Slight changes in the orbit due to close terrestrial approaches like that in 1991 lead to large changes in the collision probability, and therefore impact rates somewhat lower, with centuries between arrivals in regions where the people might recognize the unusual nature of the debris.

In fact the number of 20,000 is minute: there are thought to be close to a billion natural objects larger than 10 metres in size on Earth-approaching orbits (a figure again based, at least in part, on a handful of discoveries by Spacewatch). Our ignorance of the contents of near-Earth space is illustrated by the fact that it has not been possible for other scientists to conclusively disprove a suggestion made in 1986 by Professor Lou Frank of the University of Iowa that there are more than 20,000 mini-comets, each about 10 metres in size, hitting the Earth **every day**. (For information see the *Reviews of Geophysics*, February 1993, or *The Australian Physicist*, January/ February 1989). Most people working in this field find this hypothesis to be lacking in credibility, but the point is that we know so little that it has not been hitherto possible to knock it on the head. Statements like Culpin's that there is a "negligible" chance of there being an alien probe in the solar system are not only ignorant of a large volume of quality debate on the topic - for example, see discussions concerning the so-called "Fermi Paradox" in any book on SETI - but are also in arrogant disregard of our lack of definite knowledge pertaining to the question. We just don't know. Why expect an Earth-like orbit for an alien probe? - Because it would be useful as a surveillance platform; previous authors have suggested that the luni-terrestrial L4 and L5 points would be used for such

purposes, but perhaps an alien intelligence would have recognized that those would be some of the first places that we'd search once we developed the telescopic power (as we have, looking for usable asteroidal debris). For an example of some other aspects of our ignorance concerning aliens, see the article by Pat Shiel in *The Australian*, 12 April 1995, page 12.

I wrote above that I would return to the question of whether 1991 VG is a fluke spotting of a man-made craft. This is connected with my motivation in taking up this problem initially. If it had been possible to identify a man-made candidate for 1991 VG then I would have thought little of it, and I would never have gone on to the next step of estimating the prior probability of discovery of an arbitrary object on such an orbit. However, so far as I am aware, no-one has yet identified a plausible candidate anthropomorphic object. A purely-gravitational backwards integration of the orbit of 1991 VG to 1975, the previous time that it was in our vicinity, indicates that it did not come within 10 million kilometres of us. This means that if it escaped the Earth-Moon system at that time, then some unknown force must have acted to bring it onto an orbit like that determined on discovery (for example, a jetting force due to escaping fuel, or radiation pressure, or perhaps some manifestation of non-linear dynamics at the fuzzy boundaries near multiple large mass bodies) between 1975 and 1991. Continuing the backwards integration to the late 1950s, the object is found not to have passed by the Earth until prior to the first launch of a spacecraft into heliocentric orbit. (Several people have suggested to me, and not all of them in jest, that the German rocket experiments during WWII may have been more successful than we have believed to date). One might invoke, then, some hypothetical force acting upon one of the handful of man-made objects launched out of the Earth-Moon system, but for any one to return to our environs requires the chance acting of those forces in just the right manner. This would require an additional small probability to be included in the sums, meaning that 1991 VG, if man-made, was even more of a fluke discovery. Let me reiterate, though, that so far as I am aware there is no candidate known.

Another thing that I would like to reiterate here is my motivation in attacking this problem in the first place. I often get calls from people thinking they've seen flying saucers and the like, and my reply to them is that we've never detected anything that we couldn't easily explain. When 1991 VG was spotted, that changed. Although it might be explicable eventually as being man-made, at this time it is a candidate as being an alien craft. Personally I doubt it very much, since the sample is so small and I am also biased against the idea that there are alien craft in the solar system. But merely to presume that it must be man-made, as has been done in several scientific papers in the past few years, is not good enough. One either accepts that the observation made is a valid representation of the universe, or one rejects it, but there is no basis for the arbitrary rejection of single observations, assuming them all to be flukes; one does, however, have caution in giving them

great significance. It is for that reason that all that I state is that (i) 1991 VG is, at this stage, a candidate as being an alien craft, and likely the best such candidate from the plethora of reports and claims in recent decades; (ii) More observations (of other objects, if they exist), or non-observations, are needed; and (iii) An investigation of all plausible man-made spacecraft is needed to see whether they might provide a candidate (eg, fuel left on board? Area-to-mass ratio in case radiation pressure might have perturbed their orbits markedly?).

Finally, I would like to take issue with Culpin's implication that a personal lack of belief in any result derived in a scientific manner precludes the use or presentation of that result, and I feel that this is a matter which might usefully be debated by the "Skeptics", if it has not been already. To me it is absolutely necessary when making a scientific investigation to lay aside your personal biases and beliefs, and often common sense too; the relativistic "twin paradox" offends the common sense of most people, but their disbelief does not make it incorrect. If this separation is not done then you will be controlled by the ruling paradigm of the time, and little or no progress will be made. The history of science is littered by examples of this; for example, how would Darwin have fared if he had allowed himself to be constrained by the strictures of his religious background? Here my beliefs tell me that there are no alien probes in the vicinity of the Earth, but my investigation of the only useful data available indicate that 1991 VG is a candidate as such an object, and that is as far as I go; I refuse to say that it is "likely" to be, since the data are so sparse that the uncertainty is high. Nevertheless, it is not a discovery that is easily explained away, and so requires serious contemplation rather than flippant dismissal as a result of circular reasoning.

(Dr) Duncan Steel
Coonabarabran NSW

Speaking of Duncan Steel, we owe him a grovelling apology, which we here offer to him unreservedly. In *Forum* (Vol 15, No 1), he challenged some claims made by Ian Plimer in an article on the Greenhouse Effect (Vol 14, No 3).

Due to one of those gremlins that make an editor's life perilous, we managed to delete a couple of paragraphs from Duncan's item and succeeded in merging two sentences thus making the end of the item absolutely incomprehensible and our editorial response even more so.

This is how the end of Dr Steels article appeared in Vol 15, No 1, with the offending merge point in bold type:

"If that beast is rising at two centimetres per year (which is a uniformitarian statement in itself) then I would have thought that one would only need to quote the date of measurement to the century, since it seems unlikely that (at least prior to the availability of ...in Swedish, where 'en data' means 'a computer.' What hope is there for the great unwashed if such a reputable and upstanding journal as this should print such

erroneous English? I guess that invites criticism of my own grammar; not least the personification in the last sentence. We could all do better."

And here is how his original article was **supposed** to read:

There are a couple of other points that I could (usefully - I hope) bring up. One is that I was bemused that Plimer discussed the effect upon sea level of melting 'polar ice', but did not mention that melting of the Arctic ice cap - but not including Greenland, and so on - would not affect sea level, as Archimedes could have told him. Second, I found it a little bit strange that Plimer made a point about needing to stipulate the year pertaining to any measurement, 'If the height of Mount Everest is quoted accurately...' If that beast is rising at two centimetres per year (which is a uniformitarian statement in itself) then I would have thought that one would only need to quote the date of measurement to the century, since it seems unlikely that (at least prior to the **availability of GPS systems**) one could determine the height to better than a metre or two. In any case, if one really wanted to accurately stipulate the height, surely the time and date would be needed rather than just the year, since the solid-earth tide is (I believe) of rather larger amplitude than two centimetres. I pointed out that a uniformitarian statement had been made above since in reality Mount Everest does not rise by two centimetres a year: that is, according to best values, a long term average. Uniformitarianism (in the form commonly-called gradualism) is not the way of measurement would be much) were considering climbing Mount Cook, since 200 metres fell off it a few years back (catastrophism rules, OK). Look, this has all been pretty destructive, and I don't want to detract totally from Ian Plimer's article: I'm just saying that we need to be careful.

Look at it this way: one cannot easily defend the advent of changes in scientific understanding which are a natural part of our progress against the moronic attacks of creationists if, in one's haste or erroneous earlier understanding, one has made definitive statements which later prove to be false. Having written all of the above, I agree and support (through personal bias, quite possibly) Plimer's statement that 'It is quite possible that astronomical features are far more significant for global climate than CO2.' The funny thing is, I think that atmospheric dusting from cometary break-ups in space, an idea mooted by Fred Hoyle and Chandra Wickramasinghe as a cause for mass extinctions and ice ages two years before the asteroid impact idea gained ascendancy through the paper of Alvarez *et al.* in 1980 - is plausibly the dominant effect, although Plimer does not mention such events. And there lies the hazard in making definitive statements.

