



IN THE
BEGINNING

EDITED BY
BARRY WILLIAMS

PUBLISHED BY AUSTRALIAN SKEPTICS

In the Beginning

The first five years of the Skeptic

Edited by Barry Williams

The Original Aims of Australian Skeptics

- * To investigate claims of pseudoscientific, paranormal and similarly anomalous phenomena from a responsible, scientific point of view.
- * To publicise the results of these investigations and, where appropriate, to draw attention to the possibility of natural and ordinary explanations of such phenomena.
- * To accept explanations and hypotheses about paranormal occurrences only after good evidence has been adduced, which directly or indirectly supports such hypotheses.
- * To encourage Australians and the Australian news media to adopt a critical attitude towards paranormal claims and to understand that to introduce or to entertain a hypothesis does not constitute confirmation or proof of that hypothesis.
- * To stimulate inquiry and the quest for truth, wherever it leads.

These aims will be pursued by:

- * Establishing a network of people interested in critically examining claims of the paranormal,
- * Publishing a periodical, *the Skeptic* and distributing relevant information.
- * Publishing articles, monographs and books that examine claims of the paranormal.
- * Maintaining a library.
- * Preparing a bibliography of relevant published material.
- * Encouraging and commissioning research by objective and impartial inquirers.
- * Conducting meetings, seminars and conferences.
- * Acting as a public information resource by making informed members and relevant expertise available to the news media and other interested groups.

The skeptical attitude involves:

- * Seeking all relevant evidence concerning any extraordinary or putative paranormal event, claim or theory.
- * Keeping an open mind and not rejecting paranormal claims *a priori*.
- * Refusing to accept as true theories and explanations for which there is insufficient or ambiguous evidence and recognising that withholding belief is a preferable position to accepting claims for which there is insufficient evidence.
- * In seeking explanations, to prefer the ordinary to the extraordinary, the natural to the supernatural and the simple to the complex.

And They Said It Would Never Last

In January 1981 a new phenomenon burst upon the Australian publishing scene. It was manifested in a four page, tabloid format, newspaper under the title *the Skeptic* and it included articles headed "Skeptics Test Psychic Surgeon", "Doris Stokes Wrong - Police" and "Alien Honeycomb Tested", among others. This issue was followed in August 1981 by No 2, now in a 16 page A4 format magazine and in November by No 3, also of 16 pages.

Thus, in its first year of publication, *the Skeptic* had three issues. From January 1982 *the Skeptic* became a quarterly magazine, it has remained so ever since, with the number of pages increasing to 20 then 24 during the next four years. Since then the number of pages has steadily increased until the present, when it regularly reaches 60 pages.

It has always been our intention to keep all back issues available for our readers, however, the passage of time, the huge increase in the number of subscribers and the impermanence of paper has meant that issues from the first five years can now be offered in photocopied format only. It was decided by the National Committee that a more permanent record should be kept of the articles that appeared in those issues and this book is a result of that decision.

It contains all articles of substance that were published from Vol 1, No 1 to Vol 5, No 4, together with correspondence of relevance to those articles. Missing from this book are reprints of overseas articles, newspaper clippings, some correspondence, internal matters to do with the organisation and some short items of topical interest only. I was reluctantly forced to delete some of the illustrations that appeared in the original articles, largely because the originals no longer exist and their photocopied reproduction would be insufficiently clear to assist in understanding the story.

In setting out this book, I have selected a number of topic headings to enable the reader to follow through some of the major themes that concerned the Skeptics in their formative years and still do today. Within these headings, I have endeavoured to keep to the chronological order of the original publications, although I have departed from this practice where I considered it desirable to give an unbroken flow to several articles on the same topic.

Minor editing of some of the original articles has been carried out to correct errors, to improve clarity and to standardize spelling and date formats. Any errors that remain, despite comprehensive spelling checks and repeated proof reading, are all my own work and I apologise in advance for their occurrence. I would appreciate any correspondence about any such errors, which will be corrected in future printings of this book.

This then is an important historic document. It charts the beginnings and growth of Australian Skeptics, our successes and failures, and it stands as a tribute to those whose enthusiasm in the early days ensured that the organisation would grow and prosper.

Barry Williams

ACKNOWLEDGEMENTS

In the dark 'cut-and-paste' days before the advent of Desktop Publishing, production of *the Skeptic* called on the skills of many people.

Issues Vol 1, No 1 to Vol 3, No 1 were edited by the indefatigable Mark Plummer, then National President of Australian Skeptics, with word processing carried out by National Secretary James Gerrand. From Vol 3, No 2, the editorship passed to Janet de Silva, who carried the load until Vol 5, No 1, when it was taken on by Anne Tuohy. Anne remained in the chair until Vol 6, No 4, when Tim Mendham took over and continued until Vol 10, No 1. Barry Williams became editor with Vol 10, No 2 and remains in that position. Harry Edwards has been an invaluable contributing editor during the latter two terms.

To all of these and the others who contributed to the success of *the Skeptic* and of Australian Skeptics, I express my sincere thanks.

In the production of this composite issue, I would like to express particular thanks to Kate Orman, Harry Edwards, Hilda Mendham and Tim Mendham. It has been a very time consuming task and it could not have been done without your invaluable help.

CONTENTS

ASTROLOGY

Those Who Look to the Stars Have Stars in Their Eyes	1
Astrology and Religion	3
Book Review: <i>Objections to Astrology</i>	4
Correspondence on Astrology	5
Reactions to Astrology Disclaimer	6
Horoscope Hokum	8
Astrology - The Oldest Con Game	8
Comet Halley	12

CREATIONISM

Creationists Challenged at Conference	15
Another Six Day Creation	18
Letter to the Editor	20
Skeptics Lead Fight Against Creationists	20
Creation 'Science' Seminar	21
Philosophy & Creationism	22

CRYPTOZOLOGY

The Evidence for the Yowie	25
Megalania Resurrected?	30
Modern Sightings of the Thylacine	32
Gorilla Makes Girl Pregnant	34

DIVINING

The 1980 Divining Tests	35
Two Divining Tests	39

HEALTH

Skeptics Test Psychic Surgeon	41
More for Psychic Surgery	42
Perth Psychic Surgeons Challenged	43
Psychic Surgery - a Fraud	45
Psychic Surgery in Australia	46
Biorhythms Cause Aust - NZ Tensions	48
Opinion - Faith Healing	49
Negative Ion Generators	50
Mass Hysteria	51
Mass Psychogenic Illness	52
Vitamin C and the Common Cold	53
American Advertisements	54
Book Review: <i>The Holistic Healers</i>	56

PSEUDOSCIENCE

Horvath Car Secrets Revealed	57
Description of Horvath's Patent	60
Horvath Defends his Car	64
Horvath Car - Five years on	64
Water, Water, What Fuel is Water	65
The Jupiter Effect	66
Book Review <i>Beyond the Jupiter Effect</i>	67
Pinkney's Moonshine	68
Firewalking at Geelong	69
Fire Walkers get Cold Feet	70
SA Skeptics Investigate Anti-Gravity Hill	70
The Claims of Charles Wallach	72
Physicists Examine Karen Hunt's EPFT	74
How the MMBW got 'EMPF'ed	79

PSYCHICS

Doris Stokes Wrong - Police	83
A Punt With Psychics	84
Clairvoyant Croiset Clearly Seen	85
Perth Still There	87
Psychic Predictions	87
Clairvoyance No Help	88
Disappearing Hand Claim True	90
Albert Best to Tour Australia	90
Spirits, Spirits Everywhere	91
Almost the Best	93
Brisbane Psychometrist Fails Test	94

SKEPTICISM

Where has Science	
Teaching Gone Wrong?	97
2300 Years of Skepticism	98
Psychology Teaching and the Paranormal	100
Parapsychology in Crisis	101
Book Review: <i>Explaining the Unexplained</i>	106
Letter to the Editor	108
James Gerrand replies	108
David Hume - The Miracle Unmaker	109
Schools and Popular Media Tend to Foster Belief in the Paranormal	110
Book Review: <i>Science: Good, Bad, & Bogus</i>	114

To Believe, to Disbelieve or to Investigate	115
A Criticism of Moravec's "To Believe.."	117
"Believe" - A Response	118
Reply	118
Response to Mark Moravec	119
Letter to the Editor	119
The Terbot Hoax	120
The Steiner Tour - Post Exposure	123
Project Hook's Final Catch -AIPR	124
Philosophy of Skepticism	125
A Qualified Professional Scientist?	127
ESP and Australian Students	127

T M

Are Meditators Levitators?	129
Rigby, Osborne Challenged	131
Some Notes on TM	132
TM's Novel Defence Plan	132
TM and Crime	133
TM and Medical Benefits	133
Professor Keen on Levitation	133
Prof McCusker Challenged at University	134

UFOs

Alien Honeycomb Tested	137
F- 111s Search for UFO	139
UFOs and the RAAF	139
Book Review:	139
<i>Close Encounters of an Australian Kind</i>	
UFO Mystery Solved	140
The Valentich Mystery	141
The Aborigine and the Astronaut	144
Deyo's Cosmic Conspiracy and Schuessler's UFO Lectures	146
UFO Stops Train	150
Total Internal Reflection	150
Apparitions, UFOs and Wildlife	153
Conspiracies - An Adult Fairy Tale	155



Introduction

Astrology, the belief that the position of certain celestial bodies at the moment of an individual's birth has an influence on the character and future of that individual, is one of the most widespread and persistent of magical beliefs.

Because it makes testable claims, astrology has been subjected to many tests. None of them has provided evidence of any celestial influence on the lives of individuals, nor have astrologers been shown to be accurate at describing individual characteristics at a level greater than chance.

If the interest shown by Australian Skeptics in astrology has had any effect, it is that many astrologers, publicity at least, have been forced to modify the claims they make for their 'craft'. The public pronouncements of astrologers are now so vague and nonspecific as to constitute communication devoid of meaning. Regrettably, this has not resulted in any diminution of public interest in the topic.

Those Who Look to the Stars Have Stars in Their Eyes

Vol 3, No 2

Phillip McKerracher

Response to our request last year (1982) for astrological predictions published in daily papers on Friday August 27 and in weekly magazines for the week August 28 - September 3 was good. After elimination of duplicate predictions and those which did not apply to exactly the same days, thirteen distinct predictions were received.

Each of the individual predictions from each paper was assessed as giving a favourable, unfavourable, vague or no predictions for these four categories:

- (i) News, health and general luck;
- (ii) Personal relationships and romance;
- (iii) Employment and financial;
- (iv) Travel.

Results of this assessment are given for two of the star signs in the Table. An example of the quite dramatic differences which frequently occur between predictions for the same star sign on the same day are shown in the box.

Since astrologers cannot even reach agreement on which heavenly bodies should be used in making predictions, this is perhaps not surprising. The inescapable conclusion to be drawn from the contradictions is that a considerable proportion of these predictions, published as facts (without disclaimers) every day in many papers, are untrue and misleading.

There are a great many unanswered questions about astrology - a fact which seems to appeal to its adherents, but which should on its own be sufficient to prevent regular publication of unsupported predictions. No mechanism for astrological influence can be observed. (Even if such a mechanism existed,

In the Beginning

it must be swamped by more immediate influences, such as what a person has eaten for breakfast.)

Many predictions are therefore ridiculously specific. It is very difficult to see how predictions such as these can be read from the stars:

"... The letter E is important." (Aries *Townsville Daily Bulletin*)

"... Lucky colour is orange.---" (Leo, *Townsville Daily Bulletin*)

"... Lucky numbers 4 and 90." (Libra, *Sunday Times*)

"... Around lunch time tomorrow share a lottery ticket, preferably with a red-headed friend." (Gemini, *Sunday Independent*)

How could objects millions of kilometres away affect one twelfth of the population of one planet in this way? How could the letter 'E' be important to a Chinese? Would driving through amber lights be lucky? Why are lucky numbers never zero or fractions or negatives or imaginary? Would a friend with dyed red hair be as lucky? And why is the moment of birth so significant?

Occasionally, astrologers even come close to admitting they are making up as they go along by talking about "vibrations" instead of heavenly bodies. For example,

"... Travel vibrations are mixed." (Pisces, *Gold Coast Bulletin*)

The large differences between published predictions are possible because no experiments have shown one method to

be more valid than another. Indeed, literally hundreds of studies on hundreds of thousands of people spanning many countries have shown there to be no correlation between a person's date of birth and the perceived accuracy of predictions for his own or other star signs.

Why, then, are horoscopes so widely read and accepted? The common technique of merely offering sound advice and allowing predictions to be deduced from the subject matter of the advice, together with

vague and ambiguous predictions, allows astrologers to claim high accuracy and some respectability. In this respect they are similar to the quotes often printed on desk calendars, and to 'Dear Dorothy' columns.

For example, "You'll become more aware of

basic property values. Territorial terms will be defined. Protect your interests by becoming fully cognizant of source material. Some restrictions will actually prove beneficial. Watch Pisces!" (Virgo, *The Northern Star*)

Anyone attempting to follow this advice would attribute success to

the influence of the stars, but failure to being insufficiently cognizant of source material". Almost any restriction can be seen as beneficial with a sufficiently optimistic outlook (ask Voltaire!); also, since no time period is specified, either good or bad luck could be interpreted as an accurate prediction. The rather sinister caution to "Watch Pisces!" is so general as to be useless, as well as being improbable. Do they seriously suggest that anyone who happened to leave the womb between February 20 and March

20 (any year) poses some sort of unconscious threat to those who did so between August 24 and September 23 (any year)? I would be quite insulted if someone refused to do business with me as a result of that piece of advice.

There are many other ways to improve the

perceived accuracy of any prediction, and they are used apparently deliberately by astrologers. One way is a self-fulfilling prophecy such as this:

"Matters out of your past will keep cropping up during the day. This will be in many small things to remind you of times gone by." (Scorpio, *Daily Telegraph*)

(How could that show in the pattern of the planets?) Predictions are made more interesting and personal by appealing to a person's ego:

TABLE: Assessment of Predictions for Two Star Signs

Category	LEO			ARIES		
	% Good	Bad	Vague	% Good	Bad	Vague
News, health, general luck	30	30	40	30	25	45
Relationships, 64 romance		45	16	39	20	16
Employment, finance	16	16	68	16	30	54

LEO - This is the time for you to take the initiative. You will have luck on your side. RELATIONSHIPS: Your love life will be brighter and more active than it has been for some time and you will enjoy the difference. Certain single lions will not be that long, just let nature take its course. MONEY: Some extra coming your way. There will certainly be an element of luck involved, but you will have to do a little something to earn any extra you get. HEALTH: You will look good and feel good and what lion could ask for more?

Sunday Telegraph, August 29, 1983

LEO - You'll be glad when this week is over! Accidents possible driving or at work, upsets through uncertain or old people; don't take notice of gossip, allow tensions to make you act hastily. Avoid gambling, risking savings.

Sunday Independent, August 29, 1983

"...Your intuition is invariably spot on..." (Cancer, *Herald, Daily News*)

"...Others must concede that it was your ability to analyse and rationalise situations rather than acting on impulse which saved the day..." (Virgo, *Weekend News*)

or to hypochondria:

"...HEALTH: The usual problems with the throat." (Taurus, *Sunday Telegraph*)

"...it is the perfect day to ... make others realise why you appear to have been so distant, aloof yet obviously deeply worried lately." (Leo, *Weekend News*)

People enjoy reading a good prediction that gives them something to look forward to, while a bad prediction helps by allowing responsibility to be attached to heavenly bodies and removed from the reader. Dividing the population into twelve groups make the predictions more personal, flattering the ego.

Some would argue that relatively little harm can be done by publishing astrological predictions. I do not agree; the false respectability thus endowed by journalists normally careful to confirm their sources leads to wide community acceptance of such supernatural phenomena. A small section (probably about 1 %) of the community actually modify their behaviour as a result of their predictions, which are frequently far from harmless. Imagine the possible consequences of following these pieces of advice, for example:

"..You may not be in the mood for jokes. Ask others to keep their distance." (Cancer, *Sunday Mail*)

"...There is no way that you can control or regulate matters relating to your career or professional interests at the moment..." (Cancer, *Weekend News*)

"...check finances in detail and avoid contact with foreigners..." (Taurus, *Sunday Times*)

"...Better by far to remain true to type and let others know when they have overstepped the mark or taken your good nature and generosity for granted." (Sagittarius, *Herald, Daily News*)

How on Earth do newspapers with any reputation for objectivity justify publishing that sort of amateur psychology every day? Especially when it encourages people to abandon responsibility for their own lives, in a most immature manner!

Published horoscopes should at least contain a warning, such as: "**For Entertainment Only. Keep out of Reach of Children.**"

The one piece of advice I considered really worth taking was that which constituted the 'prediction' for Cancer in "The Townsville Daily Bulletin":

"You can only seek so much advice from other

people. In the end, you have to make you own decisions. Bear this in mind today."

When this article was written, Philip McKerracher was a member of the National Committee of Australian Skeptics.

Astrology and Religion

Vol 4, No 2 Anthony G Wheeler

You have probably noticed quite a number of fish around. The ones that I mean are the highly stylised outlines that you can see on a car bumper stickers, lapel badges, etc. This is the current fashion among Christians.

The use of the fish to represent Christianity goes back to soon after the death of Christ when the persecution of these early Christians required them to show some restraint in advertising their faith. However, they still wanted to be able to identify each other as a form of mutual support, hence the display of the fish symbol. The usual explanation for the choice of the fish is that the initial letters of a phrase that epitomised Christian thinking (Jesus Christ, the son of God) spelt in Greek the word "fish" (*Ichthus*). This explanation is fair enough, and is not normally questioned. There is, however, an alternative. First we shall digress.

From the Earth, the Sun's apparent course during the year is sinusoidal. During the northward part of this cycle, the time at which the Sun appears to cross the celestial equator is the vernal equinox, usually on March 20. This and the autumnal equinox are the only two days of the year when the lengths of the day and night are equal.

As the Sun moves on this sinusoidal path it makes one complete circuit against the background of the stars each year. This background was divided by the priests of ancient Sumeria into the 12 equal signs of the zodiac, according to the constellations near the celestial equator. Each sign was described as ruling the period of the year when the Sun was apparently within that sign of the zodiac. At this biblical time the vernal equinox occurred while the Sun was in the zodiacal sign of Taurus. And since the vernal equinox was very important (what with spring beginning the new agricultural year and the

equinoxes being easier to time accurately than the solstices), the astrological year began with Taurus. And, all things being equal, the vernal equinox should occur at the same longitude on the celestial equator and time each year. However, the Moon pulls on the Earth's equatorial bulge with the result that the Earth's axis of rotation is disturbed, and the north celestial pole apparently describes a circle against the fixed stars.

One result of this is that each year the Sun's apparent northward crossing of the celestial equator, the vernal equinox, occurs a little more to the west and a little earlier than the previous year. This continual advance is known as the precession of the equinoxes, and it takes 25,780 years (approximately) for the complete cycle, with the Sun in each of the zodiacal signs for about 2150 years. When the Greeks took over astrology in a big way the Sun was in the zodiacal sign of Aries at the time of the vernal equinox, and they therefore began their zodiacal year with Aries.

Since then astrology has fossilised, and while a few purists keep their art up to date most astrologists have continued to start their zodiacal year with Aries. (If you'd like to check, just look at any horoscope summary.) This is, of course, wrong because the equinoxes have continued to precess. About 100BCE the Sun's position at the time of the vernal equinox moved across the border into the zodiacal sign of Pisces. This is, in case you didn't know, the sign of the fish which brings us back to where we started.

The coincidence of this transition to Pisces at the time of Christ and the adoption of the sign of the fish by the Christians seems to me to be significant. Especially as I suspect that the early Christians were as knowledgeable about astrology as they were about Greek, and the precession of the vernal equinox from one sign to another is a very major event. Why shouldn't they try to link the life of their Christ with the birth of a new zodiacal era?

This is certainly the modern philosophy as espoused in the very popular rock musical *Hair*, whose opening song is *The Dawning of the Age of Aquarius*. The 'age of Aquarius' is the period during which the Sun will be in the zodiacal sign of Aquarius at each vernal equinox, and the 'dawning' is the movement of the Sun's position at this time across the border between Pisces into Aquarius. This event is due in the year 2,050, and a few of us alive now should manage to live long enough to see it. As for what the dawning of the age of Aquarius will bring to mankind (a new major religion? peace and harmony on Earth?), no doubt the futurologists, astrologers and song writers will be selling us their views. I suspect that without

their reminders, the event would pass unnoticed with no effect at all.

And as to which is the correct origin of the adoption of the sign by the early Christians, most will believe that the Ichthos theory is correct as astrology is an anathema to modern Christians. Whether early Christian ideology was so pure is another matter.

When this article was written, Dr Tony Wheeler was Secretary of the Queensland branch and a lecturer at Queensland University. He now teaches science at a high school in rural Queensland.

Book Review

Vol 5, No 1

William Grey

Objections to Astrology, Bart J Bok and Lawrence E Jerome. Prometheus Books.

The Truth About Astrology, Michel Gauquelin. Trans. by Sarah Matthews, Basil Blackwell.

These two books present opposing views about the merits of astrology. Bok, an Emeritus Professor of astronomy, argues that there are no scientific reasons for accepting the claims of astrology, while Jerome, a science writer, adds that there are in fact good methodological and empirical reasons for rejecting them.

"Objections to Astrology" also includes a disavowal of astrology signed by an impressive list of 192 leading scientists, including quite a few Nobel laureates. But, even though support of the informed majority is reassuring, the truth of the matter cannot of course be settled by appeal to authority. We must look to the evidence that supposedly supports astrological claims. This turns out to be soft at best - indeed, decidedly spongy.

People find astrology seductive because they yearn for a systematic framework of coherence and order to explain the haphazard and capricious events which constitute their lives. This human propensity for pattern is perhaps one of the most powerful (and legitimate) motivations for the search for, and the discovery of, systematic explanations and understanding of the world.

The triumphs of explanation have frequently consisted of the discovery of hidden and unobvious patterns and correlations which underlie our often

disorderly experience. And for millennia a significant inspiration for the discovery of order has been the repetitive configurations of the planets and stars.

After 30 years of painstaking research Michel Gatiouelin, like many before him (though at conspicuous variance with Jerome), claims to have discovered significant correlations between planetary positions at birth and career success, temperament and personality. His book purports to prove that planetary position at birth has a significant bearing on human destiny. I read his conclusions with considerable surprise. Could this be (I wondered) the same author who had written in the *Skeptical Inquirer* (Spring 1982): "There is no correlation between the character traits of the subjects and the signs under which they were born ... there is no correlation between professional success and the zodiac, and no zodiacal-sign "heredity" between parents' and child's horoscopes. All this (data) presents a large body of experimental evidence against the alleged influence of the twelve signs."

Astrology, Gauquelin claimed to have shown, is nonsense. But it emerges in his latest book that this is really a consequence of inept astronomical calibration. There is a celestial influence on our lives, he maintains, but this has nothing to do with the zodiac: the effects are correlated not with stellar constellations but only with planetary positions.

Moreover, his studies purport to reveal that not just any old celestial body will do: only the Moon, Venus, Mars, Jupiter and Saturn affect our lives. The Sun, Mercury, Uranus, Neptune and Pluto play no role in determining our destiny. This is the foundation of Gatiouelin's "neo-astrology".

Gauquelin defends his interpretation of statistical data (called into question by Jerome) in an exceedingly opaque chapter, *Science and Proof*. A patient and technically qualified expert would be needed to sort out this extremely murky dispute.

However, it does not require much sophistication to be sceptical about the bizarre explanation which Gatiouelin provides for his alleged socioplanetary correlations. Success, he suggests, is not actually determined by planetary position at time of birth: rather the foetus recognises a propitious planetary configuration and selects its birth time accordingly. No plausible mechanism for this astonishing feat of astral detection is suggested.

While the ancients can be excused for thinking that stellar patterns were reflected by events on Earth, our improved astronomical understanding has effectively squeezed all such claims out of court. The planets are too distant, and their influence too nugatory to have

any significant effects on terrestrial events. The gravitational impact of the proximate obstetrician is far greater than that of Venus or Saturn. And Gauquelin's speculations about a 11 planet-geomagnetism" link will not survive inspection.

Nevertheless there is little doubt that people will continue to find comfort in the belief that our fate lies with the stars rather than with ourselves. It is clear, anyway, that the onus of proof is on the astrologers (or "neo-astrologers") to come up with some pretty convincing evidence to support their claims, and clear that they have not done so.

While the discipline of astronomy has been revolutionised several times over since the time of Ptolemy, astrology, despite many lifetimes of fruitless effort, has made no significant progress. There are no good grounds to believe that it will ever do so, and every reason therefore to pronounce this research programme defunct.

Books on astrology nevertheless continue to find respectable publishers. We can, I suppose, be grateful that at least we do not get many books to review on scapulimancy, cheiromancy, oneiromancy, haruspicy, chaomancy, bibliomancy, copromancy, ophiomancy ... (the list goes on). There are some signs of progress.

When this article was written, Dr William Grey was Secretary of the Canberra Skeptics. He now teaches philosophy at the University of New England.

Correspondence on Astrology

Vol 5, No 1

James Gerrand,

Professor Alan Smithers
Department of Education
University of Manchester, UK

Dear Professor Smithers,
The Australian Skeptics are interested in your investigations regarding the possible correlations between occupations and date of birth. We would greatly appreciate a copy of the research paper if that could be made available.

We are particularly interested in the extent of variation from chance for any occupation that shows such variation and also the number of occupations considered in the study.

We can understand some seasonal variation occurring in occupations on the basis that there is some evidence that professions tend to beget professions and that birth dates may have an association with the season that parents take holidays. The more affluent occupations may tend to have more set holidays.

However, we must remain sceptical about any influence of planetary positions as postulated by astrologers but are prepared to be convinced.

James Gerrand, Secretary
(14/10/84)

Dear James Gerrand,

The research to which you refer was funded by the Koestler Foundation with money obtained from the newspaper *The Guardian* and the only published version of the findings currently available is what appeared there. Copies of the articles are enclosed.

You will see that my conclusion is broadly the same as yours - excepting the result for nurses which I find intriguing. I have been able to divide the sample and the pattern appears in both sub-samples.

The tabulation obtained from the British Office of Population Censuses and surveys was for 223 occupational groups by 12 divisions of the year (corresponding to the Sun signs, and also the seasons each divided into three). Some of the occupations were obscure so the 223 groupings were combined (according to OPCS rules) to give 100 occupations. Chi-squared for goodness of fit across the twelve periods showed that 20 deviated beyond chance at the 5% level of significance.

When the occupational categories were further combined to give social classes, a clear "seasonal" pattern emerged, with people born in spring tending to get the better jobs.

The evidence for astrological associations is not strong but some was obtained - for example, the finding for nurses. There is also evidence linking personality and Sun sign. This, however, should not dismay sceptics and rationalists: there is a perfectly straightforward psychological explanation.

Astrology has been with us for a long time and has contributed more than most people imagine to the way we see the world and make sense of ourselves. Personality is not fixed but is continually in the making. Given the popularity of astrology in the media and elsewhere, it is likely that a sufficient number of people have been influenced in their opinion of themselves to introduce some astrology into self-report studies of personality. It may cut even deeper, affecting occupational choices, so where a job like nursing depends to a considerable extent on personality a link

is also found there.

The results of the pilot study are due to appear in the October [1984] issue of *The Journal of Social Psychology*. If I can help further I should be very pleased to do so.

(Professor) Alan Smithers
Dept of Education
University of Manchester, UK
(23/10/84)

James Gerrand is an aviation consultant. He was the first National Secretary of Australian Skeptics and is now a Life Member.

Reactions to Astrology Disclaimer

Vol 5, No 2

Mark Plummer

On November 4, 1984, the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) issued a statement asking all 1200 newspapers in the United States that publish astrology columns to carry the following disclaimer:

"The following astrological forecasts should be read for entertainment value only. Such predictions have no reliable basis in scientific fact."

Two weeks later, CSICOP mailed a letter to all US newspapers, calling on them to publish the disclaimer. The letter was accompanied by a four page article entitled "Scientific Tests of Astrology Do Not Support Its Claims", which outlined the scientific perspective on astrology and summarised a few of the tests that have shown the claims of astrology lacking in any merit.

The following are responses to the disclaimer as published in *the Skeptic* in Vol 5, No 2.

Australian Skeptics' response:

The CSICOP disclaimer was considered by the joint meeting of the National and State committees held in conjunction with our first National Convention in 1985.

It was decided that the National and State committees should take action along the lines of the CSICOP announcement and try to persuade the media to warn readers, listeners and viewers not to take astrological forecasts seriously. Initial action should be taken by approaches to individual

newspapers and magazines by the state branches to test reactions before issuing any press release to the whole print media.

The Canberra branch was the first to get publicity on the issue gaining front page coverage in the *Canberra Chronicle*.

There is a need for further research into how many Australian papers and magazines carry such columns and also whether the attitude of the Australian public differs greatly from that of the American public.

The initial CSICOP announcement was American centred and would need to be re-written before releasing it in an Australian press release. Astrology columns should be analysed, not just in their possible harm to Americans, but to science education worldwide.

Geoffrey Dean's response:

The Kurtz/Fraknoi statement is specifically aimed at newspaper horoscopes. The problems are:

1. No serious astrologer believes in newspaper horoscopes. A manifesto denouncing newspaper horoscopes could as easily be signed by leading astrologers as by CSICOP sceptics.

2. There have been a handful of good controlled studies of newspaper horoscopes, all with uniformly negative results. But none are cited.

3. The statement actually addresses serious (ie non-newspaper) astrology. This is a different situation entirely. The arguments presented are naive and could easily be demolished by astrologers. The studies cited are outdated and should be replaced with the much better (and equally negative) studies that now exist.

4. The disclaimer could be differently worded. Do all Skeptics feel that "astrological forecasts should be read"? Also "no reliable basis in scientific fact" tends to be too heavy. Why not something that the ordinary reader can understand? For example: Warning - astrology forecasts are no more reliable than simply guessing and are for entertainment only.

Kevin W. Barrett, national president of the Federation of Australian Astrologers' response:

The FAA does not recognise Sun sign horoscope columns in newspapers or magazines as "astrology", and places it in the same class as "Dorothy Dix" columns. Also the media at times do publish some true astrology work in their own way.

Research has shown that the general public does not treat these columns seriously and uses them as entertainment in social discussions with a "fun" attitude.

The zodiacal position of the Sun alone cannot give

factual interpretation or forecast events and those who write these columns know this. We hope in time to have these writers explain this in the headings of their columns, and therefore our organisation is better qualified to do this than any other.

We are not an organisation to force acceptance of our ideals, only to set an example and help those interested to learn all methods of astrological interpretations and the public awareness of our integrity.

Astrology cannot be logically explained to those who have not studied the basic concepts seriously. It is like explaining where electricity comes from by saying it is the motion between two metals called a generator, then try to explain how the electricity gets into the generator. It works and thus is accepted without the knowing why. Astrology texts handed down through the ages are still valid today as was $2+2=4$, even though many have tried to discredit the subject to bolster their own belief systems. In past times the ignorant did stop the development of astrology in the western world and in Asia the conquerors suppressed it, only later to become its ambassadors.

Skepticism is necessary in testing any concept you do not understand before you accept new knowledge that is basically a belief system, and so it could be said that scepticism is the first stage of awareness to know if one's perception is not in turn a belief system of ignorance that hinders man's growth into unknown knowledge.

My best wishes in your endeavours to expose charlatans who use the ignorance of others, and hope you watch out for this type who can also use your own platform to promote ignorance.

Mark Plummer, a lawyer, was the founder and first National President of Australian Skeptics. He edited the Skeptic from 1980-83 and he was also responsible for many of the articles published during the first five years.

Later, Mark was appointed Executive Director of CSICOP in Buffalo New York a position he held for three years. Mark is a Life Member of Australian Skeptics. He has his own legal practise in Melbourne.

Horoscope Hokum

Vol 5, No. 3

Harry Edwards

The article "Attitude of Australian Astrologers" by Kevin Barrett, National President of the FAA (*the Skeptic* Vol 5, No 2), does little to enhance the credibility of astrology or its practitioners. He states that "the FAA does not recognise Sun sign horoscope columns in newspapers or magazines" and that his "organisation is better qualified than any other" to include a disclaimer.

It would seem however, that astrologers have no qualms in abandoning their principles for money. Members of his Federation and similar associations are among those who write these columns, and since their popularisation by R H Naylor in England in the 1930s, no astrological federation, association or society has deemed it necessary to advise newspaper editors (to quote Mr Barrett) "that the zodiacal position of the Sun *alone* cannot give factual interpretation or forecast events". The inference being that the Sun in association with other celestial bodies can in fact be used to forecast future events, a contention which I will dispute later.

He continues by saying that "astrology cannot be logically explained to those who have not studied the basic concepts seriously-, such as the concept of electricity and how we can't explain that either. However, any elementary physics textbook will not only explain the known facts of electricity in terms of electrons and so on, but also how its existence can be verified, detected and measured by a variety of means.

Furthermore, the proof of the pudding is in the eating. To this end I checked the predictions for 1984 in the Australian edition of Old Moore's Almanack. Established in England in 1697, it purports to be an astrological blueprint of the future. The principle contributors were astrologers, Milton Black and Dons Greaves (a founding FAA member) who are long established and prestigiously regarded in the future telling game.

Of the 200 predictions that it was possible to check, less than 5% materialised, of which 99% could be seen in hindsight to have been based solely on the law of probability, prior knowledge or astute speculation. These astrological predictions had in fact less accuracy than poor guess-work. For example, Senator and former astronaut, John Glenn in 1984 should have been calling for interior decorators' quotes, because the planets were auspiciously placed and Doris Greaves had him all but ensconced in the White House.

The Reagan-Bush combination however, was clouded in doubt; there were dire warnings against travel and of illness and attempts on their lives. Bush in particular was singled out by the Penumbra eclipse. But they both survived to go on to a sweeping victory in the presidential elections, and there were no health problems violent or otherwise for the President during his extensive tours in the Far East and Europe.

Closer to home Doug Anthony, the leader of the Country Party, was given a glowing projection of his political future for the next ten years, but evidently the cow paddocks exerted a greater influence than his stars as he resigned from politics altogether. Similarly, swimming identity Lisa Forrest was to have achieved fame and gold in the 1984 Olympics, but she too resigned from swimming six months before they took place.

Finally Mr Barrett says that "skepticism is necessary in testing any concept you do not understand ... in order to become aware that one's perception is not in turn a belief system of ignorance". What, may I ask, has the FAA done to test astrological concepts? Have they shown that astrology is tenable and can be accorded more credence than an ignorant belief in superstition?

Harry Edwards was the National Secretary of Australian Skeptics. He was also co-Editor of the Skeptic and chief investigator of paranormal claims.

Astrology - The Oldest Con Game (Part 1)

Vol 5, No 4

Vince Ford

Four years ago, my sister had a baby. Hardly a worldshattering event, I know. But shortly following the event, she was presented with a "baby-book", the first few pages of which were full of spaces to fill in with all the usual guff about times, weights, and all the other information that new mothers think they will cherish forever. One such page was full of little spaces for astrological data. Now, my sister is well aware that there is a bit of a difference between astronomy and astrology (knowing this she is well ahead of much of the world's population) and figures that the positions of the Sun, Moon and planets should be fairly independent of where they come

In the Beginning

from. So she asked me to provide the info for page 4.

Now, up until then I had managed to get along quite happily without worrying about astrologers and their horoscopes, but sisters are a force to be reckoned with. So I got out the ephemerides, read off the positions and faced the table on page 4. Four years later the table is still incomplete, as it quickly became apparent to me that there is absolutely no relationship between the real physical universe that we live in and the undefined, inconsistent and thoroughly unreal world of astrology, even to the fundamental point of just where a planet is in the sky at a given time.

This led me to take a closer look at astrology. After all, like taxes and measles, it has been with us from the dawn of history. Lots of people confuse astrology and astronomy, so maybe it was time that I found out the similarities and differences. Differences were not hard to find, but apart from the fact that both fields were concerned with astronomical bodies, I could not find a single similarity.

Until the Sixteenth Century, there was no great difference between the astronomer and the astrologer; indeed they were often one and the same person. There were no instruments for observing the heavens, and everybody knew that the Earth was the centre of the Universe. After all, you could see that everything revolved around it. To the naked-eye observers of the time there were seven bodies that appeared different from the rest: the Sun, the Moon, Mercury, Venus, Mars, Jupiter and Saturn. The other planets were not due for discovery for a few centuries. Unlike the stars, which stayed in the same place relative to each other, these seven objects moved across the heavens in complicated paths, never being in the same relative positions. Obviously this had some deep hidden meaning for mankind. After all, seven was a theologically perfect number. So the art of astrology arose to interpret the messages written in these changing patterns.

Following the invention of the telescope by Galileo, and the mathematical breakthroughs of Kepler and Copernicus, it became clear that the Earth was not the centre of the Universe, and the apparently complex paths of the Sun, Moon and planets were really quite simple when looked at the right way. Newton explained the driving force - gravity - and the Universe was laid open for explanation. Astronomy took off to become the science that it is today, a science that combines all other sciences with the latest in technology to explore the fascinating cosmos that surrounds us, and humanity's place in it.

Astrology, on the other hand, stayed just where it

was. The first thing that strikes astronomers when they look into astrology is that astrologers are still using the cosmology of the Sixteenth Century. For an astrologer, the Earth is still the centre about which everything moves. Mysterious meanings are apparently spelled out by the movements of the planets against the background stars.

The basic fundamental belief of astrology is that the personality and life history of a person are determined by the positions of the Sun, Moon and planets at the moment of birth. No reasonable explanation is ever given why this should be so. It is a puzzle to me why such a mysterious influence should start acting at the moment of birth. Why not at the moment of conception? Another pre-16th Century idea rearing its head?

Astrologers relate the positions of the Sun, Moon and planets to "signs" or -houses- along a band of sky called the zodiac. The zodiac is the area of the sky in which the Sun, Moon and planets are usually found. For the astrologer it contains 12 equal signs Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpius, Sagittarius, Capricornus, Aquarius and Pisces. All these houses are 30 degrees long and extend 18 degrees either side of the ecliptic (zodiacal equator). They bear absolutely no relationship to the astronomical constellations, apart from using the same names. The astronomer at this stage quietly points out that the 12 constellations are by no means 30 x 36 degrees and rectangular, but are different sizes and shapes. In any case, there are two more constellations, Ophiuchus and Cetus, which cross the ecliptic and fill a fair bit of the zodiac, and several more constellations that enter into the houses. Astrologers mutter "tradition" and ignore the intrusions.

A further problem in astrological positions is that of the precession of the equinoxes. Precession is due to the slow change in the direction that the Earth's rotation axis points in space. Over the centuries it traces a circle in the sky, taking 26,000 years to return to its starting point, in the process changing the position in the sky of the celestial poles and the ecliptic. This is a real headache for the astrologer, who ties the zodiac signs to the time of year, as the shift is such that the astrological sign is presently not even in the constellation whose name it bears. For example, I was born on February 27, 1943, at 2 am. According to conventional astrology, my Sun sign (that is, the constellation the Sun was in at the time of my birth) is Pisces. However, due to precession, the Sun was actually in Aquarius. Similarly, all the planets were one constellation back from where the

astrologers would place them. (This is the reason page 4 was never filled out, as I believe a planet should be recorded as being where it is, rather than being where someone thinks it should be). Lord alone knows what happens if the Sun is in Ophiuchus. Astrologers don't even admit the possibility.

The effect of precession is that the patch of sky that was overhead at a given time this year (Pisces, say) will not be exactly overhead at the same time next year, and in a century's time will not be anywhere near overhead. So the astrologer who says that the house of Pisces is overhead at that time each year has real problems if he or she insists that the house is in any way tied to the movement of the sky.

It seems to me that precession is the key. If astrology is measuring anything at all, it must have to do with the Earth, not the skies. To overcome this problem, some astrologers have tried to introduce a sidereal zodiac in which the zodiac signs are tied to the true movement of the sky, rather than the time of year. But they are treated as heretics by the majority of their colleagues.

The result of the division of the sky into 12 equal zodiacal constellations and of precession is that the sky-map of the astrologer bears no resemblance to reality. And of the course, the rest of the sky - the 72 degrees each side between the zodiac and the poles - is not considered by the astrologer, although it contains astronomical objects of great importance to our understanding of the universe.

As to what the mysterious influence is that allows planets to shape our futures, astrologers can only postulate an "as yet undiscovered" force. They claim such a force must exist because astrology works. However, the only reason to postulate such a force is to explain astrology. This is the type of logic that any schoolchild learns to distrust. 'Ye know the force exists because it makes astrology work, and we know that astrology works because the force must exist.' Really! We do know that the "force" isn't gravitational, electromagnetic or radiational in nature, as these forces all obey rationally self-consistent laws. It would also have the amazing property of remembering the laws of precession. Frankly, I consider that the sciences relating to genetics, heredity, psychology and the environment can explain a person's make-up and behaviour in a far more logical, self-consistent and believable way.

The effects on a person's future are supposedly tied to whether the Sun, Moon and planets are setting or whatever at the time of birth. This introduces problems for those who are born beyond the Arctic Circle, as there are about six months of every year when the

Sun, Moon and planets are not visible from these latitudes. So people there have no horoscope and are free of the mysterious influence? I bet astrologers do as good a trade in Murmansk at they do elsewhere.

Part 2 of this article appeared in Vol 6, No 1 and has been included here for the sake of completeness.

One of the real killers for astrology should have been its utter failure to predict the existence of Uranus, Neptune and Pluto. After all, the astrologers were very quick to assign influences to them following their discovery. Why was their presence not predicted from study of those influences in the centuries before their discovery.

For centuries astrologers must have been working with horoscopes that were hopelessly in error. Such errors should have been open to analysis if astrology is the science that its practitioners would have one believe. As it was, the outer planets were discovered by mathematicians and astronomers who were investigating gravitational influences on the known planets and who were searching for the bodies they had predicted to explain the errors in astronomical planetary tables. This is a classic example of the complete failure of predictive astrology and the success of predictive astronomy. Astrologers have since tried their hand at predicting new planets, Vulcan and Cybele for instance, but so far no trace of them has been found. This lack of success has not worried the astrologers. They seem to be able to hold two conflicting views - the early horoscopes drawn without the outer planets, and the post-Uranian horoscopes. Both horoscopes are considered to be of equal value (which of course they are - value = 0).

So one of the differences between astronomy and astrology is the way in which their practitioners look at the sky. Astrologers see only the zodiac, fixed, immutable, populated by 12 equal signs and traversed by the Sun, Moon and planets exerting their various influences on a helpless humanity. Contrast this with the universe revealed by astronomy - a limitless, evolving cosmos in which humanity is seen as part of the complete scene of evolution from hydrogen atoms to life via the nuclear furnaces of the stars.

Another difference between astronomy and astrology is the way in which the two relate to other sciences. Astronomy unites all the physical sciences. An advance in physics, for example, leads to a better understanding of astronomical problems and vice versa. Indeed most of the major advances in science

have come about as a result of astronomy. Newton and Einstein, for example, made their most important discoveries when developing mathematical methods to solve astronomical problems. Astrology, on the other hand, stands aloof from any science. Not only can its ideas not be reinforced by reference to other sciences, but it suffers badly when compared to any of them. The 'fluence', for example, cannot be explained or tested by any of the laws of physics or mathematics, nor are its supposed effects compatible with the results of the life sciences.

The sciences provide an internal check on each other; the findings in one (such as geology) being consistent with findings in the others (like biology). In the case of astrology however, its claims run counter to just about everything we know in physics, biology, psychology and astronomy. Although all scientific theories have a few problems, astrology is so full of anomalies that it can only continue to operate by denying all the other sciences and the accumulated knowledge that has lifted humanity out of the Dark Ages.

If astrology is a science, as its adherents claim, then it must be testable in the way other sciences are. In science, any theory must be tested by experiment and if the experiment gives a result that says the theory is incorrect, then the theory has to be scrapped or modified to fit the observed facts.

How does astrology stand up to this sort of testing? Several large scale surveys have been done, mainly in Europe and the US, to test astrological beliefs. Snell and co-workers used two random samples 1500 entries from biographies of leaders in various fields to test the hypothesis that leadership qualities were tied into the zodiacal signs (Virgo is supposedly a weak leadership sign). No trends were found significantly above those expected from random chance. Roger Culver tests his astronomy classes each year for relationships between physical characteristics and sign. So far no positive correlation has been found. This is not surprising since astrologers cannot agree on just what, for instance, an Aries should look like.

Michel Gauquelin tested the claim that the sign determined the profession. He used a sample of 15560 successful professionals in ten different professions. No correlation was found. Gauquelin reported a possible correlation between successful sportsmen (not basketballers) and the position of Mars. This was immediate headlines - "Scientist proves astrology works". However Gauquelin proved conclusively that none of three tests worked. The sport/Mars effect only showed for successful sportsmen as defined by

Gauquelin. When an independent test was done with someone else defining "successful", the effect vanished.

Probably the most telling test was done by Silverman, a psychologist at MSU. He used twelve personality descriptions from an astrology text, one for each sign, and gave them to two independent test groups. The first group was not told what was being tested or where the descriptions had come from, and was asked to pick the description that described them best. Less than 30% chose the description appropriate for their sign. The second group was told what the descriptions were and to which sign each description pertained. 70% chose the description for their own sign as the best one. This is a classic example of the "Bandwagon Effect". If people know the expected answer, that is the answer they give, regardless of its relevance. After all "50 million Frenchman can't be wrong".

There are a few simple tests that anyone can do to convince themselves of the fraudulence of astrology. Firstly, compare the "Stars" columns in four or five different newspapers. If there is any scientific basis to astrological prediction the columns should be practically identical and contain solid predictions. Instead you will find no general agreement and no prediction, just generalized wishy-washy verbiage of thoroughly general meaning.

There may be a good reason for the lack of solid prediction. A few years ago a friend of mine was assured by an astrologer that Friday would be a great day for romantic interest. On Friday his mistress gave him the heave ho and his wife found out about it. The astrologer was severely battered about the head and shoulders. Secondly, keep an accurate record of the number of times your local astrologer gets predictions right and wrong. You will find that they are much the same as could be expected by random chance.

If you cannot be honest enough with yourself to avoid the bandwagon effect, keep tabs on someone else. Another simple test. Check two people who have the same birthday. If there is anything at all in astrology they should be very much alike in appearance, behaviour and lifestyle. The ones I've checked are as mixed a batch of people as any batch, regardless of birthdate.

So if astrology fails every test thrown at it so far, if it denies the accumulated knowledge of centuries and insists on remaining as a leftover from the Dark Ages, and (worst of all) insists that the universe is very different from what it patently is, how does it survive? Astrology today is big business and is

wrapped in the trappings of genuine science. All astrologers have their computer, and use genuine astronomical ephemerides to calculate positions (even if they then do insist on labelling the "correct" position with the name of the constellation one to the west). Above all they have the media sewn up. No paper of magazine for the general market is without its "Stars" column.

People who are confused about science, do not understand what science is all about, and do not know what it has to offer are easily misled by the trappings and convinced that "there must be something in it or the paper wouldn't print it". Unfortunately 5 billion Earthmen can be wrong, and it does not matter what glittering technological trappings a philosophy is wrapped in, if the basis is demonstrably untrue, the philosophy is a sham.

To quote astronomer Jay Paschoff of Hopkins Observatory in the US, "From an astronomer's point of view, astrology is meaningless, unnecessary and impossible if we accept the broad set of physical laws we have derived over the years to explain what happens here on Earth and throughout the rest of the universe. Astrology snipes at the roots of all science. Moreover astrology patently does not work. If people want to believe in it as a religion, or to have a personal astrologer acting as a surrogate psychologist...", fine, but they should not be deluded by the false scientific gloss that astrologers cloak their activities in. The only reason that people may believe they have seen astrology work is because it is a self-fulfilling means of self-delusion conceived of long ago when we knew far less about this exciting and vital universe of ours.

Some astronomers treat astrology as a harmless joke, but I cannot see it that way. Astrology is as deadly harmful as any of the multitudinous ways that exist for people to 'cop out' of making their own decisions and taking the consequences of those decisions. That is probably the largest factor in keeping our poor race in the mess it is in at present.

One parting thought. The heavens do have a great effect on humanity. The Sun is the source of all the energy on which life on our planet depends. The Moon is the cause of the tides which keep the oceans moving and without which life may never have evolved. The planets and stars have been a source of wonder ever since people first looked up. The attempts to find out just what they are, have led to the great breakthroughs in the physical sciences that have lifted humanity above the level of the beasts. But these heavenly influences are all physical, not the type of mystical influences that astrology would impose.

Comet Halley

Vol 5, No 3

Vince Ford

Comets are thought to be either material left over from the formation of the Solar System or material the Sun's gravity has captured during its passage through spiral arms of our Milky Way galaxy. They thus provide a frozen sample of the early history of our Solar System environment.

Comet Halley, like other comets, is most likely a bundle of small particles of dust and gravel, frozen into a ball of ices of various types, mainly water and methane, up to a few kilometres in diameter.

As the comet nears the Sun, the ices are heated and boil out of the head. They are further heated by solar radiation and become fluorescent. The pressure of the solar radiation blows this material out into a tail, which always points away from the Sun.

A common misconception is that comets race across the sky, dragging their tails behind them. Comets do move fairly rapidly, their orbital speeds being measured in kilometres per second. But, to an observer on Earth, they appear to move quite slowly and their movement is only noticeable over a period of a few nights. As the tail always points away from the Sun, it can be at any angle to the comet's direction of travel, including in front of it.

A word of caution to any Halley watchers. Remember that comets have a habit of being rather unpredictable in their behaviour. Although the orbit can be predicted with an extremely high degree of accuracy, the brightness and appearance of the comet cannot. Comets have been known to split into several fragments, grow several tails, suddenly flare to several times their expected brightness, fade unexpectedly, or any possible combination of the above. Halley has been well-behaved in the past but there is no guarantee.

Comet Halley should be visible with small telescopes and binoculars by the end of November (1985). At the time of the first close approach, November 27, it will be in the north-west evening sky, to the south of the star Gamma Aeriectis. During December, the comet is expected to become visible to the naked eye, low in the western evening sky. The tail should be visible with binoculars.

April 1986 is the best month for Halley-watchers. It will be almost directly overhead at midnight on the 11th for observers in southern Australia*.

The most useful observing instrument for comet watching is a good pair of binoculars. Magnification

is not as important as a wide field of view (at least 5 degrees), clear (and clean) optics, and reasonably large objective lenses. Remember that the higher the magnification of the binoculars the harder it is to hold them steady on an object. A good size is 7x50, i.e. 7 times magnification with 50mm objective lenses. Such binoculars usually have a field of about 8 degrees and have a light-gathering power 50 times greater than the unaided eye. Charts for finding the comet will be published in the national papers at the times when Comet Halley is visible by binoculars or the naked eye.

From about January 10 the comet will be "lost" as it moves into the bright evening twilight prior to passing behind the Sun, reaching perihelion (its closest point to the Sun) on February 9.

Late in February 1986, the comet should be visible again, fairly bright in the eastern morning sky just before sunrise. During March it will move rapidly to the south and rise higher in the morning sky as it approaches its closest point to Earth, which it will reach on April 11. The tail may be up to 20 or 30 degrees long and the brightness of the head may be as high as 3rd magnitude.

It is a continual source of wonder, amazement and occasional anger to astronomers how much tiny, well-behaved members of the Sun's family of planets can still, in this modern technological age, generate such panic. There are still superstitious people who believe that comets are portents of doom, disaster and despair. Back before the 16th century this belief may have been understandable, as the skies were really dark in the days before street lights, and bright comets were strange, spectacular and totally inexplicable events. Following the usual practice of mankind the obvious thing to do was to think of the scariest explanation possible. So comets came to be considered as sky-monsters, foretelling the fall of kings and warning mankind to mend its evil ways. So great was the fear that comets inspired, that Pope Callixtus formally exorcised and excommunicated Comet Halley in 1465. Why this fear should survive past the day that Halley showed that comets were part of the Solar System and obeyed the same laws of physics as the rest of the universe, is hard to understand.

It says something basic about human nature, ie some people prefer being scared stiff by the universe around them to learning what a wonderful place it actually is. As there are usually a few bright comets each year, it is not hard for a true believer to find a comet to blame for any given disaster.

But if there really was a comet foretelling each disaster that occurs the sky would be ablaze with bright

comets! It is significant that the doom merchants completely ignore the tens of faint comets per year that are invisible to the naked eye. Such "doom telling" belongs in the realm of astrology (baseless superstition) rather than astronomy (factual science).

Back in the 1920s when the spectrum of comets was first measured, a mild panic resulted when molecules such as cyanogen, a highly toxic substance were found to be present. This led to the fear that comets litter space with poison gas and life on Earth would become extinct if we ever collided with a comet or its tail. In fact, the gas in a comet is so tenuous that it is just about as close to nothing as it is possible to get and still be something. It is about the gas density you would get if you pumped all the air out of the Sydney Opera House and then let a blowfly breathe out once into it.

The Earth has passed through the tail of several comets with no ill effect. It went through Comet Halley's tail in 1910; the only ill effect was on the wallets of those who had been conned into buying "comet-protectant" pills and devices. The Earth regularly passes through the trails of solid debris that litter cometary orbits. These cause meteor showers which look spectacular but are totally harmless.

A few years ago British astronomers Sir Fred Hoyle and Chandra Wickramasinghe suggested that as comets contain the chemicals needed for life to be formed, such as DNA, then comets may play a vital role in "seeding" the universe with life. They went further and claimed to have detected simple microorganisms (flu germs) in comet spectra. Further work has failed to confirm this, but more data are needed, and Comet Halley may provide the answer.

When these articles were written, Vince Ford was a Research Officer with the Australian National University at the Australian Telescope, Siding Springs, and at Mount Stromlo.

Editor's Note

**In the event, to the naked-eye observer, Comet Halley was difficult to see at any stage of its passing. Two unmanned spacecraft made rendezvous with the comet, providing more information on its composition than had ever previously been known. This information is still being processed, more than seven years later.*

In the Beginning



Introduction

Young Earth Creationism is a narrowly based, Christian fundamentalist belief, which holds that the entire history of the Universe, and especially that of the human race, is exactly as described in the biblical Book of Genesis.

Because of a clause in the United States Constitution, which decrees the separation of church and state, some American fundamentalists resolved to seek scientific evidence to support their views so that Creationism could be taught in school, which resulted in their invention of the study which they called Creation Science. This specious dogma has been exported around the world and, because it has become a political issue, poses something of a threat to the intellectual health of many countries.

It is instructive to note that the proponents of creation 'science' spend very little time defending their invention, preferring instead to attack evolution, which lies at the heart of their objections to science.

Creation 'science' owes nothing to science, nor to history, and not much to theology. It can best be seen as the result of an extremely simplistic reading of the Old Testament and is a doctrine entirely devoid of intellectual content.

Creationists challenged at Conference

Vol 5, No 1

Ian Bryce

The Creation Science Foundation, based in Brisbane, is founded on a belief that "what the Bible says in the book of Genesis is literally true and authoritative and is fundamental to Christianity". It is reported to be the biggest such organisation outside the United States. The aim of their tours around Australia is to reinforce faith in the Bible among churchgoers. They also want Adam and Eve taught to our children instead of biology and evolution.

When the Creationists announced their "Spectacular 1985 Summer Institute" to be held in Melbourne from January 7-12, the Skeptics were interested. Since they claim to represent science, we would hold them to it! We also hoped to learn what kind of thinking can drive people to believe in Noah's Flood instead of Neanderthal Man.

We were not surprised to find a macabre mixture of pretend-science and fire -and- brimstone fundamentalist preaching. What we did not expect was their reaction to the contemporary social scene - a vitriolic blast condemning in-vitro fertilisation, abortion and modern dress.

James Gerrand represented *the Skeptics* on the first day, resulting in an excellent report on Page 2 of *The Age* on January 8 by Alan Attwood. I and other Skeptics held up the flag on other days. I do not think the Creationists will quickly forget us.

The Creationist Lectures

The star guest speaker was Dr Gary Parker from the Creation Research Institute in San Diego. Although his creation lectures are in geology and palaeontology, we find that his qualification is a Doctorate of Education, and his thesis was on methods of teaching

biology (programmed vs conventional instruction). It was granted by Ball State University which used to be a teachers college.

One of his eight anti-evolution lectures describes geological strata and fossils visible in the walls of the Grand Canyon. He claimed that these show rapid laying down, and cutting of the canyon in a day or two - by Noah's Flood. The fossils show "death, disease and disorder" due to mankind's original sin, he concluded, and the history of mankind could be summarised by "creation, corruption, catastrophe and Christ".

Another major speaker was Dr Clifford Wilson, "world-famous archeologist", and past lecturer at Monash University. Our enquiries revealed that his doctorate was in psycho-linguistics - the measurement of linguistic skills, and their correlation with IQ and other measures of ability. When I asked him for details of his claimed palaeontology qualifications he became extremely rude.

His lecture describes the unearthing of human and dinosaur footprints together at Paluxy River in Texas, disproving evolutionists' claims that dinosaurs predated man by 65 million years. His accompanying photographs were very ambiguous, with highlighting of the depressions in the limestone by Vaseline and water. Casts of the footprints were even on sale to the audience for \$15. Dr Wilson omitted to mention scientific articles examining the Creationists' excavations at Paluxy, including one which found "dinosaur tracks, erosion marks and midnight chisel work, but no human footprints".

Speed of Light Theory

But the most sustained pretence at scientific research was by South Australian, Barry Setterfield. In US creationist literature he calls himself a scientist, but our enquiries reveal that he has no professional qualifications or experience whatsoever. While scientists say his theories are "totally rejected outside Creationist circles", he misquotes them, indicating they support him.

His series of lectures claimed to show the speed of light was much higher in the past. This explains why we can see distant galaxies billions of light years away, even though they did not exist until creation in 4004 BC. This is obviously a constant thorn in the side of Creationists and Setterfield's theories have been hailed as a way out of their dilemma.

I have studied Setterfield's papers in detail and was well prepared (along with Skeptic Dr John Lattanzio) with pamphlets describing the bogus science used,

including falsifying data when it does not support the theory. Other scientists, including Professor Edward Fackerall and Dr Ken Smith, have also detected many errors in Setterfield's "monograph", and a detailed critique will be published in a future issue of *the Skeptic*.

Our interjections and horse-laughs persuaded the organisers to promise a question time at the end if we would remain silent until then. This they came sorely to regret. Although we were allowed only one question each, we manipulated Setterfield's embarrassed answers to lead on to expose many other deceptions and inconsistencies. In total the Skeptics held the microphone for about 20 minutes and, I believe, destroyed Setterfield's credibility with most of the audience. Vigorous informal debate followed the lecture.

In the evening Setterfield presented a layman's version of his paper. There was trouble with the room lighting, and while the room was dimmed for slides he resorted to using a torch to illuminate his notes. I could not resist interjecting, "I hope the light doesn't slow down before the end of the lecture".

Following the Setterfield disaster, the organisers held no further question sessions in front of the full audience. Thus the only way we could counter bogus claims in later lectures was to interject loudly. Even once per lecture would let the audience know that the speaker's glib and polished presentation was not universally accepted. How did the organisers react? I soon found out. When I entered the hall on one occasion, two of them quietly followed me and sat in the row behind me without a word. Snookered.

Another lecture by Setterfield was titled "Was an asteroid instrumental in Noah's Flood?" Based on the work of the late George Dodwell, Government Astronomer for South Australia, in this idea an asteroid impact is supposed to have tilted the Earth's axis of rotation 17 degrees. Questions by Dr Joe Monaghan of Monash University revealed that Setterfield had not carried out the basic calculations - the scientists present felt that to carry sufficient momentum, the asteroid (travelling at a typical 30 km/sec.) would dissipate too much energy. Setterfield admitted his model was only preliminary, but Joe said it was fatally flawed.

Other lecturers, including Ken Ham, Dr John Leslie and Dr John Osgood, attacked evolution, supposedly revealing many deficiencies and errors. Further geological evidence in support of Noah's Flood was presented by John MacKay and Dr Andrew Snelling.

Several speakers attempted to explain away the many inconsistencies in Genesis and the Bible,

blaming Satan for distracting us from God's blueprint. Matters addressed included such profound questions as the following:

- * How did Adam name the animals in one day?
- * How did Noah fit the animals on the ark?
- * Where did Cain find his wife?

In most areas the Creationists unquestioningly accepted the credentials and presentations of the speakers. The evangelical publication *New Life* later reported "Every lecturer was highly qualified in the relevant area of expertise" and referred to their "profoundly authentic scholastic achievement". The Skeptics are asking the journal for a retraction of such claims.

Unofficial Debates

The Skeptics' representative generally became known to the audience, and after a lecture we often became surrounded by a group of Creationists. Some genuinely wanted to debate the facts, and I tried out a variety of arguments, with varying success. Description of the scientific method, and how the lecturers had departed from it, proved quite fruitful. About a dozen people left their names and addresses for further sceptical material. Other Creationists said that people are indoctrinated with evolutionary propaganda all the time, and a week of intense instruction to the contrary would do them no harm.

One of the Skeptics' trump cards was a handout describing dendrochronology - the science of matching patterns in old timber and trees, and counting the annual rings. This dating method has recently been extended to 8200 years, thus disproving the 6000 year-old universe contention, regardless of any claimed light speed variation or radioactive dating deficiencies. Cornered Creationists suggested that perhaps the trees grew two rings per year!

I often asked "Why do you believe so strongly in Creationism?" Most reported a religious experience, a personal divine revelation, either on one occasion or spread over some years. When I indicated that this claim was also typical of those believing in ghosts or fairies this was not well received. My suggestion that concussion, hypnosis, delusion, dreams, drugs, etc. can also cause unusual mental experiences obtained a better response.

When pressed, many members of the audience admitted to having an overpowering will to believe, which was not subject to testing. One Creationist regarded belief in god as the "safest bet": if there was no god, but he believed there was, this was less of a disaster than his not believing in god, if there was one. He even advised me to do the same.

The lecturers and the Creation Science Foundation Councillors sometimes joined in the debate, but they adopted a much more aggressive approach, in order to defend the faith in front of their followers. Director Ken Ham insisted "Scientists know nothing for certain, it's all subject to later change, while we Creationists refer to God, whose divine revelation proves it for us". I replied that Newton's laws of motion had been verified by every science student, and had navigated men to the moon and back. Relativity extended the range to very high velocities. Ham then stated that there was in fact an alternative theory of the solar system (more complex admittedly) with the Earth at the centre, and in which the same laws of navigation would work. I should have asked him what shape the Earth was in this theory.

One hostile official resented the very presence of disbelievers, claiming that the conference was a private religious sermon. There were however some thousands of books for sale around him, intended to convince Australia's children that the universe was created 6000 years ago. When we pointed out that it was run by a group calling itself the *Creation Science* Foundation, and its aims included showing that "the many scientific evidences around the world support the Biblical creation", he was not impressed.

One man tried to convince us that if we replaced certain key letters in the Bible with numbers, a message proving the Bible's authenticity could be spelt out. When someone doubted the validity of numerology, he replied that his "numerics" are to numerology as astronomy is to astrology! This led to the creationists debating among themselves the virtues of astrology.

Our attempts to place sceptical pamphlets on seats prior to lectures were objected to by the organisers, although many of the audience received them enthusiastically. "How would you like it if we distributed Creationist brochures at a scientific lecture?" We replied that we wouldn't mind. Science relies on free dissemination of information unlike creationism, and that when scientifically examined their claims would be given the attention they deserve.

I put it to several Councillors that most religious groups were gradually accepting the scientific facts of the age of the universe and the origin of man. Their reply - can you believe it - was: "We regard them as *Fringe Christians*"!

Ian Bryce has degrees in both science and engineering. He is a space engineer and is the longest serving member of the National Committee of Australian Skeptics.

Another Six Day Creation

Vol 5, No 1

James Gerrard

A Covert Operation

When our National Chairman, Mark Plummer, learnt through receipt of a glossy brochure that the Creation Science Foundation was to hold a six day conference in Melbourne in January on "Creation: The Facts of Life", a sub-committee consisting of Mark, Ian Bryce, Peter Hogan, John Lattanzio and myself was quickly formed.

It was decided to issue a media release prior to the conference and prepare some eight pamphlets dealing with the more important topics being covered at the forty sessions. John was able to bring in some friends from Monash to contribute to some of the pamphlets. These pamphlets would be distributed on separate days by Skeptics members attending.

Our first surprise was that there was no advertisement or other public notification of this attempt to create a new world of creation 'science' in Melbourne. The Foundation, which is Queensland based, evidently decided it was to be a covert operation with supporters sought through their church and school affiliations. It was to be held at the prestigious Methodist Ladies College but the school administration knew nothing about the Foundation's arrangements. Nor did the school chaplain, Rev I. Higgins, who had written a letter published in the *National Times* some time previous critical of creation 'science'.

Our media release did result in the attendance of the Melbourne *Age News Diary* columnist, Alan Attwood, on the first day of the conference. His critical report and reference to my sceptical opposition was the form of publicity the organisers definitely did not want.

Creationists' Press Runs Riot

My next surprise on attending the opening two sessions of the first day was to find so much creation 'science' literature on sale. There were eight tables in the foyer laden with books covering many facets of this pseudoscience, and addressed to various age groups. Creationism for the Kids, type of approach. At each of the four sessions I attended these publications were vigorously promoted - buy a bundle for \$50. Most of the publications came from the USA though the Creation Science Foundation claimed that it was Queensland based and had been started by two ex-teachers, Ken Ham and John Mackay.

But No Questions Please

Not so surprising after listening to the first speaker, Ken Ham, was that the organisers would not allow any public questioning. Adherents to their fundamentalist Christian belief were required to accept all that their leaders said: any contrary views came from Satan. So no questions, at least publicly. Yet the leaders were prepared to be questioned privately and even seemed to welcome debate. I concluded that this eagerness was to hone their debating skills, to know on what particular grounds they were being criticised so that they could go away and work out how best they could answer such criticism next time.

Of course a sceptic did not get very far in such arguments: as everything is possible in the supernatural it is easy to conjure up any hypothesis, however outlandish, to account for any fundamentalist belief. Also I realised one would have to be well prepared for any public debate as they could throw in some odd argument, to which, if you were not an expert in the particular field, you might not have the appropriate counter. For example a speaker claimed that measuring time by tree-rings was not sound because tree-rings were not annual but were dependent on moisture and nutriment existing at any time. Unless you were a botanist you might not be able to authoritatively counter this argument.

The Bible The Answer To Society's Ills

As reported by Alan Attwood, the first speaker, Ken Ham, did not spend much time on creationism: his argument was basically that all our society's ills were because we did not believe in the Bible. Indeed he spent some time arguing that everything depended on a foundation; without a foundation you had nothing. The Bible was the foundation for living. With its Biblical association I was reminded of a visit I had made to Babylon: all that remained were its foundations, buried in the sands but now being excavated. But the buildings had long since been destroyed, probably for their bricks. So even with foundations you may have nothing.

Creationism a Science?

The second speaker, John Mackay, was more credible. He had some sensible things to say about science, such as science being organised commonsense and that most philosophies of science, the multitudinous modern hypothesisers, did not make much sense. He then got on to arguing why creationism should be taught as science: evolution could not be tested so it failed as science. We can be charitable and not point

out that using the same argument as creationism cannot be tested, then it is not a science. We can also not spend time on referring to the example of evolution seen to be in action: there is a type of moth that changed its colour from dark to light over the past 100 years as the cleaner environment lightened the colour of the trees on which the moths rested.

We can concentrate on the main ground for the theory of evolution being taught as science: it is the most probable explanation that fits all the known facts. Creationism should not be taught as science as it is one of the most improbable explanations to account for our universe.

Creationism a Totalitarian Approach

The most disturbing part of Mackay's address was his direction that all Christian teachers had a duty to teach according to the literal statements of the Bible in all subjects. And there was to be no questioning of any of these so-called Biblical truths. Of course this is not only not science, it is not education: it is pure religious indoctrination. Any schools adopting such a teaching approach should not only not qualify for any government funding, they also should not be licensed.

Any Opposition Comes From Satan

Another speaker, Dr John Osgood, a medical practitioner from Sydney, had an archaic message. Mental disorders were the result of people being possessed by Satan. We would be interested to read of any medical evidence that would support Dr Osgood's biblically-based belief.

The sessions addressed by Barry Setterfield on his quaint theory of a decaying speed of light were attended by Skeptic physicists Ian Bryce and John Lattanzio, and is being reported separately in this issue.

Creationism By The Back Door

From this experience it is clear that where the Creationists are not able to get the State Minister of Education on their side, as they have in Queensland, they will try to spread their creationist teaching in schools by using individual fundamentalist teachers. It would seem the Australian Skeptics role should be to counter publicly any claim by creationists to have creationism taught as science and also to ask teachers, parents and students to report any case of a teacher teaching creationism as science.

Why Worry About The Creationists?

After a few sessions of this seminar I began to think

I was back in my Sunday School kindergarten and that any adult that would believe in such balderdash nowadays must belong to the lunatic fringe and best left to their lunacy. Then the second thoughts came. Creationists are already an influential group in the US with their President a believer. In Australia we have the Queensland Premier and his Education Minister not only believers but directing school science teachers to include creationism in the science curriculum.

Why Is This So?

Why can people think quite rationally on one subject and believe quite irrationally in another area? There is much research being carried out on the last major mystery, how the brain works, and there is mounting evidence that we do not have one brain but a number of interconnected brains, any one of which may be in ascendance at any one time. This concept ties in with neurological evidence that our brain consists of groupings of bundles of cylinders. Thus our thoughts tend to go into particular channels, often without much cross interaction.

Original, imaginative thinking, and this includes the scientific, depends on such cross fertilisation and that is why a good education should encourage a breadth as well as a depth of thinking. It is the opposite of the blinkered, tunnel vision of the fundamentalists as so clearly and repeatedly propounded by the speakers at this Creation Science seminar. Believe completely and literally in the Bible (as interpreted of course by the speaker): to question, to believe differently, means you are possessed by Satan.

Editor's Note

Since this article was written a different Queensland Government has removed the requirement that 'equal time' be given to creation 'science' in science classes. There is now no government support for this specious dogma in any Australian state.

During this period, the creationist movement itself underwent some significant changes, with John Mackay leaving the Creation Science Foundation and setting up his own creationist group. This group is in direct competition with the older body and the dearth of Christian charity displayed between the two organisations is instructive, to say the least.

Letter to the Editor

Vol 5, No 1

Edgar L Deacon

Considering the Creation Science meeting for January 7-12, I began to think about what might be the most understandable and clear cut evidence that the world was in existence well before 4004 BC.

It occurred to me that the evidence from tree rings should be understandable by persons of little or no scientific knowledge. As a former member of the CSIRO Division of Meteorological Physics (now Atmospheric Research) I was aware that tree ring studies have given useful clues as to climatic variations over the past ten thousand years or so, and so I consulted books on the subject. Then strangely enough my December 6, 1984 issue of *New Scientist* turned up and included a short article in which it reports that a western European tree ring chronology has recently been extended without gaps to somewhat beyond 5000 BC.

This article explains briefly that this depends on cross-dating the tree ring series from newly cut wood with those from timbers in old houses, archeological specimens, tree trunks preserved in bogs, etc. These must all relate to a region over which the year to year variations of the climate are fairly uniform. One does not rely on single trees but a number of trees in a given stand and from neighbouring stands. Similarly for archeological specimens, etc.

Another long chronology exists for southern California at places where the bristlecone pine grows. These are exceptionally long lived trees - the oldest living tree is 4,600 years old! Remnants of dead bristlecone pines have been cross-dated with living trees and with each other to establish a chronology for the last 8,200 years. ("Tree Rings & Climate" by H.C. Fritts, Academic Press, 1976, p.22).

The charm about tree rings is that they are visible and tangible records of the passage of the years, familiar to almost everybody, and furthermore a year for a tree is the same as it was for the authors of the Bible. No fancy arguments about the speed of light can get around this.

I am writing this in case it might be of interest to the Skeptics attending the Creationist meetings. I don't know if there is likely to be opportunity for questions or comments from the floor, but if there is perhaps the tree ring argument could be useful.

Of course most of the people attending will be hopeless cases, but maybe there could be a few others there still open to reason.

Skeptics Lead Fight Against Creationists

Vol 5, No 2

Mark Plummer

Five Queensland academics took the lid off creation 'science' at a packed theatre at the University of Queensland on March 22 (1985). The seminar was organised by the Queensland Branch of the Australian Skeptics.

Then Creation 'science' had been taught in Queensland government secondary schools. It is believed that Queensland was the only state in Australia in which this direction applied.

Dr Martin Bridgstock, lecturer in the school of science at Griffith University, reported on his checks into creation 'science' literature. He said creationist publications which seemed most impressive, quoting ostensible scientific evidence against evolution, often revealed misquotes, misstatements, and errors which made their claims hard to believe.

Dr Brian Dalton, from the Department of Physics, and Dr Ken Smith from the Department of Mathematics from the University of Queensland, examined creationist claims that the Earth is only a few thousand years old. They discussed the physics and mathematics implied by creationist arguments, and pointed to the large number of misinterpretations, misquotations, and blunders.

Dr Tony Thulborn, from the Department of Zoology at the University of Queensland, showed that the fossil record provides unmistakable evidence that evolution has occurred and that creationists had misunderstood and distorted the evidence of fossils. He showed that evolutionary missing links did exist, and that some important evolutionary changes could be demonstrated in the laboratory.

The final speaker, Dr John Knight, a sociologist at the University of Queensland, claimed creation 'science' was not scientific but was pseudoscience. Its explanations were not justified by empirical evidence: they did not rely on natural law, and are not open to scientific testing. The conclusions offered by creation 'science' on the origins of life, its development and the history of the Earth, were not tentative. Dr Knight said they constituted absolute claims to which science is expected to conform. The final authority for creation 'science' was not science, nor empirical evidence, but a particular and inadequate interpretation of Scripture, to which the evidence and the practice of science were adjusted.

The seminar gained massive publicity for the

Australian Skeptics and re-opened the debate on this issue. On the preceding morning, Dr Knight debated Mr Lin Powell, State Minister for Education, on the national TV show *Good Morning Australia*. The seminar was also covered on the *Willesee* TV programme, several radio stations and reported in many newspapers.

Creation 'Science' Seminar

Vol 5, No 3

Mark Plummer

The Creation 'Science' seminar organised by the Victorian committee of the Skeptics (Alexander Theatre, Monash University on July 9, 1985), proved an instructive, entertaining and profitable evening.

In the first half of the program, Dr Ralph MoInar from the Queensland Museum spoke on the fossil record of animal development; Dr Alex Ritchie, head of Earth Science at the Australian Museum (Sydney), gave a slide-illustrated talk on the geological evidence for the Earth's great age; and Dr Ian Bock, reader in genetics at La Trobe University, spoke of the changes in species brought about through artificial selection.

Our patron, Phillip Adams, started off the second part of the evening with a witty attack on Creationists and their beliefs, followed by James Gerrard, our secretary, with a plea for an improvement in science teaching in schools.

The following are summaries of the five addresses.

"What the Creationists Don't Tell You" - Dr Ralph MoInar

"We don't disapprove of Creation 'Science' as such," said Dr MoInar, "but of the proposal that it is scientific."

According to Creationists, the age of the Earth is between 6,000 and 10,000 years. This hypothesis contradicts the sciences of cosmology, quantum physics, astronomy and geology, as well as thermodynamics and evolution. He said that if Creation 'Science' were true, we would see a genealogical "picket fence", ie parallel lines of development of life-forms with no common ancestors. Birds, for instance, would be seen in all fossil records. But what is actually seen is the progression from simple multi-cellular life-forms to fish, to amphibians, to reptiles, birds and mammals.

"Geology v. Genesis" - Dr Alex Ritchie

There is a wealth of geological evidence around the world to show clearly the cycles of erosion, uplift, and sedimentation going on in a slow, gradual, steady manner that has produced the changes in the Earth's crust over billions of years. For example, all the strata found in the Grand Canyon of the Colorado River contain a range of fossils in an invariable order for rocks and sediment of similar age anywhere in the world.

Creationists say that the fossil record was formed during the one year of the flood, which reconstructed the surface of the Earth, and that there are no fossils in the Pre-Cambrian rocks. This is untrue. Millions of fossils have been found in these rocks.

The radioactive elements present in rocks decay at a constant rate. This decay can be easily measured allowing geologists to determine their age. The latest estimate of the Earth's age is between 4,600 million and 4,500 million years.

Dr Ritchie stretched a 46 foot long rope across the stage, one foot representing each 100 million years, with markers to indicate times of significant developments. Dinosaurs appeared 2.5 feet from the end of the rope and mammals at 8 inches. The last 11 100 of an inch (85,000 years) is about the thickness of a human hair. Creationists say that the whole history of the Earth happened in much less than this time, ie 6,000 to 10,000 years. He said to achieve this, one would need to split hairs!

He then answered audience questions with patience and conviction on topics as diverse as the possible change in the speed of light to mammoth skeletons found in Siberia.

"The Indirect Evidence for Evolution" - Dr Ian Bock

How constant are species over a long period of time? Species of animals in the wild and a constant environment do not change very much. But they have the means to change if necessary. Species kept under artificial conditions have sometimes been found to change fairly rapidly.

In sexually reproducing animals, genetic material is present in a double dose. The chromosomes, made up of numerous genes, occur in pairs, intertwined. They divide for reproduction. Thus when gametes are formed, there is a chance for genes to be shuffled giving rise to millions of combinations in the offspring. Through artificial selection, great extremes can be obtained. In dogs, for example, the differences between the Great Dane and the Chihuahua are so vast that it is impossible for them to mate. They are

therefore equivalent to different species.

Other examples of artificial selection include the many varieties of pigeons and horses. In the plant kingdom, cabbages, cauliflowers, brussels sprouts and broccoli were originally from the same species.

This process can be speeded up even more in the laboratory using animals with a rapid life cycle, eg fruitfly, and plants such as primula and radish.

"Creation 'Science', an American Import" - Phillip Adams

Mr Adams described Creation 'Science' as a pseudoscience, a closed system based on belief, which has taken quite a hold in the education system of the United States. It is also being promoted as a school subject in Queensland by the Minister for education Lyn Powell.

Phillip suggested some other science substitutes: astrology in place of astronomy; Erich von Daniken in place of archaeology. He also suggested that numerology should be taught to statisticians, and phrenology to brain surgeons.

Creation 'Science' should be taught in religious instruction, if at all, said Phillip, but he pointed out that the majority of Christians accept the Genesis story as metaphoric.

Creationists believe that the great flood is the only explanation for geological strata, that early fossils were slow moving and are thus found in the lower strata. Dinosaurs managed to work their way up further in the mire, but humans scrambled to the top. He suggested that many Creationists also believed in the Flat Earth Theory. This was disputed by some audience members.

"Creation 'Science', Pseudoscience" - James Gerrard

James spoke of the aim of the Creationists as being to have the Genesis account of creation accepted in the school science curriculum in place of the theory of evolution.

He described Christian Fundamentalism as being a conservative extension in some Christian denominations. Their academics are not specialists in the appropriate fields of geology, palaeontology, etc, and their qualifications are often from obscure religious universities and schools.

James would like to see a greater emphasis on the teaching of science in primary schools. He feels that many primary teachers opted out of science at the earliest opportunity in their own education, and so fail to inspire an early interest in science in their students.

Philosophy & Creationism

Vol 5, No 3

Peter G Woolcock

An address to the First National convention of the Australian Skeptics, Easter 1985, Sydney.

Dr Woolcock started by noting that creationists call their dogma a "science". This no more proves that it really is a science than Jerry Falwell calling his followers "The Moral Majority" proves that they are moral or that they are a majority. Each is free to use words any way they like. There is no law laid down anywhere as to the meaning of the word science.

Nonetheless, creationists want to call their doctrines science so that these doctrines can share the status that surrounds those things usually called science, like physics, chemistry, geology and biology. This kind of status has to be earned. It is not magically conferred merely by stealing a word. Creationists show that they do not deserve the special status of physicists, etc by this primitive belief in the power of spells.

What gives areas of study such as physics their special status? Science (without the inverted commas) only differs from "science" (as practised by creationists) in the attitude of its practitioners to their activity. Dr Woolcock said he once attended a talk given by a creationist who claimed that creationists had the same methodology as scientists. Both started with a hypothesis; that is, they did not just sit there observing facts neutrally. Both set out to find evidence for or against their hypothesis. This, Dr Woolcock maintained, is a misuse of some of the recent discussions in philosophy of science. It was true, he said, that scientists did not observe the world in a totally neutral way. No-one can. Nonetheless, they should not set out to test their hypotheses (however they arrived at them) by assuming that their hypothesis is going to be proven to be true come hell or high water. Creationists begin with the unshakeable and unalterable view that their minority and eccentric interpretation of the creation story in Genesis is true. Their "science" is no more than a selective sifting of the data to find facts that fit their prejudices and to ignore facts that do not. They have no intention of revising their hypothesis in the light of evidence. This is why theirs is merely a "science" and not a science at all.

Its scientific status is further undermined by the fact that the most fundamental premise of their argument is not open to the kind of test that is

Essential to the scientific status of a theory, namely test by observation.

The creationist Dr Woolcock had referred to admitted that a supernatural god outside of space and time was a linchpin of his creationist theory. Something outside space and time cannot be observed within space and time, so what scientific evidence did this creationist have for believing in this invisible, intangible god? Testing the existence of this god is not like testing the existence of electrons or quarks. These are in space and time and have observable effects. They leave their "fingerprints" or "footprints" on photographic plates. But where are God's footprints? Even if he existed, everything observable in the world would be just the same as if he did not.

This point is made well by Anthony Flew in his parable of the invisible, intangible gardener. Two explorers come across a beautifully kept garden in the middle of an unexplored jungle. The creationist explorer says that the design and order of the garden mean there is a gardener. The sceptical explorer suggests they test this by observing the garden. They watch until both agree the garden should have died or been overrun by weeds, but it has not. The creationist however, is going to stick to his hypothesis but, suggests an invisible gardener. So the sceptic sets up impenetrable fences. Still no gardener appears to smash a hole in the fences, but the garden remains orderly. So the creationist suggests an invisible, intangible gardener. But, and this is the crunch, as far as observation is concerned what is the difference between an invisible, intangible gardener and no gardener at all?

The creation 'scientist' is like the creationist explorer. They are both merely pretending that their theory is open to observational test, but this pretence is just a cover for an unscientific, untestable, unsupported faith.

Dr Peter Woolcock is a philosopher and was president of the South Australian Branch of Australian Skeptics.

In the Beginning

Cryptozoology

Introduction

Cryptozoology is the study of animal species not generally recognised as existing in the real world, but which are not inherently implausible phenomena. Unlike many paranormal and pseudoscientific beliefs, the discovery of a Loch Ness Monster or a Yowie would not overturn any fundamental scientific principles. New species of animals are regularly being identified, and although these tend to be smaller animals, such as insects, there is recent evidence that a previously unidentified large ungulate may exist in Vietnam.

Where cryptozoology differs from regular zoology, and where it falls within the parameters of a pseudoscience, lies with its treatment of sketchy or non-existent evidence as the basis for unwarranted and often highly fanciful speculation by its more avid proponents.

While the discovery of a Yowie is possible, though highly improbable, many of the characteristics attributed to it by believers are absurd.

The Evidence for the Yowie

Vol 2, No 4

Ralph MoInar

To anyone used to the mammals of Europe or North America, Australia is the land of unique, unfamiliar and exciting mammals: the marsupials and monotremes. Indeed there are many other unusual and interesting organisms in Australia, the result of a long period of isolation while the rest of the world was changed. Australia has also produced reports of beasts that, if true, would make it a land of even more unusual animals. The most widely known and popular of these reported beasts is the yowie, once called the yahoo. The yowie, as most of us are aware, is supposedly a large, furry or hairy, ape-like creature reported largely from eastern New South Wales, with some reports from eastern Victoria, and recently, south eastern Queensland. Much, but certainly not all, modern information about yowies comes from Mr Rex Gilroy, who pictures yowies as giant (up to 3 metres tall) hominids related to the supposedly giant Gigantopithecus and Meganthropus of eastern Asia. In spite of the large jaws and teeth of these two forms, there is no evidence that these latter animals were any larger than modern apes.

The older yahoos indicate a beast somewhat different from the Gilroy conception. Many of these reports have been republished verbatim in a little booklet "The Hairy Man of South Eastern Australia", by Graham Joyner of Canberra. These reports, dating from 1871 to 1912, indicate an ape-like beast about the height of a man. Some reports say that it was shorter than a man, and some that it was as tall as a tall man. In some reports there is also some suggestion that it resembled a bear or a wombat and at least one witness reported it in a tree. The modern yowie reports are usually interpreted in terms of the popular conceptions of the North American bigfoot or the Asian yeti. These older reports, however, do

not indicate a creature as large or as human-like.

Evidence for yowies falls into four major categories:

- (i) Miscellaneous unusual nocturnal noises;
- (ii) Scratches and other markings of tree bark, including torn bark;
- (iii) Casts or photos of footprints;
- (iv) Reports of sightings.

The noise category is most difficult to deal with, as many native animals make loud and startling nocturnal calls, for example, owl screams, the cries of ground-dwelling birds, possum territorial calls, feral pig snuffles and grunts and koala mating cries. For any person not used to all of these, and most citydwellers are not, they can be difficult to identify with certainty. Since no recordings of alleged yowie cries are available, and since the descriptions given are rarely detailed, we can really conclude nothing from this type of report.

Torn bark and scratches on trees are unimpressive as evidence for these are rarely pictured clearly or described in detail and there are many possible mundane causes to be eliminated. Gliders leave characteristic scratches in bark, while cattle, deer and such introduced animals may scratch or gore tree bark. Lightning also can shred bark in long lines down the trunk, and one report telephoned to the Queensland Museum was due simply to peeling bark of a gum. Unless sources such as animals or lightning can definitely be ruled out, and this is often much more difficult than usually thought, these reports really leave nothing to go on.

Footprints are something else. Often considered as hard evidence, they are in fact little better than reported sightings, especially if casts or photos are involved. The actual footprints in place can be examined to determine whether or not they are genuine, independent of the witnesses' reports, and hence constitute independent evidence. Although footprints may be faked, notably by making and wearing on the feet snowshoe-like models, footprints are more easily checked than either casts or photos. Both casts and photos of footprints can be faked. Their evidentiary value depends entirely upon the reliability of the witness. Because footprints can be faked, they do not constitute good evidence, either alone or in combination with reported sightings.

The published photos of yowie tracks and of casts made of the tracks range from those which appear to represent tracks (although whether of yowies or of models cannot be determined) to those which seem most peculiar. Those reported with the Kilcoy (Qld) sighting of 1979 are odd in two respects. First they are quite elongate, more than those of any known large

primate and second they show only three toes. Because they are so narrow there is no question of toes having been lost, as say from injury, for there is simply no room for them.

In addition, as illustrated in the newspapers, these tracks had no debris - leaves, twigs, etc - in them, although made in grassy and wooded country. They appear to have been cleaned by some agency, certainly not what one would expect from an animal whose alleged weight should impress leaves and twigs into soil soft enough to retain tracks. I have not seen the original tracks, but the newspaper photos do not indicate anything other than suggestive depressions of the soil carefully cleaned out. Some of Mr Gilroy's tracks appear much more ape-like, and certainly could not have been made by the same kind of animal as those at Kilcoy. However, even the casts made by Mr Gilroy could be of faked tracks, made by models as mentioned previously. Although such fakery may seem unlikely, in the attempt to establish the existence of an otherwise unknown animal, only such evidence as absolutely cannot be faked is admissible.

When we turn to an examination of the reports things become more tenuous. The sightings, both those reported in the newspapers and such as have been telephoned to the Queensland Museum, are based very largely on fleeting glimpses, often under poor conditions.

One sighting reported to the Museum lasted not longer than three seconds according to the witness and was made through heavy scrub, so that at no time was more than a small portion of the beast visible. The Nerang sighting was reported to have lasted less than three seconds, Mr Gilroy reported this sighting to have been a matter of seconds, and even the events of the Kilcoy sighting may well have lasted less than a minute, even though no duration was given to my knowledge.

Even when no durations are quoted in the reports, it is often clear the seeing condition were far from optimal. A report from Dunoon mentions the sighting took place in dense scrub, one from Springbrook in bushes, one at Murgon just before dusk, and that at Coomera Valley around midnight.

Most reports are made by city dwellers, rather than people living on properties. We can all appreciate that under conditions in the bush, often at least unfamiliar to city folk, it can take well over a minute to recognize an animal, even if it is large. This is notably true when the light is poor, the foliage thick, or even in good light if there is marked contrast between the light and the shade. In such cases, where it is difficult to see an entire animal, a mistaken impression may easily be

gained from a short observation of the back of a beast disappearing into the bush.

Even greater than the problem of recognition, is that of memory. We are accustomed to thinking of memory as a record like a film or a book, that preserves just what we perceive and thereafter as long as we live it is indelible. There may well be such a memory, as the research of Wilder Penfield has shown, but if so it is not the day-to-day kind of memory involved in reports of yowies and such. That memory has been shown to be very mutable indeed. It appears that only certain abstract features of an event are stored, the rest being conjured in some fashion from the imagination to provide a "memory". This memory may well be influenced by factors attendant upon its recall, such as the questions asked by investigators. In one well-known experiment two groups of subjects were shown a series of coloured slides depicting an automobile accident that occurred after the vehicle had passed through a stop sign. One group was queried as to the happenings after the vehicle had passed through the stop sign, and the other after it had passed through the Yield (ie Give Way) sign. A substantial proportion of the later group later remembered the vehicle as having passed through a Yield sign and not a Stop sign, because they were asked about a Yield sign and not about a Stop sign.

Thus while we may fairly say that reports of unusual things made under unusual conditions may well be accurate, we cannot assume this accuracy without extensive independent supporting evidence. This is why science chooses to deal with phenomena that can be repeated (or repeatedly observed) under controlled (although not necessarily laboratory) conditions. In the case of the yowies there is supporting circumstantial evidence, although even an ardent believer would be hard pressed to call it extensive. Neither is it independent, as we have seen. But as Sherlock Holmes reportedly remarked: "Circumstantial evidence is a very tricky thing. It may seem to point very straight to one thing, but if you shift your own point of view a little, you may find it pointing in an equally uncompromising manner to something entirely different." Certainly such is the case with the evidence for yowies as one shifts from belief to disbelief (or the reverse).

Convincing independent circumstantial evidence is lacking as even Mr Gilroy admits. Mr Gilroy's alleged fossil tooth of a yowie (as well as all of his alleged fossil bones or implements illustrated in the news media) viewed from any point other than that of absolute faith dissolves into merely a suggestively formed pebble - rather like the fairy treasure of old

tales dissolved into dry leaves in the light of day. Thus sightings are unreliable as evidence as the reader is doubtless aware.

What would then constitute evidence, or better, proof? I would accept only two items: a live beast, or a carcass (or a substantial portion of one). Neither of these has yet appeared. Mr Gilroy has mentioned a portion of a carcass but, as inevitably seems to happen in such cases, it is reportedly jealously held by the finder, and not available for general inspection. Mr Gilroy also claims to have some fossil material which I will comment on later fossil material it must be noted does not constitute proof of the existence of a living animal. There are other reports of carcasses of yowies or yahoos (some in Joyner's booklet), but always removed twenty or seventy years into the past.

In fairness I must admit that the non-existence of skeletal or other remains does not, contrary to what is often thought, constitute evidence that yowies do not exist. There are indeed Australian (and other) mammals, although none so large as yowies are alleged, that are known only from very sparse remains. The most extreme example, *Lagorchestes asomatus*, the desert hare-wallaby, is known only from a single skull collected in 1932. It is generally assumed that this beast is now extinct. There are others almost as sparsely known: the Moonie River (Queensland) wombat, *Lasiornhinus gillespiei*, is known from only three incomplete carcasses, all found before 1891. We usually assume that animals so sparsely known are extinct or very close to it, but there are some examples that suggest that this need not be so, notably the desert rat-kangaroo, discussed later in a somewhat different context.

In the absence of compelling evidence for the existence of yowies can we rationally evaluate their plausibility? First let us examine that the witnesses have in fact seen just what they have reported seeing. There are several bodies of biological theory that might be of assistance here: biogeography, niche theory and population biology. The most obvious, evolutionary theory, is not very useful. Fortunately (or unfortunately) there is nothing about yowies as reported that seems implausible in light of modern evolutionary theory. Some modern evolutionists, such as SJ Gould, feel that evolutionary theory ought not to be used to make any kind of predictions at all and hence would argue that no such reported beasts as yowies can be said to be implausible because of evolutionary considerations. Other evolutionists, such as R.Riedl, I think would disagree.

Turning to biogeography, we note that, roughly speaking the native mammalian fauna of modern

Australia consists of two groups. There are those that have evolved in Australia since the end of the Mesozoic, the time of the dinosaurs, and those that have migrated to Australia probably during the past 40 million years (since the early Miocene times). The former group includes marsupials and monotremes, and the latter group the placental forms, such as bats, rodents, humans and dingoes. Both bats and rodents are forms that have demonstrated the capability for wide dispersal over water, as of course have humans. So their appearance in Australia should not cause any conceptual difficulty. Presumably dingoes came with humans, who very likely arrived in boats. Thus so far as we have evidence the immigrants were either (i) flying forms, (ii) small forms or (iii) carried in boats. These considerations suggest that large non-human primates in Australia are unlikely. However, this matter needs to be pursued further.

Let us look in greater detail at how the immigrants arrived. Marsupials and monotremes seem very likely to have been here from the beginning, having inhabited this portion of Gondwanaland before it broke into modern southern continents. Bats arrived doubtless by flying, rather soon after the break up of Gondwanaland, being here by the middle of the Miocene some 20 million years ago. Rodents arrived later, at the beginning of the Pliocene (some five million years ago), and the evidence suggests that they made their way from southeast Asia via Indonesia and New Guinea and spread south through Australia from Cape York. Humans arrived even later, presumably from Indonesia (where human remains date back well over a million years) and were established in Australia probably by 50,000 years ago. Dingoes were the last to arrive, undoubtedly accompanied by humans, only about 7,000 years ago.