Whilst I'm writing, a couple of other points. In Vol 14, No 4, p 52, Barry Williams writes that 'science tells us that the temperature in space is not Absolute Zero ... but around three degrees higher.' Oh, deary me. Actually the temperature 'in space' could be said to be the temperature of the instrument

one uses to measure it, or however one decided to define 'temperature.' If one defined temperature as being proportional to the speed of the atoms/molecules - which is what a thermometer measures, in effect - then well above atmosphere, but in our vicinity, the temperature in space is some millions of Kelvins (or degrees Celsius). But it would be easy to freeze to death, since the heat content of 'space' is very low, there being so few particles around. Understanding the difference between heat and temperature is central to a physical understanding of fire-walking (*the Skeptic, passim*). The so-called 'Three-Degree Background' is something quite different to all this.

On page 61, Clive Robbins describes himself as being ancient and therefore 'chronologically disadvantaged.' Might I suggest that he could, more correctly, leave out the 'dis-'

Finally, I was horrified to read in *the Skeptic* the offending phrase 'data is.' The word 'data' is only a singular in **Swedish**, where 'en data' means 'a computer.' What hope is there for the great unwashed if such a reputable and upstanding journal as this should print such erroneous English? I guess that invites criticism of my own grammar, not least the personification in the last sentence. We could all do better. ■

I suspect we have not heard the end of this argument. **Ed**

Astronomical Scam

Dr Colin Keay, astronomer and president of the Hunter Region Skeptics, looks at a scam.

A few years ago, if I recall correctly, the going rate for a worthless certificate naming a star after yourself or a loved one was only about forty dollars. I believe it is now two hundred and fifty dollars.

A few weeks ago a lady phoned and asked how names are given to stars. It seemed to be a genuine inquiry for the sake of knowledge. I told her that all except the very brightest or most exceptional stars have individual numbers, like car registrations. The brightest stars have ancient names, like Sirius, or a combination of a Greek letter and the name of the constellation it lies within. Only a handful are named after people: usually the astronomer who recognised some peculiar feature of the star concerned. There is Barnard's Star, which is the swiftest moving star; Plaskett's star, which used to be the most massive star known; and van Maanen's star, a white dwarf star which he found. I can't think of any others offhand.

Many stellar objects bear the numbers assigned in the catalogue of a particular astronomer, provided the catalogue itself is worthy of note. One of the better known is the Henry Draper Catalogue of nearly a quarter of a million stars, with numbers such as HD116658, a star more widely known as Spica, or Alpha Virginis.

Modern star catalogues list tens of millions of stars. And we haven't even mentioned galaxies! There are more galaxies than there are stars in our Milky Way galaxy. The multitudes of faint galaxies are known by their positions in the sky rather than by catalogue numbers. This is also the case for quasars and pulsars. I informed the lady that the naming of celestial objects is solely the prerogative of the International Astronomical Union, the supreme authority for astronomy. It has a committee chaired by Norwegian astronomer Dr Kaare Aksnes, which makes recommendations to the IAU General Assembly every three years, mainly for the naming of newly discovered satellites of the planets, and other solar system objects worthy of special attention.

The assigned names are usually of mythological origin. For example, the recently discovered close companion of the planet Pluto has been named Charon, after Pluto's boatman who ferried lost souls across the river Styx to Hell.

The cosmos is a complex place, and it is no wonder that naming new objects is complicated. Commission 20 of the IAU has a working group on names for small bodies such as comets and asteroids, chaired by Dr Brian Marsden of the Smithsonian Astrophysical Observatory. Comets usually bear the name of their discoverer and sometimes co-discoverer as well, for example Comet Schumaker-Levy. Asteroids are named by, not after, their discoverer. This sometimes leads to interesting results, like the four asteroids named to honour the Beatles.

Now, the lady who phoned me then revealed that she was considering an offer to have a star given a name of her choice for a mere two hundred and fifty dollars. I told her the offer was a downright rip-off. All she would get for her money would be some sort of worthless certificate. By that time in her telephone call I was running late and I'm sorry to confess that I terminated the call without thinking to ask her the address of the fraudsters, and where she got the offer from. I now believe it was from an advertisement in one of the Sydney Sunday papers. If any reader happens to have a copy of the ad, please contact me. I would be pleased to learn the full details of the scam and the address of the fraudsters. ■

INVESTIGATION

Necromancing in the Dark

Harry Edwards

Back in the winter of '93, I wrote a short article entitled "Pop Psychic Pabulum" (*the Skeptic* (Vol 13, No2), in which I expressed the opinion that some women are their own worst enemies, referring to the female editors of womens magazines who, by including astrology, numerology, past lives, aura readings, talks with the departed, and various other columns of psychic pabulum, feed their readers a load of drivel, underestimate their intelligence, and do nothing to encourage critical thinking. The exception was *Ita*, a magazine published by Ita Buttrose, who aimed at the more mature reader by not including the above nor any gossip concerning the British royal family. The result - advertisers would not support her and the magazine folded.

To my mind this reflects more on the advertisers than the readership, for they are cognizant of the fact that people who are not encouraged to be critical thinkers will also be more susceptible to the ploys used to sell their products.

The July 1994 issue of *Women's Weekly* included half-a-dozen pages of what I can only call an insult to a person's intelligence - The Moon and your Moods by Karen Mooregold, a chart supposedly representing the ebb and flow of one's moods; and the Psychic Secrets of your Initials by the *Women's Weekly's* "amazing" new clairvoyant Bridget Pluis, who also uses her psychic powers to advise readers on their present lives, reveal what the future holds, and pass on special messages from the "other side." (Bridget incidently broadcasts from 9 pm to midnight each Sunday on Sydney's 2UE and Brisbane's 4BC. She also makes regular club appearances throughout NSW.)

To solicit a message from the other side one is required to send Bridget a photo signed on the back and say if the person is still alive. Apart from the fact that Bridget claims to have some remarkable talents she still needs a photo to give her some clues and is evidently aware that she can be caught out by someone sending her a photograph of a deceased person.

The questions asked of the clairvoyant are pathetic to read, "My son is an Aries, did we know each other in a past life?" Answer, "Yes, he saved your life when you were set upon by bandits." "My mum died late last year and I miss her very much. Is she alright?" Answer, "Your mum is happy and with your grandmother." Responding to a young man who sent in his photo, "The message I pick up for you is from a great-aunt...take care in September", she advises.

One reader, who sent a photo of her dog was concerned that her pet Rosie looked so sad and asked, "Can you tell me what she's thinking?" Answer, "This beautiful old soul is a

born worrier. If there isn't a ready-made worry, she'll invent one. She likes her owners to be reliable, punctual and demonstrative so she can reply in kind. Very protective of the family, she will bark when strangers arrive, but apart from that she's the perfect lady. She assumes that it goes without saying that she's one of the family and would be horrified if a trip was planned without her." Apart from being mainly a "cold-reading" for a typical dog, to my mind the expression on the dog's face said it all - "What a load of crap!!"

I guess I'm a glutton for punishment, but just for the hell of it occasionally write letters for which I don't expect to receive a reply. The following I sent to Bridget c/o the *Women's Weekly*.

Dear Bridget,

I am a regular listener to your programme on 2UE and am overawed at your clairvoyant ability. Your new column in the *Women's Weekly* is a wonderful innovation and will no doubt help so many people seeking assistance from the other side.

I too have a worrying problem, a death-bed promise I have been unable to keep, but knowing that you can communicate with the deceased I feel confident that you are the only person in the world who can help me. My uncle Jim Sones died recently and on his death bed he made me promise that I would give his prized possession - a solid gold half Hunter watch to his youngest son, the sole surviving member of his family whom he hadn't seen in thirty years. Unfortunately he expired before he could tell me where my cousin lives.

Would you please contact him and ask for the address.

I enclose a SAE for your reply. Thanking you in anticipation,

Yours truly,

Harry Edwards

Now in case anyone thinks I'm not giving Bridget a fair chance, remember that she claims only to need a person's christian name to establish instant communication with any one of the billions on the "other side." Furthermore, in this instance it relates to a fairly recent death and it's not a very common surname, so uncommon in fact, that there is not a single entry under that name in the entire Sydney telephone directory and only half a dozen in the London directory. All she has to do is ask a simple question and come up with the right answer to prove whether she can do what she claims. Well surprise,

surprise, two months later I received the following hand-written reply on lilac notepaper:

Dear Harry,

I thank you for your confidence in me but I am unable to give you the information you require. I feel your cousin lives in Nth Queensland but that's as close as I can get.
Love Bridget. x x x

Ignoring the contradiction, why couldn't she help? After all she earns her living allegedly contacting the dead, and unlike other enquirers who give only the barest indication of whom they wish to contact, such as a christian name, I provided some very specific detail. How close was her guess? I can state categorically that Bridget certainly did not contact my late uncle Jim (who lived in England) otherwise he would have told her that he has never owned a gold half Hunter watch, that he and I were on opposite sides of the world when he died, and that for the past 40 years, his youngest son (my cousin), with whom he communicated regularly, has lived and still lives in Salisbury, Zimbabwe!

Renewal Blues

Readers who regularly renew their subscriptions by the due date (about 75%, thank you) will not realise the anguish that attends our attempts to bring the recalcitrant 20% back into the fold.

Below, we publish the text of the sort of stratagems we are forced to resort to, and includes a letter from one of the penitent recidivists.

Renewal Reminder Notice

"At this time of the year we realise how easy it is to overlook important matters, so we would like to draw your attention...

And we realise that any letter that begins like that usually ends up with all manner of drastic threats against your life, limb and property. The gentle staff at *the Skeptic* editorial office, a rose betwined cottage picturesquely nestled by a chuckling stream in a bosky dell, with only the sweet carolling of the tiny currawong to disturb the eucalyptus redolent air, refuse to resort to this sort of confrontation.

Their softly expressed deliberations about whether to publish a page of Skeptical Skone recipes, or to reveal the boudoir secrets of prominent Skeptical personalities, are interrupted only by the brushing away of furtive tears, brought on by the

rejection they feel at your, no doubt inadvertent, failure to re-subscribe in time to receive the very first issue of *the Skeptic* for 1995. Only your immediate action can alleviate the anguish being experienced by these sensitive and caring souls. Can you, in conscience, deny them their heart's desire? Please, oh please, take pity and re-subscribe at once.

(This notice has been offered to Messrs Mills and Boon and will soon be appearing in paperback at a bookstore near you.)"

This pitiable plea elicited the following response:

"Your failure to re-subscribe". Tears blur in my eyes as I remember these words from your letter while I sit alone on the park bench, a shabby figure huddled against the icy winds of an early Canberra winter. Anxious parents shepherd their children inside their houses as I pass by. Cats hiss and dogs slink from my path. Birds stop their merry warblings. "Your failure to re subscribe" - the accusing words from your letter advertise to the world my infidelity to the cause of rational enquiry and the scientific method.

They will be coming soon. I don't know what it will be like, but I can imagine. The editors will enter my room and mock at the pages of the popular magazines which fall open to the horoscopes, they will sneer at the crystals, pyramids and Tarot cards which litter the room. "Your failure to re-subscribe...". The editors' cruel laughter will drown out the New Age sound of windchimes as the one called 'Barry' relates the horrible fates of those who once subscribed but then failed the editors. They will depict with nightmarish horror the lures of the con-artists, charlatans and sloppy thinkers who suck dry all traces of reason and logical thought processes from the brains of credulists who are not defended by *the Skeptic's* intellectual force-field.

Oh, I try all the usual explanations - "I have a dependent bank with a voracious appetite for mortgage repayments so I can't afford to re-subscribe", "the dog ate my reminder notice", and so on. But its no good, these are excuses not reasons. All I can do is throw myself on your mercy and plead with you to hear the words 'We forgive you'. Enclosed is a cheque for my subscription renewal.

Yours shamefully
Phil Shannon
Woden ACT

All fair-minded readers will no doubt be delighted to know that we agreed to forgive Phil. Oh, and in case you think this approach couldn't possibly work, we now have renewals from 87% of last year's subscribers. ■

Women Skeptics

A brief look through *Skeptic* magazines over the past years shows that few women appear to be actively involved in the Australian Skeptics. Whether this matters is something the Skeptics organisation can address, but why it should be so seems to invite consideration.

I believe that the reasons advanced for the relative absence of women in science, also apply to the Skeptics. To put these in a nutshell, the core characteristics of science are much more closely associated with masculine cultural values.

First, the most widely supported view of science is that it is rational, logical, objective, dispassionate, linear, and reductionist. While these attributes are supposed to be gender free, it is usual to associate the opposite values, like being irrational, subjective and emotional, with women and the feminine. Therefore, it is logical to infer that the attributes of the ideal scientist, are understood as masculine rather than gender free. Indeed recent research confirms this close affinity between socially endorsed masculine attributes and the supposed ideals of science. In effect to be interested in science, or to want to pursue a career in science, requires both women and men to identify more closely with masculine characteristics, while denying or at least down playing their more feminine side.

Second, hundreds of years of almost exclusively male involvement in the sciences has stamped the practices, organisational styles and language of science with a masculine habit of mind. Science is thought of as a manly pursuit, as instanced by the occasion when the outstanding astronomer Cecilia Payne-Gaposchkin was described as ‘the best man in Cambridge’.

Another commentator has declared that ‘the discourse of science is soaked in testosterone’, while research with school students shows that they picture

Letters

We welcome letters from our readers on any topics that may be of interest to other Skeptics.

We reserve the right to edit letters for reasons of space or clarity

scientists as male, often bearded, with glasses, white coats and carrying test tubes. The scientist as ‘nerd’, ‘boffin’ or ‘egghead’ or ‘absent minded professor’ are all common cultural folklore.

Third, science is a group activity. To be successful in science an individual needs the support and endorsement of colleagues. Thus, who is recommended for positions, invited to give papers, or whose papers are cited, determines which scientists have agenda-setting prestige, and those who struggle on the margins.

Naturally enough the established culture tends to be reinforced by successful scientists (mostly male), who network with people like themselves. ‘We are who we elect’ is the motto of the Australian Academy of Science. They have a current membership of over 250 of whom only nine are women. Further evidence shows that women who do succeed, are often exceptionally talented, or else substantially supported by a close male relative or friend. For women in the sciences, there is no level playing field.

Fourth to succeed in science requires risk taking. It entails the posing of bold conjectures and an aggressive confidence in pursuing ones goals. Once again the desired characteristics are more typically masculine than feminine. Women are known to have a greater preference for collaborative and cooperative styles of working, they are more self-effacing and favour ‘a live and let live’ approach.

In brief, evidence increasingly shows

that science is more closely associated with masculine cultural values. As scepticism has a close affinity with science, similar reasons probably contribute to the apparent paucity of women within the Skeptic’s organisation.

**Rosslyn Ives
Balwyn VIC**

We don’t actually ask subscribers to nominate their sex, but I suspect you are right about the disparity in numbers. Naturally, we would prefer to have more women subscribers and contributors. Our newly elected Victorian President, Kathy Butler, recently gave birth, so perhaps we are heading in the right direction.

A Cruel God?

Hans Weiler (*Letters*, Vol 15, No 1) wrote: “To believe God to be good and omnipotent is inconsistent with the Bible. Either goodness or omnipotence must go. Christians abandon omnipotence and believe in the Devil, while Jews abandon goodness and believe in a cruel God.”

Can Weiler produce any reference to support his outrageous claim that “Jews abandon goodness and believe in a cruel God” or is this a Weilerism (something Weiler believes, so it must be true)?

Rabbi Harold S Kushner, author of *When Bad Things Happen to Good People*, would respond: “My God is not cruel; sorry about yours”. (p 134)

Kushner suggests that the lesson to be learnt from the Book of Job, one of the earliest treatises on why good people suffer, is that God is not all-powerful. “Forced to choose between a good God who is not totally powerful, or a powerful God who is not totally good, the author of the Book of Job chooses to believe in God’s goodness.” (p 43)

There is no single Jewish philosophy; as the saying goes “two Jews, three views”, however, if there are Jews who believe in a cruel God I have yet to meet them.