Very likely all of these immigrants arrived from Asia via Indonesia, and at least in one case, New Guinea. During the Pleistocene much of the world's water was stored in the polar ice caps, and hence the sea level was lower than at present, perhaps by as much as 200 metres. While this is enough to transform Indonesia from an archipelago into a broad peninsula (Sundaland), it is not enough to join Indonesia to Australia. Thus only those creatures that could cross the two remaining sea gaps, each 50 to 100 miles wide, between Sundaland and Timor and between Timor and the Australian shelf (Sahul) reached Australia. Rodents presumably drifted on floating vegetation, and humans in boats. So far as I am aware none of the great apes has exhibited much ability to cross sea barriers, so we might conclude that it is unlikely that an ape invaded Australia from Indonesia.

The finding of a yowie, of course, would disprove this. Thus we would theorize, were a yowie to be discovered, that it had somehow crossed these sea gaps. But we cannot reverse this process and say that because such a potential route to Australia exists, that yowies exist. After all there are the gaps and a fair amount of chance seems involved in both crossing the gap and in establishing a population on the other side. We cannot say which animals will make this crossing (with the exception of humans with their boats, and of flying forms), and which will not. Many of the Indonesian animals, such as tigers, rhinoceroses, etc., were not able to make this crossing. So biogeography suggests that yowies are unlikely, but does not prove them impossible.

We may also ask how yowies would relate to the Australian environment, specifically would the yowie fill an otherwise vacant niche? Unfortunately niche theory is, so far, difficult to use predictively. We know that vacant niches do occur, for sometimes an introduced animal can move into an environment without much disturbing the already existing forms - although admittedly this seems the exception rather than the rule. The eastern coastal rain-forests of Australia would seem to have a vacant niche for an ape or ape-like form, just as many of the Australian terrestrial environments seem to have a vacant niche for a large carnivorous mammal. However just because a given type of animal is absent from an apparently appropriate environment does not mean that the niche is actually vacant. There may well be reasons why that type of animal would not survive in that environment, such as inadequate carrying capacity (i.e. insufficient resources to support the animal), or even too small a geographic area. So niche theory doesn't seem to help much.

What about population biology? We often hear, particularly in regard to the Loch Ness "monster" and such, that for a species to persist there must be a sufficiently large population for breeding. It is then assumed that a sufficiently large breeding population is a numerically large population, and that with such numbers of individuals it should be reasonably easy to find one, if the beast actually exists. The conclusion drawn is that the "monster" does not exist or else we would already have found specimens. I think that this is not a very convincing argument, as it does not take into account fluctuations in population size. This is also relevant is assessing whether a species may have become extinct, as mentioned previously in connection with the desert hare-wallaby and the Moonie River wombat.

It may be that for large mammals the populations

do not fluctuate much in the undisturbed state, but we do not yet know this. Certainly for smaller mammals great fluctuations may occur, and a prime example of this is the desert rat-kangaroo, *Caloprymnus campestris*. *Caloprymnus* was originally discovered in 1843 and was known from only three specimens. It was not seen again for over 85 years, but in 1931 it unexpectedly appeared in reasonable numbers. Since 1935 it has not been seen again. Now admittedly this is a desert animal, living in regions of low human population density, but nonetheless it does demonstrate that a population can be very low for a long period and then become reasonably common, only, in this case, to disappear again.

This kind of thing should make us wary of the kind of argument mentioned above in regard to the Loch Ness monster. On the other hand, it must be admitted that a creature reported as often as is the yowie (or the Loch Ness monster for that matter) would be expected to have a reasonably large population size, after all apparently no one saw (or at least reported) *Caloprymnus* for 80-odd years. I wonder if "unknown" animals very rarely reported are actually more likely to exist than those often reported.

The various bodies of biological theory are not as helpful as might be wished - they suggest that yowies are not likely (from biogeography) but they do not prohibit the possibility of their existence. Indeed, when first reported the platypus was judged less likely to exist.

There is no reason to say that yowies do not exist, but likewise no convincing evidence to say that they do. In theory Mr Gilroy and others who believe in yowies have a simple task, to produce one - however this task is never as simple in practice as in theory. The important thing that the case of the platypus showed in this regard is that when specimens of an alleged animal becomes available all of us, scientists and laymen alike, will accept its existence. Obtaining the specimens is often no easy task, but its very difficulty shows why we are sceptical.

The difference here between believers and sceptics is in the value given various kinds of evidence. And this, in turn, is based on the basic beliefs and values of the individual. Go through almost any scientific magazine and you will find evidence no better than any here mentioned, accepted without examination when it supports the political and social beliefs of the editors. Much depends on what we choose to be sceptical of I wish Mr Gilroy and others who would discover the yowie every success, but I will wait until I see it to relinquish scepticism myself.

References and readings:

General articles about yowies:

R Gilroy, 1980. "Why yowies are fair dinkum". *Australasian Post*, August 7, 1980. p 12-14. Gilroy's description of yowies.

J Lytton, 1979. "The great Australian yowie hunt." *People*, August 16, 1979, p 38-39. Cast of yowie track and Gilroy's "fossils" illustrated here.

Anonymous, 1979. A register of "monsters". *North West Magazine*, December 17, 1979, p.6. Gilroy quoted regarding partial carcasses of yowie.

Newspaper reports of yowies.

Gold Coast Bulletin, August 25, 1978, p7. Nerang report. *Ibid*, October 18, 1978, p16. Coomera Valley report. *Ibid*, March IQ 1979, p& Springbrook and other reports. *The Telegraph* (Brisbane), October 2, 1979, p14. Murgon report.

The Courier-Mail, January 4, 1980, pl. Kilcoy report. *The Sunday Sun* (Brisbane), April 24, 1981, p32. Dunoon report GO Joyner, 1977. "The Hairy Man of South Eastern Australia" (privately published, 27 pp.) A compendium of old newspaper reports of the yahoo.

General information about Australian mammals:

WDL Ride, 1970. 'A Guide to the Native Mammals of Australia' (Oxford University Press, 249 pp). Includes details of very rare Australian mammals mentioned.

MJ Tyler, ed, 1979, 'The Status of Endangered Australian Wildlife' (Royal Zoology Society. S. Australia, 212 pp). More details of very rare Australian mammals.

General information about problems of perception and recognition:

G Reed, 1972. 'The Psychology of Anomalous Experience' (Hutchinson).

HE Ross, 19174, 'Behaviour and perception in Strange Environments" (George Allen & Unwin).

Information on the reliability and otherwise of memory:

EF Loftus, 1979. *The malleability of human memory *American Scientist*, 67, pp312-320.

JE Rodgers, 1982. 'The malleable memory of eyewitnesses', *Science* 82, June, pp32-35.

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Megalania Resurrected?

Vol 2, No 4

Gregory V. Czechura

Among the 'unknown' animals reported to exist in remote or inaccessible parts of Australia are such diverse creatures as dinosaurs (Gulf of Carpentaria) and giant lizards up to thirty feet long. The source for much (if not most) of the available information on these creatures comes from Mr Rex Gilroy. Invariably, these giant lizards are likened to extant goannas and are presumed to be the last survivors of the fossil form *Megalania prisca*.

To lend credence to the claim that *Megalania prisca* still exists, appeals are made to the rediscovery of the small 'fossil' possum Burramys of the southern alpine region (hardly analogous) and the existence of the Komodo Dragon (*Varanus komodoensis*) on three Indonesian islands. Furthermore, to counter the question "How has something this large escaped detection?", we are led to believe that these monsters are in the depths of eastern rainforests and tall open forests (wet sclerophyll forests).

How should these claims be assessed? Certainly a metaphysical prejudice against claims of large, undiscovered reptiles is not going to prove helpful. In fact, as recent events show, such an attitude would soon require rapid reassessment. In 1977, *Python oenpelliensis*, a large snake of 3.5 metres in length was described from western Arnhem Land¹. More recently, *Python carinatus* (about 2 metres) was described from Mitchell River Falls, Admiralty Gulf, Western Australia². Consequently, we must delve deeper into the mystery.

Unfortunately, the nature of the 'evidence' for living *Megalania prisca* is highly subjective, being based, to the best of my knowledge, on twilight sightings, sudden encounters or noise. This 'evidence', even if a good observer is involved, is of doubtful reliability. For example, loud bush noises may be generated by some of the larger lizards. It is not unusual for the ambulatory activities of the Echidna (*Tachyglossus*) amongst dry palm fronds or loose bark to produce a disproportionate amount of noise compared to situations where such matter is absent. Similarly, a sudden encounter, especially where inexperienced or frightened people are concerned, rarely provides a basis for adequate observation.

Apart from recognition and perceptual problems (eg making adequate scale determination) many colour patterns of reptiles are disruptive and may actually serve to enhance perceptual distortions³. Experience

with public enquiries concerning reptiles at the Queensland Museum has consistently illustrated a tendency to overestimate the size of moving reptiles. The larger the reptiles, often the larger the discrepancy. It is not unusual to have a 2 metre Carpet Python (*Python spilotes*) estimated to be 4-5 metres in length. Large lizards such as Lace Monitors (*Varanus varius*, usually 1.5 - 2.0 metres total length) may be similarly extended - and identified as crocodiles! Significantly, a majority of reptile-human confrontations result in a large fear quotient being produced in many of the latter parties.

One claim which has a degree of apparent respectability is that of a young 'herpetologist' in the Blue Mountains. Naturally, most would consider a herpetologist (one who investigates matters reptilian and amphibian) competent to report a *Megalania* encounter. Unfortunately, such expectations may be misplaced. Unlike bird-watchers who use the term 'ornithologist' to denote the professional and have developed an elaborate nomenclature for other levels of non-professionals⁴, a vast array of keepers, dabblers, professionals and others interested in reptiles openly assume the title 'herpetologist'. Therefore the reliability and experience of the Blue Mountains observer is unknown - perhaps significantly no knowledge of this sighting exists among Sydney amateur or professional herpetologists (apart from Rex Gilroy's articles in the media). Our faith is further undermined when we find that this was another sudden, brief encounter in dense forest.

Enquiries directed to the Queensland Department of Forestry and timber industry have failed to either substantiate or locate the source for assertions that these 10 metre monitors have disrupted logging operations on the Border Ranges region of New South Wales/Queensland.

Clearly, the reported sightings are of little reliability both in terms of checking or obtaining detailed information on these creatures. Rather than reject the claims outright, we can extract useful information from the available information. From the sightings it is possible to identify two important points which can be subjected to closer scrutiny. First the lizards are large and predatory (Gilroy reports them attacking domestic livestock). Second, they are apparently restricted to dense forest areas (ie rainforest and tall open forest).

Taking the first point. Certainly, the reports are consistent with these lizards belonging to the family Varanidae. This reptile family is represented by five fossil and one extant genera (*Varanus*). Living

Varanus are represented by tiny pygmy forms such as *Varanus brevicauda* (0.2 metres in length) and giants such as the Komodo Dragon (up to 3.5 metres in length). Other 'giants' include the Perentie (*V. giganteus* - up to 2.5 metres) of inland Australia and the Asian Water Monitor (*V. salvator* - up to 2 metres) of the Indo-Australian Archipelago. All species are diurnal carnivores, that is, they are active during the daytime.

Megalania is a fossil genus, consisting of a single species (*M. prisca*), closely related to Varanus. Indeed some authors have even placed Megalania in the synonymy of Varanus. Most of our current knowledge of Megalania has been provided by Max Hecht⁵. Hecht estimates length for this animal (using *V. komodoensis* proportions) of total length 'close to 7 metres'. It is possible that the length may have been underestimated if the proportions of Megalania were different, eg more like those of the Perentie (*V. giganteus*), which is a more slender, long-necked, long-tailed species than the Indonesian Komodo Dragon for instance. Anyway, there is no dispute that the *Megalania prisca* was a big brute!

Hecht considered the ecological role of *M. prisca* to be that of a predator (carrion was probably included in its diet also) of the large herbivorous macropods (kangaroo relatives) and diprotodontids (large wombat-like marsupials) as well as the giant ground birds which comprised part of the Pleistocene 'megafauna' of this time. The known fossils of Megalania are usually associated with such animals as the 'marsupial lion' (*Thylacoleo*), diprotodons, large kangaroos (eg *Protomodon*) and the large heavy bodied flightless birds of the genus *Genyornis*⁶.

It should be noted that the diet of *M. prisca* probably altered as it aged. The above animals would be the prey of large, adult specimens comprising the breeding population of the predator. Walter Auffenberg⁷ points out that Komodo Dragons exhibit the following series of prey relations:

"While arboreal. The young feed chiefly upon smaller lizards, insects, birds and their eggs; mediumsized individuals eat mainly rodents and larger native birds ... These are captured by active pursuit and/or search. Medium to large adults frequently feed on carrion. Though the largest individuals also prey on wild boar and deer, which they catch from ambush along game trails."

Auffenberg also notes successful attacks on horses, water buffalo, village livestock and even man are known. Although information on the Perentie is scanty, it seems to display a similar series of prey profiles, although it seems more opportunistic than

the Dragon. Lizards, snakes, birds eggs, and mammals (especially rabbits) have been recorded. One has even been reported catching and killing a 'one third grown' kangaroo⁸.

Obviously, for a large predatory lizard such as Megalania to maintain viable populations, a large suitable prey base must exist for all age groups. (NB I include carrion within the prey base as dead animals must be supplied from an existing population of 'prey' species.) Unfortunately, we cannot consider *M. prisca* in isolation as a predator. Apart from bird and mammal predators competing for the same prey species direct competition from living Varanus spp exists. Living goannas such as the Perentie, Lace Monitor (*V. varius*) and Sand Monitor (*V. gouldii*) would compete strongly for suitable prey - especially for those prey which would be taken by young and smaller *M. prisca*. Species such as the Lace and Sand Monitors, which occur within the alleged range of 'living' Megalania, are often very common, so effects of their competition - and from predation on the eggs and of young Megalania - would be a significant factor in the ecology of the larger lizard. Competition and predation, with Varanus spp. would be occurring at a critical phase for Megalania, ie for juvenile and immature animals, where most reptiles normally experience very high mortality rates.

The nature of the prey base, especially that being taken by adult Megalania, requires consideration. So far we have not considered the habitat supporting the alleged population of contemporary *M. prisca*. From Gilroy's reports it seems that the favoured habitats are dense forest - rain forest and tall open forest. Certainly the structure of these types of vegetation⁹ seems suitable for hiding a large undiscovered animal, however, a serious flaw exists when we come to consider the capability of such areas for supporting populations of a very large predator (of any type). It has long been recognised that compared to other rainforests in the world and to other types of habitat within Australia, our rainforests support low numbers of vertebrate species. In addition, the population densities of these animals are often very low. This pattern of low diversity/low density for vertebrates in rainforest contrasts strongly with the high diversity and density of drier, more and environments¹⁰. This situation is particularly true for large mammals much of the mammal fauna of such forests is arboreal and would be unavailable to adult and moderately large Megalania anyway, i.e. they would be obliged to be ground dwelling predators.

The situation in tall open forests would prove little better for such large predators. In fact additions

to the fauna largely involve the smaller mammals and birds, certainly no large mammals such as wallabies or kangaroos appear. Recent introductions such as pigs and deer are too recent, and too sporadic in occurrence, to have filled the gap in suitable prey since the Pleistocene extinctions. Significantly, the Perentie is an inhabitant of the and inland, where larger mammalian and other suitable terrestrial prey species occur. Significantly, large predators are not characteristic of dense forest habitats on the Americas or Africa.

To summarise the case so far. The evidence for the supposed existence is not very reliable; no 'hard evidence' has been forthcoming. Comparison with related species suggests that the areas supposed to support these animals do not support suitable prey for the adults while smaller *Megalania* would face competition from their relatives the monitors.

In conclusion, the case for the existence of *Megalania* (or a similar animal) is weak and not particularly encouraging. Further, it does not seem likely that the heavily forested environments of eastern Australia are capable of supporting such a large predator. Existing species of monitors are already fully exploiting all available habitats.

References

1. GF Gow - 1977. *Australian Zoologist* 19 (2):133-9.
2. LA Smith- 1981. *Records Western Australian Museum* 9(2):211-226.
3. J F Jackson et al. - 1976 *American Naturalist* 110(976):1029-1053.
4. W Oddie - 1980. *Bill Oddie's Little Black Bird Book*.
5. 1975. *Proceedings Royal Society of Victoria* 87:239-250.
6. PV Rich- 1979. *Bureau of Mineral Resources Bulletin* 184:1-194.
7. 1980. *Bulletin Florida State Museum of Biological Sciences* 25(2):1-156.
8. HR Bustard - 1970. *Australian Lizards*.
9. RH Groves - 1981. *Australian Vegetation*.
10. See papers in A Keast 1981 - *Ecological Biogeography in Australia*.

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Modern Sightings of the Thylacine

Vol 4, No 4

Gregory V. Czechura

The large marsupial carnivore *Thylacinus cynocephalus* (the Thylacine or Tasmanian tiger) has not been unequivocally recorded since a lone animal died in Beaumaris Zoo, Hobart, in September 1936.

The date of death of this individual has generally been reported as 1934, but Beresford and Bailey (1981) have presented strong evidence in support of a later date. It is fitting that confusion surrounds the death of the last Thylacine. Confusion also surrounds the life, behaviour, decline and reasons for the apparent extinction of this enigmatic animal.

Many authorities (Archer 1979, Smith 1981, Rounsevell 1983) consider that the odds for the continued existence of the Thylacine are remote. This view has been strengthened by the failure of all recent attempts to locate populations of the animal--and the absence of incontrovertible proof (eg specimens, photographs) that living Thylacines are abroad in Tasmania.

Despite prevailing pessimism within scientific circles, sightings of alleged Thylacines abound. Indeed, such sightings have not only been used as evidence for the continued existence of this animal, but have served as a basis for speculations concerning biology and management (Mooney 1984).

Clearly, if we are to address ourselves to the question "Does the Thylacine still exist?", we must examine the available evidence - ie, the alleged sightings of Thylacines. In a recent report, Smith (1981) has called for the recording and investigation of sightings. Examination of individual reports requires us to establish criteria by which reliability can be judged.

A variety of criteria can be applied to judge the reliability of sightings. It may be necessary to examine the psychological, physical and biological aspects of each report: do the sightings exhibit dream or hallucinatory features? Do they result from size illusion, haze distortion, etc? Do they conform to what is known of the Thylacine?

Furthermore, it must be emphasised that consistent standards need to be maintained from the outset to exclude poor sightings.

The methods used by ornithological groups to judge acceptability of sightings of rare birds are particularly useful here.

To illustrate:

Person A is walking through pastureland. He is suddenly confronted by a large brown bird with a long tail. The bird immediately takes wing and disappears into a dense stand of trees nearby. The bird is not relocated. Person A consults a bird book soon thereafter and finds that he has seen an Albert lyre-bird.

Person B has a good knowledge of birds. She is visiting a remote part of northern Australia. Her attention is drawn to a small falcon sitting in a tree. The falcon appears to be black on the back, with a dark hood and a white throat. The bird takes wing to pursue a small bat or bird and is soon lost to sight. Further investigation suggests to person B that she has observed an Oriental Hobby not previously recorded in this country.

The first situation occurs frequently. Observers variously report sightings of rare birds passing rapidly overhead or in poor visibility (eg skulking in dense brush, in the late evening). These reports are usually quite worthless, particularly if no subsequent sightings are made.

A further problem exists because the more person A reads on the matter, the more likely he is to "colour in" the sighting. This phenomenon explains how errors in field guide descriptions may be "seen" by field observers - or at least reported by them (Ingram 1984). In fact, record scrutineers regularly check descriptions to see if such mistakes have been incorporated. If the mistakes have been included, the record is judged unreliable. On the basis of the original sighting from Person A, Brown Pigeon, Brown Goshawk and Pheasant Coucal can not be excluded.

Person B's sighting requires further investigation (literature, specimens, photographs and discussion with observers familiar with Oriental Hobbies). This may take some time, but in the end it too must be rejected. There is no information on the colour of the underparts - it can be assumed that these are dark, merely because the throat has been reported to be white (ie it is implied that the throat and underparts are contrasting). Little had been reported on actual size ("small" is not good enough). Most significantly, an important diagnostic field-character of the Oriental Hobby has not been reported - the length of wings in relation to tail length (note that the bird was observed at rest, making this an easy task). Finally, the conditions may have been conducive to a mistaken identification of an Australian Hobby or a Peregrine Falcon. Indeed, the description fits the latter quite well.

Oddie (1980) has given an excellent, often

tongue-in-cheek outline of the identification problem in bird-watching. He notes (p 73) "It's amazing how many descriptions are written after the birder has decided what he hopes he saw rather than what he actually saw. And it is suspicious how many descriptions seem as if they might have been copied or paraphrased from the text in a field guide.---It should be noted that many of these claims are not necessarily cases of conscious deception or hoax.

Clearly, caution is needed in assessing sight records - we cannot assume that they can be taken at face value. This is particularly true where "rare" or emotive" species are concerned.

The question then arises: how can we judge Thylacine sightings? There are two methods:

(a) comparison of sighting details with known physical appearance, eg photographs, skins, descriptions.

(b) comparison with known behaviour.

Smith (1982) provides the best recent summary of the Thylacine in which to base comparisons.

Taking the sighting reported by Mooney (1984) we therefore find two points of contention (based on description of the animal only). These are the number of stripes (12 seen at a distance of 6-7 metres) and the presence of a strong scent associated with the animal. Smith has recorded 15-20 black or dark brown stripes. Examination of existing photographs reveals that at least 14 stripes are clearly discernible, even in poor quality photos. Similarly, Smith's review and other literature on the Thylacine, particularly early writings, make no mention of scent. On the basis of these two points, at least, this record would be rejected - if we used an ornithological razor. Rejection of this record does not mean that Thylacines did not have 12 stripes or leave an odour. These attributes must be conclusively proved to be field characters of the animal (via physical examination of a specimen) given that neither attribute had been reported in pre1936 records.

Comparison of Thylacine sightings against known behaviour is most difficult to say the least. Much of the literature concerning Thylacine behaviour is contradictory, or clearly influenced by farmers wishing to magnify the extent of Thylacine damage to domestic stock. For example, it has been alleged - and accepted by authorities - that Thylacine feed on blood. Smith (1982) reports that these claims were based on three unusual sheep killings. He notes (p 249) "... but it was not proved that a Thylacine had been responsible, nor do three such killings constitute evidence for this as a normal practice." Indeed, much

of the literature on the Thylacine bears a very strong similarity to generalised claims of predator damage made regarding other species in other areas. For this reason alone, greater critical appraisal of early Thylacine reports appears warranted.

Early authors, beginning with Gunn (1838), report that Thylacines were "usually nocturnal" but would be found active during the day "on occasion". Furthermore, the animals were often observed for relatively long periods during diurnal activity (at least giving farmers time to load their guns, or set dogs on the animal - see anecdotal reports in Beresford and Bailey, 1981). It is, therefore, not surprising that modern sightings conform to a pattern expected from a nocturnal animal which is occasionally active during the day (Rounsevell and Smith 1982). What is surprising is that the majority (Rounsevell and Smith 1982, Smith 1981) have durations less than one minute (where time has been specified). Closer examination of contemporary records may be necessary before judging such sightings.

Supporting this conclusion is the fact that the most reasonable pattern of Thylacine activity was for hunting to occur during the evening, night and early morning (Smith 1981). Analysis of sighting records shows a disproportionate number of sightings at night compared with late afternoon-evening or early morning - those times coinciding with highest human and Thylacine activity and best visibility. For example, more sightings occur between 2000 and 2300 hours than between 1600 and 1800 hours.

Analysis of night records would require attention to be paid to spurious lighting and shadowy effects, rather than a simple description of the animal and its activity. Oddie's earlier comments concerning observers' hopes versus what is actually seen must be borne in mind.

Undoubtedly, much will continue to be written on the alleged existence of the Thylacine. Many conclusions will be drawn on the basis of these sightings, despite the fact that we know surprisingly little of the living Thylacines. The cautionary words of Gunn (1838, p 102), who was commenting on reports of Thylacines fishing, should be heeded: "Deductions are frequently too hastily drawn by naturalists (or persons professing to be such) from isolated facts." If the lessons of the bird-watching world are to be taken to heart, we have to realise that even the best observers make mistakes.

Shock! Horror! Gorilla Makes Girl Pregnant (Headline in American tabloid)

Vol 5, No 4

Colin Groves

The gorilla has long been known as the prototype of King Kong. It is well known that it drives off elephants with clubs, strangles African men, and carries off African women for wicked purposes; we have this on the authority of the very first white man to write about the gorilla, the Rev Savage in the 1840s. Rightly did the gorilla come to be feared; the awe struck crowds around any gorilla cage in any zoo bear witness to its ferocity, its sexual potency (all gorillas are by definition males), and its utter bestiality.

The first man to venture into African jungle to study the gorilla's way of life, RL Garner in the 1920s, enclosed himself in a cage in case the frightful beast attacked him. George Schaller in the 1960s went to study them. They were clearly not behaving normally, because he was never once attacked in 18 months: just as well, as he had forgotten to take a gun with him. Dian Fossey was not as lucky, though. She studied gorillas in the wild for about 15 years, and she was charged at least twice; luckily the gorillas concerned remembered appointments elsewhere some antelope to be torn to pieces, presumably - at the last moment, as the charges were not pressed home. What luck. She may have been raped otherwise.

Now at last it has happened. Ginette Jourdan was carried off, ravished and made pregnant by gorillas. Well, she had ample warning, didn't she? Had she never seen *King Kong*?

Just as well the gorillas kept her captive for days. A gorilla's erect penis is only 3cm long, and it obviously would have taken her captor quite a long time to get it inserted. He would have had to make sure it was fully inserted, of course, because he produces less than 0.5 ml of ejaculate, one-fifth to one-tenth the amount produced by a man, so an inadvertent movement at the wrong instant and it would all be gone.

Actually it becomes a bit puzzling when you think about it. Careful research has revealed that there are in fact female gorillas. Moreover, they take the initiative in copulation. The female comes up to the male and sits in his lap, and they do it dog-fashion, the filthy beasts.

So poor Ginette actually had to take the initiative.

Dr Colin Groves is an anthropologist at ANU and is a member of the Canberra Skeptics Committee.

Divining

Introduction

Water divining or dowsing is one of the most widespread and persistent of the pseudoscientific beliefs found in Australia. It is also an unusual member of the genre, in that its proponents rarely ascribe it to any mystical influence & holding only that it works and rarely proposing any reasons as to why it might.

In fact, it could be said that divining does work, in that wells drilled at a spot nominated by a diviner will often find water, but for reasons which are geological in nature and which have nothing to do with twitching sticks, bent rods or swinging pendulums.

Nevertheless, divining has its own folklore among a minority of its adherents, which is every bit as pseudoscientific as that of more esoteric beliefs.

The 1980 Divining Tests

Vol 2, No 1

James Randi

In July 1980, Dick Smith and I engaged in a series of tests of dowsers—diviners of water, metal, etc—in Sydney. For weeks, prior to the tests, we exchanged long letters discussing protocol and physical design. By the time I reached Australia the Prize money for a successful demonstration of dowsing had mounted to \$40,000 from a modest beginning with my own offer of \$10,000.

The rules were precise and simple. All contestants had to agree to them in advance, and to sign certain documents. Dick Smith had arranged for a plot of land to be used, which was dug up and levelled. A grid of ten plastic pipes, four inches in diameter, was buried a few inches below the soil, witnessed by a panel of independent judges. A system was arranged whereby valves could be opened to allow water to flow through one pipe at a time, the pipe being chosen by the selection of a numbered counter from a bag by one of the judges. Neither Smith nor I had any hand in this selection, which was left entirely to the judges.

One portion of pipe—that section leading into the grid—was left exposed for half its length, while the other half was buried to the same depth as the grid. Claimants were required to show that their dowsing instruments reacted to the exposed length of pipe while water was flowing through it, then to the buried section as well. Water was caused to flow through one section of the grid at that stage, and the claimants were informed which section had water flowing in it. Since white lines were evident where each numbered pipe was located, claimants were asked to show that their instruments reacted at that pipe, and at no other.

Then the test began. A pipe was selected by the agreed random means, water was caused to flow in it, and all those who were aware of which pipe was correct, were required to leave the area. This was to

prevent conscious, or unconscious, “cueing” of the claimant. Each claimant then made 5 or 10 attempts, the number being decided by the claimant. No results were announced at the time.

From my long experience in testing persons who have paranormal or other similar claims, I was well aware that all facts and possibilities—so far as possible—must be brought out in advance of the tests themselves. To ensure that complete understanding was attained between claimants and the judges, I prepared documents to that end. These are the documents as presented:

Preliminary Statement of Information by Mr Randi

- (1) Claimants will be required to locate which of a selected number of pipes buried below ground at a stated depth, have water flowing in them. This must be done a significant number of times, in accordance with the rules, to be stated clearly in a signed statement.
- (2) Claimants will be asked to dowse the area used, to determine if there are any anomalies present such as natural water which might inhibit or confuse the results. If this is felt to be the case, it may be necessary to use only part of the pipe layout, in which circumstance the rules will be adjusted.
- (3) Only the first contestant who passes the test will be awarded the prize money. Order of performance of the contestants will be determined by lot.
- (4) Every effort will be made to adapt the rules and procedures to the needs of the claimants, short of violating the proper scientific protocol needed.
- (5) Claimants will be taken to the test area individually, will be asked to perform, and will be returned a neutral area upon finishing the test, No communication will be allowed between those already tested and those yet to be tested until all tests are finished.
- (6) The completion of the tests, clearly stated and witnessed, shall constitute a total cessation of activity. No further attempts by the claimants after the announcement of the results will be contemplated except with the full agreement of ALL parties, and then only under exceptional circumstances.
- (7) Mr Randi’s cheque for USS10,000 shall be in the hands of an agreed party at all times after the commencement of the tests, to be surrendered either to the successful claimant or to Mr Randi, depending upon the results.
- (8) Any attempt by any claimant or agent of the claimant, to determine details about the physical operation of the test area not already made clear to all present, shall be deemed an attempt to violate the protocol, and at the discretion of Mr Randi, that claimant or all claimants, shall be summarily dismissed from contention. It is not expected this will be necessary.
- (9) All witnesses to the tests must be approved by Mr

Randi and Mr Smith in advance, and these will be furnished with an appropriate identification. By “witness” is meant those in close proximity to the point of action. (10) These tests are serious attempts to determine whether or not there exists in the claimants an ability to perform as claimed. We are not playing games. We are involved in a scientific effort. All persons not so convinced are invited to absent themselves from the tests. Any violation of protocol will result in the violator being asked to leave.

Next are three official documents prepared to establish a complete understanding between the parties concerned, for the protection of ALL persons, it is essential to have everything clearly understood and agreed to in advance so that recourse may not be made to facts or procedures that were not fully established.

Document Number One: PRELIMINARY QUESTIONNAIRE

Name:

Address :

- (1) My performance of dowsing is usually% correct.
- (2) I estimate that my performance in the present test will be% correct.
- (3) I hereby state I have not been asked to invest or deposit any amount of money or valuables in order to participate in these tests, other than any personal expenses I may have incurred.
- (4) I shall make a statement immediately following the tests, stating how successful I believe I have been.
- (5) I understand no results will be announced to me until after all claimants have been tested.
- (6) Should I fail to pass the tests, I surrender all further claims against Mr Randi and Mr Smith, their associates or any other persons connected with the tests, including the media representatives.
- (7) I agree that any and all photos, recordings and/or statements made by me may be used by Mr Randi or Mr Smith in reporting the results of these tests.
- (8) This questionnaire, and the Rules for Test” and “Formal Agreement” documents that t follow, are signed by me freely and willingly, without reservation.

Date

Signed: (Claimant)

Witnessed: (James Randi) (Dick Smith)

Document Number Two: RULES FOR TEST

Name:

Address

- (1) Claimant (above) has examined the layout and the established system, and agrees that it is satisfactory.
- (2) Claimants will perform in an order to be established by lot.
- (3) Claimants will demonstrate that the dowsing reaction

In the Beginning

is present and working, using the exposed portion of the pipe and a selected portion of the buried pipe. He will dowse the area for natural water as well, and appropriate adjustments will be made.

(4) After (3) has been established, the formal test will begin.

(5) A number will be selected by random means, designating which of the concealed pipes will be used on any attempt in the test, unknown to the claimant, water will be caused to flow in that pipe and that pipe only, (Since the choice is random, any one pipe may be used more than once.)

(6) Claimant will locate the pipe in which he/she believes the water is flowing, and will announce this clearly, No multiple choices are allowed and the decision is final.

(7) There will be attempts made by the claimant to constitute one complete set of tests. This number will be decided based on the answer to item (2) in the Preliminary Questionnaire.

(8) All data will be recorded by the designated person, and the record will then be signed by Mr Randi and Mr Smith to establish an official record.

(9) The right is reserved to ask the claimant to repeat—once—the same set of tests in order to establish a more satisfactory statistical sample or to ensure security of the protocol , at the discretion of Mr Randi, There is **very little** possibility that this rule will be invoked.

Date:

Signed (Claimant) Witnessed (James Randi) (Dick Smith)

Document Number Three: FORMAL AGREEMENT

Name:

Address:

(1) I agree that the rules as outlined in the accompanying Document Number Two (Rules for Test) are fair and proper.

(2) I shall perform to the best of my ability, not stopping short of the agreed number of trials unless conditions such as inclement weather prevent the tests from continuing, in which case I agree to return when conditions are more favourable. The term “conditions” does not apply to emotional or physical variables that I feel might inhibit my performance.

(3) I feel able to perform on this occasion. There are no geographical, meteorological or personal, emotional or physical influences that might inhibit my abilities to perform.

(4) Mr Randi agrees to surrender his cheque for US\$10,000 to the first claimant who passes the test by achieving the estimated percentage of successes as stated in the “Preliminary Questionnaire” item (2).

(5) If item (9) in the Rules is invoked by Mr Randi, claimant must perform, and the results of both tests will be averaged to arrive at a final percentage, based upon which the prize will or will not be awarded. This is to

protect against the possibility of a “fluke” statistical occurrence, which is very unlikely to occur.

Date:

Signed:(Claimant)

Witnessed: (James Randi) (Dick Smith)

Results and Conclusions

There were sixteen contestants in all. Eight tried for the water via the buried grid, three tried for brass and seven tried for gold. For the latter a \$22,000 ingot of gold was obtained from a local bank, on loan, The brass and gold were concealed in one of the boxes with the procedures and protocol similar to the water divining tests, Two of the contestants did two kinds of tests, for water and brass.

Water	8
Brass	3
Water and brass	2
Gold	7

When the results were tabulated, 111 tries had been made, with an expected 10% success rate by chance alone, There were 15 successes, 13.5%, a figure well within expectation.

But what had the dowzers declared as their expected success rate? It averaged out to better than 92%! Surely a poor performance, and one in which every rule , precaution and Procedure had been carefully and fully approved and agreed to in advance by **all** parties concerned.

Looking at the tests on specific substances, the water tests showed 50 tests total with 11 correct or 22%. The dowzers claimed they would have 86% success. As for the brass tests, they claimed 87%—and got zero. Gold seemed more attractive, and they expected 99%, but obtained 11%.

The tests had been done using forked sticks, L-shaped metal rods, pendulums and other varied means. Only two dowzers said there were natural streams running underground in the area and both agreed these would not interfere with the tests. But—and it’s a very big “but”—they also disagreed with one another about where these streams flowed, and thus also disagreed with all the others who said there were no streams! Besides, the “underground river” notion that dowzers maintain is sheer fiction, not supported at all by geological research.

By far the most important fact that emerges is this: The participants were all able to show strong reactions when they knew where the sought-after substance was, but failed grandly when they actually underwent a proper test. Why then, do the instruments show such positive reactions, and what makes them move? The answer lies, not in mysterious electro-magnetic or

“psychic” forces, but in “idiomotor reaction”.

Whether it is a forked stick clenched in both hands and bent apart in a horizontal position, or a small pendulum held at the fingertips, the dowsing instrument is in a state of unbalance or stress. Any slight movement or outside influence can start it moving, and subsequent dramatic motions of the device are taken as evidence of strange forces at work. Actually it is the dowser himself who initiates the movement—mostly unconsciously.

The human mind is such a marvellous device, rationalisations of any failures are easily come by. The diviner detects nothing except his own hunches and guesses, often based on the knowledge of the terrain or situation, and frequently from clues provided unwittingly by bystanders. We carefully guarded against any of these elements becoming active in our investigations. Any success of the dowsers in our tests were to show evidence of true dowsing ability, not clever guessing.

The idiomotor reaction is quite a strong one, and anyone can fall victim to it. As an example, whilst I was participating in an interview with Dick Smith at his office, I showed a reporter how strongly a large magnet would attract a bent iron wire even through a cardboard box. He held the wire -and noted the strong attraction, until I pointed out to him that I had secretly removed the magnet from the box. He had been allowing his expectation to convince him of the magnetic pull that was not there. His bent wire dowsing device had been swinging very positively towards the box, repeatedly, but ceased when he knew the truth.

The reward money was not paid out, since no claimant came even close to achieving his claimed success rate—though most were sure they had! As expected, in spite of the careful statements we demanded of them, the claimants followed the announcement of the results with cries of “foul” for a multitude of reasons. These included the suspicion of buried magnets in the ground (though they had all tested for that possibility) and the interference of portable radio transmitters (though these had been present and in use in all tests, including the preliminaries where participants knew the results, and were therefore successful.

I regard the Australian results as the most definitive, properly conducted and designed, tests ever done of dowsing claims. Thanks to Dick Smith, we were able to invest in the correct equipment and personnel for a proper series of tests. It would have been desirable to do more tests with each individual to obtain more definite statistical results. But we were limited as to time and patience of the participants.

However there are certain aspects of this matter, from a psychological point of view, that need to be

considered. The evidence for the success of the dowsing process is in the opinion of those who support this notion, very strong. That is because something happens to the stick, pendulum or other device, and it appears to be beyond the control of the dowser. As already explained, it is a perfectly natural reaction, recognised by psychologists - but it is very convincing to even the most sophisticated observer. The test of dowsing is, therefore, not whether the rod moves - but whether such movement actually shows us something we did not previously know.

The *Australian Journal of Psychology*, in 1952, published a very comprehensive discussion on dowsing, and the conclusion they arrived at was that claims of dowsers were simply not valid. Australian government departments have tested dowsers and discovered—not to their surprise—that they cannot do what they claim they can. In September of 1980, Dick Smith officiated over a set of tests done at Perth, and the dowsers failed miserably. In October of 1980, the dowsers again failed completely at Gosford.

One thing must be made clear—dowsers on the whole are *very honest folk*. They *believe* in what they do. Unfortunately their belief is poorly placed. They CANNOT perform as they think they can. Having a string of successful wells to which one can point, proves nothing. A better test would be to ask the dowser whether he can find a DRY spot within 100 metres of a well he has dowsed. With more than 90% of the world’s land mass above reachable supplies of water, this should be quite difficult.

Diviners are often believers in various cult matters, such as faith-healing and spiritualism. Some, however, refuse to accept their claimed powers as anything supernatural. They tend to think anyone can do what they do. And in this belief, they are quite correct. Any person can be seized by the idiomotor-reaction enthusiasm. But the test, as always, is whether or not they can then discover water, oil, gold or other substance solely by means of this twitching of a forked stick. Tests done in Australia and many other countries of the world indicate that belief in water dowsing, and in all forms of divining, are false and fanciful.

Though diviners will continue to be hired by believers in such powers, and wells will be dug with great precision on spots located by forked-stick folks, these water supplies will not prove that dowsing works. They will only prove that there is a great deal of water down under the earth, and we do not need silly folks wiggling sticks to tell us that.

Divining is a delusion, and must be recognised as such.

James Randi professional illusionist, is probably the world's best known exposé of fraudulent psychic claims. He has visited Australia on several occasions and is always welcome here.

Two Divining Tests

Vol 2, No 3

Dick Smith

Report on Water-Divining Test

After seeing a 'teaser' on divining for the *Willesee Show*, a popular television programme in Sydney, Australia, Malcolm McDowell, a property owner in an outer suburb, decided to use the services of Vic Vaisey, one of the most experienced diviners in the area. (Vaisey was one of those who participated in the divining tests James Randi and I conducted in Sydney a week later for the *Willesee* programme.)

Knowing my involvement with the Sydney tests, McDowell rang me to ask if I would like to follow the proceedings. I enthusiastically agreed, since most of the diviners we had tested (including Vaisey) said they earned their living from divining and had never had a failure. We had heard a lot of anecdotal evidence, but this was an opportunity to follow such a claim from start to finish. The test was conducted in September 1980.

McDowell desperately needed additional water for his stock and for irrigating his five-acre parcel of land. He had previously written to the New South Wales Water Resources Commission, who then requested a map of his property. The Commission advised him in writing that water might be found at a minimum depth of 15 metres (50 feet), most probably at 60 metres (200 feet), and at a maximum depth of 100 metres (330 feet). No one from the Commission visited McDowell's property.

Vaisey went to McDowell's farm and spent about an hour applying his divining rod. He was not told about the Commission report. He divined two "definite" streams - one running east-west at a depth of 35 feet and another running north-south 5 feet deeper. (It should be noted that the dowser thus gave himself two chances of success in one spot.) He marked this location (within a few inches of where "the two streams" crossed).

Vaisey was quite definite that, since he had always had 100 percent accuracy, water would be found at this location and at the specified depth. He charged McDowell \$100 for his service. (The Water Resources Commission had charged nothing.) He suggested that McDowell drill to 35 feet and, if the flow from that stream was not sufficient, that he press on the extra - 5 feet to tap the next stream.

The drilling rig arrived on the site soon afterward. Because of a tree stump near the divined location, the rig was positioned to drill about six inches away from

Vaisey's marker. I had suggested to McDowell that he make sure the hole was drilled exactly on the marked position; many diviners had claimed that their only failures were when the drill hole was not made in the exact spot recommended, causing the bore to miss the stream by a few inches! Therefore McDowell insisted that the rig be moved around the stump in order to drill the hole in the exact location. The drill operators were amused by this request.

The drill quickly went down to the 35 foot and 40 foot levels, and further, only to find hard, dry shale to over 80 feet. Water was eventually struck at 210 feet at 130 gallons an hour. An increased flow of 250 gallons an hour was struck at 220 feet. Further drilling to a depth of 253 feet produced no extra flow.

These results were entirely consistent with the Water Resources Commission predictions, even though they had not visited the property. McDowell then contacted Vaisey, who could offer no explanation for his failure. He said it was the first time he had ever failed. McDowell hinted that his \$100 should be refunded, but Vaisey made no offer.

Report on Metal -Divining Tests

Following the dowsing tests that James Randi and I had made in Sydney, there had been an outcry from diviners in Perth. They claimed they could easily divine metal hidden in a box with 100 percent accuracy. A well-known Perth Radio station, 6WF, decided to do a series of tests of diviners and then send the most successful one to Sydney to claim the \$40,000 I had offered for a successful demonstration.

On September 5, 1980, twenty-five of Western Australia's diviners performed in Perth in front of a large public audience and television cameras. All of them said they could easily perform under the stated conditions (cardboard boxes laid out on the ground, with one containing a piece of metal). All said they would complete an agreed number of tests.

The protocol could hardly be called good, nor could the test conditions be called scientific. However, the results were predictable. Even though a number of the diviners stopped short of the required number of tests when they found they were failing, the average score was 18 percent - the result from chance alone would have been 20 percent. The diviners gave various reasons for failing, from an alleged huge aluminium deposit under the ground to the jewellery worn by onlookers.

The diviner with the highest success rate for the day, Cecil Holmes, of Gosnells, a Perth suburb, was flown to Sydney by the radio station for testing by me. Holmes arrived at my home with his wife on the

morning of Saturday, September 13. He immediately produced a small gold ingot, dropped it on the ground, and enthusiastically showed how he could divine it. When I pointed out that, since he knew where the gold was, it was not a good demonstration of divining, he laughed and said that it didn't make any difference because it was the gold pulling the rods, not his knowledge of the gold's location. Like most believers in divining, Holmes and his wife were obviously sincere.

After I explained the test conditions (a row of ten boxes, with the gold ingot hidden under one of them), Holmes said he would easily be able to obtain at least 80 percent accuracy. I asked Mrs Holmes to be the chief judge. The other two judges were Trevor Munnery, a reporter from the newspaper, *Truth*, and Garry Crapp, a business associate of mine.

Before the test started, an unusual situation occurred. As is traditional in such tests, in full view of Holmes I placed the gold ingot in a box and asked him to see if his powers were working. Instead of going directly to the chosen box (as we expected him to), he walked up and down the row of boxes showing us that he received no reading from the empty boxes. He then mistook the correct box to be the one next to it and promptly divined the wrong box. His wife called out to him to "remember which box it was put in", but to no avail. After this bad start, we went ahead with eleven different tests. At the conclusion of the tests, he was asked how he thought he had fared. "At least 80 percent, probably higher," he said. His wife then announced the results - one hit in eleven tries - which were entirely consistent with chance.

In spite of his failure, Holmes then gave a demonstration of another of his powers - that of divining a two-dollar bill. He showed us that, if he held a one-dollar bill and approached a two-dollar bill lying on the ground, the divining rods would not move, but that they would if he held a two-dollar bill. He was amazed to find that this power would not work when we covered the two-dollar bill on the ground with a piece of paper. He had not bothered to try such a test before because he had not thought it necessary.

At the conclusion of the tests, Holmes said he thought they had been extremely fair and could not explain why his powers had not worked.

Dick Smith, adventurer, aviator, businessman, publisher, philanthropist and perpetual optimist, was a founder, and remains a Patron, of Australian Skeptics.



Introduction

The majority of paranormal and pseudoscientific beliefs may be claimed to be essentially harmless within themselves, although their tendency to lead believers into irrational modes of thinking is to the long term detriment of society. The same cannot be said of many pseudohealth claims.

At best, many of these claims can be said to be neutral or to provide psychological support to sufferers. At worst they can be physically harmful in themselves, or, more commonly, by offering the prospect of a relatively painless 'cure', they can delude believers into thinking they are being treated and encourage them to ignore treatments that may be of benefit to them.

Unless and until the proponents of 'alternative' health practices are prepared to have their claims tested in properly controlled clinical trials, then these practices should be considered to be at least potentially dangerous.

Australian Skeptics has always led the debate into the dubious claims of these practitioners, as the following articles show.

Skeptics Test Psychic Surgeon

Vol 1, No 1

Mark Plummer

When a small advertisement in *The Age* on January 3, 1981 stated that an English medium-surgeon would be commencing practice in Melbourne, the Australian Skeptics swung into action. We rang the advertised numbers, and were told that Mr Roman Diakov acted as a medium for deceased surgeons to conduct psychic operations. An appointment was arranged for an elderly patient and her son.

The 'patient' was actually seventy-three year old medical practitioner Dr Miffy Beadnell, and her 'son' was magician Mike Wilton, a committee member of Australian Skeptics. Our team found Mr Diakov's 'clinic' located in a new villa unit at 22 Aitken St, Kew. The family room of the villa was the reception area and the receptionist/nurse went to great lengths to assure the seemingly fragile old lady that there would be no pain.

We were informed there would be no blood either, as Mr Diakov worked only on the 'psychic body'. The nurse assured our team that operations done to date had been very successful. Diakov left to prepare himself and donned a white coat. Wilton was assured he would be able to observe the treatment in the bedroom which became the 'operating theatre' for the night.