**Albert Braunstein
Hightett VIC**

Doubts v doubts v doubts v ...

As a Skeptic my concern re the contribution of Rob J. Hyndman Vol 14, No 3, 1994, prompted me to pen what I believed was an ethical constructive analysis in defence of secular rational free thought which appeared in Vol 16, No 4, 1994.

I misjudged the profundity of Rob's prejudice in supporting his perspective of a putative format of religious critique which engenders Rob's expectation, that one is required to be a scholar or an academic to entertain dialectic discourse with him on the veracity of the Christian Bible. Alas, I am not a scholar and so possibly traverse where angels fear to stomp.

Rob pontificates pragmatically that the effectiveness of scepticism is enhanced if sceptics have "sufficient" information, they than may be competent to dissertate with him on questions of Hebrew based Christian dogma. Who may argue with that?

May I suggest Rob acquaints himself with those he may believe are equipollent as profound intellectuals and that his perspicacity may be sharpened by reading the conclusions of Thomas Paine, Voltaire, Rousseau, David Hume, Diderot, George H. Smith, Lessing, Ingersoll, Joseph McCabe, John Allegro, Hy Ruchlis, J. Hoffmann and even the Christian Bible. There are many other books Rob may feel comfortable or uncomfortable with, as he case may be.

Rob reveals he is not aware of Christian Bible plagiarisms from ancient Mesopotamia, Egyptian and Roman religious ideologies and that Christianity in general is based upon Hebrew religious ideology including the borrowed Hebrew god Yahweh. Has Rob read the Bible?

Religious ideological polemics rage endlessly and will continue to but generally sheer away from the fundamental issue, is there a supernatural being creator?

Rob appears to reject specific secular,

rational thinking pertaining to the veracity of Christian Bible content which he implies, albeit, no doubt inadvertently, is the Aunt Sally of truth to be knocked down with explicit facts. the hours and material wasted on dialogue supporting and opposing religious notions is incalculable.

The use of a priori reasoning to cognise how the ancients in their nescience of the environment presented their understanding of it, does not invalidate conclusions deduced from this process.

All the secular deduction relative to primitive ingenious abstract imagination may never be quite "proven" and explanatory discourse is arduous and lengthy as are the endeavours to reach a "final" number of Pi.

Secular free thinkers unencumbered by a faith have extrapolated truth through the process of logic from a morass of biblical fabrications and developed a holistic approach to theism. It is possible to establish by linear proof the fiction of mythical narratives in the Christian Bible that Rob's apparent sequential intellect expects albeit, he leaves to others.

Some religious polemics I am acquainted with stem from academics such as Rob who greatly argues most confusingly amongst themselves in ever decreasing circles on points of the ingenious abstract imagination of religious (paranormal) intellect.

They usually never issue immutable paradigms on the theism they probe and instinctively acknowledge the paranormal ideological base is wholly ascribed to ingenious abstract information based upon primitive notions.

Rob implies he is adequately equipped as an unbiased intellect and that ordinary people are inadequately equipped to understand an assumed simple subject as the Christian religion and so dismisses them from his forum.

I became very suspicious indeed of his motive to disparage ordinary criticism because it does not carry a briefcase of direct proof in accordance to his concepts. Most ordinary people

rely upon the scholars who read and translate ancient languages pertaining to Hebrew based Christianity.

Myself and Rob depend upon the Christian Bible as self-evident of its truth or fabrication. Perhaps Rob acquiescently perceives the Bible as truth revealed to him and such revelation is undeniable. Believing it to be truth does not create it as truth.

Surely Rob's sagacious intellect penetrates the veil of obfuscation in which the Christian Bible is couched, or does he believe i miracles? He must the read Thomas Paine's The Age of Reason as a first reader.

The manifest contradictions, inconsistencies and fabrication of the Christian Bible content would barely tax the wit of a pathetic cretin.

**Peter Plane
Hill End VIC**

And even more doubts

In reply to Dr Rob J. Hyndman (Vol 15, No 1) various scribes copied the Christian Bible text derived from ancient orally related traditional religious ideology.

The Hebrew and Christian scribes no doubt were biased towards their anecdotal faith. Centuries after Isaiah's death, Christian scribes narrate that he prophesied the birth of Jesus born to a virgin named Mary. The Isaiah account prophesied the birth of a baby boy to a young woman who was to name him Immanuel. Christian scribes record Jesus walked upon water, commanded a storm to subside, commanded fish jump into fishermen's nets, Jesus fed four to five thousand people with a few fish and half a dozen loaves of bread. Jesus changed water into wine, cast out devils that had possessed (a few) people and Jesus cast these devils into pigs, then the pigs stampeded over a cliff and presumably were killed. Did Jesus reimburse the owners of the pigs?

The scribes, with no implied ifs or buts, also recorded that Jesus made a

blind man see, that Jesus died and was raised from the dead on the third day. Are these statements factual? If an Indian guru was recorded to have fed thousands of people with six loaves of bread and a few fish, Christians and sceptics would ridicule such a bizarre claim. Although there is no evidence supporting Christian biblical miracles or that Jesus performed stupendous wonders, Christians believe these miracles because they have been taught to accept their faith based upon the words of unknown scribes without questioning.

Does Dr Hyndman believe Jesus to be historically real and that he was the son of a Hebrew god Yahweh and a teenage virgin? We know miraculous births of divinities was commonly believed in pre-Christian cultures.

The Hebrews had Tammuz, also known as Adoni (My Lord, My Master). Christians mock other divinities whilst defending their Jesus as a genuine divine being and the son of the Hebrew god. Christians believe the gospels are valid documentation of their faith. They actually read more like an often altered movie script of a play and contain many contradictions.

The Luke compilers 'recorded' a conversation supposedly to have occurred between the twelve-year-old Jesus and his mother, and apparently first recorded by an eavesdropper. Luke 2:41.50, 'His parents were astonished when they saw him and his mother said to Jesus, Son, why have you done this to us?' The eavesdropper (using ESP?) then relates 'But they did not understand Jesus' answer.' This conversation between Jesus and his mother occurred approximately 60 years before the gospels were compiled. They would not be able to verify the conversation or differentiate between fact and fiction?

Dr Hyndman, was Matthew compiled centuries after the Christian Bible was completed? Matt. 28:19, '...baptise them in the name of the Father, the Son and the Holy Spirit..' The same could then be said of Genesis, the Hebrew god said..'Let us make mankind in our image, after **our** likeness..' Was the

Hebrew god addressing Jesus or the Holy Spirit or another god or goddess? Genesis implies polytheism.

Plagiarisms and interpolations abound in the Christian Bible. Genesis 36:31.43, is a reprint of 1 Chronicles, 1:43.54. Which is the original? Extracted in part from the Forgery of the Old Testament by Joseph McCabe, Prometheus Books, Buffalo, p 43. "The Christian Bible is written for unquestioning believers. Are we to believe Genesis 36:31.43, is a prophesy? We read in 1 Chronicles, XXXIX:7, money is paid in daries, coins of the Persian king, Darius I, (548-486 BC). He was long after (520 BC the first year of Darius I). In a word Chronicles are impudent forgeries of the fourth century BC using some ancient memoirs (perhaps there is no proof), but giving a totally false version of the events".

Isaiah's 'prophesy' is irrelevant as Thomas Paine defines. The gospels are proven forgeries and plagiarisms and books that sceptics cannot regard as factual.

The gospels are not gospel.

Ron Bernardi
Boolarra VIC

Light speed

I have read with interest Prof Plimer's book Telling Lies for God, and I now learn that during the last few thousand years the speed of light has been decreasing until 1960. As a good, dutiful, social unit, I always believe everything my mentors, especially religious mentors, tell me, but all the same I do have some concern about the changing values of the speed of light.

Now has the decrease in the SoL with time been following an exponential curve, effectively reaching its asymptote in 1960? Or has the speed been varying cyclically (perhaps following a sine curve of Eigen function) and reached its minimum in 1960, in which case the speed is on the rise again? If so, this will have dire consequences on the world and

the universe as we know it (to understand why, read the book) and I fervently seek reassurance that the SoL is not increasing - I am deeply troubled. Any increase in the speed of light must be banned immediately by Government decree!