In dim blue lighting and to the strains of *Michael, Row the Boat Ashore*, Dr Beadnell was laid on the bed/operating table. After a suitable brief prayer, Diakov slowly stood, then walked with a limp. He had adopted the plummy accent of a British 'Doctor Roberts'. Dr Roberts then examined Dr Beadnell's cranium with a special invisible psychic microscope. Dr Roberts amazed our team with the revelation that the brain was divided into two halves (the left and the right) and was composed of millions of cells. Dr

Roberts stated that several of these naughty cells were misbehaving themselves. This was explained in lay terms as being akin to a car motor with loose spark plugs.

The problem explained, the treatment began. Several special invisible psychic tubes were inserted through Dr Beadnell's head, threaded through the body, and came out through the soles of her feet. Then all the 'bad fluids' were psychically drained from her body. This was followed by the passing of hands down the length of the body, and the amazing discovery that one half of the patient's brain was hot.

More passing of hands followed, but clearly a second opinion was needed. Dr Roberts left Mr Diakov's body and 'Dr Mauriss', supposedly a deceased French gynaecologist, took over. Dr Mauriss' French accent had clearly deteriorated since his death, to say nothing of his diagnostic talents, for the diagnosis was that the subject's stomach pains were caused by displaced pelvic bones after the birth of her last child. Lying on the bed, Dr Beadnell couldn't remember having had any children, not even a miscarriage. 'Dr Mauriss' also diagnosed deafness in her left ear. Our patient couldn't remember deafness ever having been a problem, but clearly this (like the birth of her children) must have slipped her memory.

Dr Roberts returned to wrap up the post-operative treatment. The good lady would have to come back for further treatment. She would feel quite tired over the next few days, and must drink plenty of water. She would also pass more fluid than normal. (One would expect that anyone drinking more water than normal would also pass more fluid than normal.) Our team had a few more questions for Dr Roberts. We discovered that he had been a practising brain surgeon at St Bartholomew's before dying in 1948. Before more questions could be asked, Dr Roberts had to depart, leaving Mr Diakov to show the team to the door.

In case you haven't guessed, the opinion of the Australian Skeptics testing team is that the 'doctors' who operated showed a complete lack of medical knowledge. Their diagnoses were wrong, and the hopeless French accent merely added to the conclusion that Mr Diakov was a cheat.

Our findings confirm that of an American Federal Court Trade Commission (see p 43) judgment in 1975 that 'psychic surgery' and 'psychic healing' are pure fakery and fraud accomplished by the trickery of 'psychic surgeons' intending to deceive trusting persons into the false and mistaken belief that human bodies have been opened with the bare hands, diseased

or disease-causing material removed, and the incision closed without pain or suffering.

And Mr Diakov? If you can reach him, please tell him that Australian Skeptics are wondering how to explain the item in their books "Psychic surgery fee \$20" to their auditors!

Footnote to the above Vol 2, No 1

In the first issue of *the Skeptic*, we reported on a Mr Diakov, a psychic surgeon who claimed a deceased British surgeon, Dr Roberts, used him as a medium. Dr Roberts was alleged to have died in 1948 and to have practised brain surgery at St Bartholomew's Hospital, London. We wrote to St Bartholomew's, West Smithfield, London and received the following response from Mrs J Foster, District Archivist.

Dear Sir,

Thank you for your letter of September 27 concerning the activities of Mr Diakov.

This gentleman appears to have done a small amount of research into our records since there was a James Ernest Helme Roberts on the staff of the Hospital from 1919 until his death in 1948. However he was not a physician specialising in brain surgery, but a surgeon who began in orthopaedic surgery but then specialised in cardiac surgery, becoming eminent in that field. Mr Roberts was a Fellow of the Royal College of Surgeons and also Surgeon to the Royal Chest Hospital in London.

I hope this information is sufficient to debunk Mr Diakov.

Yours faithfully,

When we visited Mr Diakov's former clinic to question him about this, we found he had moved on and neglected to leave a forwarding address.

More for Psychic Surgery

Vol 2, No 4 Mark Plummer

More Australians are to travel to the Philippines in January for 'psychic surgery'. The upsurge of interest follows the November (1982) meeting of the Western Australian Society for Psychical Research, held at Murdoch University, at which two films of supposed 'psychic surgery' were shown to an audience of about three hundred people.

Commentator Mr Ray Brindley, in introducing the films, stated that they showed foreign bodies being removed from people by Filipina 'psychic surgeon' Josephine Sisson. The amateur films showed Sisson praying at a Bible and then allegedly delving into people's bodies to remove tumours, internal growths and foreign bodies supposedly placed inside the patients by witchcraft. Sisson was claimed to have removed cataracts from eyes, restored fertility to a sterile woman, and cured multiple sclerosis, vertebra problems, haemorrhoids and asthma. All 'operations' were conducted without anaesthetics, drugs or instruments, whilst appearing to produce a great deal of blood to be wiped away by assistants. They took only a few minutes and left no open wounds to be stitched up or scars where the incisions had supposedly been made.

Following the films, the Chairman of the Western Australian Society for Psychical Research, Professor John Frodsham of Murdoch University, introduced Mark LeBuse to the meeting. LeBuse provided more anecdotal material about Sisson's successes, and announced he would be conducting a group tour to the Philippines in January. Those interested were asked to hand in their names so that they could attend smaller meetings at which full arrangements for the tour could be made. Many indicated their interest. Last year, thirty West Australians went to the Philippines for "psychic surgery" and many others attended a clinic run by Filipino 'psychic surgeon' Alex Ampaguey in a garage at Esperance, WA.

The Western Australian secretary of the Australian Medical Association, Mr Reg Hayward, attacked the activities of 'psycho-surgeons', stating that it was merely sleight of hand. His claim has been supported by magicians such as James Randi (who demonstrated psychic surgery in Sydney and Melbourne in 1981) and has found legal support in a decision of the United States Federal Court. In 1975 the US Federal Trade Commission issued a Cease and Desist order against representations, advertisements or arrangements for 'psychic surgery' (*In the Matter of Travel King*). In so doing, the FTC found, *inter alia*, that:

"...the 'psychic surgery', 'psychic healing', 'faith healing', or 'spiritual' or 'spirit healing', for which respondents marketed tours to members of the public, is pure fakery and a fraud accomplished by the deception and trickery of the 'psychic surgeons', psychic healers, faith healers, or spiritual or spirit healers' through the use of sleight of hand, tricks and devices, including the use of animal parts, tissue and blood, all used to defraud and deceive trusting persons into the false and mistaken belief that human bodies

have been opened with the bare hands, diseased material or disease-causing material removed and the incision closed, all without pain or suffering." (86, FTC 714)

Since this court decision, Filipino psychic surgeons have had to look elsewhere than the USA for patients. It appears that Australia, and in particular Western Australia, has become a major recruiting centre. There is no evidence that Filipino hospitals seek to employ their talents.

This year, WA film maker Carmelo Musca produced a film about a group of Australians who went on an organised tour to the Philippines for psychic surgery. His film crew interviewed the group before and after the psychic surgery and found them to be fervent believers in it and its beneficial effects. Musca's crew used a hidden camera during the psychic surgery, and filmed an excellent sequence clearly showing the surgeon using trickery.

The film was recently shown on WA television. WA parapsychologists have since come out with two explanations. Some psychic surgeons are genuine whilst others are not; and even the best psychic surgeons use trickery at times when conditions are not right for their 'powers'. These explanations are evidently sufficient for the believers, as the next organised tour is leaving Perth in early January.

Perth Psychic Surgeons Challenged

Vol 3, No 1 Mark Plummer

On November 3 (1982), along with four hundred other people, I attended a meeting of the West Australian Society for Psychical Research at Perth's Murdoch University. There I observed a film of Filipina sleight of hand expert Josephine Sisson performing a technique known to magicians as the disappearing sponge-ball routine. Sisson created the illusion of a ball of 'consecrated' cotton wool disappearing into a person's head and re-emerging elsewhere on the body. Sisson also performed other sleight of hand techniques commonly used by Filipinos who pretend to have psychic powers to perform surgery.

During the showing of the film, the commentator made amazing claims about Sisson's psychic powers. After the film, promoters of Philippines Psychic

Surgery tours called on people wishing to come on the next tour in January to come forward. There were references to a recent film, *I Am No God*, having been shown on Perth television, which revealed a Filipino psychic surgeon, Alex Orbito, to use trickery - and assurances that while Orbito may have been a fake, Sisson was genuine.

After the meeting, I telephoned one of the promoters of the advertised forthcoming trip to the Philippines and pretended I was interested in going. In the course of my enquiry I asked if she knew how to discriminate between fake and genuine psychic surgeons. She said she did not, but assured me that Sisson was genuine. I wondered how she could be so sure Sisson was genuine if she could not discriminate between fake and genuine.

My next step was to view *I Am No God*. The film's producer, Carmelo Musca, arranged a private showing. Carmelo and his production team had travelled to the Philippines with a group tour for psychic surgery, and filmed participants before, during, and after their operations.

During one operation they had a camera secretly running from one angle while a cameraman openly filmed from a different angle. When they returned and processed their film, the footage taken secretly clearly showed the Filipino hiding material under the patient's clothes and retrieving it - to be produced as material taken from within the body. This was described in the film's commentary as trickery, and was so blatant that even Perth parapsychologists have had to admit to it being fakery.

Carmelo was extremely cooperative, and agreed to the film being shown at a public meeting. The next stage was to recruit a Perth magician to demonstrate sleight of hand techniques known to be used by fake psychic surgeons. A visit to a meeting of the Western Australian Society of Magicians found a volunteer in magician Danny Varney. Getting permission from the governing body of magicians for one of their number to reveal how sleight of hand tricks are done is as hard as getting the Pope to agree to giving a priest dispensation to marry a nun. However, because of the harm being done - in persuading very sick people to pay thousands of dollars to travel to the Philippines to be subjected to quackery - Danny was given permission.

Danny then saw the film *I Am No God*. Here came the biggest surprise. Although the producer and film crew had spent thousands of hours on the film, they had only come up with one example of trickery. However, Danny was able to locate at least a dozen examples of sleight of hand in the film. This clearly

confirmed that no matter how good an observer the average person may feel he or she is, people not trained in sleight of hand, trickery or fraud can be easily fooled by fraudulent psychics.

The second major aid we had was the modern video equipment provided by Carmelo Musca. This enabled us to freeze the action, reverse the tape and replay sections of the tape slowly. Magicians love to fool other magicians with sleight of hand. With the advent of home video machines, magicians can tape magic shows from the television and replay them over in slow motion until they can pick the sleight of hand or trickery.

At our public meetings, we too were able to replay parts of *I Am No God* in slow motion and freeze certain sections. At our meeting, the supporters of parapsychology put up a spirited argument in favour of Josephine Sisson being a genuine psychic surgeon, but none of them attempted to defend psychic surgeon Alex Orbito as genuine. The evidence shown in the film was too overwhelming.

It is impossible to prove absolutely that there is no such thing as a psychic surgeon. It is also impossible to prove that there are no such animals as pink elephants. Every time one Filipino is exposed as a fake, tour promoters can come up with another, who they claim is the genuine article. I therefore took the step of preparing a *Guide to testing psychic surgeons*, copies of which were handed out at the meeting and also advertised in the press. Hundreds have now been distributed. I believe it more fruitful to try to educate prospective patients than those who have already been operated on. This way, prospective patients will have some idea of what to look for and will be a little more reluctant to part with money.

One Perth magician suggested we should go a step further by sending him and another magician on a group tour to the Philippines. Upon departure, one magician could run a crash course for the patients in detecting sleight of hand trickery. The other magician could remain incognito and use a hidden camera to film the operations. If the psychic surgeon turned out to be a fraud, the two magicians and other dissatisfied members of the party could then sue the promoters for all costs outlaid, and if they were ill, for damages for any aggravation of the illness or any suffering or pain caused by the journey.

The United States Federal Trade Commission has already held that in view of the absolutely incredible nature of 'psychic surgery', tour promoters were under a duty to make a thorough enquiry before making representations to the public in promoting tours to the Philippines - that actual surgery would be

performed, and that the body would be opened with the bare hands.

A recent Australian High Court case held that persons tendering negligent advice may be sued. If dissatisfied people sued the promoters, the courts would only have to be satisfied on the balance of probabilities that the psychic surgeon was a fake, to award damages. Being a civil case, the relevant level of proof is merely the balance of probabilities, not proof beyond a reasonable doubt, or absolute proof. Thus, persons promoting psychic surgery should be very careful to fully test the psychic surgeons they promote to be sure they could prove to an Australian Court that the psychic surgeon was genuine and not just using sleight of hand.

One final note. In the December *Skeptic* I wrote that the next organised tour to the Philippines was to be in January. However, just before leaving Perth on January 15, I found that the tour had been postponed. I wonder why?

Psychic Surgery - a Fraud

Vol 5 No 1 Mark Plummer

Mr Ramon Lopez, legal counsel for Filipino 'psychic surgeon' Lawrence Cacteng and spiritualist Margaret Kingsland stated that psychic surgery, by definition, involves a fraud. The statement came in a recent Victorian court case in which charges against Cacteng and Kingsland of obtaining money by deception, by pretending to perform psychic surgery, were dismissed. A charge against husband Colin Kingsland of aiding and abetting was also dismissed.

Two committee members of the Australian Skeptics, Janet de Silva and Joe Rubenstein, volunteered for psychic surgery by Cacteng in July 1984. Both believe that psychic surgery is fake and that it is not possible to 'psychically' open up bodies with the bare hands, extract allegedly diseased tissues, and then close the body without surgical procedures or anaesthesia.

Mr Lopez said de Silva and Rubenstein had not been deceived because they had expected to receive 'psychic surgery', "which by definition involves a fraud". Lopez said they received what they asked for.

Background to the case

Since its inception, Australian Skeptics has

campaigned extensively on the issue of psychic surgery. This is because the claims of psychic surgery do not stand up to scientific investigation. The techniques of psychic surgery involve sleight of hand and fakery, and can be demonstrated by magicians.

More importantly, Australian Skeptics sees psychic surgery as an issue of public interests because people who have accepted the diagnosis of a psychic surgeon may well be accepting the wrong diagnosis of someone with no medical training at all. If they undergo psychic surgery, they may believe they have been cured, and thus neglect proper life-saving medical treatment.

The medical risks inherent in psychic surgery were well-documented in the American Trade Commission case (Travel King *et al*) which ordered four American travel agencies to cease making false claims about "psychic surgery".

The Skeptics' campaign

When the chief investigator for the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), magician James Randi, made his first visit to Australia in 1981, he demonstrated psychic surgery at public meetings and on television. Australian Skeptics was formed at the end of his visit. Since then, Australian Skeptics magicians Danny Varney and Mike Wilton have given public demonstrations of psychic surgery. Articles exposing psychic surgery have appeared in *the Skeptic*, *The Bulletin*, *Australian Penthouse*, and other magazines. The Australian Medical Association joined in with the WA secretary, stating it was merely "sleight of hand" and a lot of rubbish. In 1984, Australian Skeptics invited Bob Steiner, chair of the Bay Area Skeptics in San Francisco, to Australia. When he made his final appearance on television in May, film clips of psychic surgery were shown with Bob explaining the fakery.

This massive television coverage created considerable doubt among people who had formerly believed that psychic surgery did not involve deception. Shortly after Bob left Australia, a spiritualist informed a Skeptics' committee member that a visiting Filipino psychic surgeon, Lawrence Cacteng, was 'operating' in Doncaster, Victoria.

The national committee of Australian Skeptics decided to send in two volunteers, Janet de Silva and Joe Rubenstein. Janet was accompanied by her 'father'. Joe, who posed as a migrant who barely spoke English, was accompanied by a 'friend' (actually a professional magician). The police were informed, and both the 'patients' were fitted with

sophisticated sound recording equipment. The volunteers were examined by the assistant police surgeon before and after their 'operation'.

After the 'operations', the tapes were handed to the police, who raided the premises and arrested the Kingslands and Cacteng.

The hearing

In court, Janet stated that she told the 'psychic surgeon' that she had a lump in her abdomen. The 'psychic surgeon' chanted a prayer, and then proceeded to massage the abdomen. Mrs Kingsland held her hand on Janet's head, making any movement impossible and preventing her from observing the operation. Janet told the court she heard a ripping sound, and then a pop. This was followed by liquid flowing across her abdomen. Cacteng said, "I've cut the roots."

An object was whisked past Janet's head, and there was a swishing sound in a basin. At this point, Mrs Kingsland repeated, "He's cut the roots." The two defendants then reassured the patient that with further treatment the lump would disappear.

Joe Rubenstein's visit to the psychic surgery was similarly described in court, but Joe's altercation with the defence counsel was more heated. In fact, Joe was awarded the title of "the Prince of Sceptics" by Mr Lopez in his final submission, for his spirited presentation in the witness stand.

The first dispute arose prior to the description of the 'operation', when Joe was asked by Mr Lopez whether he believed in God. (Mr Lopez had noted that Joe had made an affirmation instead of taking the oath.) Joe stoutly objected to what he considered to be an invasion of his privacy, but the magistrate ruled he had to answer because the defendant Cacteng had recited a religious prayer.

After the discussion of the lump and the treatment (massage followed by a popping sound and flowing liquid), Joe gave evidence that a piece of meat was held in front of his eyes by the 'psychic surgeon'. Joe stated that it looked most unpleasant and was brownish in colour. He told counsel that no knife or scalpel was produced during this time.

Joe told the court the tissue, or meat, was certainly not his flesh and must have been dead for several days in order to produce tissue of that hue. Defence counsel Lopez asked Joe if he had ever seen human tissue, and Joe replied "Of course; during the war I saw many people blown to pieces or shot." No further question were raised by the defence on this question.

Joe then related how the flesh was thrown away and a little more massaging followed. During the time he was on the 'operating trestle table', Joe said Mrs

Kingsland acted as a nurse. After resuming his clothes (shirts had been removed prior to the I operation'), Joe was instructed not to drink coffee or alcohol, and was given a glass of milky liquid to drink.

It was suggested that another appointment be made immediately. After this, Joe's 'Friend' (Skeptic magician Mike Wilton) was asked for \$30, which he tendered before they left.

The decision

The admission in the case by the defendants, through their counsel, now makes it indisputable and crystal clear that the spiritualist promoters and the Filipino "psychic surgeon" all know that "psychic surgery" is fakery and involves a fraud.

The court held that because de Silva and Rubenstein knew that psychic surgery involved a fraud, and had expected to receive fraudulent treatment, there was no criminal deception.

It would now appear that all promoters and 'psychic surgeons' in Australia have to ensure that each and every one of their 'patients' is aware that 'psychic surgery' by definition involves a fraud. This should be made clear before accepting any monies by fee or donation. Providing paying clients know they are being deceived and the exact nature of the deception, the criminal offence of obtaining a final advantage by deception is not being committed.

Psychic Surgery in Australia

Vol 5, No 1

Mark Plummer

The psychic surgery industry in Australia can be divided into three main areas. These are: encouraging Australians to visit psychic surgeons in the Philippines, sponsoring the visits of Philippine psychic surgeons to Australia, and Australian resident psychic surgeons.

Stories of psychic surgeons operating in the Philippines encouraged Australians to visit the psychic surgeons, either as part of a regular visit or as a special visit. Many of these visitors underwent psychic surgery in the Philippines and brought back amateur still photographs or movies. Such films are very dramatic but in those which have been closely examined by professional magicians, such as James

Randi, deception and sleight of hand has been observed in every case.

Spiritualists and psychic groups in Australia took a special interest in these movies, and they were often shown in spiritualist churches or at meetings of psychic organisations. Some of the films showed very sick people going to the Philippines for psychic surgery. (For a full report of two such film nights see *the Skeptic* Vol 1, No 2 and Vol 2, No 4.) Later, fully organised tour groups went to the Philippines.

A Perth film maker, Carmello Musca, made an excellent professional film of one of these tours, titled "*I Am No God*". The film crew was able to capture some of the deception which is part of psychic surgery.

The film was screened on Perth television where it was seen by a large audience. Perth magician and sceptic, Danny Varney, later viewed the film for the first time at Musca's offices at normal speed and he immediately recognised crude misdirection. By using Musca's sophisticated video equipment to freeze frames and examine sections in slow motion, Varney was able to identify and demonstrate other examples of deception that Musca's film crew and Perth viewers, not trained magicians, had missed.

The promotion of such tours in America was banned by the American Federal Trade Commission in 1975 which found that psychic surgery had been misrepresented as an actual surgical operation by which diseased tissue is removed from the body using only bare hands. The report of the case (in the Matter of Travel King et al 86 F.T.C. 715-776) describes the deception in detail as well as relating confessions of psychic surgeons. The case also showed how harm can be done to individuals who are unaware that psychic surgery is pure fakery. The judgment revealed how the frustrations and hopes of the seriously ill and of their families were exploited. The representations had the tendency and capacity to induce the seriously ill to forgo medical treatment, worsening their condition and in some cases resulting in the death of a patient. The judgment reveals in detail the confessions of psychic surgeons Donald and Carol Wright as to the complete fakery of psychic surgery and the way visitors to the Philippines were deceived.

Visits to the Philippines by Australians were followed by Australians bringing Filipino psychic surgeons to Australia. Several psychic surgeons have come, some more than once, and conducted psychic surgery in every mainland capital city and some rural towns. At first their operations were publicised openly, but since the Skeptics started campaigning on the issue

there has been increasing secrecy. Patients have been sought mainly from spiritualist and psychic groups and screened before being operated on.

From the fees charged such visits must have been highly profitable to the Filipinos. None of these psychic surgeons came forward to try for Dick Smith's offer of \$100,000 or our subsequent offer of \$20,000 for anyone who could prove they had psychic powers - which includes psychic surgery - under controlled scientific conditions.

At the same time as the visits of Filipino psychic surgeons to Australia increased, their visits to America decreased. Perhaps the arrest of three Filipino psychic surgeons in California dampened their enthusiasm. Now the wheel is turning a full circle with Australian psychic surgeons trying to persuade Americans to come here for psychic surgery. There are three Australian residents who perform psychic surgery for donations or fees. They are Ms Chris Cole and David and Helen Elizalde. Ms Chris Cole operates from Suite 101, 29 Newland Street, Bondi Junction, New South Wales. Consultation and treatment cost \$45 for ten minutes.

Chris Cole went to the Philippines in 1975, where she met a local psychic surgeon. She married him, and for three years acted as his assistant in Baguio. They were later divorced, but she still visits the Philippines, and has also made at least two trips to Japan connected with psychic surgery. Chris Cole appeared on the ABC-TV series *Healer, Quacks or Mystics* in 1983. Close study by magicians of the film taken for the series revealed her sleight of hand and use of illusion.

She went to Darwin in 1984 and the *Darwin News* reported that she saw three hundred clients during the brief visit and charged fees of \$55. The Northern Territory police raided their hotel room, and subsequent forensic tests found chicken blood on seized items. The police stated that no further action was envisaged as no specific complaints had been lodged.

The other two resident Australian psychic surgeons are David Elizalde, who was born in the Philippines, and his Australian wife Helen Elizalde nee Morgante. They operate from 50 Allawah Street, Surfers Paradise, Queensland. To make an appointment telephone (075) 398403. In 1980 they were involved in a furore in England after an expose on a BBC *Nationwide* programme. The programme explained how they were visiting England as guests of the United Kingdom Spiritualists' National Union. There they performed thousands of operations at £10

each. It was claimed that they were making up to £7,000 a week.

The BBC film showed Helen Elizalde creating the illusion of apparently opening a patient's body and apparently causing blood to pour out. Detailed analysis of the film by magician James Randi showed that the blood came from a tiny balloon slipped to Helen Elizalde by her husband. Blood from one of their operations was analysed by experts at a London hospital and found to be from a pig. The Elizaldes' travel around Australia, and patients are referred to them by spiritualist and psychic groups.

Spiritualist and psychic groups perform a major role in promoting psychic surgery, and magazines aimed at individuals believing in the paranormal carry flattering stories. These articles come complete with photographs of the illusions created by psychic surgeons, personal descriptions of the 'miracle', personal testimonies and, comments that indicate the ignorance of the writer as to sleight of hand techniques and the methods of magicians. Examples are:

"Both healers wore short-sleeved shirts making it impossible to have concealed anything up a sleeve." (*Cosmos*, December 1980)

"It was an extraordinary experience watching her work on someone else and see clearly how real her work is, there is no room for any 'funny business', pig's blood, and anything else some sceptics may accuse." (*Maggies Farm*, Winter 1984)

To overcome this ignorance and to persuade those people who still believe, despite the admissions by psychic surgeons, the Australian Sceptics make the following offers:

* \$20,000 to any psychic surgeon who can prove his or her psychic diagnostic powers and/ or ability to enter a body with bare hands, remove diseased tissue and or disease causing tissue and close the opening without normal surgical procedures under controlled doubleblind scientific conditions in the presence of skilled sleight of hand magicians and video cameras.

* We will conduct psychic surgery free on any person who can prove they have undergone psychic surgery then show that person the sleight of hand techniques and methods of creating the illusions.

* We will demonstrate the methods, procedures, apparatus and paraphernalia used by psychic surgery at meetings of recognised spiritualist or psychic organisations. We will also present films of psychic surgeons and, using freeze frame and slow motion, reveal the methods used.

* We will teach competent and recognised magicians the technique of psychic surgery on the

condition that they do not perform psychic surgery for any fee or reward.

* *Costs are to be borne by the organisation or individual taking up the offer.*

We await the acceptance of these offers as we believe it is in the public interest that believers in psychic surgery have full access to sceptics' knowledge on psychic surgery, to avoid the risks of believers having ailments wrongly diagnosed and subject to the sleight of hand of psychic surgeons as a substitute for proper medical care.

Biorhythms Cause Australia - NZ Tensions

Vol 1, No 1

Mark Plummer

When Greg Chappell ordered his brother Trevor to bowl underarm in that cricket match, the reaction was sensational. New Zealand's Prime Minister Muldoon made a scathing attack on the Australians. Australia's Prime Minister Fraser called for a report. In New Zealand, brawls broke out between Australian tourists and Kiwis. Relations between the two countries sank to a low level. Papers editorialised, writers analysed and letters to the editor came in thick and fast.

Melbourne *Herald* sports writer, Terry Vine, came out with his explanation of Greg Chappell's actions. According to Vine, Chappell's biorhythms - the three cycles within your body that are supposed to control your physical, emotional and intellectual facilities - were all in their negative phase. Vine used his Kosmos 1 biorhythm computer to show that Chappell's physical cycle was in the 22nd day of its 23 day run, his emotional cycle was in the 23rd day of a 28 day cycle and his intellectual cycle in the 20th day of its 23 day run.

Dr Brian Quigley, Senior Lecturer in the Department of Human Movement studies at the University of Queensland, studied the alleged relationship between biorhythms and sport. Quigley made a study of all world record breaking male athletes in track and field events from 1913 to 1977. His findings were presented at the 26th Annual Meeting of the American College of Sports Medicine and Pan-Pacific Conference.

Quigley found the evidence for biorhythms consisted of retrospective anecdotal accounts of selected events such as the Chappell action which supported the theory. He found it was equally easy to select events which contradicted the theory. He found a good deal of name dropping, a lack of definition of terms, inadequate details of methods, data and statistical analysis, insufficient justification of conclusions and the omission of fully documented references to original research publications.

For his own study, Quigley calculated the physical, emotional, intellectual and mean biorhythms from the date of birth of the athlete and date of event for 700 men's world records in track and field. These represented all the records from 1913 to 1977, for which the athlete's birth dates were available, as published in the 1978 edition of the Amateur Athletic Federation Progressive World Record Lists. Where more than one record was broken in a single event, the event was counted only once as a single outstanding performance.

Dr Quigley found there was no evidence of any of the three cycles having anything to do with breaking world records. The theory of biorhythms would also suggest that records are less likely to be broken on days when two or three cycles are in the critical phase. Again, Dr Quigley found nothing in the results to support this theory.

As there is no evidence from the analysis of 700 world records which could support the existence of 'biorhythms' affecting sports performance, writer Terry Vine has now been nominated for the Australian Skeptics Bent Spoon award.

Opinion - Faith Healing

Vol 2, No 2

Logan Elliot

Laying on hands, colour therapy, hypnosis, naturopathy, acupuncture, vitamin therapy, prayer, chiropractic, psychic surgery. There are an enormous number of claims of their effectiveness, many believers and some evidence seems to be impossible to refute. However, they don't make sense and it is mostly cranks and crooks who practise them, so we can ignore all that stuff and go on with more important things. But then hypnosis, acupuncture and chiropractic are practised by reasonable, orthodox practitioners, we meet sensible-sounding naturopaths

and our discomfort grows as some fields of faith healing become respectable and some cases of, miraculous recovery appear to be proven.

There are several possible reasons for the apparent effectiveness of faith healing. One of the most important is that medicine is not a totally efficient system. People sometimes get better for no apparent reason and similar people with similar complaints can respond to treatment in very different ways. When someone has such a surprising recovery, any treatment the person believes in gets the credit. As bad news (in health) is publicised less and orthodox medicine is not as newsworthy, faith healing benefits.

Another possibility is that sound practical advice is given mixed with irrelevant material. Most naturopaths will give extremely good advice on nutrition, advice which is generally not given by doctors (medical readers will please look apologetic and not apoplectic). Many people who report little energy, depression, and chronic unresponsive pain have poor nutrition and inadequate exercise. These people improve rapidly when carefully advised about healthy life-styles. The naturopath who gives such advice gets the credit, and deserves it.

Faith healers usually emphasise anxiety reduction. Transcendental meditation, for instance, includes relaxation training; psychics give pleasant predictions (yes, you will get married one day and live happily ever after, win a fortune, get a good job eventually); any medium worth his robe will help you to relax, to have faith in him, to have hope for your future. This is an effective although ephemeral way of lifting depression. Alleviating depression is important in the treatment of many physical conditions of chronic pain. Relaxation, like meditation or prayer or just sitting quietly, reduces emotional and physical tension. This is of great value for heart problems, asthma attacks, anxiety, pain and gastric troubles, to name just a few. Achieving emotional equilibrium may also boost the power of the immune response. The effects of relaxation is dramatic without invoking the Thousand-rayed Being, and their impact gives people evidence to believe in the entire package. A genuine therapist will teach you relaxation quite cheaply and it is available free in some community centres.

Sometimes the faith healers are using something that works, perhaps for the wrong reason, which should be accepted by orthodox practitioners. Digitalis and its effect on heart rate were discovered by analysing herbal remedies for dropsy, i.e. swollen ankles. (It reduced the ankle swelling by getting the heart to work a lot harder and pump the blood around so much that surplus fluid got drained off. Doctors

nowadays don't like using it because the extra load is near the lethal limit.) A lot of our older drugs were discovered by checking the naturopaths' mixtures.

It is this possibility that we are overlooking something real, that worries us and inspires alternative practitioners. Part of faith healing becomes accepted without being understood - hypnosis, for instance. Impartial, objective, prestigious investigations are later seen to be worthless, such as the assessment of Mesmer which concluded that mesmerism couldn't work - not that it didn't. Only careful, impartial and thorough scientific research will help sift the wheat from the chaff, help us to isolate alternative therapies that are worth preserving.

Negative Ion Generators

Vol 2 No 4

Manuel Zammit

A small black box spitting out negative ions and a bit of ozone is another cure-all on the market. A flick of the switch and away with sleeplessness, tension, migraine, nausea, breathlessness and asthma - just to mention a few of the claims.

The principle of operation of negative ion generators is not new. An electrical charge is applied to air-borne particles like dust and pollen, and these fall out, leaving clean air behind. Dust collectors using the electrical charge principle, are employed successfully in industry, and are usually referred to as electrostatic filters.

Negative ion generators are very crude versions of electrostatic filters. To remove dust from air efficiently, all the air must come within the charged zone. This is the reason why effective electrostatic filters use charged plates with a large surface area, and circulate the air with a fan. Negative ion generators release their electrical charge from small, sharp needles which have a tiny surface area. The air immediately close to the needles receives most of the charge, and the remaining air is left unaffected.

Unfortunately, the poisonous gas ozone is produced whenever an electrical discharge takes place in air. Lightning in a storm and sparking electrical motors always produce ozone. Electrostatic filters and negative ion generators also produce ozone. Negative ion generators made before the 1960s produced so much of this gas that they were considered

unsafe in the United States and banned. It is interesting that much of the scientific research quoted about the effectiveness of negative ions dates back to the time when available generators produced large quantities of ozone, and when ozone was still erroneously considered by many as the invigorating component of sea-side and country fresh air.

The two most often cited researchers on negative ions are: Professor Felix G. Sulman, Head of the Department of Applied Pharmacology at the Hebrew University, Jerusalem, Israel, and Professor Albert P. Krueger, Emeritus Professor of Bacteriology at the University of California.

Dr Krueger claims that the negative ions substantially improve the growth of plants and affect the production of some hormones in animals. It is interesting that the former claim has not been taken seriously by the plant-growing industry. The latter claim had sparked several research programmes (especially by Dr Sulman's department) on the effect of negative ions on humans.

Dr Sulman's research centres on the effect on humans of the hot desert winds. His theory is that the positive ions in these winds cause their unpleasantness, and that negative ions restore the balance. These winds have been called "evil winds" or "witches' winds". We are told that in Australia, the northerly winds in Victoria and the westerlies in New South Wales are our very own witches' winds.

Dr Sulman has done some experiments to prove his hypothesis. In Jerusalem, it is well known that Dr Sulman carries out research aimed at helping "weather-sensitive" people who suffer during these desert winds. In one project, individuals with these complaints were treated with negative ions, and were then asked how they felt. Up to 30% of the group treated said they received relief from the treatment.

One glance at Dr Sulman's method reveals that the 30% success rate is no more than placebo effect. Simply, this means that 30% of the patients may have received benefit anyway, in the absence of any treatment.

In a later study, Dr Sulman set out to prove that changes in weather conditions are reflected in the hormone secretion of 500 females. He claimed to have carried out the study "double-blind" to eliminate any placebo effect. In a double-blind experiment, neither the experimenter nor the subject are told when the conditions are varied, thus eliminating bias. A close look at Dr Sulman's report reveals that the experimenter adjusted to the conditions until the required results were achieved.

These reports would be excusable if produced by

someone unskilled in the methods of science, but when published by no less than a professor of pharmacology, one can justly suspect bias. The results given in these reports are very scrappy, and give no assurance that the trials were 'conducted in a truly scientific fashion.

Furthermore, Dr Sulman had an axe to grind, as he is financially linked to one of the big manufacturers of negative ion generators. Dr Sulman issues certificates recommending negative ion therapy based on his experimental "proof" of their beneficial effects. Manufacturers of ion generators use Dr Sulman's claims as the hub of their sales promotion literature.

Because Dr Sulman presents no convincing evidence that his trials were conducted in a scientific fashion, so that the placebo effect was eliminated, his claims should not be taken seriously. Claims that negative ion generators help asthmatics have been refuted in at least two carefully conducted, independent and impartial studies^{1,2} The Asthma Foundation of Victoria does not recommend the use of negative ion generators, and warns of the dangers of ozone.

Negative ion generators have not earned a place as a genuine method of curing sickness in any branch of medicine.

References

1. Zylberberg, B. and Loveless, M.H. Preliminary experiments with ionised air in asthma. *Journal of Allergy* (1960) pp 370-4
2. Jones, DR, O'Connor, S.A., Collins, J.V. and Watson, B. W. Effects of long-term ionised air treatment of patients with bronchial asthma. *Thorax* 1976 31 p 428,32.

Mass Hysteria

Vol 1, No 1

Dr Allen Christophers

Students of the paranormal are familiar with claims of miraculous cures of disease where the improvement in condition is brought about by suggestion on the part of the healer. The other side of the coin is the situation where diseases are generated by a process of suggestion. In "The Story of San Michelle", Axel Munthe, himself a physician, tells how he incapacitated a rival by talking him into a disabling illness.

The phenomenon arises perhaps more often among a group of people and is then usually called 'mass hysteria'. These outbursts of mass hysteria most often affect young adults. The symptoms complained of are those thought to be appropriate to the occasion. The

patients often believe they suffer from poisoning or an infectious disease. Very often the outbreak is started by 'trigger figure' from whom the others copy the symptoms. The symptoms of the trigger figure are usually, but not necessarily, imaginary.

One of these outbreaks occurred in Victoria in June 1980. It involved about half of a group of eighty children from MacKillop College, Werribee, who were holidaying in Gippsland. The trigger figure in this case was an adolescent girl who had an attack of the hyperventilation syndrome, also known as panic breathing. The over-breathing is due to emotional causes, sometimes, but not always, in a panic situation. The symptoms are real and will develop in anyone who over-breathes. The symptoms in this case were photophobia, blurred vision, feelings of hot and cold, and abdominal pain.

Within a few hours, half of the children were sick. Many were physically hysterical in the ordinary sense, but many had symptoms very similar to the trigger figure. The combination of abdominal pain with feelings of hot and cold, suggested an epidemic of infectious gastroenteritis from food poisoning. The outbreak subsided as quickly as it arose, that is, within a few hours. At least some of the children following the trigger figure had genuine attacks of over-breathing and these, no doubt, added a touch of authenticity to the whole proceedings.

The next day there was no trouble, but a recurrence occurred on the next day when the children were returning to Werribee on two buses. The second attack occurred at Drouin where they had stopped for a short break. Again it involved about half the children, mostly those involved in the first attack. There were at least a few cases of panic overbreathing and again the attack subsided within a few hours. One of the girls was detained at Warragul hospital for a short time.

Although the children were apparently well on reaching home, many were obviously apprehensive and wondering when they would fall victim to the mysterious disease. It is not surprising therefore that isolated attacks continued sporadically among the children over the next few days and a number were admitted to hospital.

Investigation by the Health Commission indicated that the outbreak could not have been due to any organic disease. As odd children were still succumbing, it became necessary for the commission to reluctantly label the outbreak as hysteria. The diagnosis was resisted by the school authorities generally and very fiercely by parents, who would not believe that their children were hysterical.

By coincidence, another attack of mass hysteria in children made headlines about a month later. This attack involved almost five hundred children who were attending a carnival in Nottingham, England. The children in the jazz bands started to collapse, "They were just trembling all over and fainting".

The hospital said that the symptoms were consistent with exposure to fumes of some sort, causing nausea, burning of the eyes and a metal taste in the mouth". At first, poisoning by insecticide was suspected but no trace of it could be found. Eventually expert medical opinion and diagnosis was strongly resisted by the band organisers and by parents.

It is typical of media reporting of such events that while the first amount of the outbreak, blaming insecticides, was given headlines, the subsequent disclaimer was hidden in a paragraph towards the back of the paper.

Mass hysteria requires for its generation a number of predisposing factors to set the stage. It usually requires a large collection of teenaged girls in a situation fraught with considerable emotional tension or excitement. The exciting cause is often a bad smell that suggests the presence of poisonous gas and the attack is usually precipitated by a trigger figure. This trigger figure may be someone more suggestible than the others, or may be someone who is genuinely ill.

Those who follow, copy their symptoms from the trigger figure. Most often the outbreak subsides as quickly as it starts and this is usually associated with the removal of the patients from the situation they thought was responsible for their disease. If the outbreak is small, it often does not attract the attention of the media and if it is reported, it is usually ascribed to some poisonous agent. When further investigation reveals the hysterical nature of the illness, the media have lost interest and the true diagnosis is rarely revealed to the public. One could not be blamed for believing that there was a conspiracy of silence. The media are interested in reporting a poisoning but are not interested in reporting the final diagnosis that it was all in the mind.

The patients and their parents are naturally unwilling to accept the fact that the illness was not genuine. Not to be forgotten are the medical practitioners who early diagnose some organic disease and who would look a little foolish by a revelation of the truth.

The most remarkable feature of the episode involving the MacKillop College children was that it gave the appearance of a mysterious infectious disease, rather than a poisoning. For this reason the outbreak was not cured by the children returning to

their homes. They continued to wonder when they would be smitten by this mysterious disease. This state of mind was responsible for the persistence of isolated cases among the children after they returned home. It was this persistence which forced the Victorian Health Commission to divulge the unpalatable truth about the genesis of the outbreak.

Dr Allen Christophers is a medical practitioner and was a member of the National Committee of Australian Skeptics.

Mass Psychogenic Illness

Vol 3, No 3

Dr Allen Christophers

On March 28, 1983, the following item was published in the Melbourne *Herald*:

Schoolgirls in poison riddle

JERUSALEM, Sun, AAP - two hundred and thirty-three Palestinian schoolgirls were still in hospital tonight after a mass poisoning.

The item quoted health authorities that the girls may have become ill from the effects of "a volatile chemical sprayed on the curtains" and speculated that the poisoning may have been perpetrated by various terrorist groups. Symptoms were described as "headaches, dizziness and burning eyes".

Persons with an interest in mass psychogenic illness would know that this would be the most likely diagnosis. There is the obvious absence of any serious injury, and school girls are known to be subjects highly susceptible to this type of illness.

Persons who follow these epidemics are aware that it is usually for them to be reported in the media as mass poisonings when they first occur, but unusual for them to be reported after they have been investigated and found to be psychogenic in origin.

The epidemic was thoroughly investigated by a team of experts from the Centres for Disease Control, Public Health of the US Department of Health and Human Services and the findings were published in the April 29, 1983 issue of its periodical *Morbidity and Mortality, Weekly Report*. It is not surprising that this report was ignored by the mass media.

The investigators summarised their findings as follows:

From March 21 to April 18, 1983, 943 cases of an acute, non-fatal illness characterised by headache, dizziness, photophobia, myalgia, weakness, difficulty in breathing, fainting, myriasis and peripheral cyanosis occurred in residents of communities throughout the West Bank. Six hundred and sixty (70%) of patients were school girls between the ages of 12 and 17 years. Clinical, epidemiologic and toxicologic analyses indicated that the West Bank epidemic was triggered either by psychological factors, or more probably, by the odour of low, sub-toxic concentrations of H₂S gas escaping from a latrine at the school in Arrabah. Subsequent propagation of the outbreak was mediated by psychological factors, occurred against a background of anxiety and stress, and may have been facilitated by newspaper and radio reports that described the symptoms in detail and suggested strongly that a toxic gas was the cause. The epidemic was probably terminated by the closing of the West Bank schools.

The common symptoms are listed in the report in order of frequency as follows: headache, dizziness, abdominal pain, blurred vision, weakness of limbs, myalgia (muscle pain), loss of consciousness, paralysis, blindness.

The team of experts apparently did not realise that these are the common symptoms of over-breathing and although its report mentions hyperventilation, it does not attach to them the importance they deserve. It seems clear that most of the symptoms were due to over-breathing.

This point is important for two reasons: firstly, because several other epidemics of mass psychogenic illness in school children have been reported in which the important role played by over-breathing has been recognised, and secondly, because it helps in understanding the genesis of the symptoms. If the symptoms are due to over-breathing then the symptoms are real and not imagined.

Vitamin C and the Common Cold

Vol 3, No 3

Janet de Silva

The possible uses of Vitamin C have been the centre of controversy since the vitamin was first synthesised over 50 years ago. Whilst many scientists believe that an average dietary intake of Vitamin C is sufficient for the maintenance of good health, others recommend the use of large supplements for the treatment and

prevention of various complaints, ranging from acne and aging to drug addiction and drunkenness. But perhaps the most debated claim concerning Vitamin C is its ability as a prophylactic and therapeutic agent against the common cold. Many famous scientists such as Linus Pauling and the Australian physician, Lady Cilento, have expressed complete faith in the healing powers of the "miracle worker".

Lady Cilento who has written several books on Vitamin C believes that those who are sceptical of the value of Vitamin C therapy for the common cold are merely reflecting the conservative and timid attitude of the medical profession - timid or unconvinced?

Recently, a group of Australian scientists (Carr, Einstein *et al*, 1981) investigated the relationship between Vitamin C and the common cold. The results of this study are of particular interest due to its excellent design. The history of therapeutics abounds with examples of the mistaken belief in the efficacy of treatments that reflect merely the infectious enthusiasm of the person who introduces them, so that therapists and patients alike were persuaded of their value. For the objective evaluation of drug action, involving the comparison of a drug against a placebo, the current standard of practice is to use coded material, and ensure that neither the subjects nor the experimenters become aware of the meaning of the code while the experiment is in progress. This type of trial is known as double-blind and this procedure was followed by Carr and his colleagues.

Ninety-five pairs of identical twins took part in the study with one member of each pair taking a tablet containing one gram Vitamin C and the other taking a well-matched placebo each day. The trial lasted for 100 days, beginning June 2, 1980, thus including the worst of the winter weather. At the start of the trial, twins were given record sheets onto which they were asked to record the severity of ten given cold symptoms.

Results of the total data did not suggest any effect of a daily dose of one gram Vitamin C in preventing the common cold. However, among the pairs of twins living together, the placebo groups reported 20% fewer colds than those in the Vitamin group, but the opposite effect was observed in those living apart, ie the Vitamin group got 20% fewer colds than the placebo group. While it is possible that the observed preventative effect of Vitamin C in this group is real, it is also possible that the apparent treatment effect has occurred by chance since there is otherwise a total lack of evidence for the effect of Vitamin C in the other groupings of data. The

apparent effect of the placebo in preventing colds in 20% of the pairs living together may likewise have occurred by chance or be due to the fact that a disproportionately large number in that group incorrectly guessed their actual treatment. When the results of the study were analysed according to how the twins perceived their actual treatment, it was revealed that the twins taking the placebo, but who thought they were taking Vitamin C reported markedly fewer, shorter, less severe and less intense colds than their co-twins who thought they were on placebo.

In summary, Carr *et al*, reported that their most obvious analysis suggested that Vitamin C had no effect at all in preventing colds. When taking a separate account of the living apart group, they suggested that a daily dose of one gram Vitamin C at best has only a very modest effect in preventing colds.

In a controversial area such as Vitamin C and the common cold, it would be rash to take the results of one study as the rule, without consideration of other research. What can be said however, is that on balance, most trials had failed to show any useful preventative effect of Vitamin C against the common cold. In view of this it is surprising to find that most popular books on Vitamin C have not only tilted the balance in the wrong direction but go further to claim absolute proof of the value of Vitamin C as a preventative agent against the common cold.

It is not the "timid" attitude of the medical profession that warrants concern but rather the overzealous viewpoint of people such as Lady Cilento for which the onus of proof resides.

References

- Carr AB et al. Vitamin C and the common cold. *Acta Genet Med Gemellol* 1980; 30: 249-255
- Cilento, Lady You can't live without Vitamin C (1979) Whitcombe & Tombs, Sydney

Janet de Silva is a scientist and is a former Editor of the Skeptic and member of the National Committee.

American Advertisements

Vol 4, No 2

Anthony G Wheeler

The other day my wife bought an American magazine on hairstyles. Innocuous enough you might think but you would be surprised. The magazine's articles are fine but the advertisements make the most astounding claims. To give you a fair representation of the advertising content I have reviewed all the major advertisements.

We start with the least controversial - a full page of wigs and a \$100 beauty kit offered for \$1. You too can have "thicker healthier looking hair" and 11 smoother, more youthful looking skin ... in just seven days". This promise is elaborated, but the method is only described as a "natural, scientifically formulated supplement tablet and plan---. It seems that not only "doctors, scientists and nutritionists, but some of the world's leading beauty experts- have recommended the components of the plan. A " 100% protein and Vitamin B conditioner" offers "thicker, stronger, longer hair in just 5 to 7 days". It seems that a few drops daily "nourishes every strand". On the other hand a do-it-yourself electrolysis unit is guaranteed to remove unwanted hair for ever.

How about "guaranteed larger breasts"? And "a sexier figure in 30 days". Now this treatment is so good that "scientists are saying that this method may one day replace surgery for breast enlargement". What the method involves I'm not quite sure, except that it requires the learning of some parts of a book by Craig Stratton, "The bio-imagery method of breast enlargement and waist reduction". (For those not too keen on reading, the bits that need to be learnt can be supplied on tape.) As for whether the method works or not, have no fears: "clinically tested and proven by research scientists and medical doctors-, and the young lady pictured in the advertisement has a most attractive smile!

Helene ("a normal married office girl") tells us how "my kid brother gave me this terrific bust line". The secret is the cream, and while Helene didn't reveal its ingredients she will "personally see to it that your supply of Formalon is shipped to you immediately".

Another busty ad offers a "round sexy bosom" by rubbing in a cream containing oestrogens - 10,000 units worth no less, whatever a "unit" is. It works while you sleep to create that welcoming smile.

We also have the "fastest weight loss method in today's medical world", at the rate of "one pound

loss every eight hours, 10 pounds in two days"! "One pill every morning will quickly wash the fat down the drain ...".

Another capsule promises to "shrink millions of fat cells the first 24 hours; melt off up to 10 pounds in 4 days; burn away up to 16 pounds the first week" etc. Don't worry, the pill/capsule is clinically proven, and works by "your internal fat burning engine is turned on ... and keeps on churning" thereby lowering the level of calorie consumption".

Yet another weight loss scheme features "the new scientific breakthrough from Japan" - Tayushi dietary granules. Sprinkle the stuff on your food and the "Tat evacuating, fat cell shrinking" regime works incredibly fast by ensuring that "the foods you eat no longer turn to fat". So effective is this scheme that readers are admonished to eat---anabsolute minimum of 3, preferably 4, times a day - even if you may not want to - or you may become too thin, too fast!"

Remember all those pounds we've lost? Well now we can "gain up to 5, 10, 15 pounds" without drugs, medicines or exercise - just "take delicious, chewable, nutritionally fortified Gain tablets" before meals. And in case vanity is not sufficient incentive, we are reminded that "a famous medical journal" reports on a recent government-controlled study that "proved that being underweight is as injurious to health and longevity as being overweight".

Then we have the addition of "shapely curves at ankles, calves knees, thighs, hips!" to skinny legs. It seems to be a "tested and proven method" of exercises "revealed by Henry Milchstein, MS, RPT, President of the Metropolitan School of Physiotherapy". For those with the reverse problem, we have an ad for "heavy legs". Exactly the same ad as before, by the same people, only the key words and illustrations have been changed. Seems to be a treatment for all seasons.

Then we have the old perennial: complexion problems. But now "Peel away blackheads! Peel away complexion problems" using a "doctor developed, doctor tested" mask that you apply, wait, and peel off, taking all your problems with it.

For those in later life Smythe's Formula WRX/3 will make you look "15 years younger, instantly".

We move back to the relatively mundane Illustrated Encyclopaedia of Sex ("to see is to understand"). It seems that the "200 enlightening pictures" will "flood your marriage with exciting new variety".

We're near the end of the magazine now, and the really powerful stuff. How about "the astonishing power of Automatic Mind Command" - "how to make others secretly do your bidding---. The book describing the system, "The miracle of

psychocommand power", is by Scott Read, "a master researcher, metaphysician and psychic adviser---. It seems that reading the book isn't necessary to start since all you need to do is "open the package, lift the book's front cover and let the secret feed itself into your mind automatically". The testimonials are alluring and the promises extravagant.

Alternatively, how do you fancy "the magic power of witchcraft"? Because the same people that bring you automatic mind control also offer "a life of unbelievable riches, lasting love and constant protection" through their book on witchcraft. The temptations are even more outrageous (cast spells, telepathy, influence others, finding lovers, perfect mates, dominate others, money, be irresistible, find lost objects, luck, etc) though the cost is the same. Also, witchcraft offers healing, seeing the future, time and space travel. And if you're not persuaded yet, the qualifications of the senior author should convince you: Archbishop of the Church of Wicca, Marshal of the Gold Star of England and a past vice president and director of international operations for major aerospace companies. His wife and co-author is a bishop of the same church.

A third string to the same company's bow is a book (for the same price) by Robert A Ferguson: 14 author, lecturer, psychic telemetry teacher, consultant and television psychic". The promises are the by-now familiar financial and medical miracles, power over others, love and magic to bring knowledge, protect from evil and display the future. And if all that isn't enough page 204 promises to reveal the secret of cosmic dust!

Remember that all this was offered in an American hairstyle magazine. The mind boggles at what we might find if we went actively looking for paranormal claims. And under the weight of such material the 'average' reader must be left with a distorted view of what is true and what is not, especially as presumably this type of advertising permeates other general magazines. Hence the need for sceptics to reveal the substantial from the rubbish so that we may return to the days when we could believe what we read in print.

Editor's Note

And things haven't improved a bit in the intervening years.

Book Review

Vol 4, No 4

Pam Williams

The Holistic Healers: A Christian Perspective On New-Age Health Care. Paul C. Reisser, MD, Teri K Reisser, John Weldon, Inter-Varsity Press.

United under the banner of New Age medicine in the USA is a growing movement whose leaders proclaim that a radical revision of the underlying thinking of the theories of health and disease is required. This revision, it is said, "necessarily includes reuniting modern medicine with its mystical traditions, as well as opening it up to paranormal phenomena", and the name the advocates use for this New Age medicine is "holistic health".

The concern of the authors of "The Holistic Healers" is less with the erosion of basic scientific and medical theory, but more with the underlying anti-Christian messages of occultism and Eastern mysticism. It is from this angle that they examine, with great sagacity, the myriad forms which go to make up the alternative universe ; from the common or garden variety naturopathy, through to the more exotic and perverted varieties such as Rolfing (works perhaps in the same way as when one hits one's head with a hammer - it feels so good when it stops) and Orgonomy (the word Orgone was derived from orgasm - please draw your own conclusions).

At the outset of the book, the authors make the statement, 'Ye view the Old and New Testaments as authoritative in all matters of life, including physical and spiritual health. Much of our critique will therefore be derived from biblical principles. Our goal will be to identify the many forms of chaff, which need to be separated from some very important wheat.'

Having thus stated their position as vigilantes, the authors proceed with a fascinating and comprehensive listing of alternative healing techniques; a veritable fruit salad of mysticism, a cold collation of the paranormal, interspersed with humorous asides and observations. The word 'holistic' is defined as having stemmed from the Greek "holos", meaning whole or entire, and is a relative of the roots for our words heal and health.

If you are looking for a good breakdown of the alternative healing therapies, this book is an excellent starting place. An outline is provided of the many basic ideas and presumptions of the "New Medicine", and these are subjected to a critical analysis.

The point is made that: "Healing methods which have no basis in reality or common sense, which openly defy well-established principles of biology, and

which in some cases tamper with dangerous realms of the occult, have acquired respectability by being referred to as natural."

Acupuncture and acupressure, Kirlian photography, chiropractic, osteopathy and homeopathy, all flow through this book. Iridology and mediumology, zone therapy, polarity therapy and thymus thumps, behavioural kinesiology and psychic surgery - whatever your favourite poison, if s sure to make its appearance here. With insight and wit, the authors provide a guided tour through this panorama of pomposity, the proponents of which are frequently making vast sums of money as a by-product of accusing orthodox medicine of an antipathy.

For the sceptic, it is interesting to observe the subtle distinction the authors make in their evaluations, dependent upon whether the message conveyed is anti-Christian, "all is one, you can be God" or whether the idea is that the psychic is an instrument of God. The authors reveal a distinct bias in their criticism. Any healing which encompasses a Taoist philosophy is dissected from a strictly logical point of view ("No acupuncture text book explains what to do for an amputee"), whereas the psychics who claim to be instruments of God are subjected to a somewhat more neutral analysis. A well trained eye for the non-miraculous is recommended as a valuable asset for the sceptical person, although the 'hardboiled' sceptic's position is queried, with a short note on the questionable "open-mindedness" of the contributors to CSICOP's *Skeptical Inquirer* and a warning is sounded against "deceitful miracle makers" (as opposed to Jesus). It is interesting to recall the words of Elbert Hubbard on the subject of miracles: "A miracle is an event described by those to whom it was told, by men who did not see it---".

However, the narrative is virtually untainted by the dogma of biblical perspective, and it is not until the valedictory pages that the authors attempt to give a good push to their own barrow. After offering a guide to the principles of self-education and a sharp kick in the pants to orthodox medicine (fixated on crisis care), they invoke some scriptural counselling for orienting one's thinking along biblical lines. Having been conspicuous by its absence, a short dissertation of this kind is no barrier to the usefulness of the volume as a reference tool for the inquiring sceptic, or for anyone interested in an appreciation of the various alternative therapies.

Pam Williams is a technical writer and is a former National Committee member.

Pseudoscience

Introduction

People perpetrate pseudoscience when they use the forms and language of science to support an hypothesis which conflicts with the known and well tested laws of nature, or when they make scientific claims unsupported by any testable evidence.

Two of the best known examples of pseudoscience that occurred during the first five years were the Horvath hydrogen fusion car and the employment, by the Melbourne Metropolitan Board of Works, of a psychic archaeologist. The claims made in these cases were investigated by reputable scientists, skilled in the areas involved, and were found to conflict with many well tested scientific theories. Empirical testing of these claims, under controlled conditions, was impossible due to the unwillingness of the claimants to be so tested.

This is a very common response to offers to test unusual claims and unless the proponents of extraordinary claims are willing to recognise that the onus of proof rests with them and that extraordinary claims require extraordinary proof, then they must expect to continue to be treated with scepticism.

These stories, and others, are covered in this section.

Horvath Car Secrets Revealed

Vol 3, No 4

Mark Plummer

Sydney inventor Stephen Horvath has applied for patents for the water-fueled hydrogen car which he demonstrated for Queensland Premier Joh Bjelke-Petersen in 1980. It is supposed to generate hydrogen from water, then burn hydrogen in a controlled nuclear fusion reaction.

The details we now reveal from the patent application and Horvath's claims to international development of the project have raised fresh questions. Mr Horvath does not seem to want to make himself available for interview to face these questions.

The car made national headlines when Horvath displayed it in Brisbane. On this occasion, Premier Bjelke-Petersen poured water into the filler hole used on normal cars for petrol and watched as the car was driven down the road. For Mr Bjelke-Petersen this seemed sufficient proof that the car would run on water. He said the cars would be built in Queensland and predicted that hydrogen fuel would be used for cars, trains, ships and aircraft and to generate electricity. He forecast that Queensland would be the operational centre for Horvath's invention and that it would revolutionise the world.

At the time of the display of the car, Queensland University scientists were sceptical of Horvath's claims. Professor Stacey, of the Physics Department, said the nuclear reaction needed to cause hydrogen fusion would require a temperature of several million degrees and that the driver would receive a fatal dose of radiation within a few seconds.

Professor Whitehead, Head of the Physics Department, said that the car burnt hydrogen as an internal combustion fuel, but found it difficult to accept that hydrogen was produced from water on board, using energy provided by a nuclear reaction.

He said that the car must be powered by stored hydrogen.

The scientists present at the Queensland launch said they were keen to inspect inside the car's boot but were denied the opportunity. They expressed doubts that fusion was occurring, explaining that straightforward combustion of the hydrogen was much more likely to be the energy source; hence their desire to inspect the car's boot.

Premier Bjelke-Petersen said that the scientists did not know what they were talking about. Mr Horvath said that his power system would solve the world's energy crisis. He introduced Mr Rolf-Wilk Liebenberg, president of Roecar Holdings of South Africa, to the press. Mr Horvath said Roecar had exclusive rights to evaluate and develop the vehicle.

Roecar Holdings seems to have faded from the scene because, in June 1982, Mr Horvath announced he had sold the marketing and manufacturing rights for the car to other companies in Canada, the USA, Mexico and the Caribbean. The Horvath energy would, he said, be manufactured in Toronto by Oxin Energy Canada, and the first hydrogen powered vehicles would be on Canadian roads by the end of 1982. He said the marketing and manufacturing rights in the USA had been sold to Oxin Energy Inc, which, Mr Horvath claimed, like Oxin Energy Canada, was a subsidiary of the US company Energy Unlimited Limited.

Mr Horvath is certainly involved internationally. Horvath Energy International is listed at the NSW Corporate Affairs Office as a foreign company incorporated in Hong Kong. The company was formerly known as Hong Kong Energy Research Ltd. Mr Horvath is one of six directors of HEI.

Mr Horvath's claims, if true, represent a giant advance in science in the use of a controlled nuclear fusion reaction in a compact engine, without radiation hazards. His claims are worthy of investigation.

Overseas Investigations

The area I checked first was his reference to the development of his engine overseas. *the Skeptic's* US correspondent, science writer Kendrick Frazier, checked Standard and Poor's Register, a major reference of 40,000 US corporations. It did not list Oxin Energy but it did list Energy Unlimited as a company based in Connecticut, engaged in "energy production and the distribution of micro utilities".

I wrote to Energy Unlimited and received a reply from the President, Sidney H Berson, dated August 3 1, 1982. The relevant parts areas follows:

"...please be informed that Energy Unlimited has

no subsidiary named Oxin Energy either in the US or Canada. ... I have never heard of Stephen Horvath and I can only assume that there might be another company in this country by the name of Energy Unlimited, Ltd.

I also might add that our company, Energy Unlimited, Inc was changed from Energy Unlimited, Ltd approximately three years ago, so it is conceivable that another company took the name Energy Unlimited, Ltd, but I have never heard of it."

the Skeptic's Canadian correspondent, Professor James Alcock of York University in Toronto, located Oxin Energy Canada Ltd, a company incorporated in Ontario in 1974. Its original director was William Kajdocsy of Ontario. On January 6, 1982, four more Canadians became directors and on the following day Stephen Horvath became a director.

The Company Service Branch of the Ontario Registry of Consumer and Commercial Relations states that it has no record of Energy Unlimited. Professor Alcock visited Oxin's office and spoke to Mr Bill Kajdoesy, President, who was quite wary about the whole thing. He admitted that he was licensed to produce the car and hoped to have one on the road by the end of 1982, but did not want any publicity. Prof Alcock found Oxin energy to be a very small operation and certainly not a major automobile production and testing plant. Mr Kajdoesy announced in January 1983 that the Canadian Government was testing the car, but Prof Alcock could find no evidence for this.

Prof Alcock and Kendrick Frazier forwarded their early findings to Australia in 1982 and followed with more in early 1983. By early 1983 we were keen to discuss our research with Mr Horvath. It is possible that he could clear our doubts by providing:

1. The address of the other US company named Energy Unlimited which, if it exists, was claimed to be the parent company of Oxin;
2. The name and location of the Canadian Government department testing the car;
3. The capacity of Oxin Energy to develop and test the car;
4. Details of the involvement of the original rights holder, Roecar Holdings, South Africa.

Requests for Interview with Horvath

I asked a Sydney member of Australian Skeptics, Harry Dillon, to interview Mr Horvath. Mr Dillon is a member of the Australian Journalists Association and works for a leading Sydney media organisation.

Mr Horvath proved to be very elusive. First Harry Dillon contacted him by phone and managed, after explaining briefly the nature of the Skeptics' activities, to arrange an interview for five weeks later - the earliest that Mr Horvath said he would be available. The day before the interview was to take place, Horvath's office called to say the meeting was off because they could not establish the bona fides of Australian Skeptics.

At Dillon's request, I wrote to Mr Horvath in May, setting out the bona fides of Harry Dillon and Australian Skeptics and seeking an early interview. The letter was sent by registered mail and it appears that Mr Horvath himself signed for the letter. In the letter we told Mr Horvath that we had interviewed the president of Energy Unlimited, in Connecticut and Mr Kajdocsy in Toronto, so that all we needed to complete our research was to interview him. We received no reply.

Harry Dillon also sent a copy of *the Skeptic* to Mr Horvath and was then told on the telephone by Mr Horvath that the interview would be back on. He asked Dillon to ring again to confirm a time, but on at least six occasions over the following two months he was unsuccessful. In early August, Harry Dillon sent Mr Horvath a list of questions relevant to this article, asking him to reply in writing. No reply was received. As a last resort, a list was delivered to Mr Horvath's office, but as yet there has been no reply to Harry Dillon or Mark Plummer.

Thus, at the time of writing (14/10/83) Mr Horvath has not made himself available for an interview. However we do have other evidence on which we can consider the likelihood of Mr Horvath's claim that his invention will solve the world's energy problems.

Is Hydrogen a Viable Fuel for Cars?

Professor Hans Forster of Daimler Benz visited Melbourne in 1980 and has released a paper on the West German Government's test and research programme into the viability of alternative fuels such as electricity, alcohols and hydrogen. This states that hydrogen powered cars have special problems relating to refuelling, one of which would be the necessity to carry a large and heavy hydrogen tank. Current research indicates that filling the fuel tank with hydrogen requires up to ten times as long as with conventional fuels. Hydrogen gas has a very low density and a suitable storage tank would take up most of the passenger and luggage space. It is highly explosive and with its low density can leak through any except the most specialised container.

If liquid hydrogen is used, almost half the energy available is lost in cooling the gas, with the added problem of 50% evaporation over an average of nine days storage. Liquid hydrogen must be stored at -253° C at a pressure of 12.5 atmospheres. This means great expense in establishing a network of filling stations - far more complicated than for LPG.

In Japan, the Sumitomo company has developed a hydrogen powered car by storing the gas in a metal alloy matrix. The company has no plans to proceed with production of the car for one simple reason - the cost of hydrogen is ten to eighteen times as much as petrol, diesel or LPG. Some alternative fuels may have a future if the cost of conventional fuel becomes higher than that of the alternatives.

If Mr Horvath's claims that his car could solve the world's energy problems by using water and converting it to hydrogen (and oxygen) which is then used in a controlled nuclear fusion reaction, then sufficient power would be available to extract the hydrogen from the water and hydrogen storage would not be a problem.

Does the Horvath Car Contain a Nuclear Reactor?

Apart from the Bjelke-Petersen 'test', which assumed that there is a nexus between pouring water into the petrol filler hole and then seeing the car move, what other evidence is there that Horvath has achieved the results he claims?

In June 1979, physicists Howard Rose and Jim Whiting went to Sydney after being asked by Premier Bjelke-Petersen to inspect the car. They carried out tests and publicly stated that they doubted Mr Horvath's claim that a thermonuclear fusion process was taking place. Mr Rose said all known fusion processes involved the emissions of neutrons and lethal radiation.

In a report dated October 1979, Prof Ken Taylor of the School of Physics, University of NSW, referred to an examination of the car. He noted that in 1974 there were approximately 50 cars in the world using hydrogen fuel and that the Horvath car fitted well into the operational efficiency bracket of 30-40% of hydrogen fuelled vehicles. Under static test bed conditions its performance was among the highest obtained, though not significantly better than that achieved in other vehicles.

Our man in Canberra, Paul Kaufman, located the patent application for the car and these were studied by Skeptic Ian Bryce. His report appears in the following article.

Conclusion

The factual information presented in Ian Bryce's article clearly indicates that Horvath's claims of a controlled nuclear reaction go outside all that is known about nuclear reactions and breaks many well-attested laws of physics. In view of the huge amounts of money spent on nuclear research in laboratories overseas, it is unlikely that small organisations like Mr Horvath's and Oxin of Canada could have financed the R&D necessary to develop and control nuclear reactions in a car without the radiation associated with known nuclear reaction processes.

Until Mr Horvath enters into dialogue and allows independent examination of the contents of the boot and equipment flitted after Prof Taylor's tests, his claims must clearly be seen as of a highly improbable nature.

Premier Bjelke-Petersen will have to hope for a very long life to drive the first water-powered car off a production line in Queensland.

Description of Horvath's "Hydrogen Fusion Car" Patent

Vol 3, No 4 Ian R. Bryce

The full patent application, known as a "Complete Specification" was lodged in Australia by Melbourne patent attorneys on July 12, 1979. The applicant was Rowena Company Limited, a Hong Kong registered company. Steven Horvath was named as the inventor, and the title was simply "Process and Apparatus". The application waited in the queue for several years until June 1981, when the Patent Office directed the applicant to request examination, as is normal. The formal Request for Examination, accompanied by the appropriate fee, was received by the Patent Office in September 1981. Scrutiny by the Examiner occurred over a period of 14 months. The "First Examiners Report" was issued to the patent attorneys in November 1982. The records do not show further decisions granting, or lapsing of, the patent application.

In essence, the patent defines a process where hydrogen is ionised and fed into a combustion chamber. There it is chemically burnt with oxygen. It is claimed that ionisation and other processes increase the temperature and the deuterium content, so that a nuclear fusion reaction takes place, releasing

more energy than from combustion alone. The - preferred embodiment" of the invention, the best way of carrying it out known to the inventor, is much more detailed. It describes a motor car engine, modified to run on hydrogen in a not uncommon manner, and further modified to treat the inducted gas with X-rays, neutrons, magnetic fields, electrical discharge and electrostatic fields.

Conventional Components of the Fuel System

The principle of operation of petrol driven engines is modified for operation on hydrogen in a manner similar to the modification for natural gas. Figure 1 of the patent shows an overall block diagram of the fuel system.

The hydrogen is carried in a "gas tank to receive industrial hydrogen gas". It is not specified which of the three known methods of storing hydrogen is used - as a compressed gas in a pressure vessel, as cold liquid in a cryogenic (special heavily insulated) container, or absorbed in a matrix of metal hydrides. Later discussion of pressures, however, indicates the Horvath car uses compressed gas.

The hydrogen then flows through a primary pressure regulator, reducing the pressure to 80- 100 psi, and a solenoid cut-off valve. The remaining components are physically constructed as one unit, but the separate functions are described. There is a secondary pressure regulator containing a diaphragm, which lowers the pressure to 1.5 psi above atmospheric. The hydrogen then flows through the mysterious "gas conversion apparatus" (which we will bypass for the moment). The hydrogen is then combined with air in a gas metering apparatus, which does not appear to contain any novel features and is barely mentioned in the legally important "claims".

The pressure before a butterfly valve bears on a diaphragm which opens the air passage and the hydrogen passage together. This is similar to the operation of common Stromberg and Solex constantdraft petrol carburettors. The gas-air mixture is then inducted by an internal combustion engine, which is a normal Ford V8, but fitted with different "electrical discharge devices" which appear similar to spark plugs. As in all car engines, the gas mixture is compressed by a piston, ignited and the heat generated expands the gas and drives the piston down, thus rotating the crankshaft.

As described so far, this is an internal combustion engine which chemically burns hydrogen with oxygen, and would appear not to be significantly different from the fifty or so other experimental

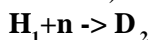
hydrogen-fuelled cars which existed before the time of the lodgement of the patent.

Gas Conversion Apparatus

Now let us examine the device which allegedly does things to the hydrogen to make it susceptible to nuclear reaction. The patent calls it a "gas conversion apparatus" and it is of intricate complexity. Interviewed by Prof Taylor, Horvath referred to it as a "reactor". This is strange because under the claimed operation as set out in the patent, the powerproducing nuclear reaction occurs in the engine block.

In the heart of the apparatus is a vacuum tube which generates X-rays in the common manner used for medical purposes. It is fed with high voltage electricity, 40 kilovolts, from an electrical generator which apparently draws 25 amps from the car's 12 volt electrical system. The X-ray tube also requires a 2.65 volt supply to heat the filament and a constant flow of oil for cooling.

The hydrogen gas is bombarded with these intense X-rays, which, according to the patent, results in some H₂ molecules being dissociated into atomic H, and some of these being ionised (given an electric charge) to become H⁺ and free electrons e⁻. Further, the level of X-rays is modulated (increased and decreased) which allegedly enhances the effect. In addition, 12 volts DC is applied to an "anode" of complex shape, which is also covered in "small pyramidal projections". The apparatus also contains two rings of permanent magnets which are claimed to focus the X-ray photons, which cause "spin-flip" of the hydrogen nuclei. Not only that, but the X-rays are said to generate neutrons, which are trapped by the hydrogen nuclei (protons) to form heavy hydrogen (deuterium) :



The physics of these exotic processes will be examined in the next section.

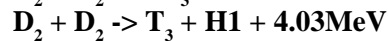
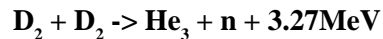
The hydrogen thus conditioned is mixed with air and drawn into the combustion chamber in the normal manner. It is compressed to at least 60 psi. The spark plug has been replaced with an "electrical discharge device" which is claimed to generate heat by atomic dissociation of hydrogen and then more heat by recombination.

Nuclear Fusion

The combination of all these effects:

atomic dissociation; ionisation; spin-flip of the nucleus; deuterium enrichment; electric field between cathode and anode; shock-wave; compression;

heating; is claimed to increase the temperature (ie energy, or speed of motion) of the deuterium nuclei so as to cause a "controlled nuclear fusion reaction" in addition to the chemical burning in the combustion chamber. The claimed reaction is the same as that occurring in the hydrogen bomb, where two deuterons collide with sufficient speed to transform into a helium or tritium nucleus.



Much energy (measured in mega electron volts or MeV) would be released from a small number of reactions. Copious lethal radiation could be generated in the form of neutrons, alpha particles and gamma rays. The energy obtained by nuclear reaction would provide the heat necessary to drive the engine, it is claimed, thus reducing the amount of hydrogen needed for chemical combustion.

Generating the Hydrogen from Water

Once this nuclear reaction was established, providing abundant energy with little consumption of hydrogen, then it would be a simple matter to use this energy to extract hydrogen from water on board the car. In the patent, this feature is only mentioned in passing but no doubt forms the basis for Horvath's repeated claims in the press that his car "runs on water".

Conflicts with the Laws of Physics

There are many areas where the detailed description of the operation of the engine, as described in the patent, is inconsistent with well-understood and verified natural laws. A text book such as "Introduction to Nuclear Physics" by Harold Eng describes the conditions under which the various nuclear processes occur. Questions relating to magnetic fields and electromagnetic radiation may be referenced in "Classical Electrodynamics" by J D Jackson. The following is a summary of the aspects of the patent application taken alone which are at variance with the accepted laws of physics.

1. The patent application reveals a lack of knowledge of magnetic fields and their effects. Magnets within the gas converter are described and the resulting magnetic field is shown in a diagram.

(a) The configuration depicted consisting of straight lines and circles, is not correct.

(b) Further, the magnetic lines converge to a single line in places, and this is not physically possible.

(c) A steel cathode runs the full length of magnets and this would short out most of their magnetic flux.

(d) The configuration is further described:

"The magnetic field lines ... pass outwardly through the annular hydrogen gas flow chamber in the region where the hydrogen is subjected to intense irradiation."

But the diagram shows no magnetic field in this region, and in fact the presence of steel cathode would reduce the field to almost zero.

2. On page 22 the patent application states:

"In the region between the radiation tube filament and anode, the magnetic field serves to accelerate the electrons which bombard the radiation tube anode, and so contributes to the energy of the radiation produced by the tube."

This is not possible. A magnetic field cannot change the speed of electrons (ie cannot change their energy), it can only bend their path.

3. The patent describes another effect:

"The magnetic field in this region thereby provides preferred paths for the radiation photons

In fact, the propagation of the electromagnetic radiation, in this case X-rays, is not affected by magnetic fields.

4. The patent application further states that:

"... the interaction of the magnetic field with the radiation photons produces a "spin flip" effect in the protons within the hydrogen which increases their energy level."

"Spin flip" refers to the magnetic properties of the proton (the nucleus of the hydrogen atom). The phenomenon is called nuclear magnetic resonance, and is used for scanning the soft organs of patients to diagnose disease. It is a medical benefit of nuclear research. It is described on pages 129-133 of "Introduction to Nuclear Physics".

For protons, the magnetic field B and the frequency of the electromagnetic radiation f must be related if resonance is to occur:

$$B = f/4260$$

The X-rays described on page 21 of the patent have frequency of 3×10^{18} Hertz, and the equations tells us that a magnetic field of 7×10^{14} gauss would be required.

Page 23 however states that the magnetic field should preferably be the order of 1800 gauss. Thus the "spin flip" phenomenon is not possible.

5. Page 22-23 refers to "short wavelength magnetic radiation".

There is no such thing as magnetic radiation.

6. The important "claims" state on page 49:

"... means to produce the electromagnetic field comprise permanent magnets."

This is not possible, permanent magnets can produce only magnetic fields, and this is quite

different.

7. The patent application shows a lack of knowledge of the generation and absorption of neutrons. Page 21 claims:

"The creation of this high flux of photons (ie. X-rays) is associated with the release of large numbers of neutrons within the tungsten target of the radiation tube..."

The X-rays are generated by deceleration of electrons, which were reportedly accelerated by a 40 kilovolt power supply (not a great deal higher than the 25 kilovolts used in colour television sets to propel electrons towards the screen). It therefore follows that each X-ray photon contains no more than 40 keV of energy.

The energy required to liberate a neutron from various nuclei is given on page 150 of "Introduction to Nuclear Physics". For tungsten, with mass numbers ranging from 180 to 186, the energy required is 7MeV (mega electron volts), and the process could be achieved with irradiation by photons of this energy (ie gamma rays). The reported radiation, X-rays of 40keV (kilo electron volts) fall far short of the required energy.

8. Page 23 describes the effect of this alleged neutron flux:

"Moreover, because of nuclear capture of neutrons associated with the radiation beam, the ionised hydrogen gas which is produced will comprise a much higher proportion of deuterium (ie deuterons) than in naturally occurring hydrogen (ie greater than 0.015%)."

If indeed neutrons were generated, they must be slowed down by a moderator before they can be absorbed by nuclei. In Uranium-fuelled power reactors, water or boron is used. Hydrogen gas has a very low density and the neutrons must pass through several metres of it to be slowed.

In the small apparatus depicted, most neutrons would escape outside without being slowed or absorbed. The neutron flux would be easily detected and would also be lethal to people.

9. The engine itself is described on page 38:

"It may, for example, be a normal V8 motor vehicle engine, except that it is fitted with special electrical discharge devices in lieu of normal spark plugs."

The devices are depicted in Figures 27 and 28 of the patent, and closely resemble special spark plugs which were widely advertised in the 1960's. Conventional spark plugs are also electrical discharge devices, and the devices depicted in the patent would function in the same manner.

10. The effect of the electrical discharge is claimed to:

"... generate heat by dissociation of hydrogen molecules to form atomic hydrogen and subsequent exothermal reassociation ..."

They can't have it both ways. If breaking up of molecules into atoms generates heat, then the reverse process must re-absorb the same amount of heat. This claim of energy gains around a closed circle is a typical claim of perpetual-motion machine proponents.

On page 42 the efficiency is discussed:

"For normal hydrogen combustion, the theoretical maximum efficiency is approximately 25%."

In fact there is no such theoretical limit. Further, Professor Taylor's report described already existing hydrogen vehicles, several achieving 36% and 40% efficiencies.

Thus many of the processes described in the patent are not in accordance with the laws of nature. We have also shown the patent application to several physicists at universities, who are *Skeptic* subscribers, and they also have observed that the processes are not possible.

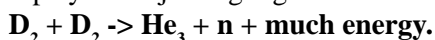
Nuclear Reaction

Let us now address the major question of whether a nuclear fusion reaction inside the engine is possible.

Chemical reactions are occurring all around us (and indeed within us). They involve the bonding of atoms into molecules by overlapping or interaction of the electrons only - the nucleus of the atom is never affected. The most violent chemical reactions combustion and explosion - can be used to turn motors and propel bullets and rockets. When gases burn they can produce temperatures of several thousand degrees. Hydrogen burns with oxygen to form water vapour:



Nuclear reactions, on the other hand involve joining or splitting of the nucleus itself. As all nuclei have a positive charge, and like charges repel, it is extremely difficult to initiate a nuclear reaction. For example, two heavy hydrogen nuclei (deuterons, each containing a proton and a neutron) must be forced together to a distance of about one-thousandth the diameter of an atom, before the nuclear force comes into play and a joining together or fusion is possible:



For this to happen, the deuterons must be driven together with immense speed to first overcome the electrical repulsion of like charges. This is equivalent to saying that the hydrogen is extremely hot - in fact temperatures of over 3 million degrees are needed (perhaps only for an instant). These temperatures are

reached in the sun, and also in the hydrogen bomb, which is triggered by a uranium or plutonium bomb.

Scientists in the world's biggest research laboratories are trying to create a fusion reaction using immense plasma generators and enormous lasers. They seem to be approaching success. So what are the chances that Mr Horvath has succeeded inside a Ford V8 motor car engine? Burning gases can produce temperatures of several thousand degrees. Horvath's patent claims that the exotic processes occurring inside his "gas converter" somehow overcome this limitation.

Professor Ken Taylor, of the School of Physics, University of New South Wales, was a consultant to advise on the Horvath car in 1979. He studied the processes verbally claimed by Mr Horvath, but concluded that the temperatures required for fusion could not be reached. Further, the flux of neutrons and other lethal radiation which would result from fusion were not present. His measurements on the car were consistent with the chemical burning of hydrogen obtained from the pressure tanks in the boot. *the Skeptic* spoke to Professor Taylor in October 1983 and he affirmed these findings.

Prominent academics agree that there can be no nuclear reaction in the Horvath car. Three Queensland University physics department staff, Professor JD Whitehead, Professor FD Stacey and Senior Tutor GJ Tuck commented on the suggestion that the nuclear fusion of deuterium (heavy hydrogen), as distinct from hydrogen burning chemically, is being used as an energy source in a motor car engine.

The nuclear fusion reaction occurs naturally in the sun and man has produced it in the hydrogen bomb and is attempting to do so in large scale laboratory experiments. The major difficulty is that the hydrogen must be heated to a temperature of several million degrees, an achievement generally regarded as quite impossible inside the engine of a motor car, they concluded.

Thus, on the evidence of Horvath's patent and the assessment by scientists, his claim to have a nuclear fusion car cannot be supported.

Editor's Note

And in 1993, we still have not seen a hydrogen fusion car. It appears that we will have to continue to hold our breaths.

Horvath Defends his Car

Vol 4, No 1

Ian Bryce & Mark Plummer

Our major article in *the Skeptic* (Vol 3, No 4) on Stephen Horvath's water-powered hydrogen- fusion car caused some reactions in Melbourne newspapers. *Truth* and *Sunday Press* contacted Mr Horvath and confronted him with our claims. We had reported that in January 1983 Mr Bill Kajdocsy, the President of Oxin Energy (the Canadian company involved) said the Canadian Government was still testing the car. In January this year the Ministry of Consumer Affairs of Ontario informed us that there is no evidence of testing. Horvath has now told reporters that the Canadian Government will test the car to satisfy their requirements when it is ready for production. Our attempts to locate the United States company, Energy Unlimited Ltd, described by Horvath as the parent company of Oxin, revealed only a company, Energy Unlimited Inc., which in 1979 changed its name from Energy Unlimited Ltd.

That company has denied all knowledge of Mr Horvath and his car. Mr Horvath now claims we had the wrong company but he refuses to reveal the address of his Energy Unlimited Ltd. We have asked the Ontario Ministry of Consumer Affairs to ascertain if Oxin has a parent company of this name and its address. Horvath told the *Sunday Press* that our article "is as far away from reality as possible". Horvath said he had never claimed that his hydrogen car required a thermonuclear reaction. He said it worked through a process of cold or catalytic fusion. Perhaps we can refresh his memory. Professor Taylor's report shows that Mr Horvath claimed that an amount of nuclear fusion occurred in addition to the normal burning of hydrogen. During the publicity of the car's launching several reporters and three physicists referred to Horvath's claims that the car ran by "nuclear fusion reaction". Mr Horvath's voluminous patent application repeatedly refers to a "nuclear fusion reaction". The photograph of the engine accompanying the *Sunday Press* article shows that the engine as installed is similar if not identical to that described in the patent application.

Ian Bryce's article listed ten specific points where the patent application contained errors revealing a lack of knowledge of physics. Mr Horvath's revised claims of "catalytic fusion" (a term unknown to science) shows an about face and cannot be taken seriously.

Horvath Car - Five years on

Vol 5, No 2

Mark Plummer

On 14th July 1980, Queensland Premier Joh BjelkePetersen poured water in the tank of the Horvath hydrogen car and forecast that "today will go down as a very special day in our history". The inventor, Steven Horvath, claimed the engine operated on hydrogen generated from water through a controlled nuclear reaction. The process could be used in power stations, railway locomotives and to revolutionise Australian transport. The Premier said, "Despite all the sceptics, this thing really works". Three years later, in 1983, we were able to publish the definitive study of the patents lodged for the car and show there was no controlled nuclear reaction.

Recently we checked with Roecar Holdings of South Africa, named by Horvath as an overseas developer of the car. A spokesperson for Roecar told us:

"This company's position in regard to the Horvath invention is as follows:

1. We have certain commercial rights for certain territories in respect of the invention.
2. Horvath has an obligation to us to prove feasibility. This has not yet been done.
3. Horvath is to develop the principle to the point where it can be commercially exploited. As far as we can establish, that point has not yet been reached.

"At this stage we do not make any claims nor do we dispute any claims by others in respect of the invention and this attitude therefore prevents us from commenting beyond the facts as contained in this letter."

Stand by for further developments.



Water, Water, What Fuel is Water

Vol 5, No 4 Anthony G. Wheeler

Only a few hundred yards from where the British burnt Joan of Arc at the stake in 1431, Jean-Pierre Chambrin services and repairs cars for the citizens of Rouen. While this work is his livelihood, Chambrin takes moments of time and a few francs whenever possible to work on his passion, a water-fuelled car.

As a young man serving his apprenticeship as a blacksmith, Chambrin was fascinated by the apparent immense surge of energy released when red-hot metal was plunged into water. Later, as a young mechanic, Chambrin combined this inspiration with the knowledge that steam "could be split into its constituent and combustible gases". It was in 1956 during the Suez crisis that Chambrin achieved his goal - a water-powered car!

That's not strictly true though, for Chambrin's fuel is a water/alcohol blend. Chambrin has a benchmounted Citroen engine that apparently runs on a 95% water/5% alcohol blend and is used to power the hot water system for his garage and house, and also a modified Renault 16TL which runs off a 50% water/50% alcohol engine blend.

The alcohol may be of any type, particularly the cheap methanol (the poisonous one) or ethanol (the drinkable one). This and the water (which Chambrin insists should be pure, especially free of contamination with lead, to avoid shortening the life of the secret catalyst) are split by the heat from the engine's exhaust gases into a complicated mixture of combustible gases in a 100 x 150 x 250 mm secret "Black Box" situated between the carburettor and the cylinder head inlet ports. These combustible gases are what power his engines.

The farmers of Europe are right behind Chambrin. Sugar-beet is one of the most profitable crops, and with the increased demand for sugar for fermentation to alcohol for the transport industry that Chambrin's "Black Box" would generate, agriculture would be revolutionised. The farmers would be the next generation of power-brokers, and every time that you or I paid our dollar or two for a tankful of alcohol and water to last us the following week, they would receive our prayer of thanks.

Not only cheap and renewable, Chambrin's fuel is also non-polluting. A white card held in the exhaust gases of a conventional petrol engine is soon blackened, while a similar exercise with Chambrin's water-powered engine leaves the card unmarked.

Since Chambrin has perfected his device, he has been unable to obtain recognition. The oil companies have called him a fraud! Nevertheless, and despite the hostile opposition from those with vested interests in the oil industry, Chambrin must have something of value because industrial spies and government representatives plague Rouen with their enquiries, eavesdropping and prying. Now, after much effort by himself and a few friends, and more than \$30,000 of his own money invested, Chambrin has the backing of an independent group of Strasbourg scientists. With their help, the commercial production of Chambrin's "Black Box" is imminent.

Of course, this is all fairytale stuff. For a start the pattern is all too familiar: the inspired lateral thought, the long history of patient effort and financial investment, the vague "science", the "official" disbelief and persecution (the "Galileo syndrome"), nevertheless the spies and secret interest, the anonymous experts who believe, the imminent commercial triumph. It's all standard stuff.

Then there are the inconsistencies and poor science. What are the combustible gases contained within steam (hydrogen) and steam and water (hydrogen, methane)? Why are the ratios of water to alcohol so very different for the two engines? What does a bench-mounted Citroen internal combustion engine contribute to a hot water system?

But there is always hope, the "what if?". Maybe Chambrin does have THE SECRET; maybe cheap water-powered cars are just around the corner. Well, I am afraid not, because Chambrin made his big publicity splash in 1976. If so much commercial reality was so imminent, then we should surely all be driving it to and from work by now. Like all purveyors of hope for the near future, Chambrin has stood the test of time - and failed.

Have we learnt anything? Is officialdom, the motoring and popular press and their readership less gullible? Not a lot. Since then we have had Horvath, and he too promised much yet delivered nothing; he too failed the test of time. Who will be next?

Postscript

Chambrin's engine wasn't really the water-powered revolution that it was touted to be. It was, rather, an alcohol-powered alternative. Alcohol as a fuel is perfectly respectable. Indeed alcohol (with electricity) is currently the most practical alternative to fossil fuel.

Gasohol (20% alcohol/80% petrol) is available on garage forecourts in some countries, and any petrol engine will run on this fuel without any

modification. It is Brazil, however, that has the greatest commitment to alcohol, and the necessary agricultural conditions and capacity. Because of their balance of payments problems, the Brazilians are aiming to replace petrol with alcohol completely by the end of the 1980s. All their "petrol" contains 20% alcohol, and cars that use alcohol exclusively have been in production since 1979. (A little petrol is still needed in these vehicles, though only to start the engine when the air temperature is below 10° C.)

These vehicles need only a few modifications, principally using the exhaust heat to warm the inlet manifold, different plugs and fuel pump diaphragm, and adjusting the ignition timing. The opportunities for other countries are limited by their agricultural circumstances, few of which are as good as those of Brazil. However, all these vehicles run on an alcohol/petrol blend or alcohol alone. None use the water/alcohol blend as claimed by Chambrin, and certainly not the water alone as claimed by Horvath.

The Jupiter Effect

Vol 2, No 2

Mark Plummer

Earlier this year (1982) many Australian newspapers informed their readers that two scientists, John Gribbin and Stephen Plagemann, had predicted the world would suffer from the "Jupiter Effect".

The usually accurate *Sydney Morning Herald*, on March 6, told its readers that on the morning of March 10, all nine planets of our solar system would be situated in a more or less straight line. They repeated the predictions of Gribbin and Plagemann that the grand alignment would cause sunspots which would cause earthquakes.

What authors G&P really meant in their book "The Jupiter Effect" " was that the planets would be within the same semi-circle.

According to Martin Gardner, in his book *Science: Good, Bad & Bogus*, when the book "The Jupiter Effect" first appeared, no reputable geophysicist or

astronomer was impressed. A check of the time, 179 years ago, when the planets were last in the same positions, showed no unusual seismic activity in any of the earthquake-prone areas of the world. Astronomer George Abell pointed out that Jupiter and Saturn are so large that their combined mass is twelve times that of all the other planets together yet their frequent line-ups had not correlated with earthquakes or solar activity.

By March 9, the *Sydney Morning Herald* and other papers decided to tell their readers that the world would not end the next day. This time, they quoted the Sutherland Astronomical Society, which pointed out that, even on the date of the closest alignment, the planets spanned an angle of 95 degrees - more than a quarter of the sky. The paper also quoted the NSW Government Astronomer, Bill Robinson, who dismissed the effect of the alignment as insignificant.

Columnists had a field day. Brisbane's John Hay said that from his own calculations, derived from inspecting chicken's entrails the world was not due to end on March 10. Melbourne *Herald's* Lawrence Money noted how on March 9, in the first night football game of the season, the Jupiter Effect took hold of the footballers, causing fistfights on the field.

For the most authoritative source we can surely turn to Roy Owen, president of the Queensland branch of the Federation of Australian Astrologers, who indignantly pointed out that no professionally qualified astrologer known to him had predicted that March 10 could be a disaster day as it was a heliocentric phenomenon. No, according to Owen, astrologers were interested in the grouping of the planets on one side of the Earth which will occur later this year, in October.

Owen had stated that they had been doing research since 1978, and each year there had been bigger and better phenomena happening to the Earth. They were curious as the groupings of all the planets on about 70 degrees of arc had not happened for thousands of years. Owen said they would not make any predictions as the interpretations were very complex, but they would be interested to see if things got worse or better over the next few years as the pattern fades away.

So those readers who survived the "Jupiter Effect" should now brace themselves for October's grouping.



Book Review

Vol 4, No 4

Keith Rex

Beyond the Jupiter Effect, John Gribbin & Stephen Plagemann, Macdonalds & Co

If some sceptics thought the "Jupiter Effect" would go away simply because nothing happened, then they are novices indeed. Cataclysm predictors, using the Bible, have for years been able to adjust to the end of the world not happening by the simple expedient of announcing that they have just discovered a slight error in their calculations and that the correct date is ten years later. This device can be used decade after decade indefinitely.

That Mr Gribbin is a man of science in no way restricts him from making similar adjustments. In fact, there has come to be a new understanding of what good science is all about. It is not like the old days when the value of a theory was decided on its capacity to make accurate predictions. Accuracy today is highly suspect. It looks much better if correlations are rather marginal. Rutherford once said that if you needed statistics to justify results, what was required was a more exact experiment. No longer is this so. The sloppier the fit the better. The most convincing thing about Uri Geller is that his powers do not always work. If they did, then you would know he was faking, wouldn't you?

This book, though, is well worth careful study by avid sceptics as it is a fine example of a genre which I would hesitate to classify simply as pseudoscience. I will call it semi-science for want of a better name. Mr Gribbin is a rising star in this genre. There are already quite a few famous exponents and it is sometimes difficult to tell when semi-science departs from legitimate scientific speculation.

The principle behind semi-science is to be found in the book trade. It is a fact of nature that well written books about orthodox science do not sell well. They hardly sell at all unless some gimmick is used. Another fact of nature is that practically any sort of junky book about astrology or the occult sells like mad. As to why this is so would require another article. There is a third curious fact and that is, if a qualified scientist with some sort of reputation writes a book in which astrology is "proved" by "science", then it sells extra well.

A book of this sort tends to develop in the reverse manner to those of legitimate science. One starts with an idea the buying public wants to believe and then

frantically tries to dig up some figures and some shaky sort of theory to support it. The next step is to see that one's scientific reputation is not totally demolished. This is accomplished in the book in question (and many like it) by including a good deal of orthodox scientific material and by attacking cranks like Velikovsky.

Gribbin is an experienced science reporter and is quite good at it. The greater part of the book is composed of this latter material and is first class. This has the additional advantage of being much easier to write and fills up the book with material that would be relatively uncommercial without the astrology "come on".

The book in this respect reminds me of an even more blatant example titled "Was Jesus an Astronaut?". This turned out to be a well-informed book on higher criticism, etc. The provocative tide was deep in the book and then dismissed in a few words to the effect that "No, he was just a myth".

So bearing all this in mind we will have to consider Mr Gribbin for the Steve Terbot award of excellence.

While Gribbin points out that science has come a long way since the 1950s when Velikovsky wrote, he curiously states that the "mystery" of the frozen mammoths with grass in their mouths has not been solved. It never was a mystery. Is this just Gribbin's ignorance or a sop to the occultist? After all, you can't afford to offend the customer too much.

The original Jupiter effect predicted that a grouping of the planets would, by tidal forces, trigger an outbreak of sun-spots which would shoot out a particle storm which would minutely slow the earth's rotation - the shock of which would trigger off earthquakes, especially in California.