The decrease in the SoL could result in an increase (if my ill-remembered university physics is any guide) in the value of Planck's not-so-constant Constant. I have visions of the ghost of Max Planck rising from his grave to defend the sanctity of his Constant.

Unfortunately, Prof Plimer may now be encouraged to take unfair advantage of the gentle and kindly creationists by reason of the probability that few of them will be familiar with Planck's Constant. However, I have a text-book which explains Planck's Constant quite well, and through your pages, I offer it to our creationist friends, in order to prepare them for any further unkind attacks from Prof Plimer.

Michael Gamble
South Yarra VIC

Notes on notes

This note is in response to various correspondence concerning the key in which music is played. I recently came across a paper by Physicist Lance McCarthy of Flinders University which nominally is a discussion of various approaches to tuning string instruments. However, he makes a point about stringed instruments generally, which is that the open strings will resonate in sympathy with the other strings when there is an harmonic relationship. That is, if there is an open string tuned to some frequency and another (stopped) string is playing another frequency, then the open one will resonate if one of the frequencies is an integer multiple of the other. This resonance will change the quality of the sound.

So, if you're playing a violin in G major, say, there will be a lot of Gs and Ds about and there will be corresponding

resonation, because violins have strings tuned to G and D. Now, if you play the same piece transposed a semitone, there won't be as many harmonic relationships with open strings and the music will sound different—unless you do it by re-tuning the instrument as a whole, of course.

In *the Skeptic*, Vol 13, No 1, Blair Alldis proposed an experiment involving an A-B blind listening test in which A is a string quartet, say, and B is the same music performed flatter and slower, recorded, and played back faster. In light of the above, I would bet that sensitive musicians, and even, perhaps, I, would be able to spot the difference. However, the fact remains, as Mr Alldis has pointed out, that no one has, to his or my knowledge, actually done it.

As McCarthy points out, good composers had a good understanding of all this, which is why they write as they do in the keys they do. (Presumably, of course, they usually acquire their knowledge by long experience of careful listening.) Bach, in his cello suite number 5 in C minor, even specified that the A string be re-tuned to G, in order to get the sonorities he wanted.

In short, string instruments do have certain “home” keys, and there are other such instruments, notably brass.

Given all this, what's the position with orchestral music? Well, orchestras are made up of strings, brass and other instruments. So I think you could make a case that pieces would sound different in different keys (apart from the pitch, I mean) but, again, you'd have to do the experiment to be sure.

DG Colquhoun
Marrickville NSW

Reference:

A.L. McCarthy. On Resonances and the Violin Family, II: The Diatonic Scales, Coupled Resonances and Vibrato. Flinders University of SA School of Physical Sciences, FUPH-R-184. July 1982.

Chomsky in denial

Richard Buchhorn's letter (Vol 15, No 1) in praise of Noam Chomsky states “By encouraging scepticism in this area, he has reduced the likelihood of further Vietnams, East Timors, Palestines etc, and made it harder to manipulate public opinion by exploiting, through demonisation, further Ho Chi Minhs, Yasser Arafats, Gaddafis and Sadam Husseins”.

What about Pol Pot and the “Killing Fields” of Cambodia? Chomsky denied the Pol Pot genocide had occurred in an article in *Nation* (June 25, 1977) and in his book *The Political Economy of Human Rights*. Subsequently, Chomsky denied that he had denied it. (*Quadrant*, April 1982)

Chomsky has also been associated with the Holocaust deniers and has stated “I see no anti-Semitic implications in denial of the existence of gas chambers, or even denial of the Holocaust”. (Quoted in Alan Dershowitz, *Chutzpah*, 1991 p 176.)

Dershowitz, law professor at Harvard, responded, “While some may regard Chomsky as an eminent linguist, he does not understand the most obvious meaning of words in context ... Failure to recognise the anti-Semitic implications of Holocaust denial is like saying there would be no racist implications in a claim that blacks enjoyed slavery, or no sexist implications in a statement that women want to be raped. The Holocaust is the central historical event of modern Jewish history. Efforts to deny or minimise it are the current tools of the anti-Semite and neo-Nazi ...” (letter, *Boston Globe*, reprinted in *Chutzpah*, p 176.)

Then Dershowitz challenged Chomsky to a public debate on whether it is anti-Semitic to deny the Holocaust. Chomsky's answer was, “It is so obvious that there is no point in debating it because nobody believes there is an anti-Semitic connotation to the denial of the Holocaust”. (p 177)

That answer, which suggests what kind of perverse world Chomsky lives in, speaks for itself.

Albert Braunstein
Carnegie VIC

Death number

Glenn Brady (Vol 14, No 4) suggests that the Japanese people regard the number 4 as numerus non gratus and associate the number with death and avoid using it.

Having daily lined up in front of the Japanese guard-room and numbered from right to left in Japanese (*Itch, Ni, San, Shi, Go* etc) up to double figures and handing over details of the number of men sick and unfit for work, I have no recollection of any inhibitions about the number 4 (*shi*), though (curiously) I do recall there was an alternative word (*yong*) for 4. A Japanese scholar may put me right. I have no knowledge of the word *shi* meaning death; we believed that the word translated as ‘shit’!

As for deaths, of which we had very many, we would report to the Nips in POW jargon “Ni me Haiti Paradiso” (Two men have died).

Phil Millard
(Medical Officer, D Force,
Burma Railway)
Narrabeen NSW

Book burning

I know why Ian Plimer's *Telling Lies for God* is selling so well. The only defence the creationists have against this attack is to remove them from bookshelves before they can influence the minds of their flock. So keep printing Ian!

As to what they do with the growing pile of books, may I suggest they make coal out of it. If they stack and cook the pile with care, it should be low in ash and be very attractive to overseas consumers. Geology jobs like mine would surely be under threat from such a cost-effective coal producer, but I could then retire and devote even more of my time to my search for fossilised 4 X 2s and nails underground.

Michael Creech
Eraring NSW

Back to Paley?

I was rather surprised to learn that Professor Paul Davies is to deliver one of the keynote lectures at the forthcoming Skeptics conference in Melbourne, and I imagine that quite a number of our members were equally surprised. Paul Davies was also recently honoured by being awarded the Templeton Prize for progress in religion. Previous recipients include Billy Graham, Mother Teresa, Alexandr Solzhenitsen and Prof Charles Birch.

I do not know what constitutes "progress" in religion. Prof Davies has written many books, some at least being best sellers, in which he conjures up a God from a judicious mixture of Quantum Physics and Cosmology. To me his work seems to provide a companion piece to that of Dr Barbara Thiering and those theologians who have de-mythologised Christianity. While one demythologises religion the other remythologises science.

I will quote briefly from Davies' books to illustrate the arguments he uses to re-introduce into science the concept of a god. The first two are forms of the 'argument from design', possibly the one such argument which needs to be taken seriously. For example, from *The Cosmic Blueprint*, page 111:

"Consider, for example, intricate organs such as the eye and ear. The component parts of these organs are so specifically interdependent it is hard to believe that they have arisen separately and gradually by a sequence of independent accidents. After all half an eye would in fact be utterly useless."

and from the same book, page 163

"Nature thus seems to be possessed of some remarkable numerical coincidences. The constants of nature have, it appears, assumed precisely the values needed in order that self-organisation can occur to the level of conscious individuals."

I cannot escape from the conclusion that this last argument is little more than a tautology.

In *The Matter Myth* (page 8) we find another argument which lacks even the

logic of a tautology.

"Quantum physics undermines materialism because it reveals that matter has far less 'substance' than we might believe. But another development goes farther by demolishing Newton's image of matter as inert lumps. This development is the theory of Chaos which has recently gained widespread attention."

The 'immaterial' nature of matter was used by Sir Arthur Eddington in the thirties to refute materialism. It hardly needs any scientific knowledge to see the fallacy in this argument.

Incidentally, it was not quantum theory, but Rutherford's experiments, which revealed that nearly all the mass of an atom was concentrated in a very small central region, the nucleus. Also, one might ask: what would a really solid solid be like? The reference to Chaos, in this context, is completely irrelevant.

In brief, I believe that Prof Davies' revival of God (whose death was celebrated by one school of theologians some decades ago) in effect would put the clock back to somewhere in the 19th Century, if it were to be taken seriously.