The new or "real" Jupiter effect requires that most of the planets be grouped on the opposite side of the sun to earth and that the most important effect would be bad weather. The new predictions are much more general and numerous; other planetary configurations are proposed as the "right ones". He will probably be right this time as there is every reason to expect that the world's weather will be worse in the closing years of this century. Good weather is an oddity. The first half of this century was the best in a thousand years.

I think we can trust Mr Gribbin's figures as, although it is hard to check them, they can, be checked and he seems to be particularly careful about them. Rather than cooked data Gribbin relies instead on using question begging, emotive terms and omissions to make his arguments.

He implies untrue concepts rather than making false statements. For instance, the whole substance of his earthquake theory rests on an unstated assumption that the earth's crust is entirely uniform in composition and that earthquakes are always poised on the brink of being triggered off. While the forces of continental drift are fairly constant, the resistance of the plates is uneven which makes earthquakes so unpredictable.

A typical example of omission is the statement that the planets can cause a 20 metre tide in the surface of the sun. The general public probably thinks that this surface is something like molten lava. Gribbin does not inform that it is in fact a rather hard vacuum!

In the early part of the book, Gribbin fails to mention the great volcano Tambora which was probably the most powerful explosion ever witnessed by man and produced the bitterly cold winter of 1816. Perhaps this omission was because it did not fit into his volcano theory. He knows of it though and brings it in later to prove that volcanoes can change weather.

His system of measuring the intensity of earthquakes seems to be based on the number of people killed. Very powerful pleading but hardly scientific.

I recommend this book as good training material for the apprentice sceptic. It must be remembered that the dividing line between the legitimate and the illegitimate is very hazy. Back in 1917, when Einstein published his theory of general relativity, it was believed that the Milky Way was all there was to the universe and that it was static. In order to make his theory fit what was believed to be reality, Einstein invented a fudge factor which he called the "cosmological constant". This involved the absurdity of a force that became stronger with distance. I understand psychics are still calling on this amazing idea to support their fantasies. Years later, when it was proved that the astronomers of 1917 were very wrong, Einstein confessed that this psychic-like constant was "the greatest blunder of my life".

It is not easy to be a skeptic; it is not the same as being a nihilist and we should be a little more wary of some of these nice scientific popularisers who tend at times to pontificate about fields far away from their area of expertise.

Keith Rex is a retired hospital scientist.

Pinkney's Moonshine

Vol 4, No 3

Barry Williams

Bent Spoon nominee, John Pinkney, recently wrote a column, entitled "Moon book hit the mark- (*People*, May 28, 1984). In it he draws parallels between Jules Verne's novel "From The Earth to The Moon" and the NASA moonshots. He describes the Verne novel as "probably the most astoundingly accurate piece of science fiction ever written".

Leaving aside the accuracy of Verne's book, consider some of the 'facts' Mr Pinkney uses to support his contention.

* **Pinkney** - "Resemblance between reality and Verne's 'fantasy' did not begin emerging until 1970 when NASA fired its second moon shot."

* **Fact** - NASA's second moon shot, Apollo 12, occurred during the period November 14-24, 1969.

* **Pinkney** - "Verne's three man moonship was fired from a 'Columbiad' cannon. NASA called its three-man vessel Columbia."

* **Fact** - Leaving aside the historical importance of the name 'Columbia' to Americans, the Apollo 12 command module was called -Yankee Clipper". The Apollo 11 module was called "Columbia" so one of his "facts" must be wrong.

* **Pinkney** - "The Verne ship's escape velocity was 25,000 mph - the Columbia shrugged off Earth's pull at 24,000 mph."

* **Fact** - Escape velocity from Earth is approx. 25,000 mph. This fact was known well before 1865. At only 24,000 mph, Columbia would not have made it. Two wrong there Mr P.

* **Pinkney** - "Both fictional and real life space ships carried compressed food."

* **Fact** - Presumably Pinkney means I concentrated'. Verne, using the knowledge of his day, would have recognised that space and weight limitations would preclude the carriage of sides of beef and bags of potatoes. Incidentally Verne included live chickens among the provisions. NASA didn't.

* **Pinkney** - "Verne's ship lost oxygen, froze up and failed to land. After an explosion, NASA's craft also leaked oxygen and failed to land."

* **Fact** - This was Apollo 13, the third moon shot. Pinkney does not distinguish between any of them. Perhaps he thinks there was only one.

* **Pinkney** - "Verne's craft splashed down in the Pacific Ocean and was picked up by a specially

designed craft. NASA's mode of splashdown and retrieval were almost identical."

* **Fact** - Apart from the fact that the Pacific Ocean is common to both (hardly surprising considering it is the largest body of water on Earth) nothing else was "almost identical". NASA retrieved its various Apollos by helicopter and loaded them on aircraft carriers - Verne did not.

Pinkney concludes that far from being science fiction, Verne's book is "better known today as an uncanny collection of psychic visions". That would have been a revelation to Verne who used the known scientific facts of his time to extrapolate an adventurous story, an art in which he was skilled. Mr Pinkney ignores the readily obtainable facts of Verne's time to produce a Bent Spoon quality load of rubbish, a skill at which he seems peculiarly adept.

The only coincidence the two stories share that is in any way unusual is the one Pinkney missed. Cape Canaveral and the site of Verne's cannon are both in Florida. Bad luck, John, better stick to ghosts, they are harder to refute.

Firewalking at Geelong

Vol 4, No 4

James Gerrard

There is now no need to go to Fiji, Sri Lanka, India, Greece, Spain or Bulgaria to witness firewalking. For a fee, motivator Dr David Knowles will demonstrate his ability to walk over a bed of red-hot coals, without being burnt.

Following such a demonstration reported by the *Geelong Advertiser* (September 9, 1984), Jan Ratcliffe, Senior Tutor in Psychology at Deakin University, arranged for David Knowles to address a departmental seminar on this subject on October 16. I attended by her kind invitation to represent Australian Skeptics.

Before the day I consulted the literature to find out what research had been carried out into this centuries old practice. Surprisingly little, I discovered.

"As a ritual of purification, healing and reverence, firewalking has been associated with divine worship in many parts of the world for centuries. Today, firewalking is still being performed more or less regularly in many countries.---(Science Digest, August 1982). I had personally seen such a performance in Sri Lanka in the 1970s.

The best of the few scientific investigations I found was that by Chas R Darling ("Fire-walking *Nature*, September 28 1935 p 521). "Observations made at the first performance indicated that the feat was merely another form of the fireside experiment of picking up a hot cinder and returning it to the fire, when the fingers are not burnt if the action is performed quickly." ".....at the second trial...observations... comprised the measurement of the total time of contact of each foot with the hot surface; counting the number of steps ; and then pressing a thermal junction on to the fire Intermittently so as to imitate the period of contact of each foot and the interval between each step ..." "The arrangement was equivalent to a sensitive walking thermometer ..." "... a number of separate trials showed a rise of 15-20'C in the junction. This was conclusive proof that the feet of the performer would not become hot enough for blistering to occur." "Fire walking is really a gymnastic feat, and the agile way in which Kuda Bux walked across the fire ... would be difficult to imitate without much training."

David Knowles credits his ability to firewalk not to gymnastics, nor to religion (at least not to the oldtime) but to "neurolinguistics", that one has one's "belief systems, mental syntax, and physiology" working together, that all fears have been conquered, David learnt firewalking as part of a personal growth seminar he attended with 270 others in Massachusetts several years ago. There are now thousands who have learnt to firewalk through such a course.

David has a diploma of business studies from RMIT and is a qualified chiropractor in the Geelong Chiropractic Centre in North Geelong. He has set up the Centre for the Advancement of Regenerative Potential at his Wellington home. David's presentation of his neurolinguistics impressed neither me nor his psychologist audience. His talk was long on buzzwords - holistic, synergetics - but short on science apart from some mystical invocation of quantum mechanics. His main message was that he could overcome a person's fear.

Firewalking was a personal demonstration of one such victory. Motivating football teams to victory is a growth industry in Melbourne. Perhaps we shall see firewalking being used to gain a premiership flag. But the firewalking part is not likely to change what is known about the effect of heat on human tissue.

Editor's Note

In September 1993, I walked across hot coals. It didn't hurt a bit.

Fire Walkers get Cold Feet

Vol 5, No 2

Mark Plummer

Top Californian firewalker, Tony Robbins, prepared well for his first Australian tour. Advance press releases were circulated to the Australian media, a paid two-page advertisement was placed in the 'alternative' press, Australian organisers were appointed and a Sydney office with a toll-free number opened. All was set for a profitable tour. Robbins scheduled the tour for May 8-20 [1985]. Robbins clearly hadn't counted on our enquiring mind.

The news of Robbins' intended tour reached us in the same week as a paper on firewalking from Southern California Skeptics, Bernard Leikind and William McCarthy. We rushed Leikind and McCarthy's paper over to our patron and national columnist Phillip Adams. Phillip made it the topic of his weekly column in The Australian newspaper on March 30. Hundreds of thousands of Australians read the scientific explanation about firewalking. The following weekend we held our first National Convention in Sydney. In my opening address I challenged Robbins to allow his claims to be tested on arrival in Sydney. The challenge was reported by the media.

At the same time another American, Robert Young from Hawaii, was also touring Australia trying to interest Australians in his firewalking courses. His pre-publicity was not as good as Robbins', but worse, Skeptics turned up to hand out scientific explanations on firewalking. Young debated with me on Melbourne radio station 3AW and challenged me to walk over the fire. I said I would consider it if Skeptics' scientists were allowed to take measurements of the fire first. Young agreed and a team of scientists was assembled.

When the night came, Young's group refused to allow all the measurements to be taken, and turned a hose on physicist Ian Bryce! The following day I was given time on 3AW to blast Young for not honouring the agreement. Although Young was invited to give his side of the story, he declined to appear.

We kept up the barrage in the media, telling more and more people the scientific explanation about firewalking and repeating the challenge to Robbins. The Youngs found interest in the courses waning as *the Skeptics'* publicity increased.

Ten days before Robbins was due to arrive, Barry Williams telephoned Robbins' Sydney office to get details of his arrival so that we could hold our own press conference. He was told the Robbins tour was "postponed"! The Californian firewalker had got cold

feet!

It is unlikely that Robbins will ever come to Australia. The Southern Californian Skeptics are now holding their own free firewalks and explaining the phenomenon. Should Robbins come we should hold our own free firewalks at the same time and give Australians the choice of our free firewalks and a scientific explanation, or following Tony Robbins over the coals and listening to pseudoscience.

SA Skeptics Investigate Anti-Gravity Hill

Vol 5, No 3

Allan Lang

There is an interesting contrast in the treatment of the mythical "Magnetic Hill" at Black Rock by various South Australian newspapers. Two articles reproduced below, with the permission of the authors, dispel the notion that country people are simple and credulous. The facts are reported without sensationalism, and the explanation is given as an optical illusion.

As a contrast, Adelaide's leading afternoon paper has chosen to treat the matter quite differently, as the text of the article from the Adelaide News of June 4, 1984 shows:

Gill's World, with Trevor Gill Uphill battle to solve mystery

We realise it will be something of an uphill battle to convince you the story of Black Rock's magnetic hill is true ¹.

But, after dispatching intrepid reporter Brian Francis and photographer Kevin Bull among the bewitching slopes between Jamestown and Orroroo, we reveal there is a mystery at hand.

Incredibly, at a spot 8 km, past the township of Black Rock, vehicles roll UPHILL! Indeed, not just cars, but tourist buses as well.

This amazing phenomenon was apparently discovered by a group of tourists who recently parked at a bridge at the bottom of the hill for a picnic.

After leaving their car they turned to watch it

being pulled inexplicably UP the slope². Francis and Bull parked their Falcon sedan at the same spot, put it in neutral and released the handbrake. Sure enough, it rolled up the hill at gathering speed.

According to locals, magnetic ore in the hill is so strong it pulled a bus against all the doctrines of Newton's law of gravity³.

But a week ago an engineer taken to the area was so shaken by the experience he elected to walk alone back to Black Rock to dwell on the phenomenon⁴.

As we expect to hear a lot more about this, we advise you to BELIEVE IT... OR ELSE!⁵

Adelaide News

Seeing Magnetic Hill Really is Believing By Greg Tomlinson

Black Rock, between Jamestown and Orroroo, seems to have a total disregard for Newton's Law of Gravity, or so it would seem.

And why? Simply because there is a section of road near the small township where cars and buses roll uphill.

Locals refer to it "Magnetic Hill" and will say that ore in the area has magnetic fields strong enough to "pull" cars and buses uphill.

Magnetic Hill is situated a few kilometres east of Black Rock.

Just like any person told about the mystery, I was sceptical about "things rolling uphill" and was challenged to check it out.

So, accompanied by a local from the district, we drove along alone the bumpy dirt road for a few kilometres after passing Black Rock.

Once we reached a certain point in the road, I was instructed to stop at what was seemingly the lowest point of a long-dipping road with the road rising in a noticeable gradient both in front and behind.

At this stage I was almost ready to bet we would roll forward only a few metres, if anything, and then stop.

But when the car was put in neutral and my foot was off the brake, that car began rolling backwards at gathering speed in the direction we had just come.

The irresistible temptation to try it again and again still failed to satisfy disbelief.

So once I was convinced the slope was actually uphill and there was no doubt the car went up it, we left.

With a wry grin the local turned to me and gave an explanation.

And that explanation is that Magnetic Hill is simply an optical illusion, but slopes downhill only, appearing uphill by its surrounding countryside of hills and trees.

But even with that explanation, it does not rid the mind of the eerie feeling that you were actually "rolling uphill".

If you're sceptical about the whole thing, take the advice of the locals that "seeing is believing" - and don't forget to take a camera.

Review Times Record

Goyder Visits Black Rock for Meeting

Members of the Goyder Tourist Association travelled to Black Rock Magnetic Hill on Sunday as part of its meeting.

Members of the Association inspected Magnetic Hill which is considered one of the area's biggest potential tourist attractions.

At the meeting the association discussed plans to produce a calendar for the 1985 year to raise money.

Chairman of the Association, Mr Martin Dunstan, said this week that the calendar would include photographs of tourist attractions in the Terowie, Peterborough, Jamestown, Black Rock and Orroroo area.

Mr Dunstan said the association had not yet decided how many of the calendars would be produced because estimated costs were still being investigated.

"We hope to have the calendar out by October," said Mr Dunstan.

Mr Dunstan said the costs of producing the calendar would be offset by a \$100 donation by the Corporation of Peterborough.

He believed the sale of the calendars would enable a profit to be made and that money would be spent in attracting tourists to the area.

Mr Dunstan also said the group, which was only formed recently, was in the process of adopting a constitution. This had been finalised by was awaiting official adoption.

The Flinders News

Notes

¹ This is the usual approach of pseudoscience. The proposition is presented as something difficult to accept, which allows the presenter to congratulate himself in advance for convincing you - a la Von Daniken: 'It took

courage to write this book and it will take courage to read it." (Chariots of the Gods, 1971)

² "Inexplicably", as used here, does not have the usual meaning here - as there will now be an explanation!

³ The magnetic strength of naturally occurring ores is not sufficient to move a car-sized object uphill. However, there is nothing in the "doctrines" of Newton's law of gravity that actually 'forbids' objects being raised by magnetic force. The provenance of this explanation is doubtful, being attributed to "locals".

⁴ Now for the final "confirmation" A "scientist" has investigated the phenomenon, and cannot explain it!.. although it is not clear whether this engineer designs space shuttles or just drives a train.

⁵ The consequences of not believing are not clear! At least when The Plain Truth, the magazine of the World Wide Church of God, uses similar wording and emphasis, the penalty is obvious.

Alan Lang is a member of the South Australian Committee and edits the Southern Skeptic magazine.

The Claims of Charles Wallach

Vol 5, No 1 James Gerrard

On June 28, 1994, a Dr Charles Wallach appeared on the ABC TV program *Nationwide*, claiming that television screens could harm viewers, particularly pregnant women, and that he had a device costing \$100 which would make the TV screen safe. If you wanted to find out more then you attend a seminar that Wallach was presenting in Melbourne and Sydney at a fee of \$150.

Notwithstanding the seriousness of such a claim, the ABC when contacted was not able to supply any detailed references as to Wallach's credentials apart from having affiliations with the US State Department, the United Nations and the University of California Medical Faculty at Los Angeles. The only specific information otherwise was that he worked for a US company, The International BioEnvironmental Foundation.

The company that arranged Wallach's visit, Peter McKay International, was not able to add any further detail apart from supplying me with a copy of a report "The Hazards of VDTs" by a Bob DeMatteo of the Ontario Public Service Employees Union. This was apparently the report on which Wallach

makes his claim of harmful effects of television screens. On reading the report, one finds it is not so definite as Wallach. Thus it states in its opening paragraph that VDTs "*may pose a serious hazard*" (my emphasis). In the text it states "In the absence of firm epidemiological evidence linking VDT radiation to these health problems, it is difficult to make conclusive statements about this potential radiation hazard."

Seeking credentials

With the help of a South Australian Skeptic, Dr Michael Patkin, a letter was sent to Dr Charles Wallach, courteously requesting details of his academic and technical background. A three page reply plus two enclosures appeared as first glance to present a substantial technical background. However, extracting the salient facts revealed an eclectic training but as Wallach admits "none ... is quite relevant to my qualifications for lecturing on VODS [visual display operators' distress syndrome]:

- * two years of premed at University of California at Los Angeles (UCLA), 1936;

- * two years in business administration at Woodbury College, Los Angeles;

- * a year of physics at Wright Junior College in Chicago;

- * a teaching assignment in advanced electronics at the Treasure Island, California, Naval Training Center during World War II;

- * during 1945-50, attended and graduated with an EE (9) from the Will Rogers Institute in Oklahoma City and joined that teaching faculty;

- * seconded to Massachusetts to assist in rewriting MIT texts, receiving an honorary doctorate from McGraw-Hill, the publishers;

- * from 1955-70, two years of engineering, maths, medicine and tutoring at the American University of Beirut, language studies with the University of Maryland extension and on the campus of Teheran University;

- * in the early 1970s, in conjunction with a Dr Katzenbach, "literally designed, built (in a supervisory capacity) and implemented a medical college at the Jundi Shapur University in Ahwaz, Iran, for which my published thesis was accepted for a PhD (Education) by the Iranian Ministry of Higher Education".

Wallach relates that his connection with VODS originated when the publishing of a paper on brain organisation resulted in a one year fellowship through the Ross Foundation (and another honorary doctorate

in science).

Wallach claims that though he has not the traditional BS, MS, PhD, his credentials have been good enough to be accepted as a medical school lecturer and he refers to an enclosure. One enclosure is a letter to the School of Medicine of UCLA claiming an appointment in late 1973 or 1974 to the Extension Medical Faculty, but Wallach is not able to produce the evidence, stating that is in dead storage.

The other enclosure is a schedule of continuing education courses at the USC School of Dentistry for June 1974. Dr Charles Wallach is listed as presenting "A physical theory of acupuncture and related neurophysiological phenomenology" (\$50 for dentists, \$25 for auxiliary or wife. Approved 6.5 hours credit).

Next Dr Wallach reports on his work for the UN. In 1974, he was appointed an expert ICAO (International Civil Aviation Organisation) adviser in Buenos Aires, Argentina, completing the mission the following year. This was particularly interesting to me as I was the ICAO electronics engineer adviser in Somalia in that year. Wallach does not state what specialist position he was appointed to; I think it would be most unlikely that a developing country would be interested in VODS. It would be more likely that he was employed as an electronics instructor in the Argentinean Civil Aviation Training School. We would welcome further clarification from Dr Wallach.

As regards his work for the US Department of State, Wallach states he was, from 1955-60, an accredited US technical representative based at the US embassy at London with the diplomatic title of Scientific Advisor to the Ambassador.

A question about research

In his final page, Wallach states he is "saddened to note you have not asked a single question about my own research, and that of my colleagues ...".

Well, we subsequently did our best. Dr Alan Christophers of our national committee, having read Wallach's book "The Ion Connection - a Scientific Appraisal", queried Wallach's claim "laboratory rats and rabbits kept in such an ion-depleted environment die in a matter of days". The salient parts of his reply are as follows:

"It was not rats and rabbits that died ... but rather mice. As this text was edited by others some years ago, I cannot put my finger on the source of the mistake. ... But this result with mice was published (I believe by AL Tchijevsky circa 1960) in a Soviet paper of which I read a translation by the US Office of Naval Intelligence. ... The late Professor AP Kreuger, who headed the Ion Research Laboratory at the University

of California (Berkeley) ... repeated the experiment in his own lab. Kreuger did not find his mice ... did not all die within days [did any I sceptically ask] but he did find that generations of mice raised in a de-ionised environment experienced a very (dramatically) significant early mortality...".

Wallach concludes: "... I had not realised the Australian Skeptics were so interested in the longevity of rats and rabbits. ... you may find these ... and other papers in a publication ... "Biological and Environmental Effects of Atmospheric Ions" ... postpaid \$US25."

At this stage, the national committee decided we had pursued this trail enough. We would still welcome any straightforward reporting of scientific evidence relating to the effects of ions.

MMBW Psychic Reneges on Test

Vol 5, No 3 Mark Plummer

Last year the Melbourne and Metropolitan Board of Works (MMBW) paid the return air fare of American psychic archaeologist and diviner, Ms Karen Hunt, to come to Australia to conduct a survey for them. Ms Hunt claims that long demolished buildings leave an Electromagnetic Photo - Field (EMPF) which she can detect with diving rods. Ms Hunt used her divining rods to draw an alleged reconstruction of the former farm at the MMBW's historical park at Point Cook. Her reconstruction resembles an American mid-western farm of the last century. The General Manager of the MMBW said he was delighted with her findings.

The Australian Skeptics investigated her claims and the involvement of the MMBW and challenged Ms Hunt to undergo a controlled scientific test for the prize of \$A32,000 if her claims proved to be true.

In this issue we report on our investigations in a five part article in which we examine her theories, techniques, results, and her response to our challenge to be tested. We then look at how the MMBW became involved.

Physicists Examine Karen Hunt's EPFT

Vol 5, No 3 Ian Bryce BSc, B Eke Eng (Hons)
John Harries PhD, MSc, FAT, Dave Wheeler PhD BSc
(Hons), Dip Ed

Karen Hunt sets out her Electromagnetic PhotoField theory in her Master of Arts thesis submitted to the Indiana University in 1981 and in her report to the MMBW in 1984.

According to Ms Hunt "Electromagnetic PhotoFields (EMPFs) are those invisible, but detectable, three-dimensional patterns left in the space once occupied by man-made structures - structures which, in most cases, have been destroyed: EMPFs are also created as a result of man changing the environment, such as making a pathway, roadway, or digging of a grave or other sub-surface feature.

"When one of these man-made structures or changes to the environment is left in one place for six months or longer the space which it occupies is changed- The author believes this change may result from the absorption or blocking out of minute particles from outer space, or light, with which the Earth is constantly bombarded. The author's research (1981) indicates that it takes six months or more to create a EMPF, and that after that amount of time, the budding or other structure, if removed or destroyed, will leave in its place an invisible, three-dimensional pattern which is infinite and cannot be destroyed by ordinary means such as burning, ploughing, bulldozing, blowing up, or removing it and the soil beneath it, or by covering the site area up; a pattern which is detectable by very simple means and is measurable as to size and delineation."

A simpler description of her invisible, three dimensional pattern could be "an invisible building". Ms Hunt's EMPFs bear no resemblance to electromagnetic fields as understood by physicists. Such fields are well known and described by Maxwell's equations. Electromagnetic waves are travelling waves, with their component oscillating electric and magnetic fields being mutually at right angles to the line of travel and to themselves. Electromagnetic waves are very common as they include light, heat radiation, x-rays, radio waves including microwaves - the difference being the frequency of oscillation. Electromagnetic waves travel at 300,000 kilometres per second in air or space. Thus any electromagnetic waves emitted by old buildings in 1860 (even if this was possible) would have passed

Alpha Centauri in 1864! For electromagnetic waves to be continually propagated requires a transmitter continually fed with energy. Where are such transmitters and energy sources associated with destroyed buildings?

Further absurdities arise if we analyse where the EMPFs may reside. They cannot be connected with the soil because Ms Hunt states "the pattern ... cannot be destroyed ... by removing the soil beneath it". It cannot be in the air as the first wind would blow it away. This leaves only space itself. As the Earth spins daily and revolves around the sun, the particular site at Point Cook loops and whirls through our galaxy. The idea of "fixed" electromagnetic fields is contrary to basic physics and all that is known about electromagnetic fields.

Let us now examine Ms Hunt's theories as to how her EMP Fields are created.

Ms Hunt believes the change in the electromagnetic field may result from the absorption or blocking out of minute particles from outer space, or light, with which the Earth is constantly bombarded. She further claims that just as a negative ion is created when light strikes film in a camera, so apparently a photo-field or negative (pattern) is created on the Earth's surface whenever a building or man-made object is allowed to rest upon or over the Earth for six months or more.

In her thesis she quotes from Aitkin's "Physics and Archaeology" 1961: "Magnetic location depends on the detection of small-scale spatial variations of the magnetic intensity ... at any given point there are short-term time variations of a comparable magnitude. These are superimposed on the slow secular variations and rarely exceed 1 % of the total field. The changes are somewhat erratic but analysis of past records reveal daily, monthly, yearly and eleven-yearly periodicities. They are attributed to variations in the ionisation currents in the upper atmosphere and to the arrival of charged particles from the sun. Daily and lunar atmospheric tides, variations in solar ionisation and sun-spot activity all play a part. Part (about 30%) of the transient magnetic effects arises indirectly from "eddy" currents induced in the Earth's crust by the electric current in the atmosphere." Ms Hunt then states that these electric currents between the Earth's atmosphere and the Earth's crust, working on the magnetic fields, may be what creates the photo-field patterns by creating a magnetic, possibly ionised, area which causes a set of wires to react when it is encountered.

The variations from place to place in the Earth's magnetic field are well known and are routinely measured in the search for mineral deposits. However

the magnetic field indicates what is there now, not what used to be there some time before.

When magnetometers are used to record variations in magnetic field strength it is found that the fields vary, as quoted by Aitken, over periods from days to years, thereby suggesting that the establishment by currents and fields of a *permanent* spatially extensive structure such as the proposed photo-field is quite unlikely. (The Apollo 12 crewmen left a magnetometer on the moon to record *day by day* variations in both the atmospheric magnetism (from solar flares) and the surface magnetism (due to induced currents). Her analogy to the operation of the magnetometer is hopeful but unfortunately erroneous in physics fact.

The description that she quotes from Aitken refers to eddy currents induced in the Earth's crust by electric currents in the atmosphere. She wrongly describes these currents as being between the Earth's atmosphere and its crust. It is clearly established that they never meet (just like the currents on opposite sides of a transformer; one causes the other but they do not join up).

Currents do not "work on magnetic fields". They create magnetic fields as a result of their flow but they do not permanently alter existent fields. For instance while the Earth's magnetic field at a given farmhouse site may be approximately constant in time, localised currents in the atmosphere will only effect the local magnetic field during the time the atmospheric current is flowing. It is not the case, as Ms Hunt seems to imply, that "currents flowing between atmosphere and crust (may) create a magnetic, possibly ionised, area which causes a set of wires to react when encountered". Any such change would be present only while the current flowed (which is the meaning of the word "transient" mentioned in the Aitken quote but apparently overlooked by Ms Hunt).

Over time lightning strikes would have rather a drastic effect on the magnetic fields, ionic areas or the electromagnetic fields which Ms Hunt describes. Most places experience lightning storms at least once during any given year which would destroy the longevity of Ms Hunt's claimed structures.

If it is not magnetic fields but rather ionic areas as she suggests then Ms Hunt would need to explain:

(i) why there would be any ions formed at all since it is an induction in the Earth's crust (not a direct current in it); and

(ii) if there were ions created which then hovered in space over some spot where a building had been, why these created ions would not be rapidly neutralised or blown away.

In order to create enough electrostatic force to move the wires, the electric field would have to be large enough to cause very noticeable effects. Ms Hunt wouldn't need her wires because her hair would stand on end and even crackle and spark!

If it is the magnetic fields which are thought to be moving the wires, a compass would be a much more effective detection instrument since the magnetic field would need to be hundreds or even thousands of times the strength of the Earth's magnetic field.

Having set out the definition of EMPF and the way these fields are claimed to be created, Ms Hunt describes her method of detecting them. She uses a pair of ferrous metal coat hangers which she straightens, bends down about seven inches from the end, forming a long L-shape. She calls these "electromagnetic photo sensors". Ms Hunt claims her electromagnetic photo sensors work similarly to a proton magnetometer. A proton magnetometer is a complex instrument and bears no similarity to dowsing wires. Ms Hunt's claim shows an ignorance of the operation and electronics of the instrument which measures magnetic field strength. It is used in charting magnetic fields, for instance, a concentrated nickel deposit will have its own magnetic field which will add to the Earth's magnetic field causing a local increase in intensity. A magnetometer could detect this increase and delineate the area containing the ore. It is this type of delineation ability that Ms Hunt claims for her sensors.

However there is a major difference. While the magnetometer detects a known type of field (ie magnetic) and changes therein caused by mechanisms proved to be associated with sought-after items (eg nickel deposits), Ms Hunt claims her sensors detect some unknown field (an EMPF) of unknown origin postulated to be associated with the sought-after items such as archaeological sites. Ms Hunt gives no clear evidence that she has carried out any blind experiments and she does not appear to have properly checked if the patterns that she found do correspond to any previously existing man-made structures.

The results claimed are contradictory and unreasonable. It is claimed that the "electromagnetic photo sensors" can detect walls, fences, paths and even cupboards that used to exist on the site, and yet concrete paths, plants, snow, ploughing and surface excavation leave a pre-existing pattern intact. The suggestion that the patterns are made by some manmade objects and not by other man-made objects nor natural objects is totally inconsistent.

The explanation she presents for EMPF is not

scientifically valid. Nor are her analogies to magnetometers, electric and magnetic fields, helpful in terms of indicating the nature of the effect. Her thesis shows an ignorance of basic physics, the scientific method, and the scientific verification of theories. That her theory was apparently accepted by an Arts Department of a university as part of an MA thesis does not give it scientific respectability.

Should she still believe her theories are scientifically acceptable she should submit them to respectable physics journals for publication where they will receive proper examination.

Ms Hunt's Techniques

Ms Hunt sets out her divining/dowsing techniques in her thesis. She explains that the wires are held in the fist with the bend of wire hooked over the crook of the index finger, allowing the long section to extend out in front of the body, with the thumb behind the wire in the crook of the finger. The hands are held together, back against the body, to steady the wires, allowing the wires to be about two inches apart as they extend away from the body.

In this position, she walks across the ground until the wires spread apart. Ms Hunt claims that whenever a photo-field is encountered, the wires swing apart and stay apart until the photo-field is traversed.

If, after one pace the wires swing back, this indicates to Ms Hunt the possibility of a fence, a drain, or a water vein. If it takes two paces, it may be a grave; if three or more paces, a building.

When she has to survey a new site, she first maps in the visible features on her plan then looks for a large photo-field. When she encounters a large photo-field she holds her wires parallel to its edge, then moves sideways until she comes to a corner. She claims the wires will turn naturally with the corner forming a right angle. She then continues round the photo-field until all corners are marked. She finds most buildings are square or rectangular.

Once the perimeter of a building has been defined, she walks around it. When she encounters what she believes to be a doorway or a pathway, the wires open. Upon crossing the doorway or pathway opening the wires swing shut, thus defining the dimensions of the opening.

When only one wire opens, forming a right angle, she believes she has encountered another wall. Then having located a corner she defines the perimeter of the addition and any exterior doorways.

She then moves sideways along the pathway. If the wires continue to open she believes she has a doorway.

But if, after a pace or two sideways, they turn and form a right angle, she believes she has located an addition or a fireplace chimney. If it was a chimney it would extend out two to three feet and would be from four to seven feet wide; the position in relation to the remainder of the pattern would further designate it as a chimney.

After defining all exterior appendages to a building photo-field, she walks on the inside of the perimeter. She believes the wires will open at all pathways coming into the building and at inside walls. At the latter, the wires will open and then close when she crosses them. When she locates what she believes was an inside wall, she walks along it until she comes to the doorway. When the pattern she was defining indicates to her it was one of a house, but there was no indication of an out-side chimney, she further checks along the wall on the inside. She believes that in the interior of a photo-field all fireplaces have pathways leading to them and the wires will open and close when she crosses in front of a fireplace.

She also believes it is possible to determine stairwells where there are approximately three foot by four foot square patterns with pathways leading into them. She believes in some corners it is possible to detect where corner cupboards have been located diagonally across the corner.

After defining a house pattern, she checks for porches and at the corners of the house pattern for attached fences and gates. She also traverses open areas to check for photo-fields. When the size and shape of a photo-field indicates what she believes to be a grave, she holds the wires differently, away from her and about ten inches apart. She finds they will cross. Over cisterns or buried wells she finds the wires will swing rapidly back and forth and even rotate.

She was able to detect more objects such as fences, partitions, stalls and corner cupboards towards the end of the mapping for her thesis project than at the beginning. She believes this may have been because of an increase in skill with the use of the wires or because of the approaching spring equinox. She did not elaborate on why the approach of the spring equinox might affect readings.

Karen Hunt has described EMPF research as similar to dowsing for water with a stick but with major differences. Where very few people may be able to use a stick to locate water, she asserts almost everyone who is physically active can be taught in a very short time to locate the EMPFs. She alleges that dowsing generally refers to locating something below the ground's surface, this is not necessarily the case in locating EMPFs. A building may have been set off

the ground, or on corner piers, or on skids without a foundation, or built entirely out of wood (such as a temporary Indian lodge), but Ms Hunt believes it will still create an EMPF if left in place for six months. The longer an object is in one place, the stronger the pattern which remains.

Assessment of Ms Hunt's Techniques

Dowsing claims have been scientifically tested in Australia and overseas and dowsers have been unable to prove their claims. Reports of such tests have appeared in *the Skeptic* and *the Skeptical Inquirer*.

Psychic archaeology apparently dates from around 1907 when a Frederick Bond produced "automatic writing", allegedly directed by long dead monks. With their help Bond drew up plans of Glastonbury Abbey which had been demolished several centuries earlier. Psychic archaeology has been thoroughly debunked by architect Kenneth Feder in the *Skeptical Inquirer*.

The idea of linking dowsing to psychic archaeology apparently dates from 1950 when a retired English Major-General, James Scott Elliot, used dowsing rods and a pendulum to make many amazing claims.

The claim to find archaeological features through dowsing has been tested and the results published in an article titled "Test for Correlation Between Dowsing Response and Magnetic Disturbance". It was written by MJ Aitken and appeared in *Archaeometry*, the bulletin of the Research Laboratory for Archaeology and the History of Art. at Oxford University in 1959. A diviner, Mr PA Raine of Kent, told Aitken that, "armed with two brass dowsing rods he could rival the ability of the proton magnetometer in the detection of buried archaeological features". A test was arranged to see if Raine obtained a dowsing response from a Romano-British pottery kiln in Northamptonshire. Raine's previous experience had been on masonry roads and paths, according to Aitken. A kiln is much more strongly magnetic, and it was felt that the test would clearly establish if a correlation existed between dowsing response and magnetic disturbance.

The site of the kiln was known exactly from a test hole dug after a proton magnetometer survey indicated a strong magnetic disturbance above the surface at that point. The hole had been filled in and the divot replaced for the test. Raine found four areas of dowsing response in the test area. The closest he came to the kiln was some 30 feet. A subsequent magnetic survey showed no significant disturbance in these areas: no disturbance was found more than 15 feet

from the kiln. Aitken concluded that, "the question of correlation between dowsing response and magnetic disturbance has been answered unambiguously in the negative".

CSICOP's principal investigator, James Randi, has explained that dowsers believe in their ability because of the ideomotor response. Whether it is a forked stick clenched in both hands and bent apart in a horizontal position or a small pendulum held at the finger tips, the dowsing instrument is in a state of unbalance or stress. Any slight movement or outside influence can start it moving, and subsequent dramatic motions of the device are taken as evidence of strange forces at work. Actually it is the dowser himself who initiates the movement - mostly unconsciously. The human mind is a marvellous device, readily rationalising any failures. The diviner detects nothing except his own hunches and guesses, often based on the knowledge of the terrain or situation and frequently from clues provided unwittingly by bystanders.

It is interesting to note that dowsers do not seem disheartened by the failures of other dowsers. They seem to consider that the failure of other dowsers does not indicate the failure of their theory. Australian Skeptics has had a continuous stream of dowsers wanting to be tested and proposing more and more elaborate and expensive tests.

Dowsers' claims can be simply tested, and so we challenged Ms Hunt to a scientific test of her technique. We cover this later in the article.

Ms Hunt's Results

Before Ms Hunt handed in her report, Board Officers suggested that a technical group be set up to examine matters raised in her report. This group does not seem to have been established. Ms Hunt's report claims there were 129 buildings and structure patterns on the farm. She sets out their uses and includes detailed drawings. There is initially no evaluation of the report on the MMBW's file apart from a comment "the doubled size of the buildings was not discovered although she seemed to locate a tank stand and windmill approximately where one was known to exist".

The Victorian Archaeological Survey's acting Director. Mr MacIntyre, commented that the pattern of burials at the Point Cook site, described by her as an Aboriginal burial site, was more suggestive of a European than an Aboriginal cemetery. Ms Hunt "promoted" Mr MacIntyre to the status of Professor in her report.

We sent Ms Hunt's drawings to three American

architects for evaluation. The first was Mr Ken Morse, who practised architecture for thirty-five years in the American mid-west and in New Zealand.

He stated that while the establishment for historic periods of a particular structure can be done on the basis of general exterior form to some extent, actual details such as finials and architraves columns are better indicators. In his opinion the general form of the two dwellings shown in Ms Hunt's drawing marked "Area A" bears a strong resemblance to American Territorial styles of the period c. 1870-1900. He said the perimeter porch was often added after the main structure was completed.

Mr Morse enclosed a sketch, from the National Register, of a structure in Arizona of similar form from the period. He said he found it odd that Ms Hunt was able to obtain details for superstructure clearly well above her reach, as she walked the site. He noted that the drawings were without any conventional survey information such as north arrows or indications of scale.

Two other American architects, Ivan and Clem Paulsen, stated that the windmill seems way out of scale. One of the buildings at the top of Ms Hunt's sketch marked "Birdseye View Area W" could not have been built of wood without huge trusses or the use of tons of steel.

Leading Australian architects who may not be named for ethical reasons also expressed the view that the sketches looked more like American buildings than Australian Colonial buildings.

Ms Hunt Challenged to a Scientific Test

On June 11, 1985 we wrote to Ms Hunt and suggested that we would like to conduct a controlled scientific field test of her claims. The test could be done in Australia or in the USA. On July 29, the National Secretary of the Australian Skeptics, James Gerrard, repeated the challenge direct to Ms Hunt via satellite. She agreed to be tested. The test prize comprised \$AI 0,000 each from Dick Smith and Phillip Adams and \$US10,000 from James Randi, a total of approximately \$A32,000. After Ms Hunt's acceptance we spent a couple of hundred dollars on international phone calls and postage to James Randi organising the test.

It was decided to conduct the test at a site where buildings had once stood, and which Ms Hunt was unlikely to have visited. The site was to have no visible traces of the buildings that had once stood there. It was also essential that we be able to obtain plans and photographs of the demolished buildings. Randi selected suitable sites in Florida and we negotiated

with a TV producer for the payment of Ms Hunt's air fare to and from Florida and two nights' accommodation, in return for exclusive filming rights.

Ms Hunt was to be taken to the test site, a flat car park built on the site of a recently demolished building which had stood for about 50 years. Randi had obtained accurate surveyor's plans and photographs of the demolished building. It was expected that Ms Hunt would map her impressions of the demolished building, then a surveyor would provide an accurate overlay of the old structure for comparison with her impressions. Although Randi had selected a perfect site, suitable sites for EMPF could be found in most modern towns at supermarket car parks where old shops and dwellings have been demolished for the car park, the plans still existing at the local council offices.

A second method of testing the existence of EMPFs would be to have Ms Hunt locate an EMPF, then blindfold her and have her approach the EMPF from a different angle to see if she could re-locate it.

In both type of tests there is a need to have people experienced in this type of testing to supervise.

Ms Hunt had written that *every* demolished building that had stood for a minimum of six months would leave an EMPF, also that the EMPF could not be destroyed by budding or removing the soil beneath it or covering the site. The proposed site selected by Randi was thus suitable for a test of her theory and techniques. All Ms Hunt had to do to collect \$32,000 and prove her claims, in a controlled scientific test, was to accurately map the position of part of the demolished building on the chosen site, using the divining rods.

On August 5 we received a letter from Ms Hunt dated July 29 stating that if we wished proof of her claims we would have to find it at Point Cook and *not* elsewhere! Ms Hunt proposed an excavation at Point Cook which would have cost thousands of dollars. Even if we had the money for such an excavation it would not be proof of her theories as to the existence of EMPFs or her claims to find EMPFs and ruins by using divining rods.

Architect Kenneth Feder has pointed out the problem of negative success in the claims of psychic archaeologists. Suppose the farm was excavated and nothing found. All the wooden supports had so thoroughly rotted away, or been removed by subsequent agricultural activity, so that no traces could be found. Anything Ms Hunt has claimed which is not found does not prove her wrong; it may merely mean that there are no findable traces of the remains, that they have not survived demolition and

subsequent use of the site. Suppose some remains are found. There could be a dispute as to the interpretation of the remains. We could not be sure that the remains were found due to Ms Hunt's divining and the existence of EMPFs.

In her thesis Ms Hunt sets out that one of the first steps in her filed procedures is to obtain all available information as to the buildings and structures that stood on the site. In her MMBW report, she thanks Board employees for providing information, and acknowledges in her letter dated July 29 that she was shown the MMBW historical archaeological reports two weeks after she started her research. She stated they have almost no records of any buildings. However in a memo on the MMBW files an employee states "She seemed to locate a tank stand and windmill approximately where one was known to exist".

We have no controls to ascertain what she learnt about the site from MMBW employees, or other source, and what she gained from the divining rods. A fully controlled scientific test requires strict controls from the beginning. We believe Ms Hunt is quite honest in her beliefs, but does not understand the requirements of a controlled scientific test.

We sought to test Ms Hunt's hypotheses, and designed what we consider to be a definitive test at minimal cost and needing only one day. Ms Hunt's refusal to undergo such a test leaves the existence of EMPF and her divining claims unproven.

Ms Hunt suggested we donate the \$32,000 prize money to the Victorian Archaeological Survey. All of the sponsors have indicated that this money is for the first person to prove they have paranormal powers, not for research into any pseudo science. If Ms Hunt wins the prize she can donate it to whomever she wishes. The prize remains as an incentive for others claiming paranormal powers to put their claims to the test. Our challenge to Ms Hunt still stands but if she wishes to be tested by us she will now have to pay all costs associated with such a test.

References

- Aitken MJ, "Test for Correlation between Dowsing Response and Magnetic Disturbance" *Archaeometry* (2,58, 1959)
Feder KI, "Psychic Archaeolog" *Skeptical Inquirer*, Summer 1980 pp 32-43.
Hunt K, "Cultural Influences on the Early Homesteads in the Salt River Valley in Missouri" 1981 (MA Thesis)
Hunt K, "Point Cook Homestead Electro-Magnetic Photo-Field Survey for the MMBW" 1984.
Randi J, "The 198D Divining Tests" *the Skeptic*, Vol 2, No 2
Schwartz S, "The Secret Vaults of Time - Psychic Archaeology" Croset and Dunlop New York 1978.
Searle J, "Point Cook - A history" MMBW 1983

How the MMBW got 'EMPF'ed

Vol 5, No 3

Mark Plummer

By obtaining a copy of the relevant MMBW file under the Freedom of Information Act it was possible to ascertain just how the MMBW became involved.

After reading a 1982 report by Ms Hunt of an archaeological survey, a Board employee became enthused as to the possibilities of Ms Hunt's technique being used at the Board's Historical Park at Point Cook near Melbourne.

He contacted Ms Hunt in America and asked her to forward details of the technique, her opinion as to whether or not it would be effective at Point Cook, and the name of a referee. The employee then telephoned Mr Turnbull, the State Archaeologist in New Brunswick, Canada, who had taken part in a workshop conducted by Ms Hunt. His verbal assessment was that Ms Hunt had located a building but had not quite the correct orientation. According to the employee, Mr Turnbull stated that her expertise should be used in conjunction with other methods. Mr Turnbull undertook to write to the MMBW, but no letter was received.

The employee believed that the Professor of the Folklore Institute and the Executive Director of the National Historic Communal Societies Association, both of the Indiana University, supported Ms Hunt's claims. At the suggestion of the employee, Ms Hunt wrote on March 31, 1984, to the Director of Planning at the MMBW stating that she would pay for her air fare to Australia on the condition that if the MMBW was satisfied with her work they would refund the full air fare. The Board employee then wrote a memo titled "Possible Employment of Ms Hunt as a consultant archaeologist at Historic Precinct, Point Cook Metropolitan Park".

He summarised her claims regarding electromagnetic fields and techniques and stated "I am extremely sceptical as to the reasons given for the process but if this technique can be applied to the Point Cook Historical Park it could be of inestimable value in recreating the total building complex as it would have appeared in the 1860s". It is a great pity he did not contact the Australian Skeptics for information on psychic archaeology which may have made him even more sceptical.

His recommendation was "That the visit to Melbourne by Ms Hunt be approved and the Board agree to refund her air fare of \$1600 (subject to being satisfied with her work) and provide incidental actual

expenses of \$500 during her stay in Melbourne".

A hand written note under the recommendation states, "Discussed with Chairman - Agreed to Proceed". There is no evidence on the file of the Board asking a local scientist or physicist familiar with electromagnetic fields to comment on her claims before approving her visit.

Karen Hunt was told the good news and in her next letter of July 2, she stated, "While I am there I will be taking several photographs of my work with plans of publishing my work back here in the United States. You may want to consider coauthoring an article with me. Our ALHFAM (American Living Historic Farms and Agricultural Museums Association) annual meeting will be held next year in June. I am sure they would be glad for you to make a presentation concerning your Point Cook plans".

"To many of us who are anthropologists, Australia is known as the last frontier. My work with EMPFs is the beginning of a new frontier in archaeology. Its widespread use will be limited at first, but eventually it will become commonplace, particularly when EMPF detectors (similar to metal detectors) are placed on the market. Until then I will continue to spearhead the research in this new frontier of science/archaeology."

"I am looking forward to being in Australia. You won't be disappointed!"

She arrived in Australia on July 22 and spent most of her time at Point Cook. She also concluded a brief survey at the Lake Condah Aboriginal Mission with the Victorian Archaeological Survey. After her visit the employee wrote a memo on August 21 stating he considered she had worked very hard, and recommending that she be paid \$US 1,500. The only statement as to the accuracy or value of her work prior to payment on the documents released was that "The work at Point Cook will require verification; but we know that a windmill had been erected about the site she located west of the stables".

On the Board's Authority for Expenditure and Pay Voucher No 029913 payment of \$A 1,823.96 was approved on 27/18/84 and paid by ANZ Bank Draft No 303949 on 6/19/84. After Ms Hunt's departure, a memo was placed on the file which reveals other Board staff attempted to use the EMPF techniques, stating they located fence lines.

Ms Hunt forwarded her report then wrote on January 5, 1985, suggesting that the Board might like to employ her for 3 - 5 years as a full-time survey archaeologist. The Board then wrote to the Victorian Archaeological Survey (VAS) asking for an archaeologist to comment on Ms Hunt's survey.

Mr McIntyre, the Acting Director of the VAS, replied that:

"1. There is no doubt that Ms Hunt has invested a considerable amount of time and effort in the Point Cook project and is fully committed in her support of the electromagnetic photo-field technique. This, plus her academic qualification and references supplied to the Board, warrants that her findings should be assessed in an objective and thorough manner.

The technique has not previously been demonstrated or tested in Australia and the only opportunity which we have had to test Ms Hunt's findings by excavation (at Lake Condah) produced little evidence of structural features postulated on the basis of electromagnetic photo-fields.

Our strongest recommendation is that the Board should take steps to check the accuracy of the Point Cook reconstructions before funding any further photo-field surveys of the Park.

"2. The existence of several of the buildings and structural features shown on Ms Hunt's plans could be readily tested by archaeological excavation. The most suitable candidates would be relatively small buildings with masonry components or other substantial foundations which might best have survived demolition and subsequent use of the site. Features such as wells, stock tanks and windmill footings would also leave distinctive archaeological remains. Small building complexes and fence lines should be avoided as these insubstantial structures are difficult to detect archaeologically and individual features such as post holes would be extremely difficult to correlate with Ms Hunt's drawings

"3. Those features interpreted as graves should not be interfered with in any way, despite the recommendation for excavation on p26 of Ms Hunt's report; any disturbance of this area in the future should be closely monitored.

No direct action should be taken at this stage to prove or disprove the existence of graves at Point Cook. The validity of Ms Hunt's claim for the existence of such features should be assessed on the basis of evidence gathered from the investigation of buildings and other structural features, as suggested above. Once the reliability of the photo-field technique has been established it would certainly be desirable to fence the areas in which graves are thought to occur and manage them accordingly.

"4. If a programme of archaeological excavation is envisaged by the Board, the VAS would be pleased to assist in an advisory capacity, as for the recent survey of Aboriginal sites within the Park. Our

resources would not allow us to undertake the work directly for the Board and a suitably qualified contract archaeologist would therefore be required.

The cost of such a programme would obviously vary according to the scale of the excavations required and the support (manpower, machinery) which the Board could supply from existing resources. Also, it is possible that a university pre-history department might be interested in participating in the project as a practical exercise for students. With these options aside, however, an exploratory excavation to test for the existence of the "summer kitchen" would require an archaeologist and assistant for at least five days, plus a backhoe and driver for part of that time. The cost, even if nothing were found, would be \$1,500-\$2,000. The total excavation of such a building, plus the necessary analysis of finds and report preparations, would cost about \$10,000.

"5. I do not consider that it would serve any useful purpose at this stage to send an archaeologist to Point Cook as little could be done to assist in our present assessment of Ms Hunt's findings. The report deals with structures which are either no longer extant or which would be represented only by insubstantial sub-surface remains. Some masonry or brickwork features might be detectable by probing, but these could only be properly identified and assessed through excavation.

The Board's decision to support Karen Hunt in carrying out her 1984 survey at Point Cook was a commendable experiment in the application of a new technique which may eventually prove to be of considerable scientific and educational value. However, I do consider that the results which are now available should be thoroughly tested before any extension of the survey is considered.

The Board's enthusiasm seems to have cooled with time and on April 4, 1985 the employee originally responsible for contacting Ms Hunt wrote:

"I discussed on site with Mr Stewart Simmons, Archaeologist, VAS, as to whether it is worthwhile for the Board to engage Ms Karen Hunt for further work at Point Cook Historic Precinct. He is of the opinion that Ms Hunt's work, based on their experience at Lake Condah was not accurate and failed to locate some features. It is apparent that this would also apply to the work at Point Cook."

Following that memo the Board wrote to Ms Hunt on April 10, 1985, that "the Board does not wish to proceed with further electromagnetic photofield studies at Point Cook at this stage. The Board is very appreciative of your dedication and interest shown in the work you undertook at Point Cook and if a decision

is made to extend your work we shall let you know in good time."

There is no evidence on the Board's file up to August 1985, of asking a scientist or physicist to comment on Ms Hunt's report. Surely somewhere in the huge grey edifice of the MMBW's Head Office there must be an engineer or scientist to whom they could hand the report for perusal.

Hopefully they will find one soon.

Acknowledgements

The author wishes to thank Australian Skeptics, Ian Bryce, Dr Man Christophers, James Gerrand, Dr John Harries and Dr Dave Wheeler, for their assistance in research.

Other Australians who assisted include Marie Man nik, Jane Symons, several Australian architects who cannot be named for ethical reasons, and certain MMBW employees who cannot be named for other reasons.

Americans who assisted include Dr John Cole of CSICOP, and architects Ken Morse and Ivan and Clem Paulsen.

My thanks to magicians James Randi and Mike Wilton for advice and planning a test of Ms Hunt's theories and techniques.

My special thanks to Michael Willesee for arranging a satellite television interview between James Gerrand and Ms Hunt.

Finally my thanks to Mr RJ Ingersoll, General Manager of the MMBW for personally forwarding me a map of the Point Cook Park.

Dr Dave Wheeler is a physicist who was teaching at a Sydney TAFE college when the preceding article was written. He now teaches at a university in Malaysia.

Dr John Harries is a nuclear physicist, who was attached to the Australian Atomic Energy Commission when the preceding article was written.

Editor's Note

As a result of the activities investigated in these articles, the Melbourne Metropolitan Board of Works was awarded the Australian Skeptics Bent Spoon for 1984. The MMBW to 'Melbourne Water'.

In the Beginning

Psychics

Introduction

The term 'psychic' is applied to those who claim to have the ability to use esoteric methods of predicting the future, or the history, of events and individuals. In this section, we look at the claims of many different psychic claimants, from clairvoyants to psychic detectives and spiritualists.

These articles show that there is no reason to believe that any of these people have talents that fall outside the norms of human ability, despite the support they often receive from the less critical sections of the media.

While many psychics seem to believe that their special talents give them profound insights into the world, in reality they are more likely to be distinguished by the paucity of their imaginations and the vacuity of their pronouncements.

Doris Stokes Wrong - Police

Vol 1, No 1

Mark Plummer

Doris Stokes, well known in Australia through her television performances in which she claims to communicate with the dead, has been shown to be wrong by English and American police.

In her recently published book, "Voices in my Ear", Stokes claims to have solved two murder cases in England. One was of a small girl at Kirkham and the other of children at Blackpool. Detective Chief Supt William Brooks of the Lancashire Constabulary has stated that Stokes made no contribution whatsoever to the detection of either murderer.

While in Los Angeles, Stokes claims that a local murder victim, Weiss, contacted her and described details of his murder. James Randi contacted the Los Angeles police who told him that all of what Stokes said the murder victim Weiss told her (excepting details as yet uncorroborated) was readily available to the media at the time Stokes made details of the 'psychic conversation' public. The murder is still unsolved as the murder victim neglected to inform Stokes of the names of his assailants or provide an accurate description of them.

Captain William H Cobb, Commanding Officer of the Homicide Division of the Los Angeles police stated that his police department does not solicit the services of clairvoyants, psychics or persons practising parapsychology when conducting investigations. However, Cobb noted, people involved in these fields do volunteer their 'special' information when they believe it will be beneficial to the investigation. Cobb stated that his detectives must keep an objective frame of mind during their investigations to insure that a thorough investigation is conducted. Therefore, they are obliged to review this type of volunteered information regardless of their personal beliefs as to its value.

A Punt With Psychics

Vol 2, No 1

Ian Bryce

Kevin Arnett and Don Lane assembled a panel of psychics to foretell the outcome of the 1981 Melbourne Cup. Seven psychics, including a cat, made a total of 13 selections. None of them predicted the winner and only one horse ran in the placing specified. Predictions of strange weather, a mishap, a photo-finish and fights between jockeys also proved wrong. This is how I imagine it went.

“Hello viewers. No, don't adjust your sets, this is Kevin Arnett on the Don Lane Show. Tonight I will demonstrate for you some truly incredible psychic powers. This is a very special occasion, as the famous Melbourne Cup of 1981 will be run tomorrow and I have assembled a panel of my best psychics to predict the winners. You may rest assured that no one of doubtful repute would be allowed on this show. As you know, Don is particularly discerning in choosing his guests. At the first sign of any nonsense Don would tell the offender to piss off.

First we have astrologer Kerry Kulkens to tell us what the stars predict. Kerry says it is not a good day for favourites because a couple of planets up there are going to get in the way! Well, of course, anyone can see that the planet Saturn would make Flemington Racecourse a little difficult to negotiate - and you doubters accuse me of being unscientific!

Anyway, Kerry predicts *Koiro Trelay* will win, and there will be strange weather conditions. What's that, Bert? *Koiro* is second favourite? The Magellanic Clouds must have blurred your vision, Kerry. You're shifting your money onto *Hyperno*. And your cat put his foot on *Magistrate* when you laid out the racing pages? We won't ask what your dog did to *Cocked Hat*!

Our next psychic is Anita Brown, who is going to identify the winner from the tea-leaves in the bottom of a cup. My personal tea-cup, in fact. Now, some of you may think that such patterns result from the vortices and turbulence of the fluid, but how would you know? Anita can clearly see the number 3 in the leaves, and this means *Our Paddy Boy* will win. In fact, I will have a little bet on that. Should I stake my reputation on it as well?

My favourite clairvoyant, Geoff Willis, has had a

whinny from the Other Side. Who is the winner, Geoff? Not *Phar Lap*, because he is stuffed? Ha, ha, very funny, Geoff. Geniuses can be difficult to work with, they say. The winner will be *Kingston Town*. You had a vision while taking a bath? Surely number 20, *Pelican Point*, would do better under the circumstances.

Now we come to a more tangible method of solution - the Tarot Cards. Our expert, Kay McLennan, has assigned a card to each horse, and has shuffled the deck of cards to eliminate any cheating. What could be fairer than that? Drawing three cards at random, Kay selects *Hyperno* and *Koiro Trelay* as runners-up, and *Flashing Light* to win.

But the psychic dearest to our hearts must be the one and only Doris Stokes. Many of you have seen Doris on this show before, and Don has publicly vouched for her integrity and also her fertility. Well, reach for a tissue, because we have Doris on the telephone, live from England! And all due to a technical marvel called a Geosynchronous Communications Satellite, designed and launched and guided by brilliant scientists and engineers... My phone is ringing, excuse me a moment... It's the Director... Oh, that was my 1979 show? This year we'll be doing pseudoscience?

Anyway, Doris recommends *Our Paddy Boy*, and *El Laurena* for a place. But *Flashing Light* will win because Doris is receiving the jockey's name, Cooper.

Well, tomorrow we'll find out.

Meanwhile, our panel is receiving some more details from the spirit world. Kay says something very unexpected will happen.

Well, if her predictions of the winners turn out to be wrong, that will be

something Kay did not expect, won't it? One out of two successes is clearly beyond the realms of chance, so already we have proof of psychic powers!

Our panel also feels that two horses will be close to the finish, making the result hard to decipher. We'll wait and see. And there will be fights between jockeys, fisticuffs perhaps. Well, I am also a little worried about the psychics, because they nearly all disagree on who will win.

Our final predictions this evening comes, not from a haze of auras supernatural, but from a maze of wires electrical. Ralph Parkhurst has brought his Apple computer into the studio, and has fed in the data on all the horses. What is psychic about a

1981 Melbourne Cup Results	
Just a Dash	15-1
El Laurena	25-1
Flashing Light	30-1

computer, you may wonder. Well, I wouldn't want anyone to say I don't present a balanced view.

The computer is asking Ralph what the weather and track conditions will be. What pretty flashing writing on the screen! And what a dainty little electronic horse trotting across, to the tap-tap-tap of hoofsteps!

What's that? How does the computer analyse the performance and form of the horses, considering the conditions of the day? Come, come, an explanation would be too technical for this show. My viewers will be sufficiently entertained as long as there is colour and motion on their screens! To the sound of a bugle, the computer is predicting *No Peer* to win, followed by *Kingston Town* and *Koiro Trelay*.

Well, viewers, that wraps up our predictions for the Melbourne Cup of 1981. I'd like to thank each member of the panel for their efforts. Isn't it amazing that there are so many different ways to foretell the future? I hope that every one of you is proved correct! I know we will all watch the race tomorrow with great interest!"

Clairvoyant Croiset Clearly Seen

Vol 3, No 1

Janet de Silva

The Dutch clairvoyant, Gerald Croiset, who died in July 1980, was one of the most celebrated and distinguished psychics of the twentieth century. Credited with having assisted in solving countless crimes and mysterious disappearances in many countries, Croiset's 'astonishing psychic ability' is honoured and well respected throughout the world.

In 1981, *The Skeptical Inquirer* published two articles by a Dutch journalist, Piet Hein Hoebens, in which the evidence surrounding the cases of supposed crime solving by Croiset was critically examined.

Croiset is the subject of a full length biography by American journalist, Jack Harrison Pollack, who claims to have spent five years checking and double checking the psychic's record. Pollack writes convincingly of Croiset's success and his book is now the main English reference on Croiset's activities. The other principal source of information on Croiset are

the books and articles put together by Professor Tenhaeff, the Dutch parapsychologist, who in 1953 was appointed to the first chair of physical research ever to be established at a regular university (Utrecht). Tenhaeff, Croiset's mentor, has called the psychic, the clairvoyant equivalent of Mozart.

In his article, Hoebens (a member of the Dutch section of CSICOP) examines the evidence put forward by Pollack and Tenhaeff on Croiset's ability and reveals some extraordinary differences between the claims and the facts. An example of this can be seen when Hoebens investigated a case where Croiset was phoned by a friend of a Dutch family whose four year old son had been missing for twenty-four hours. According to Pollack, the police had "no clues". "The outlook isn't good," Croiset is quoted as saying. "Search the area immediately. But I'm afraid in about three days the child's body will be found in a canal close to a bridge." Pollack continues,---Three days later, I checked up. The police had just found the child's body next to one of the piers of the bridge over the canal - exactly as Croiset had predicted."

Following up this story, Hoebens contacted the police who had investigated the case. The police reports made no mention of Croiset, nor of a bridge. Furthermore, they revealed that the authorities had known from the beginning that the boy had drowned and the approximate location of the accident, since the incident had been witnessed by the boy's playmate. This is in contrast to Pollack's claim that the police had "no clues". "No one needed a clairvoyant to say that the outlook isn't good or that the area should be searched immediately," says Hoebens. Interestingly, Pollack presents this case as "an amazing demonstration".

In his second article, Hoebens concentrates on the personal accounts of Professor Tenhaeff, who helped supervise the writing of Pollack's biography. Although Pollack praises Tenhaeff as "a stickler for scientific proof" Hoebens presents conclusive evidence that the professor fraudulently reported Croiset's results.

But how did Croiset escape detection? One obvious reason, says Hoebens, is that Croiset was protected by the fact that his mentor was an authentic university professor. Critical investigation, he says, was further complicated by the fact that Tenhaeff cleverly took advantage of the language barrier. Many of the fraudulent versions of the "classic cases" were concocted for export only.

In 1966, Croiset was summoned to Adelaide to search for the three missing Beaumont children. A local committee paid the expenses. The clairvoyant was certain the children were buried under a new

warehouse and advised demolition. After the committee had collected \$40 000, the building was demolished. No bodies were found. This costly mistake did not affect Croiset's reputation, reports Hoebens. Three years later an Amsterdam newspaper, quoting AAP, claimed that the Australian authorities had refused to search the spot.

More recently, the Sydney evening paper, the *Daily Mirror*, contacted Croiset in January 1978, over the mysterious disappearance of Donald Mackay in Griffith on July 15, 1977. According to a *Daily Mirror* journalist, Croiset spelt out Mackay's last hours and his death after concentrating on a photograph sent by satellite to Holland.

Croiset was reported by the *Sunday* newspaper (2211/78) as having made several "startling" allegations about the Donald Mackay disappearance, while in a state of semi-trance. Croiset claimed that the Griffith drug crusader was executed by two bullets fired into his spine, and was buried near water under a pile of stones. His killers were three men, one of them a VIP well respected in social and political circles. Mackay, according to Croiset, was murdered as he tried to keep a rendezvous with the VIP near Griffith on July 15, 1977. The rendezvous was a death trap established by the VIP, because Mackay had learned too much about the illegal drug market in Australia.

Croiset sent a drawing of the VIP killer and drawings of possible grave sites. The killer, according to Croiset, was a tall man with olive skin and Italian-styled clothes. Finally, Croiset claimed that Mackay had kept a secret list connected with drugs in his bedroom and that he died at 6.22 a.m. or p.m. on the day he disappeared. The newspaper gave all this information to the police and reported that they were taking it seriously.

Five years have now passed since the disappearance of Donald Mackay, and the circumstances surrounding his disappearance remain as much a mystery. What is known, and what was well publicised at the time of the disappearance, is that Mackay was last seen leaving the Griffith Hotel at about 6.30 p.m. on July 15, 1977. A van belonging to him was found in the hotel car park with blood stains and evidence of shooting, but there was no sign of him, dead or alive. Three very dark men were reported seen in the car park - Southern Europeans, it was suggested. Due to Donald Mackay's involvement in past discoveries of marijuana crops found near Griffith, Australians spoke openly and angrily of a Mafia organisation amongst the Italian community in Griffith.

Comparing these well documented facts about the Mackay case and the "startling" allegations made by Croiset six months after the disappearance, it seems probable that the famous clairvoyant didn't need to rely on too much of this "telepathy" to gain the impressions he revealed. It appears that the *Daily Mirror* believes it impossible that a Dutch clairvoyant would have the resources in six months to obtain an Australian newspaper and read it. Interestingly, Donald Mackay's wife, Barbara, was contacted by phone by Croiset about the missing list that was supposed to be hidden in the bedroom. It could not be located.

Then in July 1978, Croiset was brought to Australia, sponsored partly by the O-Ten TV Network. Speaking of his clairvoyant impressions, Croiset described a terrace house in Kings Cross, Sydney, as being linked with people responsible for Mackay's death. Taken through Sydney, Croiset was unable to identify any one building, explaining that he had not realised that there were so many buildings looking so much alike in Sydney. Finally he was taken to Griffith, where he pointed out a possible burial site - a waterway. However this had been exhaustively searched by police soon after Mackay's disappearance. In addition, a discussion with Barbara Mackay also proved fruitless.

It is not known how Croiset's involvement in the Mackay case was reported back in Holland, or elsewhere in the world. What is known is that his reputation remained unquestioned. When Croiset died unexpectedly in 1980, the Amsterdam weekly, Elsevier, reported that the deceased had heralded a "new awareness in cosmic solidarity". Other newspapers have since called him "the clairvoyant who never disappointed". One can only guess at what the Beaumont committee thinks of that!

Editor's Note

Since this article was written, the mysteries referred to within have remained mysteries. The fate of the Beaumont children has never been solved., a man has been convicted for the murder of Donald Mackay, but those behind it have not been charged and his body has not been found. Many more crimes have been committed and many more psychic detectives have offered their solutions, with singular lack of success. Detection remains what it always has been, a mixture of hard work, with the occasional lucky break.

Perth Still There

Vol 1, No 1

Mark Plummer

Extensive research by Australian Skeptics had shown that the city of Perth is still there.

In January 1981, clairvoyant Joseph Gyapal predicted that a giant wall of water, seventeen metres high, would sweep Perth and all Western Australian towns between Bunbury and Broome in the early hours of Monday, February 9.

His prediction was publicised by the Perth media and led Peter Gregson, the scientist in charge of the Perth Geophysical Observatory, to issue a statement to allay public fears. Mr Gregson said that although the observatory could not say a tidal wave would not occur, the statistical chances of it happening were so slight as to be not worth considering. Mr Gregson said that even if a tidal wave did occur, the wide continental shelf with its gradual slope would protect the coast. The frictional losses in the wave travelling across a wide shelf would dissipate it.

Mr Gyapal's predictions did not cause the same reactions as the predictions of a great tidal wave in Adelaide in January 1976, so it was not necessary for Premier Sir Charles Court to stand on the beach to thwart the prediction. (The great Adelaide tidal wave may have been stopped by the actions of Premier Don Dunstan standing on the Glenelg beach at the time it had been predicted).

When no news of the tidal wave came through by midday, some speculated it was possible that the usual media and political conspiracy had covered up the event. However, we can now reveal that our research has shown that Perth is still there. No doubt many Perth surfers were disappointed they had missed the "big one"!

Editor's Note

And, of course, Perth is still with us in 1993. All manner of predictions of doom have been levelled at various Australian cities in the intervening years and none of them have come true.

The one major civic disaster to strike Australia in the time, the earthquake which devastated Newcastle, went unremarked before the event by Australia's psychic population.

Psychic Predictions

Compiled by

Barry Williams

Over the years, *the Skeptic* has kept an eye on the predictions made in the media by various 'psychics and clairvoyants', particularly those of our first Bent Spoon Award winner, Tom Wards. Mr Wards is arguably the least accurate 'psychic' in Australia, no mean feat when all the rest are considered.

The following are edited extracts from articles published in the magazine during the first five years about those predictions.

Vol 1, No 2

[August 1981]

Ron Marke, Editor of the NSW *Rationalist News*, has drawn our attention to a *Daily Mirror* clipping of August 29, 1979, which reports that "the amazing Mrs Beryl Smith, the astonishingly accurate Newcastle clairvoyant" predicted such disasters as the Westgate Bridge collapse, the Aberfan mine disaster and the assassination of President Kennedy.

She predicted that a large Sydney building would collapse within the next six months, though no such collapse has occurred. She said that Prince Charles would marry within twelve months. He didn't, he is getting married this month (August 1981).

She predicted that within six months there would be earthquakes that would wreck two different parts of America and that there will be 'earthquakes' of a different kind, in the political sense in New Zealand and Victoria. Wrong again Beryl. She said that she gets something about dissension in the Murray River area and that Don Dunstan's health will be mentioned again in the press. Beryl, you're not doing too well so far.

She claims that Darwin will be rocked by an earthquake this summer. Darwin still stands. She said there will be a massive fire in Sydney; Sydney has had a lot of fires, but hardly one that could be considered 'massive'; she said that two ships would collide disastrously in fog near Newcastle. Wrong again!

She's probably right about the Mafia connections in Griffith, but was wrong again about the Pope's involvement in a car accident and about an uprising in Canberra, with Molotov Cocktails exploding.

In the *Australasian Post* of November 27, 1980, "nationally known clairvoyant, Tom Wards" predicted that the Fraser Government would reintroduce conscription and national service in March

or April of this year (1981) and that there could be a new charter airline service flying out of Australia to the UK and USA by the middle of the year. Not true.

The popular press carries many such predictions, with no follow-up on how accurate they were, but each time we have checked we found that psychics have a particularly poor record for prediction. Worse, in fact, than one would expect from a well informed citizen.

Vol 1, No 3 [November 1981]

In a July 1981 issue of *Australasian Post*, Tom Wards predicted the the Pope would die "in a month or so". July expired, but the Pope didn't. (This refers to Pope John Paul II, who is still with us in 1993. **Ed**). In the August 15 edition of the same magazine, Mr Wards further predicted that England would win the Ashes (they were leading two tests to one at the time), Collingwood would win the VFL Grand final, and a Federal Cabinet Minister would resign over the budget. England did, Collingwood didn't and no minister resigned.

In this issue we also printed an article from the USA about a 'psychic' Tamara Rand who claimed that she had predicted, on video tape, the assassination attempt on President Reagan, with remarkable accuracy. Investigations by CSICOP revealed that she had taped her predictions 24 hours *after* the attempt on the President's life and had hoaxed the TV networks. It took some time for the news media to acknowledge the hoax. Full details are in the Autumn 1981 issue of *The Skeptical Inquirer*.

Vol 2, No 2 [August 1982]

On June 23, Tom Wards predicted that there would be a Federal election within eight weeks. It wasn't held until March 1983. On July 12, a visiting Indian 'astrologer', Professor Sarathy predicted that Bob Hawke would defeat Bill Hayden for leadership of the ALP. He didn't; at a meeting on July 16, Hayden retained his leadership, only to lose it to Hawke the following February.

On April 24, in a paid advertisement in the *Adelaide Advertiser*, a Benjamin Creme predicted that Christ would declare his true status within the next two months. On June 27, an Adelaide Skeptic wrote to him asking for a retraction and received a response querying "whether we are really ready for the emergence of Christ?"

Vol 2, No 4 [December 1982]

Don Tonkin, a South Australian Skeptic reported that, just over two weeks before the South Australian state elections, the *Adelaide Advertiser* (October 21) featured a front page prediction from 'astrologer' Paul Gaszner that the Liberal Government would be returned with an increased majority of two to three seats.

He claimed to have found a 'grand stellium' - a close conjunction of the Sun with Mercury, Jupiter, Venus and Uranus, on election day, November 6. This, he said, would lead to "a heck of a lot of rain" which would "drown the Labor Party's hopes". There was no rain on election day, and the Labor party won the election by four seats, which did not deter Mr Gaszner one bit "There was nothing wrong with the astrological aspect of the prediction" he claimed, "It was my interpretation that was wrong". He went on, "I aligned the wrong planet with the wrong party Jupiter with the Liberals and Saturn with Labor. Had I reversed them I would have been spot on." Punters often have the same problem with horses.

In the same issue, following-up his article "A Punt With Psychics" in Vol 2, No 1, Ian Bryce wrote about the appearance on the *Don Lane Show* of Kevin Arnett and a panel of six 'psychics' who signally failed to predict the winner of the 1982 Melbourne Cup. None of their selections ran a place.

On Radio 3GL on Cup Day, Tom Wards listed five horses as foreseen winners and predicted a triple dead heat. None of the horses ran a place and there was no dead heat.

Vol 4, No 4 [November 1984]

In the *Australasian Post* of October 11, psychic, Simon Turnbull predicted that Ireland would be given its first real opportunity to achieve total unity towards the end of that year. He predicted that Britain and Ireland would come to an agreement in matters of economics and defence.

Editor's Note

During the first five years, and after, psychics have been consistently shown to be wrong in their predictions of coming events. In fact, a good case could be made to show that psychics are less able to predict future events than are ordinary well informed, members of the public at large.

Tom Wards, prominently mentioned in these articles, was declared the inaugural winner of the Australian Skeptics Bent Spoon award in 1982.

Clairvoyance No Help

Vol 3, No 4

Paid Nichols

Readers may have noticed something in the press about the trial of a Ms Zaliradnik, a defendant in Western Australia on a charge of pretending to tell fortunes contrary to s.66(3) of the Western Australian Police Act 1892. The matter went to appeal as the case of *Zahradnik v. Bateman* (November 30, 1982) before Judge Olney.

It is necessary to say something about the charge and its background. In 1736 the Imperial Parliament enacted the Witchcraft Act, which was designed to replace the somewhat drastic penalties for witchcraft of previous reigns. Witchcraft trials had fallen under official disapproval in the early 17th century owing to the sceptical attitude of King James I.

Despite an enthusiastic revival during the Commonwealth, such trials continued to attract such little official enthusiasm that they eventually ceased. There remained the problem of what to do about the person who purported to have and use such powers, and, in particular, purported to use them for gain. Clearly the old penalties should not be exacted, if for no other reason than the earlier statutes assumed that the powers of witches were genuine. Parliament's answer was to enact a statute that repealed all the older ones but penalised people "pretending to tell fortunes". In due course a very similar provision was introduced into Western Australian law by the Police Ordinance 1849. It is now s.66(3) which reads:

"Every person pretending to tell fortunes, or using any subtle craft, means, or device to deceive and impose upon any person... commits an offence."

There have not been many prosecutions under the section, but in recent years the Western Australian police have used it to prosecute persons who tell fortunes for money. The facts of the present case were described by Mr Justice Olney as follows:

"... Jessica Anne Booth, a plain clothes police constable, went to the appellant's premises in Bayswater where she spoke to the appellant, asked if she could tell her fortune and was given an affirmative answer. An appointment was made for later in the day and a fee of \$10 was mentioned by the appellant. Subsequently the appellant, with the aid of some cards and a scarf, made certain statements about the affairs and personal life of the police officer as well as making certain predictions as to future events in her life. It appears that most if not all of the things said of the police officer which had occurred in the past were accurately told. The appellant was nevertheless

convicted of the charge and appealed on a multiplicity of grounds which can, in effect, be reduced to the single ground that she did not "pretend" to tell the police officer's fortune but rather she *did* tell the police officer's fortune."

It will be noticed that His Honour Mr Justice Olney said nothing of the appellant's failure to divine that her customer was a policewoman, and that she was seeking evidence for a subsequent charge. Rather more importantly it does not seem to have been argued that section 24 of the Western Australian Criminal Code, which exculpates defendants in certain circumstances where they have an honest and reasonable but mistaken belief in a state of affairs, might apply. The appeal seems to have been argued only on the substantive ground cited by His Honour Mr Justice Olney. Certainly he mentions no other.

The principal Western Australian case on the point, *Isherwood v. O'Brien* (1920) 23, Western Australian State Reports 10, was argued without consideration of the Criminal Code provision and the principal South Australian case, *Partridge v. Samuels* (1976) 14, South Australia State Reports 209, which is generally thought to confirm the reasoning in *Isherwood v. O'Brien*, occurred in a state where there is no Criminal Code.

His Honour Mr Justice Olney therefore held, in the words of the case of *Isherwood v. O'Brien*, that:

"The offence would be complete even though the defendant brought evidence to show his belief in his power to tell fortunes. If the legislature forbids such a thing, it matters not if the defendant believes he can do it."

But s.66(3) was enacted in its present form in 1892. The Criminal Code in its present form was enacted in 1913. Lawyers will regret that the matter of the Criminal Code was not put to Mr Justice Olney. There the matter stands: an ending unsatisfactory to both occultists and lawyers, but one predicted by neither.

Paul Nichols is a Perth lawyer.

Disappearing Hand Claim True

Vol 4, No 1

Mark Plummer

The Melbourne *Age Weekender* supplement of November 11, 1983 advertised that psychic phenomena medium Dennis Hassel was in town and had made numerous claims including that audiences had seen his fingers disappear. After a briefing from our consultant magician, Mike Wilton, I attended the evening demonstration to find that Mr Hassel's claim was true!

I sat in the extreme left of the front row of the audience. The main part of the demonstration was a competent 'cold reading' of the audience. It was obvious from their reactions that few if any of the audience knew the psychology or techniques of cold reading and Hassel was able to carry it off well.

For the disappearing fingers demonstration, Hassel had all the lights turned off, except for a single red light placed on the stage and a faint light in the wings to my right. Mr Hassel stood in front of a black backdrop, to the rear and to the left of the red light, leaving only his face and hands illuminated. He then slowly moved his left hand backwards until his body was between the light and his hand.

From my position on the extreme left it was possible to see, at all times, the faint outline of his hand against the wing light, however, to the bulk of the audience, his hand seemed to disappear as he moved it from the illuminated area.

Thus his claim was true, audiences have seen his hand disappear. This does not mean that it dematerialised or anything of a paranormal or psychic nature - merely that it had gone from the illuminated area. Mr Hassel thus showed that he was a competent magician, particularly at using the magician's method of using black backdrops and a single light source. This is known in the trade as 'black art'.

Nothing in his performance convinced me or the other Skeptic present, that Mr Hassel was a psychic, but from the reactions of the audience, he was accepted by most as having such powers. The whole night highlighted the need to teach believers about cold reading and magicians' techniques.

Editor's Note

Dennis Hassel was later declared the winner of the Australian Skeptics Bent Spoon Award for 1983.

Albert Best to Tour Australia

Vol 4, No 1

Mark Plummer

Australian spiritualist and psychic organisations are heavily promoting the forthcoming tour of Albert Best, claimed medium. Best toured New Zealand in February 1983. The December issue of the NZ Psychic Gazette described him on its cover:

"An exceptional British Clairvoyant, tested by many scientific bodies including Glasgow University where this year, under rigid Scientific Conditions, he was rated as 80% accurate by the Scientist testing him. A very high score indeed, when being tested by academics, with all the modern equipment available for their use during these tests."

Eric Weddell, President of the Australian Psychic Research Institute, and a subscriber to the Skeptic wrote to Professor A E Roy, Head of the Astronomy Department of Glasgow University, who replied as follows:

"I was interested by the information you gave me about the publicity in the *New Zealand Psychic Gazette*, regarding Mr Albert Best of Glasgow. I think it should be corrected as follows:

Glasgow University has not tested Mr Best. Any tests that he has undergone have been with me and not in any capacity as a member of the Staff of Glasgow University. I am, however, keenly interested in psychic phenomena, being a member of the Society for Psychical Research and indeed a Member of Council and have studied these matters for about 30 years. I have had sittings with Mr Best and have met him on a number of occasions and the type of sittings have been such that it has been possible to verify the statements that he makes. I am completely convinced that he has a psychic faculty because of the high percentage of correct statements that he has made during these sitting I think I would put it as high as 80%. Mr Best interprets these results from a spiritualist point of view but it seems to me from these tests I have carried out with him, it is not possible to distinguish between the spiritualist hypothesis and the telepathic and clairvoyance hypothesis. I am convinced, however, that Mr Best is a genuine medium and clairvoyant."

Note the *NZ Psychic Gazette's* leap from Mr Best being tested at Glasgow University to being tested by Glasgow University. Nor does Professor Ray's letter indicate the use of any scientific instruments.

In fact, it mentions nothing of the test conditions, the protocol, whether there were any independent observers, any magicians, the method of recording statements and their verification, etc. Professor Roy's figure of 80% does not seem to be based on any careful tabulation of results, but merely his estimate. Mr Weddell also wrote to Dr John Beloff of the Department of Psychiatry at Edinburgh University, who had visited Mr Best years ago and was not impressed.

Melbourne publicity leaflets for the Best tour indicate that Mr George Eldred, President of the Victorian Spiritualist Union, will be chairing the meetings, and Mr Kevin Arnett will be guest speaker. I wrote to these two gentlemen asking them exactly what Mr Best claims to be able to do, whether these claims are of a paranormal nature, and what evidence exists for his claims. I have not yet received any reply.

Other items of evidence being tendered in support of Best are extracts from a book "A Venture in Immortality" by Rev David Kennedy, claimed to be an engineer and clergyman of the Church of Scotland. He relates examples of Best's mediumship in his book and describes Best as probably the finest platform medium in Britain today. On page 92 of the book, Kennedy states:

"On a number of occasions he pointed to a member of the audience whom he had never seen before and proceeded to give a detailed accurate message. For example in a totally strange town 400 miles from his home in Glasgow he pointed to a woman in the audience and said, "Your husband John is here and he wishes to remind you of the time one day in August twenty-three years ago when your Pekingese dog got lost and you spent the whole night together walking the streets looking for it." "... the person concerned told me that she was a total stranger to Mr Best and had come to this type of meeting for the first time."

Find this remarkable? Kennedy certainly does. He wonders:

"How was Mr Best able to point first of all to a woman sitting at the back of the hall among 500 odd persons and without hesitation give this remarkable evidence?"

Kennedy goes on to say that such incidents strongly point to a purposeful action of an invisible intelligence directing Best.

I wonder if readers of the Skeptic can think of a different (and more prosaic!) explanation for such an incident?

Spirits, Spirits Everywhere and Not a Drop to Drink

Vol 4, No 3

Barry Williams

The night of Saturday April 14 (1984) was fine and crystal clear in Sydney, Hub of the Universe. Just the sort of night to do a little amateur astronomy, or in the case of a Dedicated Skeptic, to attend a meeting with Mr Alfred Best, "acclaimed as one of the World's Leading Clairvoyants" if his pre-publicity is to be believed.

The publicity must have been believed by a lot of people because the Lane Cove Town Hall was packed with about 500 presumed Believers. The entry fee of \$9.00 per head would surely have deterred sceptics who were less than totally dedicated (but not those who had Free Tickets, compliments of Dick Smith).

The meeting was opened by a gentleman who did not identify himself to the audience, but whom the Dedicated Skeptic suspected was the President of the Australian Institute of Psychic Research, Mr Eric Weddell. He commenced the meeting by reading a disclaimer to the effect that Mr Best had not been tested by Glasgow University, as some pre-show publicity had suggested, but by a professor at Glasgow University who had not subjected Mr Best to 'stringent scientific tests' but nonetheless rated him as '80% accurate'. He also advised that Mr Best had been tested by Nationwide programme on Tasmanian ABCTV and that a copy of the tape of the programme was being sought by AIPR.

The meeting was then introduced to the warm-up speaker, Professor John (Raine?*) Lewis, who was described as 'a scientist and Professor of Religion'. Professor Lewis' address was a predictable attack on the 'neurotic suspicion of the supernatural' by scientists and contained many of the shibboleths of paranormalists, ie closed minds in science, scientists being shunned by their peers for daring to challenge orthodoxy (I did not hear Galileo's name mentioned, but I suspect he was intimidated). Prof Lewis seemed to believe that rational thought was something to be deprecated and was particularly scathing about the late Bertrand Russell. He also accused sceptics of using "hectoring methods to get their opposition across", and indeed, equated sceptics with "Hellfire and Brimstone preachers".

He did make a couple of extraordinary claims, one being that investigators of paranormal phenomena often placed unnecessarily stringent controls on their own research (not often enough if James Randi's

Project Alpha is anything to go by). Following this, he claimed that if astronomy was the subject of the same stringent controls, much of today's knowledge would have to be 'thrown out the window'. Having thus displayed a lamentable ignorance of the difference between observational and experimental science, he compounded this by failing to acknowledge that the history of astronomy and indeed of all scientific disciplines is littered with ideas that have been thrown out of assorted windows, as distinct from pseudoscience, in which all theories, no matter how tenuous, are retained with grim tenacity. In his attack on sceptics, Prof Lewis suggested that they were concerned that researchers into the paranormal were emotionally involved in their research and were therefore likely to be less than scrupulous. Having set up this straw man, Prof Lewis, predictably, demolished it with references to the hypothetical biochemist who was trying to find a cancer cure, and who could reasonably be suspected of being „emotionally involved". The only snort of derision in the room came from the vicinity of the Dedicated Skeptic.

One of Prof Lewis' rhetorical questions was that "as the paranormal deals with people, why should researchers be shackled by such unrealistic requirements as repeatability". Why indeed? Perhaps medical researchers should consider this attractive proposition .

After this exciting build-up, Mr Best proved to be something of an anti-climax. Describing himself as a "spiritualist medium", he thus removed the gathering from any scrutiny as a scientific phenomenon, and firmly placed it in the context of the religious meeting. As an interesting sidelight, the Spiritualist Movement recently celebrated its centenary. In the early part of the 20th century it had a considerable number of adherents, but it tended to lose ground after its expert clairvoyants failed to predict World War II.

After a ten minute introduction, Mr Best began clairvoying. Most of his spirit contacts seemed to be British, with Scots and Irish in the majority. The 'spirits' appeared to concentrate on people in the first few rows and these rows seemed to be filled with people who were conversant with the spiritualist jargon. Indeed most of the people at the front seemed to know each other and one might suspect that they were mainly members of spiritualist groups.

One of the early messages came from a spirit called "Pringle", who seemed to have strayed into the wrong meeting, as no one was prepared to admit to knowing any Pringles, alive or 'passed over'. The Dedicated Skeptic, on mature reflection, decided

that this message may have been for him. Not 12 months before he had attended an Australian Opera performance of *Don Giovanni*, in which the eponymous role was sung by John Pringle. Opera buffs will instantly recall that in the final scene, Don G, for his sins, is dragged off to Hades by demons. Perhaps this is drawing rather a long bow, but some of the other connections made that evening were no less tenuous.

A couple of incidents persist in memory. One man received a message from his late Irish mother, who, Mr Best suggested, was firmly of the Salvation Army faith. The man allowed that she had been a Catholic, which seemed to satisfy Mr Best, but which may have given pause to both the Pope and the successors to General Booth. Mr Best then revealed that the mother had a neighbour called "Crangle", which presumably laid the Pringle wraith to rest, but seemed to be news to the recipient. Mr Best did not say so but the confusion over names may, one suspects, be due to poor communication facilities. (Does this mean that Telecom pursues us into the afterlife?)

Mr Best may have been in contact with the departed. In the context of a public meeting, with no controls whatsoever, who can say? As a religious experience, the exercise may have been beneficial to the faithful. It certainly would not have converted even the mildest of sceptics. To a Dedicated Skeptic it all seemed like a waste of good amateur astronomy time, and to anyone of a more devious frame of mind, it would have encouraged the belief that the floating of shares in the Sydney Harbour Bridge would not suffer from a lack of investors.

** Since this article was published, I have made the acquaintance of Prof John Wren Lewis and, apart from some small disagreements with him on minor issues, I have found him to be a delightful and generally sceptical gentleman.*

BW

Barry Williams was, at the time of writing, the president of the NSW Branch. He has been the National President and chief spokesman for the Skeptics since 1986, editor of the Skeptic since 1990 and is the editor of this book.

Almost the Best

Vol 4, No 3

Mark Plummer

The last issue of *the Skeptic* revealed that the publicity which had preceded Alfred Best, claiming he had been tested by Glasgow University under rigid scientific conditions by many scientists using modern equipment, was false.

Best's publicity quoted a Professor Archie Roy of Glasgow University. He was sent copies of the publicity, and replied:

- (1) Mr Best was not tested by me with all the modern equipment available;
- (2) He was not tested by me under rigid scientific conditions;
- (3) Certainly I believe that he scored significantly;
- (4) He was certainly not tested by Glasgow University but by me in my private capacity as an investigator of the paranormal.

I have known Mr Best for a number of years and have been present at a number of meetings where he demonstrated his mediumship. I have also had private sittings with Mr Best and the one described below was tape recorded.

On that occasion I made an arrangement to take someone, unknown to Mr Best, to sit with him and was careful not to mention when making the appointment the use of the words "he" or "she", of course I did not mention any names. I chose the person at the last moment before the engagement and then listened while Mr Best ostensibly obtained information about her, her family and her (dead) father. He scored a remarkable number of hits with regard to data concerning her, her family and her father, whilst if these statements had been attributed to me they would have been wrong. In addition the statements he had made to myself would have been wrong if attributed to the person I took but were remarkably accurate for myself and my family.

I am well aware this type of experiment under far less than scientific conditions is worthless as evidence but to the person experiencing such things it is impressive. I feel that Mr Best has a degree of sensitivity but certainly to state that he was tested under rigorous scientific conditions by me or by Glasgow University is certainly not true. All too often the account of what actually transpired is garbled and embroidered and does a great deal of damage to the whole spirit of investigating these ostensible paranormal phenomena.

Yours sincerely,
Archie E. Roy

This letter, while destroying the credibility of the publicity, raised even more questions. First, that Best had many previous sittings before the latest "experiment". Thus he has had years in which he could have gathered information about Professor Roy and his family. For Roy to use himself as a subject shows amazing naivete. Secondly, Professor Roy was both "subject" and "tester" in this experiment.

We asked Professor Roy to forward a copy of the tape, but this has not been forthcoming. Roy has stated that the data provided about the subject showed a remarkable number of "hits" (by Roy's assessment), and he then measures these "hits" for accuracy if they had been attributed to him. Readers can make their own judgment about this type of assessment.

Cold reading can be impressive to a person experiencing the reading. This was clearly shown by the reaction of 'Steve Terbot's' subjects, but subjective experience of 'mediumship' is not objective proof that mediumship is a paranormal phenomenon.

Given Professor Roy's disclaimer about the publicity, it could be expected that Albert Best would be keen to prove his powers by allowing himself to be properly tested in Australia, but this proved not to be the case. In February I wrote to one of the tour organisers, the Victorian Spiritualists Union, but failed to receive a reply.

Best arrived on March 11, 1984. Four days later, an article appeared in the Melbourne *Sun* repeating the false claims that Best had been tested by Glasgow University under scientific conditions

I wrote directly to Mr Best on March 19, and received a reply dated March 22 from a Mrs Joan King, who described herself as organiser for the Best tour. She asked that we establish our credentials by advising details of our organisation, members, committee and office bearers. This information was forwarded by return mail. Evidently Best had been unable to obtain this information by clairvoyance, even though publicity leaflets advertising his tour said he was "acclaimed as one of the world's leading clairvoyants" and "the world's finest medium".

On March 6 Best appeared at the Ringwood Cultural Centre. The booking form for the Terbot lecture was in the manager's office, Skeptics were handing out leaflets outside, and one was in the audience continually thinking about the Terbot tour. From these sceptical presences, Mr Best (or one of the many spirits who allegedly came through that night) should have been able to discover the Steiner/Terbot hoax (see next section). But if Mr Best had that foresight, he did not publicly release it. Less than two months later, Terbot was to appear in the same

hall, fooling many of those who had attended Best's meeting. Unlike Best's April 6 meeting, Steve Terbot allowed himself to be subjected to a lengthy question and answer session.

Albert Best finally replied personally to my letters, stating that I have made no claims of any kind" and "have already sat a test sitting in Hobart on *Nationwide*". Best then follows with an amazing statement, apparently ruling out the possibility of telepathy or clairvoyance as forms of communication: "You say I have not replied to your letter, but how could I when I was away..."

Brisbane Psychometrist Fails Skeptics' Test

Vol 5, No3 James Gerrand

Drafting the Test Protocol

On August 25, 1984, Andrew Fitzherbert of Brisbane applied to Australian Skeptics to be tested for his claimed psychic ability. "I can pick up facts about people by means of psychometry. By holding a watch, key ring, etc. I can determine miscellaneous facts about the owner's life and present circumstances." Mr Fitzherbert is also a palmist (ie palm reader) and has received media recognition in this area.

Mr Fitzherbert proposed that his claimed psychic ability be tested by Australian Skeptics providing six people (subjects), and for each to give him a personal item to "psychometrise". He will then write down eight statements about each subject. The subject will assess each statement as being either right or wrong. Each subject will then assess all 40 of the other subjects' statements as being right or wrong as regards himself. There will be thus two totals of results, the score of right statements out of $6 \times 8 = 48$ by psychometry and the score out of $6 \times 40 = 240$ by chance. Mr Fitzherbert's claim was that his psychometric score would be at least 20% higher than the chance score.

Following receipt of the completed Australian Skeptics application form with supporting witness the National Committee set up a sub-committee of Allan Christophers, Peter Hogan, magician consultant Mike Wilton, Patricia Brown and myself (convener). A draft protocol for the preliminary test was drawn up and submitted to both the psychic claimant and the Queensland Committee who were to carry out the preliminary test.

As prescribed in the Australian Skeptics standard conditions for testing a claimant for the Dick Smith \$20,000 award, after a properly compiled application is received by Australian Skeptics, then a preliminary test is carried out in the state where the applicant resides. Only if this preliminary test is successful does the applicant proceed to the main test to win the \$20,000.

What we try to make plain to a psychic claimant is that the aim of Australian Skeptics is to *scientifically* investigate the claimed ability and that this must be the essential basis of any Australian Skeptics testing. At the same time, as emphasised by Mike Wilton, the test should be kept as simple as possible so that the testing could proceed smoothly and with the confidence of both Australian Skeptics and the psychic.

Amongst the requirements of the protocol was that there was to be no visual, verbal or other contact between the subject and the psychic. The six subjects were to be neither members of the Skeptics nor believers in ESP.