While I must admit that I cannot always understand exactly what Davies means, the closing words of his book *Superforce* are clear enough:

"The laws which enable the universe to come into being spontaneously seem themselves to be the product of exceedingly ingenious design. If physics is the product of design, the universe must have a purpose, and the evidence of modern physics suggests strongly to me that the purpose included us."

Long before Davies made this statement, Mark Twain gave at least a partial answer:

"Man has been here 32,000 years. That it took a hundred million years to prepare the world for him is proof that that is what it was done for. I suppose it is I dunno. If the Eiffel Tower were now representing the world's age, the skin of paint on the pinnacle knob at its summit would represent man's share of that age, and anybody would perceive that the skin was what the tower was built for. I reckon they would, I dunno."

I found this quotation in Stephen Jay

Gould's book- *Wonderful life*. He does not give the original source.

Tom Gill
Drummoyne NSW

Note: The pages referred to in the *Cosmic Blueprint* are from the hardback edition while that from *The Matter Myth* is from the paperback edition.

Retraction demanded

With rising indignation I write to you to wipe out the dreadful slur which Mark Dawson of Gordon ACT, using the pages of your journal (Vol 15, No 1 p60), has cast upon the genus *Bacilli*. His assertion "all Creationists I have met and read about appear to have the intellectual capacity of your average bacterium". What a shocking libel!

Does not Mr Dawson know that your average bacterium multiplies by dividing? I would challenge any creationist to perform a similar feat of mathematical diversity - I know of no creationist who can perform this feat, and therefore your average creationist is of a distinctly lower IQ than your average bacterium.

I call on Mr Dawson to withdraw his outrageous slur.

(Dr) Clive Coogan
East Brunswick VIC
Paravet?

I am prompted to write to nominate the television show *Talk to the Animals* as screened in Perth on March 12, for the 1995 Bent Spoon Award.

This show had it all:

1 A cute little budgie, ostensibly injured, that the (unnamed) breeders and the 'experts' (again unnamed) had pronounced would be dead within a

Repent!
at the Convent...
...ion

week. Presumably it would have been, without intensive care, or if it had been released into the wild.

2. Owner decided to use alternative therapies, i.e. 'demagnetised water' and 'healing crystals' (and other unspecified New Age remedies to nurse it back to health.

3. Tarot cards featured prominently in the show, both at the beginning and the end (unfortunately I missed part of the middle).

I was particularly dismayed that the item was presented unquestioningly as fact to an audience, who, if my own children are anything to go by, tend to accept much of what is said on this otherwise excellent programme as true.

Unfortunately, as I said, I did not catch the entire item, but if any other Skeptic did, I would appreciate knowing if my impressions were correct. If so, I would again nominate the show for the Bent Spoon Award.

**John D Gorter
Claremont WA**

'Psychic's' response

I am a member of the Australian Psychic's Association (a life member, unless I resign in writing or breach the Association's articles). I wish to take up your provocatively sarcastic invitation that you "will be delighted to publish any reply from anyone from the Australian Psychic's Association" in response to the disgusting article "Operation Termite" by 'Heartless' Harry Edwards (Vol 4, No 4), who obviously doesn't know how stressful and difficult it is to become a true, qualified psychic.

I just wanted to say that whatever Heartless Harry claims, his story is nothing but lies and slanderous hogwash and I am considering taking legal action. He is apparently a victim of an overactive imagination and the usual negativeness so commonly prevalent amongst all unbelievers, which is freely flogged about in order to discredit the hard-working psychics, clairvoyants and what have you. Shame on him! Down

with Skeptics, moles, whistleblowers, scientists, editors and all that lowly bunch of ignorant disbelieving Thomases and Thomasinas! Long live the Australian Psychic's Association and all its professional aids such as Tarot cards, talismans, potions and the like!

**Josef (The Mole) Holman
Maroubra NSW**

We would also like to hear from those members of the Australian Psychic's Association who are not related to Harry Edwards by marriage. **Ed**

'Alien's' response

"Re: Asteroids and Aliens

On behalf of all extra-terrestrials, other beings and other intelligences who may - or may not - be studying Sol 3 either on or off planet, object to, the continuing use of the term "Alien" to describe us. After all, we don't describe you lot - weird as you are in some cases - in such monster—ous terms in our reports about you.

Some Earthlings have been aware of us ever since they started reading science-fiction in the old *Astounding* - now *Analog* magazine in 1941.

One of your readers was on the receiving end when the space age started in the early 1940s. It was not in 1957 as your correspondent, Dr Duncan Steel ,claimed in his otherwise meticulously calculated article in both **the Skeptic** and the *Observatory* (Yes I've read that too, even on the date this later was written 30:03:95 your dating)

What Dr Steel failed to realise was that your real space age started from September 1944 when the German V2 rockets started hitting Paris -London and Rotterdam in that order. They planned and probably tested and launched intercontinental V2s to hit New York. It was one of these that young Hans get out of control and it escaped your earth's gravity. Another lost, missing, blown up

V2 didn't matter in those days).We still have young Has' recording "...*dieser sshizenhousen V2 der ertz haft escapen...*'

So, 1991VG is not one of our probes. It's one of yours, made in Germany as a V2 that accidentally escaped your Earth's orbit. Its all on record, both the Yanks and Russki's got data in 1945 and so started making their own ICBM's.

You've not found one of our probes yet even though we returned Marconi's first radio transmissions and those of Dr van Der Pols, and Professor Stormer as echoes in 1921 and 1928. (We even got a guernsey in *Nature* that year and in 1960, Professor Bracewell. He was close - but not close enough)

Keep looking and listening.

**Name withheld by Request
(you couldn't spell it anyway)**

The postmark on this letter indicated it was posted in Western Australia. It went a long way to confirming some long-held suspicions I have had about Sandgropers. See also Duncan Steel's article on page 48. **Ed**

**Skeptics
do it
Critically**

I Want to Know

**In which Skeptics can seek information
form informed readers, or provide
answers to question posed by curious
readers**

Aquatic Apes

Could some learned, qualified and dispassionate person please tell me, does the Aquatic Ape Theory (AAT) have any basis in reason?

As I understand it, the AAT explains what happened during the gap in the fossil record, 4-7 million years ago. Apes jumped into a lake and lived there for the duration, coming out as hominids.

AAT supporters say we shed our fur when we went aquatic. But other animals, like elephants, pigs and naked mole rats, have lost their hair without anyone suggesting they have been submerged. Seals, otters and platypuses, on the other hand, have spent plenty of time evolving in the aquatic environment, and are still noticeably hirsute.

It is argued that we adopted an upright stance and bipedalism from standing in water. Surely the water would have to be just the right depth? Did people go and stand in the water that suited their height? As this presumably happened during an era of greater sexual dimorphism, did the males stand in the deep bits and the females in less deep bits?

Other mammals taking to water have preferred the prone to the vertical, which rather makes sense if you want to float.

The unique (thank goodness) Elaine Morgan claimed that the reason women have longer hair than men (!) is that while standing round in the water, babies held onto their mother's hair. Which is almost as funny as her claim that developing bipedalism meant sex could only be had in the missionary position (!), and as women don't like sex in the missionary position (!!), that is why all sex is

rape(!!!).

The rather over rated Desmond Morris stated that high protein sea food fed the development of our large brain. Only snag is that the brain didn't really get going until some time later.

Aquatic Apes get warm and fuzzy over the fact that new-born babies swim underwater. New born babies have just left nine months in an aquatic environment, without breathing. Surely if we had been swimming so recently (in evolutionary terms) the natural ability to swim would persist into adulthood? Instead, unlike most animals, an adult human who hasn't been trained to swim will generally drown when dropped in water.

AAT proponents point to our 'webbed' hands. I would have thought webbing more useful in losing heat, just as so much of our physiology suggests heat adaptation. (The webbing would be more useful for holding more nuts than swimming. Perhaps it was selected for facilitating palmistry?)

Desmond Morris doesn't agree that hominids are adapted for heat, claiming that with the amount we need to drink and sweat, and with dilute urine and moist dung, we are badly adapted to savanna living.

But ruminants, such as wildebeest and zebra, have moist dung and dilute urine. Sweating is an adaption to hot conditions. If we're not well adapted to living on the dry plains, how have so many of us survived there for so long?

The above pointers sound to your correspondent both emotive and irrational. Other 'arguments' for the AAT go beyond her knowledge - the layer of blubber beneath the skin, the unique nose shape, tears. (Ah! see it now. Crocodiles have tears, crocodiles live in

water: humans have tears, therefore humans should live in water!)

Thus my question. Is there any shred of reasonable evidence for the Aquatic Ape theory? Is it a plausible idea which has been hijacked by idiots? Or is it utter, laughable (and slightly annoying) nonsense from beginning to end?

**Aнди Stevenson
Moulmein NSW**

Magnetic Sense

Birds do it, bees do it, but can we do it?

I am talking about sensing magnetic fields. Every so often you hear about another animal that is discovered to have a magnetic sense, but so far no-one has found it in humans. Lots of people have speculated that we have it too and this is used to explain a variety of puzzling phenomena ranging from our sense of direction to the eerily haunting feeling we get in some places. It has even been put forward as a rational explanation for dowsing (and wouldn't that be embarrassing if it proved to be true).

That finally brings me back to my question. With all the non-invasive medical technology we have developed, like MRI, can we prove that humans don't have a magnetic field? Negative proof is always harder than positive, but we might just be able to do it now, and it could be the only way we can ever settle the question. Has anyone tried?

**Marta Sandberg
Bridgetown WA**

Invisibility?

I became a subscriber to *the Skeptic* at the beginning of this year. I read almost everything in the Autumn issue, and share the sentiments expressed on the front cover. (Did he really say those things?) The cartoons are good, too.

I thought I would send in the following account, which may be of interest to your readers. The account was told to me by an acquaintance of mine called David, and he insists it is true. He also says he was in good health, and not under the influence of any drug, at the time. I questioned him in detail about it so that I could set it out as clearly and as thoroughly as possible. He is happy for the it to be printed in *the Skeptic*:

It was about 1985, and David was visiting his then girlfriend, Eugenia, in her flat in Sydney. They were sitting on a couch in her lounge room watching television. David got up and went to the toilet, and left open the door connecting it to the lounge room. He was in the toilet for a very short time (maybe about twenty seconds).

When David returned to the lounge room, Eugenia was no longer sitting on the couch, and he went looking for her. He searched the flat about six times, each time more thoroughly than the last. On the final occasion, he was even looking in the washing machine. He was coming out of the bedroom when Eugenia approached him.

She told him that she had become invisible, that it had happened once or twice before in similar circumstances, and that she had no control over it. Eugenia was originally from Colombia and had Inca ancestry. (David says that he thinks the Incas had such powers.) She allegedly had other strange capabilities as well: When Eugenia touched metallic objects, sparks would fly. When she kissed her children, they would get a shock similar to an electric shock. (David never witnessed these events, but says that her children would beg her not to kiss them!)

David says that “you can sense when someone is present”, and feels sure that she was sitting on the couch the whole time (until getting up and walking towards the bedroom, when he next saw her). I suggested that the explanation might be that, during his search, Eugenia was also moving around, and that they just happened to avoid seeing each other. David feels sure that this is not the explanation, and adds that she would not have done this as a game.

The flat was on the first floor, and had only one exit. There was no balcony or ledge. It was an old building, and the windows would not open far enough for a person to enter or leave through them. There was a flat above, so presumably there could not have been a manhole (“person hole”?) in the ceiling - David cannot remember. In any case, he says, there would not have been time for Eugenia to climb into it. There were no hidden alcoves in the walls, or anything of that sort. The exit door had been chained, and was still chained during Eugenia’s disappearance. When chained, the door would not open far enough for a person to enter or leave, and David says it could not be chained from outside. (It would follow that Eugenia could not have left the flat.) David also says that, although he could not see her from the toilet, he did not hear her leave, and would have heard her leave if she had done so.

A detailed discussion and analysis of the idea of invisibility can be found in *Profiles of the Future* by Arthur C Clarke (Gollancz, 1983), chapter 14. Clarke makes the interesting observation that an invisible person would also be blind, since the light-sensitive chemicals at the back of the eye would no longer trap light. Clarke also notes that “objective” invisibility may well be impossible - but “subjective” invisibility is possible, and has often been publicly demonstrated.” He then discusses the fact that a person under hypnosis can be persuaded not to see a person or thing. I suggested this possibility to David, and although he did not specifically rule it out, he does not seem to think it likely.

My theory, for what it is worth, is that

David did not know Eugenia as well as he thought he did. I got the impression that David is convinced, and wants to believe, that Eugenia was able to become (objectively) invisible. More generally, I have noticed that people who claim to have had unusual experiences such as the above, have not examined the implications of what they believe (eg that an invisible person would have to be blind). Also, they often lack the specific knowledge which would enable them to make such an examination (eg that human vision depends on the existence of light-sensitive chemicals). Such knowledge simply does not form part of their view (no pun intended) of the world.

Chris Manning
Pahran VIC

Rare seasoning

I was watching the *NBC Today Show* and found that Spring starts on March 21 in the Northern Hemisphere and therefore Winter starts on June 21. Wouldn't that be mid-Winter, ie the shortest day of the year? Shouldn't winter start six weeks earlier, about May 7?

In Oz, Autumn starts on April 1, not March 23. Isn't that even more inaccurate?

Can someone explain these customs?

(Dr) Michael J Farrell
Toowoomba QLD

These are questions that have often intrigued me too. Shouldn't the summer and winter solstices and the autumn and spring equinoxes represent the *middle* of their respective seasons and not their beginnings, as is the case in the USA. And why, in Australia, do we start our seasons at the beginning of the month? Are there any seasoned seasonologists among our highly skilled readership to answer these vital questions?

Ed

Foretelling Titanic - a possible explanation

In *I Want to Know*, Vol 15, No 1, **Charles Nagy** wanted to know about a book that foretold the sinking of the *Titanic*. **Mark Avery**, of Annandale NSW, has provided this imaginative, but plausible, answer.

Whilst looking for possums in the ceiling the other day I found an old trunk. Imagine how thrilled I was to find an old reel-to-reel tape recorder dated 1868, and an accompanying reel. Both were in working order. Disappointingly, most of the tape was taken up by the philosophies of a bloke called Dickens, but fortunately some of his chatter was later replaced by the recordings of an author. Funnily enough, part of that later recording seems pertinent to a reader's inquiry in the *I Want to Know* section so I transcribed the relevant bit of the tape for the *Skeptic*. Here it is:

"Gosh Mabel, I met an awfully interesting fellow at the *Cock and Bull* today."

"You're late for your dinner dear."

"He's an engineer. A ship engineer. He designs them, Mabel."

"Does he dear?"

"Well, helps design them. Do you know what he said?"

"No dear. Here's your dinner. Don't blame me if it's dry."

"He said that they have just been given the go-ahead to start designing and building a large ship. A passenger ship." "That's nice dear."

"But it's not just any large ship, Mabel. They think they'll call it the *Titanic*. That's because it will be. Absolutely huge."

"Yes dear."

"A million tons Mabel!"

"The peas are like bullets, I know, but it's your own fault."

"It's going to be a mile long! Think of that! With twenty levels!"

"Really dear."

"Well, I wrote the exact figures on the back of a piece of paper. I've got it somewhere. But the ship won't have nearly enough life rafts; the few that will

exist will be there just to keep the passengers feeling secure. Do you know why that is, Mabel?"

"No dear."

"Because the ship is going to be unsinkable! Imagine that! Unsinkable! Isn't that extraordinary? And it's going to be luxurious. All the toffs will travel in it. It's going to have restaurants, swimming pools, ballrooms..."

"We haven't been out in a while, dear."

"This fellow told me the most extraordinary things. But it's going to take a long lime to build. Something that big would take time, you know."

"Yes dear."

"First they have to design it, and even that will take a while. Then, once all the forms are signed they'll start building. It's going to be years. A decade, or more even. It's the biggest project in history, and it's going to plunge us right into the next century! It will be wonderful, Mabel!"

"Yes dear. You haven't eaten your potatoes."

"And I was thinking."

"Mmmm"

"Well, I could write a story about it."

"Oh but Morgan! You haven't finished your other stories. What about the stairs that need mending?"

"But imagine it Mabel! An enormous unsinkable ship, the pride of a new century! Full of toffs dancing and drinking away! And what if it really wasn't unsinkable? What if, on its maiden voyage even, what if it sank? What if it ran aground, or hit a huge iceberg, or something? Think of all the toffs, in their pearls and fancy clothes, all screaming and fighting to get into the few life rafts available. The biggest single object ever built, costing millions of pounds, gone forever, and taking thousands of lives with it. What a story!"

"But dear..."

"Of course, I couldn't call it the *Titanic*. I'd have to change the name a little..."

Alternatively, I have presented below the same idea in a more straightforward manner.

It is quite likely that if a shipping company were considering building a huge, unsinkable luxury liner the idea would be bandied about for some time before plans to actually make it were even begun. And once more, it would take many years to design, then build, a ship as large as the *Titanic*. Therefore, it is conceivable, even likely, that the project of building the *Titanic* would be on the lips of people well before 1898, the year Morgan Robertson's book was published.

It is also quite likely that workers of the plans would mention it to people - it would be no secret, and a ship as large as the proposed *Titanic* would be a good conversation piece. Such talk would capture the imagination of a writer - it would be tempting to write a story of a huge unsinkable liner, full of upper-class passengers, actually sinking. And sinking on its maiden voyage, for added irony. The writer (in this case Morgan Robertson) would obviously rely on the information provided by the person working in the field, (deemed as research) so any similarities in the dimensions between the *Titanic* and the fictional *Titan* would be understandable. And the name of the ship? Morgan would have to balk at using the same name, but using a similar name to the real thing is a common practice. Even today. It would be the author's commercial advantage to do so.

Thus I am with the author's suggestion to apply Occam's Razor with this one. If it isn't Martin Gardner's idea of selective presentation of data, then I'd be tempted to assume something like the above occurred. At least until I read further evidence to support or demolish the idea.

Mark Avery

About our Authors

Mark Avery is a teacher and long time subscriber to *the Skeptic* who has possums in his roof.

Alynda Brown denies she is a nerdess, but spends far too much time with her computer to be convincing.

Scott Campbell is a philosopher who abhors fuzziness, which makes him unique, according to our scientists.

Dr David Culpin is a mathematician who lives in Sydney.

Leigh Dayton is Science Writer with *The Sydney Morning Herald*. Previously she worked for *New Scientist* and *Omni*. She is the only contributor in this issue with a town in Ohio named after her.

Harry Edwards, gentleman, scholar, poet, sportsman, adventurer, is paying by the word for this entry.

Dr Richard Gordon MB BS FRACGP is a member of the NSW committee of Australian Skeptics and the AMA (NSW) spokesman on Alternative Medicine. He is also the Editor-in-Chief's GP, so you won't get any funny remarks about him in this magazine.

Peter Johnson, cartoonist, is a man about town (Adelaide). What more need be said?

Paul Kaufman is retired and lives in

Canberra, which amounts to much the same thing really.

Dr Colin Keay, astronomer and president of the Hunter Skeptics, is prepared to name a star after anyone called Barnard or Sirius.

Mark Lawson is a journalist on the *Australian Financial Review*, is Australian stringer for the science journal *Nature* and an *X Files* watcher. He is also convinced that many of the people he meets act so normally they must be aliens.

Roger Scott is a geologist and science teacher in the Queensland education system. He has heard many of the prominent creationists speak, but maintains his sanity in spite of this.

Roland Seidel is a mathematician and is the Victorian committee's convention co-ordinator. He too, despite the odds, retains his sanity.

Geoffery Sherrington is a sceptical scientist known to Ian Plimer. He once had Margaret Whitlam on all fours tickling wild flowers with a straw, an episode seminal to a life-long study of politicians.

Dr Duncan Steel is an astronomer at the Anglo-Australian Telescope. As he knows too much about alien spacecraft for his own good, he would be well advised to steer clear of any "Men in Black" he sees in Coonabarabran.

Kirk Straughen is a public servant from Queensland, where his knowledge of magic stands him in good stead and an occasional contributor to *the Skeptic*.

Sir Jim R Wallaby is considered by many people to be the inventor of quantum theory and the finest leg break bowler ever to come out of Australia. Most of these people have now been detained at Her Majesty's pleasure.

Annie Warburton is presenter of the afternoon show on ABC Radio 7ZR, Hobart. She claims that \$0.08 per day is scarcely a living wage and would like an increase.

Hans Weiler, before his retirement, was chief scientist at the Department of Statistics, UNSW. Would anyone (apart from Hans) like to calculate the odds against that?

Barry Williams, only wishes that those scurrilous rumours circulating about his sex life were true. He also denies absolutely that he is living proof that aliens have landed.

Australian Skeptics Annual Convention

University of Melbourne

June 10-12

Public invited - put an ad in your local library.

TECHNOLOGY

The Skeptic BBS News

Alynda Brown

Up here in the beautiful mountains we've had about 50 people ring the BBS so far. We've got most of the bugs worked out now so you shouldn't have too many problems. I'm going to give you a few tips for using a BBS. You can send and receive messages from friends (or enemies) in a cost efficient way as well as send contributions to *the Skeptic*.

Contributions

When you have a contribution for *the Skeptic* it will in fact make life a little easier for our beloved editor if you send it electronically rather than posting a type-written letter. Our editor then has to retype your article. (*Actually, now we have a scanner, most articles can be entered without retyping. For which the gods of nerd-dom be praised Ed*) Why (to quote a tautology) repeat the same thing twice? All you have to do is write your article and save it as a text file.

Text Files

The method you use to do this will depend on which word-processor you have. If you have Windows, the easiest method is to use **Notepad** which is located in the **Accessories Group**. Type out your article, making sure that you keep an eye on the end of the line because Notepad doesn't have word-wrap or a Ding at the end of the line like a typewriter.

Once it is written then click on **File** on the tool bar and choose **Save**. When the dialogue box appears asking you for a name for that file just type in something like PSYCHIC for example. Notepad will automatically change it to PSYCHIC.TXT.

Those last three letters after the fullstop are called an **Extension** and tell the computer what **type** of file it is. The reason you need to save it as a text file is because it can be read by any computer-Macintosh, IBM compatible, whatever you may have.

If you don't have Windows installed on your computer then you can use the **DOS Editor**. If you have an Apple computer - well..sorry you're on your own. Ask someone who has an Apple.

Uploading

Once you have created your document you then need to **Upload** it onto my computer. That's nerdspeak for sending it to me.

These are the steps you need to go through.

1. If you don't have your modem set up yet, bribe one of your nerd friends (beer and pizza generally work) to set it up for you.
2. Ring the BBS and keep going through the introductory screens until you get to one called **Main Menu**.
3. Press **F** to enter the **File Area**.
4. Press **U** to upload your file.
5. You will then be asked to select a **Transfer Protocol** (Why can't computer programmers speak in English?) That's a bit like asking you if you want to use Optus or Telecom. Choose **Z** for **Z-Modem**. That's the most commonly used protocol. If that doesn't work try for **X-Modem**. If that doesn't work then it's time to buy more beer and pizza!
6. Again choose U for Upload.
7. You will then see a file manager of some type. This depends on what communications software you are using. You will need to highlight or mark the file that you want to send and then, usually, just press **Enter**.
8. A **File Transfer** screen should then appear. Again it depends on what software you are using. A text file should only take seconds to upload and you will usually hear a bell or buzzer of some sort when it's finished.

If it all works without a hitch you may then leap around the room with gay abandon, comfortable in the knowledge that you are well along the road to computer nerd-dom. If you have problems try paging me by typing **C** for **Chat to Alyndla** on most of the screens, or you can call me on my business number (045) 72-1994 between 9am and 10pm.

BTW (that's nerd-speak for By The Way) if this article appears in the Autumn issue of *the Skeptic* then you will know that the editor has in fact managed to come to grips with his modem - 'cause that's the only way he's going to get this file!

Skeptic 1 BBS (02) 519 5827

Sysop John Hansen

Modem speeds up to 9 600 baud

9am-6pm; 7pm-11pm

Skeptic 1 BBS (045) 72 1790

Sysop Alynda Brown

Modem speeds up to 28 800 baud

24 hours