We also randomised all the 48 statements so that each subject did not know which statement might be have been made relative to his/her personal item. Also a statement would not be valid if it was a direct inference from the personal item, ie that the subject was a male because the personal item was a pair of male spectacles.

The most difficult area was found to be the statistical basis to be used in assessing the results. Australian Skeptics was fortunate in having Professor Warren Ewens, together with Dr G A Watterson, of the Mathematics Department of Monash University, agreeing to advise us. Mr Fitzherbert had a statistician, Mr Bruce Caird, assisting him.

The first problem was whether the protocol should demand a degree of specificity in each statement. I thought originally that this was needed but the mathematical analysis suggested that the more general the statement the better the score for chance, whilst a very specific statement might score a lucky hit. So, in the end, no restrictions as to generality were applied.

The other problem, and this was raised by Prof Ewens, was that the statements should not be dependent. For example there should not be a number of statements referring to a subject all of which were related to the person being wealthy. We covered this in the protocol by giving the Skeptics manager of the test the right to disqualify a statement on this ground of dependence.

Finally the protocol required the psychic to pass the preliminary test if he achieved a result that would only occur by chance one in a hundred or more times. To win the main test and the \$20,000 he would have to achieve a result that would occur one in a thousand or more times. These odds are set so that claimants don't compete as though it is a lottery to be won.

The Preliminary Test

Finalising the protocol with agreement by Australian Skeptics and the Queensland Committee took some time, bearing in mind that all this is voluntary labour by Australian Skeptics members with other demands on their time.

However thanks to excellent endeavour and management by the Queensland Committee - Dr Tony Wheeler (test manager), Ann Wheeler, Dr Ralph and Barbara MoInar, Bob Bruce and Dr Martin Bridgestock - plus magician Phil Cass and independent observer Robert McDonald, the preliminary test was carried out on August 15.

Results

The results were that there was no significant indication of any ESP ability. As Mr Fitzherbert readily acknowledged in a letter to me, written immediately after the test "At a quick glance, the results appear to be exactly chance."

The box (above) contains a preliminary analysis of the data by Dr Tony Wheeler.

Conclusions

Dr Tony Wheeler and the Queensland Committee team are to be congratulated on arranging and managing this Preliminary Test to its successful conclusion. Readers of this article will have gained some small

STATEMENTS MARKED CORRECT							
Subjects assessing full list							
Subject	1	2	3	4	5	6	Total
Subject	4+	1+	3+	3+	5+	2	18 yes
Subject	17+	12+	14+	15+	16+	19+	93 yes
TOTALS				yes	no	total	
own statements				18	30	48	
others				93	147	240	
Chi-squared - Using Caird's Formula							
fe		fo		fe-fo		(fo-fe) 2/fe	
93/240 x 48=18.6		18		0.6		0.01935	
147/240 x 48=18.6		30		0.6		0.01224	
Total (Chi-squared value)						0.03159	
where fe = total, yes and no, out of 48, expected by chance;							
and fo = total yes and no, actual, from psychic.							
The Chi-squared value is so small that it is indeed near enough to exactly chance. A value of 6.5 would have been needed to meet the one in a hundred standard of this Preliminary Test.							

idea of the time, trouble and the expertise from a number of disciplines required to carry out such a project. Another and particularly pleasing feature has been the ready acceptance of the test by Mr Andrew Fitzherbert and also his acknowledgment: "I must thank you for your time and trouble. In particular, your Queensland Committee has acted most courteously and efficiently.

As a postscript I have received a further letter from Mr

Fitzherbert, advising that he has given a lot of thought to the failure of the test to detect any ESP.

One conclusion he has reached is that his observations were too general. He is going to carry out further tests of his own trying to generate more specific statements.

He also states he is unhappy with the personal items given to him to psychometrise. He desired items of reasonable closeness, such as watches and key-rings. Only one of these six objects tendered was in this category, namely two keys on a key-ring. The other objects were four isolated keys, a disposable plastic cigarette lighter and a disposable plastic ballpoint pen.

However this question of what is a suitable personal item can be difficult. The only personal item I carry on me is a key-ring and now occasionally a pair of spectacles. There is also my wallet but this could become too revealing if examined in detail.

Finally I think all those involved in this exercise would agree it has been a rewarding experience in terms of how to carry out a scientific investigation into a claim of the paranormal.

In the Beginning

Scepticism

Introduction

Scepticism is one of the fundamental tools of science. The requirement to suspend judgement on any hypothesis, until sufficient evidence exists to make it compelling, is vital to the understanding of the natural world.

In the early years of Australian Skeptics, this point was cogently argued by the many contributors to the Skeptic. These arguments need to be reiterated from time to time, as new proponents of pseudoscience and the paranormal propose hypotheses that have been shown many times before to be false.

Where has Science Teaching Gone Wrong?

Vol 1, No 2

Dr Peter Woolcock

Science has surely gone wrong if, at the end of five years' science education and the usual primary science lessons, students still display a naive gullibility about supposed phenomena like UFOs, ESP, auras, astral travel, the Bermuda Triangle, poltergeists, Chariots of the Gods, Nostradamus, etc. I had the disturbing extent of this kind of credulity brought home to me recently in a Philosophy of Education tutorial of fifteen teacher trainees, all of whom had done matriculation science, mainly biology. None of these students was prepared to say they disbelieved any of the above abnormal phenomena. In fact, most of them believed quite firmly in the whole lot.

If this kind of harmful vulnerability to quacks, prophets and other purveyors of fake cures for all human ills is to be eliminated, teachers cannot afford to limit science lessons to the imparting of scientific knowledge or the activities of experimentation, observation, inference and measurement. While all of these things are undeniably important, it is also vital to get students talking critically about why we should believe or refuse to believe various theories or claims.

This can be done by getting students to see why the scientific picture of the universe, and the causes that work within it, is the best-justified one. It is the best-justified because it fits our observations better than any other account. It not only correctly predicts what other accounts predict, it also correctly predicts a huge number and variety of things they fail to predict. These predictions are checked under rigorously supervised and repeatable conditions.

Keeping this in mind, students should be invited to discuss just how satisfactory is the evidence for

UFOs, ESP, levitation etc. Firstly, they should consider whether abnormal phenomena of this kind are incompatible with the scientific picture. Does it deny conservation of energy? Does it rely on types of energy undetected by scientific procedures? If it does, then were the conditions under which the abnormal phenomena supposedly occurred as rigorously controlled and repeatable as the conditions that tested the scientific account? If not, then the scientific picture must be preferred by any rational person, the supposed abnormal phenomena being explained in terms of human fallibility or misinterpretation of normal phenomena.

Rejecting events or phenomena for which there is no place in the scientific picture is not bias or prejudice. We can remain open-minded in the sense that we are prepared to revise our opinions if evidence eventuates for these entities or occurrences, but, in the meantime, we have no good reason to entertain their existence. Even if the abnormal phenomena do not contradict the scientific picture, we should investigate whether all the plausible alternative explanations in terms of normal objects and events have been exhausted. The Bermuda Triangle is a good example here. At the end of this kind of discussion, there will not be many abnormal phenomena which retain their credibility.

Appropriately simplified history of science also helps to increase the students' understanding of the criteria by which to judge competing accounts of the universe and its behaviour. This can be done by looking at case studies of why one scientific theory replaces another - for example, why scientists preferred explanations of combustion in terms of oxygen rather than phlogiston.

What must be emphasised is that students do not have the knowledge or the understanding of standards of evidence to evaluate pseudoscientific claims. They need the teacher's help. Without it, they are likely to incorporate these pseudoscientific theories into their picture of the universe, which means that all their actions occur within an inadequately substantiated framework. This may be detrimental both to themselves and to those reliant upon them or affected by them.

Part of the explanation for this failure of science teaching is the philosophy of science that underlies it. Teachers have stressed that scientific knowledge is "provisional", which is quite true. Nonetheless, teachers need to make it quite clear that "provisional" science is far more reliable and certain than theories involving unknown forms of energy, mind transference, magic, disembodied spirits and other

half-baked or crackpot conjectures. Teachers do science a disservice by stressing its "provisional" nature if they don't also stress that its rigorous testing methods make its chances of being revised less likely than those of competing knowledge claims. Scientific knowledge is the best we have. Let's not undersell it.

2300 Years of Scepticism

Vol 1, No 3

Joe Rubinstein

When speaking of scepticism in common parlance, we usually mean what the dictionaries refer to as "Inclination to suspend judgment, questioning truth of facts and soundness of inferences" (*Oxford Dictionary*) or "That condition in which mind is, before it has arrived at conclusive opinion" (*Chambers Dictionary*).

Scepticism as philosophy, however, goes beyond mere inclinations and attitudes. It looks for general concepts pertaining to doubts, and tries to answer such questions as "Can we ever know the truth?", "If not, why not?", "Is it reasonable to believe or disbelieve?", "Are some things more likely to be true than others?". These, of course, are only a few of the many questions raised by philosophical sceptics.

Western scepticism originated in ancient Greece in about 300 BC. In fact, the word *skepsis* means "inquiry" in Greek. The founder of the philosophical school of Scepticism was Pyrrho of Elis, who as a young man served as a soldier in the army of Alexander the Great. Pyrrho regarded the purpose of all philosophy to create a tranquillity and harmony in the mind of the individual (this state of mind was later termed *ataraxia* - imperturbability - by another sceptic, Roman philosopher Sextus Empiricus). Being, however, confronted by the dogmatism and contradictory beliefs of two of his contemporary schools of philosophy, namely the Stoics and the Epicureans, Pyrrho concluded that true knowledge is beyond our reach.

After all, reasoned Pyrrho, our senses, which provide us with data from which we derive our perception, are not reliable and are easily deceived. Thus, not being able to know, we should not aspire to know. This extreme form of scepticism is quite different from modern scepticism and from the views of Pyrrho's own students and later followers.

Eventually, philosophers of Plato's Academy adopted Scepticism (which would not have endeared

them to Plato), and two of the Academy's heads, Carneades and his successor Clitomachus, became prominent exponents of Sceptical Philosophy, albeit much more moderate than Pyrrho's. They adopted the position that some things are more likely to be true than others, and thus introduced the concept of probability. Therefore, according to Clitomachus, it is reasonable in practice to accept the more probable explanation and act accordingly. Both Carneades and Clitomachus were strongly opposed to belief in gods, superstitions, astrology and magic. After Clitomachus, Scepticism declined in Greece and Stoicism became the predominant trend in philosophy.

The revival of Scepticism had to wait till Roman times in the second to third century AD. Sceptical Philosophy flourished again with Sextus Empiricus and the poet Lucian. Theirs can be described as the more "Pyrrhonian" or extreme sceptical stance, although still tempered by some of Clitomachus' influences. Sextus directed a good part of his scepticism against religion and was the author of a dissertation, *Arguments against belief in God*.

With the fall of the Roman empire, the advent of the Dark Ages, and the dominance of the Church, dogmatic faith brought an end to any form of sceptical thought - although there was some interesting sceptical undercurrents in the philosophy of William of Occam in the 13th Century. Scepticism as philosophy reappeared during the Renaissance with its rediscovery of classical Greek and Latin writings. Erasmus of Rotterdam and other scholars even used (or misused?) Pyrrho's sceptical argument against the Protestants, claiming that, as one cannot arrive at true knowledge about conflicting claims of religious systems, one should stay with the established Roman Catholic Church rather than accept Reformation.

Modern Scepticism begins with the Portuguese/French philosopher Francisco Sanchez (d. 1626). Sanchez taught "Constructive Scepticism": even if whole knowledge is not attainable, one should strive to learn as much as possible through empirical investigation. This philosophy was further developed by John Wilkins and Joseph Glanville of England's Royal Society, who directed Scepticism more and more towards scientific inquiry and experimentation.

Another brilliant philosopher of scepticism was Frenchman Pierre Bayle, at the turn of the 17th and 18th Century. Bayle was again more "Pyrrhonian" than Sanchez in his writings, and dedicated a great part of his work to the sceptical study of superstition and religion. His dissertations became the cornerstone of modern atheism, and influenced the thinking of philosophers of the approaching Age of

Enlightenment.

A prominent place amongst subsequent sceptical philosophers belongs to David Hume (1711-1776), who is regarded by many as the greatest English philosopher, together with Bertrand Russell. Hume concluded that no theory of reality is possible, and the only knowledge we can acquire is through experience. Even the causal relations of events cannot be established, and the fact that some events are happening simultaneously with, or sequential to, other events, does not prove any causal relationships.

The following quotation from Hume is representative of his philosophy: "In all the incidents of life we ought to preserve our scepticism. If we believe that fire warms or water refreshes, it is only because it costs us too much pain to think otherwise. Nay, if we are philosophers, it ought only to be upon sceptical principles and from an inclination, which we feel to employing ourselves after that manner."

As an afterthought perhaps, Hume remarks: "The errors in religion are dangerous; those in philosophy are ridiculous." Hume's writings have been savagely attacked by various churchmen and he has the distinction of having been on the Vatican's Index of forbidden books since 1761.

Virtually all later schools of philosophy up to our day have been influenced by Scepticism to a greater or lesser degree: Immanuel Kant, Existentialism, Bertrand Russell and the School of Logical Analysis, Karl Popper, and many others. They all owe a debt to a philosophy which originated 2300 years ago.

While reflecting upon the merits or otherwise of sceptical philosophy, at least one conclusion is crystallising in my mind; it may be true that our cognitive faculty and reason, and its tools like logic and scientific methodology, are not perfect, but they are the best (some would claim the only ones) we have and they are surely preferable to dogmas, be they religious or secular or the flimflam of pseudoscience, superstition, etc.

To conclude, I would like to quote this assessment of scepticism from R.J. Hollingdale's *Western Philosophy*: "...scepticism as such remains a fundamental trait in all analytical philosophy and is as lively today as ever. It is one of the most valuable gifts we have received from the Greeks."

Joe Rubinstein is an engineer and was, for several years, Treasurer of the Australian Sceptics National Committee.

Psychology Teaching and the Paranormal

Vol 1, No 3

Logan Elliot

There is a great deal of popular interest in the paranormal - the Bermuda Triangle, astrology, pyramid power, and psychic healing, to name a few issues. In Australia daily astrological forecasts are given in some TV news programmes, shows like "*In Search Of...*" present material purporting to prove the existence of the paranormal, and script-writers who run out of ideas call on extra sensory perception (ESP) or psychokinesis (PK) to round off the plot.

The inclusion in undergraduate psychology courses of material related to 'paranormal' phenomena could therefore be of great interest and value to students because:

1. They are aware of popular belief and many would share these beliefs, so the material is seen as more relevant to them personally.
2. They wish to have informed opinions about the paranormal.
3. Most psychology courses ignore parapsychology because it is considered trivial and nonexistent. The phenomena may be nonexistent, but beliefs in them do exist and students who share such beliefs will be likely to consider psychology prejudiced and irrelevant and cease to study. This may, of course, be a good thing, but one survey found that most students have some belief in the psychic (Singer and Benassi, 1980-1981).
4. The paranormal is a valid area of study in its own right, and the student's knowledge is abysmal. One authority claims that many students think astrology is the same as astronomy (Rawlins, 1977). A small survey found more students believed in telepathy than in hypnosis, although hypnosis had been demonstrated in class (Greenwell, 1981).

It can also be worth including parapsychological material into a course for good educational reasons:

1. Some issues are currently being debated in the profession, such as Eysenck's espousal of astrology (Mayo, White, and Eysenck, 1978).
2. It is an area which psychologists may be asked to give professional opinions - on Amityville, Jim Jones followers' mass suicide, cults, and the claims of organisations like Transcendental Meditation.
3. It is possible that students believe in the

existence of psychic phenomena when they commence their study, and become sceptical as they progress. If so, we should attend to the possibility that this change is occurring in students.

4. Finally, it is valuable because it can help people adopt a more flexible approach to questions, to increase their ability to examine novel questions and to find new answers to old questions.

Belief in the paranormal is also interesting as a phenomenon in its own right:

1. People can energetically express a belief in a particular person's psychic powers even when it is proven that the so-called 'psychic' used stage magic tricks to produce the effects, and continue to express this belief even when the 'psychic' says it was conjuring, not psychic powers, that were used (Greenwell, 1981). For psychologists interested in political, religious, or other beliefs and attitudes, this is a potentially fruitful field.

2. Clinical psychologists like myself earnestly encourage our clients to indulge in reality testing, in the hope that this will help them adjust to reality. But reality testing is not applied to the paranormal - believers maintain their belief in the total absence of objective evidence for it. Our thoughts on reality testing could be improved by considering this.

3. Group decision making, the phenomenon that decisions are made differently by groups than by individuals, is usually studied by examining committee deliberations. Groups of believers in psychic phenomena seem to plan and organise activities in ways different from other groups of people, and their study could therefore extend our knowledge of group decision making.

4. The study of 'paranormal' phenomena can also clarify our knowledge of the psychology of testimony. People will report that a seer told them things he could not possibly have known except by using psychic power. It is quite easy to get information from people without them knowing and to feed it back to them in such a way that they think you obtained the knowledge psychically. Other information on the psychology of testimony comes from UFO sightings where, in many cases, people report things that they did not see. Often the planet Venus is reported, but with changes of velocity or colour, or with implications of malevolence or omnipotence. Interesting evidence comes from cases where there is no object to sight. van Kampen (1979) reports that a panda escaped from a zoo in

Rotterdam, and was subsequently found dead, killed when hit by a train. The first newspaper reports of the loss of the panda produced a flood of sightings of live pandas. It is hard to know how people could mistake anything else for a panda, but they must have.

Paranormal phenomena are difficult to work with in their own right, and more difficult still because there is a direct relationship between them and dishonesty. This is not to say that all believers are dishonest, but rather that those who make money out of them are likely to be. Consider Uri Geller's spoon bending, now known to be a conjuring trick; the Amityville Horror, now known to be an outright fraud; or a North American psychic who charges children for teaching them to move objects using mental power when he actually uses a conjuring trick to produce the changes (Randi, 1981); or a New Zealand paraplegic who paid thousands of dollars to Transcendental Meditation in the hope of learning levitation and thus getting out of her wheelchair (Dyer, 1979). Looked at closely, there is often a relationship between eminence as a psychic and dishonesty. Serious parapsychologists agree that paranormal phenomena are elusive, measurable only statistically, so, according to them, anybody reliably producing some effects must be fudging things a bit.

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Parapsychology in Crisis

Vol 2, No 2

Peter Morton

The computer age began in the 1950s, the space age in the 1960s, and the psychic age has begun in the 1970s. Paranormal phenomena ... have finally moved off the magician's stage and come full swing into the scientific laboratory." These optimistic words are Charles Parati's, from his popular review of parapsychological (psi) research, "Supersenses" (1974). Eight years ago many people would have favoured his optimism. Parapsychology still had its critics, of course; it always has had. But in 1974, the last systematic assault, CEM Hansel's "ESP: A Scientific Evaluation", which had raised doubts about the design of tests for psi powers and the honesty of subjects, was already eight years old. The general opinion then was that Hansel had been out-flanked Parati didn't even mention him.

In 1974 the metal bending craze was at its height, with keys and even thick metal rods melting Eke wax under the gentle stroking of people with hitherto unsuspected psychic powers. The man who had started this craze, Uri Geller, had triumphantly survived a close examination of his powers in 1972-3 by two physicists, Harold Puthoff and Russell Targ, of the Stanford Research Institute. Now he was touring the world with his stage show, starting jammed watches and bending keys. The previous year, 1973, Geller had appeared on BBC-TV and dumbfounded Prof John Taylor of King's College, London, with a display of fork bending. Taylor went on to write a best seller, "Superminds", about his tests on a number of psychic children ("Gellerini") some of whom, he asserted, could bend metal strips inside sealed tubes. In the United States, parapsychologists, basking for the past five years in their status as affiliate members of the prestigious American Association for the Advancement of Science (AAAS), were forging ahead on several promising fronts: dream telepathy, PK in animals, automatic ESP machines. Much government money was being spent, its flow assured by intriguing reports of Russian ladies who could push matchboxes off tables by willpower.

Furthermore, all this modern activity seemed to rest on solid foundations. The British Society for Psychical Research was already a century old and, though it had had its scandals, by the 1940s it had piled up, through the labours of Dr SG Soal and others, much evidence favourable to ESP. All in all, Parati's tone sounded right. Psi science had become

almost respectable.

But today, less than a decade later, we are beginning to see the outline of quite a different picture. The old sceptical questions are coming up again with renewed force. Cannot ESP be explained in simpler ways, say by sensory leakage or unconscious cues? Isn't deliberate fraud much more common than may have been supposed? Haven't high-ranking academic investigators proven childishly gullible in the hands of psychic tricksters? Cannot wishful thinking, hallucination, group- or auto-suggestion, magic tricks, sloppy observation, poor experimental design, professional ambition and plain money-grubbing explain what are at best fleeting effects, better than hypotheses flying in the face of four centuries of science? These are the questions of the '80s and the answers now being obtained suggest that in another century telepathy may be classed with alchemy.

Here are some of the assaults on the paranormal sciences in recent years:

- * A call for the ejection of academic parapsychology from the AAAS.
- * Definite proof that, in two notable cases, the chief experimenters had faked their positive evidence for ESP/PK.
- * The severe and telling criticism levelled very recently against tests commonly supposed to have supplied incontrovertible evidence for paranormal events.
- * An increased understanding of how psychic crazes work in society, and of the great power of such beliefs in the population at large - including scientists.

Beyond question, these specific attacks mirror the New Scepticism that is now abroad. The message of the foundation of the American Committee for the Scientific Investigation of Claims of the Paranormal and similar bodies elsewhere (including the Australian Skeptics) is this: mainstream science, goaded past endurance at the rapid spread of dubious and often quite unchallenged psychic claims, has begun to hit back. Already it has shown to be not ineffectual.

The most unexpected shock to the parapsychologists of recent years came, however, not from CSICOP but from a more august source on a very public occasion: the January 1979 meeting of the AAAS. There came a call from Dr John Wheeler, Director for the Centre of Theoretical Physics at the University of Texas, for parapsychology's affiliate member status to be withdrawn. Wheeler expressed himself forcibly: he claimed psi researchers had failed to produce a single "battle-tested" result on even one

replicable experiment; and since America already has 20,000 astrologers and only 2000 astronomers, the AAAS should stop supporting pseudosciences.

Students of the paranormal have, of course, heard plenty of such abuse before. The difference here is that Wheeler is no dull, materialist physicist. He is a daring and visionary speculator on the nature of physical reality, and his concept of *superspace*, the stage on which the events of ordinary Einsteinian space-time move, seems to be flirting with the occult notion of parallel universes. It can be taken as offering encouragement to the belief that the Eastern religions and Western physics are groping towards the same insights. Wheeler's sudden turning and thrust at parapsychology was therefore felt to be the unkindest cut of all.

Wheeler's denunciation came in the wake, and perhaps as the result of, two provable cases of experimenter's fraud. Fraud in science is a subject regarded with distaste. Though it is probably more common than one would like to think, in 'normal' science it is rarely of crucial significance, for normal science is cumulative and progressive. The more surprising a reported experimental result is, the more rapidly will attempts be made to reproduce it; and if it was in fact fraudulent, the universally negative results will soon expose it. In the most recent case to hand, which has been dubbed the "Great Cancer Hoax" and involved the alleged complex forging of evidence by a graduate student of Cornell, it took less than eighteen months to uncover the truth.

In parapsychology things are very different. There, revelations of fraud are potentially disastrous. One experiment's positive results are very often not replicable; indeed, as Wheeler said, no such findings have *ever* proven replicable on a large scale to universal satisfaction. Parapsychologists have tried to explain this unfortunate fact in various ways which we must neglect here. But the consequence is that much weight is placed on the interpretation of certain key experiments which are judged to be beyond criticism in their procedure and the honesty of those concerned. Just these findings, repeated year after year, even decade after decade, that give the bedrock evidence of the reality of psi events.

In the early 70s reports began to emerge from the famous Institute of Parapsychology, North Carolina, of certain remarkable experiments which were given global publicity. Newly hatched chickens were placed under a heating lamp which, however, was not kept switched on long enough at a time to preserve them at a comfortable temperature. The

lamp was under the control of circuitry which switched it on and off at unpredictable intervals and kept an automatic log of its performance. When these data were analysed, the Institute reported that the lamp was on statistically more frequently than the programme permitted. When the chicks were absent, the circuit performed just as predicted. The inference was that the chickens could keep themselves warm by paranormally influencing the apparatus. In a second experiment, fertilised eggs were put under the lamp instead. When the record of the lamp's time on was compared with a control run using hardboiled eggs, it seemed to have been proven that chick embryos too have PK powers. Sounds preposterous? Well, it is. In the summer of 1974 the Director of the Institute, Dr W. J. Levy, was obliged to resign after being caught falsifying the records in one such experimental series.

Four years later came another startling revelation. It took the form of a staid paper by a statistician, Betty Markwick, in the *Proceedings of the Society for Psychical Research*, on the studies of Dr SG Soal (1959-1975) into telepathy. These studies had for long been of classical authority. Of one series with the subject Basil Shackleton, whose card-guessing skills showed him to be strongly precognitive, a critic active at the time wrote: "if I had to choose one single investigation on which to pin my faith in the reality of paranormal phenomena.... I should unhesitatingly choose this series of experiments, which is the most cast-iron work I know."

An unfortunate metaphor. Cast iron is immensely strong under most conditions but it will fracture suddenly under impact. Markwick supplied the impact. Following up earlier allegations in 1960 and 1974, she showed that Soal's results had been cleverly faked by post-test alterations in his score sheets. No real defence has been made by Soal, indeed there can be none. The whole of his work must be consigned to the dustbin.

The most significant aspect of this case is the gulf between Soal's public and private image. Even the arch-critic Hansel, never one to mince matters, referred to Soal as "a careful and critical investigator" although he thought that Soal's work had serious design weaknesses. However, from the obituaries published since Soal's death we get a very different picture of the man formerly accepted. Soal, it turns out, was a spiritualist; had become one just after World War I in the hope of obtaining messages from his brother who had been reported killed in action. Soal received many mediumistic communications which he found convincing and inexplicable - even after his brother turned up alive and well!

Soal then put the messages down to group telepathy. He was himself prone to self-hypnosis and trance states. Markwick speaks of his "bizarre personality" and another associate has described how one evening she found "a perspiring Soal in dissociated state scribbling on a sheet of paper". It was not unlikely that the Shackleton "data message" took place on some such occasion. With Soal it might have literally been a case of his left hand not knowing what his right was doing.

The Levy and Soal cases are, unfortunately, not isolated instances. The doyen of psi researchers, JB Rhine, whose own honesty has never been questioned (though his judgment has, often) has himself given details of no less than twelve cases of suspicious conduct by workers in his laboratory, including four of demonstrable fraud.

Many other deceptions or gross experimental carelessnesses must go undetected. For, after all, Soal's work was examined as minutely as was required - by computer - only because of its fame; and Levy's only because of his frankly incredible results. Critics have not been slow to wonder how much of the bread-and-butter work would, if carefully examined, also be found wanting.

According to a canvassing a few years ago of 180 parapsychologists, by Francis Hitching, the half who answered believed that two recent lines of research had given conclusive proof of paranormality under tight conditions: Helmut Schmidt's automatic ESP/PK machines, and Targ & Puthoff's remote viewing tests as described in their popular "Mind-Reach". Detailed accounts of both have appeared in the popular media and elsewhere, and cannot be repeated here except as background to the latest severe critics.

Schmidt's work since 1967, first at the Boeing Laboratories in Seattle and more recently at the Mind Research Foundation in Texas, had often been cited as the most impressive ever done in his field. Though his experimental designs have had many variations too many, grumble his critics - in a typical setup subjects sat at a console and attempted to predict, by pressing a button, which one of four lamps would next light up. The sequence of illumination of these lamps were not established in advance. Instead, it was randomised by a device using a radioactive source which emits electrons at (according to current theory) entirely unpredictable intervals. The emission triggered an oscillator which moved rapidly through the four lamps, passing each choice every microsecond; on its arrival the emission caused just one position to be selected at random.

There were various interlocks to prevent cheating

and a permanent record of all choices kept on punch tape. Using three preselected subjects, Schmidt reported 4.5% more hits than probability allowed over 60-odd thousand trials; the odds against such a result arising through chance exceed 500 million to one. He argued that this result was explicable in only two ways: either the subjects knew by precognition which lamp would light before the circuit had come to a decision; or else they were able by psychokinesis to make the state of the circuit accord with their choice. The advantage of the Schmidt machine is that it seems to meet Hansel's call, back in 1966, for an automated ESP test that would eliminate the risk of experimental bias and recording errors. Ironic, then, that Hansel has become Schmidt's severest critic. In his "ESP and Parapsychology" (1980) and again in a *Skeptical Inquirer* article (1982), he has accused Schmidt of "laxness" and "carelessness" and has repeated the charge, made earlier by the *Scientific American* columnist Martin Gardner at a symposium in 1979, that in more than ten years Schmidt has never made his raw data available to anyone and he had worked virtually alone.

This criticism is by itself serious, but Hansel has gone yet further. In the dryly dispassionate way which is very much his trademark, he has pointed out that Schmidt worked for a time in the same laboratory as the discredited Levy; that he may have used the same apparatus; and that Levy publicly admitted to faking his results by tampering with the tape printout.

Quite apart from these dark charges, Hansel (and others) have criticised Schmidt's reliance on machinery to preserve the integrity of the experiment. Subjects were unsupervised and left to their own devices in a closet with the console, the latter being connected to the rest of the electronics by a thirtyfoot cable. Hansel has offered a diagram how anyone, inside or outside, could easily have shorted the cables to earth so producing an excess or deficiency of hits. (One needs to remember that over thousands of trials the bias in the scores is so small that just a few seconds of interference in each run would give gigantic odds against chance.) The real force of these allegations must remain problematic, though Schmidt has so far made no systematic attempt to rebut them.

Undaunted by the controversy which has swirled around them since their SRI tests on Geller in the early 70s, physicists Targ and Puthoff have since turned their attention to investigating a form of ESP called *remote viewing*.

In barest outline, a remote viewing experiment begins with the selection of a number of target areas. In "Mind-Reach" these were notable geographical

features or man-made sites within a thirty-mile radius of the Californian laboratory. Leaving the subject supervised, the agent ("transmitter") and the experimenter then select a target at random and visit it, remaining there for a predetermined period. Meanwhile the subject attempts to describe the target into a recorder and to sketch whatever comes to mind. After the trial, the subject is taken directly to visit the site in order to supply feedback. After the experiment is completed, the list of targets (randomised) and the transcript packages are handed over to a judge or judges who visit the target sites alone and attempt to rank the transcripts ("blind matching"). By this ingenious means there is no dependence on subjective evaluations of what a good match is, and the results are capable of being statistically analysed. Targ and Puthoff's results were astonishing. One inexperienced subject tried to remote-view nine targets. On blind matching the judge placed no less than five of her nine transcript packages first in rank with the correct target. The overall odds against chance here exceed 500 000: 1.

"Almost anyone" can do remote viewing, claim Targ and Puthoff., something which has never before been said of any alleged paranormal talent. If they are correct then here is a simple means of converting even the most hardened sceptic. Unfortunately, it's not quite that simple. With one or two exceptions, attempts at replication have been dismal failures. Were there weaknesses in the experimental design?

There certainly were, according to University of Otago (NZ) psychologists David Marks and Richard Kammann, who deal scathingly with remote viewing in their "Psychology of the Psychic" (1980). Having had no luck themselves, they sought to obtain the Targ-Puthoff transcripts for examination. Here they report having met frustrations at every turn; but when they did get hold of one subject's series, they found to their surprise evidence that the list of targets had been given to the judge in the actual order of use. Further they were able to show that by using *nothing more than cues from the experimenters left in the transcripts*, they were able to match every one of five transcripts with the target list without ever visiting the targets themselves. Naturally, they responded angrily to Targ and Puthoff's refusal to give them any other of the raw data. "Science is not a secret society", they insist. "It is an open forum. If Targ and Puthoff are unwilling to make their data available, their credibility as researchers must fall." Nothing more need be said.

On evidence now before us it is becoming clearer that parapsychology has few of the characteristics of normal science, and many of those of what the

philosopher Irving Langmuir calls "pathological" science. A key symptom of such diseased sciences is that they consist of a pool of evidence which - to their disciples at least - furnish the proof they seek. The trouble is that the actual contents of the pool do not remain fixed; nor do they, as in normal science, gradually lump together into larger and more inclusive bits of evidence. Instead (in the case of the psi sciences) new wonders are constantly entering the pool and old ex-wonders are leaving it to fade quietly into obscurity. In the past century we have seen physical mediumship, high-scoring card guessers, hypnotic regression to past lives, thoughtography (mental images appearing on blank film), dream telepathy and many others follow this sequence.

The metal-bending craze, or Geller Effect, perfectly illustrates Langmuir's point. Despite protests voiced early and loudly by illusionists that here was nothing more than trickery assisted by mild hallucination, a number of eminent scientists were persuaded to take an interest in it. Groups of children emerged, whose PK powers were attested to by physicists like Taylor in the UK and Charles Osborne in Melbourne.

Offers from magicians to help in setting up tests were generally spurned, even though that self-appointed hammer of the psychics, James "The Amazing" Randi, has claimed that in Taylor's laboratory he was able to take the "cheat-proof" apparatus (metal strips in sealed tubes given to the children to manipulate freely), remove and bend the strips, replace them and reseal the tubes undetected, in Taylor's presence! In the same year (1976) a report in *Nature* by Drs Brian Pamplin and Harry Collins of Bath University detailed tests on six Gellerini under the age of 13, all of whom had demonstrated metal-bending convincingly. The subjects were placed on ostensible test with an "experimenter" who deliberately relaxed his vigilance at intervals. The real observers were behind a one-way mirror with a video-recorder, and from this vantage they filmed five of the six cheating while the sixth subject bent nothing under test.

By 1980 the Geller Effect had lost nearly all scientific support. Taylor's new book of that year, "Science and the Supernatural", is a complete recantation of "Superminds". We hear no more of child stars and sealed tubes. "I have spent many, many hours working with subjects," he now reports. "There is nothing paranormal at all in spoon-bending." Indeed he has reached the end of the paranormal trail. "We have searched for the supernatural and not found it. In the main, only poor experimentation, shoddy theory and human gullibility have been encountered."

It is intriguing to consider what Prof John Hasted, a physicist colleague of Taylor's at Birbeck College, London, thinks of this about-face. Half of his "The Metal-Benders" (1981) is a collection of weird anecdotes and half a description of rigorous tests on the remaining Gellerini. From the latter he has claimed results even when the strips are wired with strain gauges to record the pressures being applied, as well as the bending of metal strips inside weighed glass tubes hermetically sealed by a glass blower. Such reports are too new to have attracted much comment, though Randi wrote an ascorbic account of Hasted's unlimited capacity for self-deception in 1975. Other of Hasted's accounts, such as one of the transportation of a turkey liver out of a bag on to his kitchen table before two witnesses (whose opinions are not recorded) are both hilarious and defy rational discussion.

It is doubtful whether Hasted's book signals a revival of interest in metal-bending, for reasons which Hasted himself supplies: "It is an endangered talent, at risk of dying out in the world. The supply of new metal-benders is not keeping abreast of the weakening of powers of the old ones." He puts this down to the "ridicule of sceptics" but the cynic will find it more plausible that most benders have been exposed or have grown bored with their success. Metal-bending is leaving Langmuir's pool of evidence. Critics never could get positive results; soon its supporters won't be able to either, and then they will be able to say only that *once upon a time* they got fine results.

Pathological science grows like a cancer on people's (including scientists') need to believe in the miraculous. Are such people in a small minority, the predestined target for charlatans and crooks? Until recently we only had anecdotal evidence to go on, although that told us that the psychological defences of the psi believers could be very strong. It is said for example that the novelist Conan Doyle refused to believe that Houdini had no paranormal powers because his feats were astonishing, even though Houdini was the mortal enemy of the psychics.

Recent experiments, however, are beginning to reveal strange truths about the human disposition to believe, in the very teeth of the evidence, that they are witnessing something supernatural. Psychologists Barry Singer and Victor Benassi of the California State University had an amateur magician, Craig, perform a simple routine ("bending" a bar, "reading" numbers blindfold, etc.) in front of several different audiences. To one audience Craig was presented as a psychic with true paranormal talents; to another, as an illusionist "interested ... in stage trickery". The

standard audiences were invited to write down their impressions of what they witnessed.

The results were dramatic and unexpected. Singer and Benassi noted with some disquiet that "awe and amazement" and other "extreme behaviour" appeared in both audiences. And, in the group to whom Craig had been introduced as an illusionist, no less than 65% of an audience of 51 refused to believe the explanation; they insisted he must have had paranormal powers to do what he did!

The experimenters introduced a third condition. To another group they introduced Craig with a thorough, strong, "magical" explanation - "what you'll be seeing are really only tricks" - which stressed, in six different phrasings, the concepts of pretence and illusion. Even then, *more than half of the audience of 52 asserted a firm belief in the paranormality of what they had seen.* These reports would be hard to credit had not this same experiment and closely similar ones been repeated with much the same findings at Ohio State University and Yale.

Here there is great food for thought. Even in our rationalist culture, a wish to believe in the inexplicable is clearly very deep rooted indeed; so deep rooted that it can survive almost any assault. Nevertheless such revelations as these are beginning to disrupt at least the professional world of parapsychology.

One pointer here is the curious result of a questionnaire circulated among members of the Parapsychological Association of America by Prof RA McConnell. Of the 88% who responded, no less than 31% could not say they were "free from doubt" about even the *bare existence* of ESP; and 71% admitted that personal, anecdotal experiences had contributed most of their belief in psi, not experimental findings. This is surely surprising. What could we think of the theory underpinning physics if nearly a third of active physicists seriously doubted the conservation of energy? Such loss of heart must spring from a recognition of what recent events portend and of the justice of Hassel's conclusion that "after 100 years of research, not a single individual has been found who can demonstrate ESP to the satisfaction of individual researchers". And with that kind of record, what are the odds that Dick Smith will ever have to take his \$100,000 out of his pocket?

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Book Review

Vol 3, No 2

James Gerrard.

Explaining the Unexplained - Mysteries of the paranormal

Hans Eysenck and Carl Sargent, Wiedenfeld and Nicholson, London, 1982. 192 pp.

My respect for Hans Eysenck, Professor of Psychology at London University, has fallen since reading this book. Hans had earned this respect by his espousing causes, often unpopular, based on his consideration of the facts. His most famous and unpopular espousal is that there is a genetic basis to IQ - 75% nature to 25% nurture is his conclusion. I have not read any factual evidence by his critics that outweighs Eysenck's evidence. Not so well known is that he was the first to prominently dispute that psychoanalysis is of value greater than the equivalent period of rest. I understand that there is still no proven basis for the effectiveness of this therapy. Eysenck appears to be most respected for his work on extroversion/introversion where his tests for determining this aspect of behaviour are an accepted procedure.

Dr Sargent, PhD in Experimental Parapsychology, has carried our research in the Ganzfeld field of the paranormal - the attempt to activate psychic power by placing the subject in an environmental condition of constant sensory inputs. Dr Sargent has been prominent in TV and radio programmes on the paranormal.

My first criticism of the book is that its title is misleading: nowhere is the paranormal explained. The second and more basic criticism is the ignoring by the authors of what can be stated as the fundamental law for investigating the paranormal:

The rigour of any investigation of the paranormal must be sufficiently great that the chance of human error, self-deception or trickery is as small as the chance that the event is paranormal, that is, not the result of a normal cause.

Over the past four hundred years science has built up a framework of knowledge through repeatable experiments such that the chance of any phenomena being not explainable in terms of known physical laws is extremely unlikely.

The authors put forward as hard evidence for psi (psychical powers) claimed performances of two "Psi Stars", one a medium of the past century, DD Home, who lived before magician Houdini destroyed the credibility of spiritualism, and Paul Stepanak whose claimed powers in the 1960s waned before full rigour

could be applied. Prominence is also given to the results of Helmut Schmidt with his Machine, notwithstanding that Schmidt has never made his raw data available to anyone.

In their search for extra sensory perception (ESP) the authors cover the altered states of the mind dreams, Ganzfeld, hypnosis, relaxation and meditation - and then move to psychokinesis (PK), "movement (of objects) by the mind", with honourable mention being given to metal bending notwithstanding its now well known debunking by magician James Randi. What appears true of all such claimed paranormal powers is that they wane and disappear as more rigour is applied in the experimentation.

From a general statement that the duty of a scientist is to impartially investigate nature, the authors extrapolate to decreeing that all phenomena should be examined. Now we live in a real world and real scientists decide on a field of investigation where there is some appreciable chance of success and more importantly some chance of funding as there are nowadays few amateur scientists. An area of nature which is still largely unknown, such as the working of the human mind, is a popular workface where many scientists pick and shovel. Investigations in the area of the paranormal have not shown any paydirt so most scientists give it a miss.

The authors accept that the evidence for the paranormal must be examined critically and be supported by hard facts. What they fail to recognise is that the hardness of the facts must, if necessary, go beyond the normal scientific procedures because of the extreme rigour that would be needed to substantiate any paranormal conclusions. It is particularly disappointing that they don't pay tribute to magicians like Randi and other sceptics who appreciate the rigorous procedures needed.

Instead of magicians, the authors make much of scientists as objective observers. Now it has been shown many times that scientists are often very bad observers. As observers of nature but not often of their fellows, they can readily be over-confident. They often lack an understanding of how easily we can deceive ourselves and even more easily how others can deceive us. The authors even quote Sir William Crookes, an eminent scientist of the last century in support of medium Home. Now Crookes was a believer in the craze of that century, spiritualism. The attitude of another but current believer in the paranormal, Professor Frodsham of the Murdoch University, Perth, is illuminating. He stated on an ABC radio programme that he thought it much more likely that a protege of Sir Williams's, an attractive 16 year-old lass, was

possessed of paranormal powers than that a famous 40 year old scientist could be swayed by a young girl!

Little mention is made of astrology: only two illustrations, no claims in the text. Eysenck did publish work claiming a relation between personality and the planets. However, he withdrew such claims after it was found the evidence was not sound. The only claim now made in the book, as a comment on a graph depicting the "Mars Effect" claimed by the Gaguclins, is that their work provides some evidence that astrology works. Nobody else has been able to reproduce this effect and as the Gaquelins have not revealed how they selected their sport stars, it can't be said that there is hard evidence for this effect.

The authors make the claim in their concluding chapter that a clear majority of scientists believe that ESP is either an established fact or a likely possibility. They produce no evidence in support. In fact, a strange basis of argument by iconoclast Eysenck! They really reach for a straw in quoting Carl Sagan, a Fellow of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), about the origins of astrology, in a paragraph dealing with the association of magic with the paranormal. They could have more usefully quoted magician James Randi, also a Fellow of CSICOP, for such a relationship. The authors list the researchers to be expected in the parapsychological research laboratory of the future; physicists, physiologists, electronic workers, psychologists, but no magicians.

In January of this year, magician James Randi revealed how he designed an experiment, Project Alpha, to make good this omission of magicians. In a laboratory for psychical research established in 1979 by a \$500,000 award from the McDonnell Foundation at the Washington University in St. Louis, Randi arranged for two magicians to pose as psychics. The two were tested there after Randi had sent to the laboratory's head researcher eleven features to watch for in testing psychic claims. Notwithstanding these warnings, the two subjects were regularly able to fool the researchers.

James Randi and our Dick Smith can sleep soundly at night knowing their respective \$10,000 and \$100,000 are not at risk. These are sums which can be won by anybody who can demonstrate a paranormal act.

Letter to the Editor

Vol 3, No 3

Prof Hans Eysenck

In your July issue of this year, my book (with Carl Sargent), entitled "Explaining the Unexplained" is reviewed by James Gerrand. The reviewer makes some curious statements, which in our view are not in accord with the facts, such as that "Investigations in the area of the paranormal have not shown any paydirt so that scientists give it a miss." In our book we demonstrate that there is a good deal of paydirt, and my own interpretation of why most scientists give this area a miss is simply that they have never bothered to read the original investigations, and acquire sufficient sophistication and knowledge to form a reasonable judgment. Furthermore, of course, they are immersed in their own subject matter, and there is little to be gained for them in engaging in research in a field which is generally regarded as a quack's paradise by many scientists.

The reviewer is clearly not well acquainted with the field, as shown by many of his statements. Consider what he has to say about the work of the Gauquelins (twice atrociously misspelt in the article) on the "Mars effect". Gerrand claims that: "Nobody has been able to reproduce this effect" but this is clearly counter to the facts. A Belgian Committee, very hostile to the Gauquelins, replicated the study and found an effect identical with that observed by the Gauquelins. Having thus had their prejudices destroyed, they refused to publish the data, but suggested that they had some mysterious criticisms to make of the statistical argument. They have steadfastly refused to let anyone (including the present writer) know just what these criticisms were! In view of the fact that other notable astronomers, also hostile to the Gauquelins' claims, agree that their methods of analysis etc were correct, it is difficult to take this seriously.

Gerrand completely disregards studies, such as the metallurgical ones carried out after bending, which indicates that something very odd and unusual has taken place which it would be difficult to replicate in a metallurgical laboratory. Nor is it true, as he says, that: "All such claimed paranormal powers ... wane and disappear as more rigour is applied in the experimentation." Our very careful reading of a very large literature certainly does not bear this out.

Gerrand also misinterprets the facts of the work at the Washington University at St. Louis, where James Randi arranged for two magicians to pose as psychics. Contrary to what he says, the two subjects were not

"regularly able to fool the researchers"; this is a gross oversimplification of the true state of affairs.

A factual discussion of the specific errors in our book would have been interesting and worthwhile. The overall negative tone, and the inaccuracies in the review make it less valuable than it would otherwise have been.

(Professor) H J Eysenck

James Gerrand replies

The world of the paranormal is like Alice's Wonderland; it gets "curiouser and curiouser". Hans Eysenck finds some of my statements curious: I find Eysenck's failure to respond to my main criticism the non-recognition in his book of the need for adequate rigour in any paranormal experimentation - curiouser. In particular Eysenck makes no comment on the need to provide this rigour through participation of magicians in such experimentation, notwithstanding that many parapsychologists, including the current president of the US Parapsychological Association, Stanley Krippner, now regard such participation as essential.

Dealing with the points that are raised. I plead guilty to leaving out the first "u" in Gauquelin and for this atrocity I have sentenced myself to writing the name out 100 times (on my word-processor). The curious part of Eysenck disputing my statement that no "paydirt" has been found so far from the hundred years of investigations into the paranormal is that Eysenck does not accept repeatability as a valid criterion of scientific truth in this field of the paranormal. The curious reason advanced in the book for rejecting this cardinal basis of science is that the sociological sciences often put forward theories that cannot readily be tested by repeatability. The answer is of course that unless a theory can be so tested it remains a theory and not a scientific truth. What is even curiouser about this argument is that Eysenck was very successful through his scientific investigations of repeatable treatments in showing that Freudian psychoanalysis over an eighteen-month period was no more successful than the same period of rest.

Eysenck's interpretation as to why the paranormal is not a popular field of endeavour for scientists is a great putting-down of the competence of scientists. I recall when I was working as a research officer at the Radiophysics Laboratory in the concluding stages of World War II how much serious thought was devoted to drawing up the programme of research for

the transition from "swords" to "plough-shares". A most important factor was the relative fruitfulness of various options.

The double questions of rigour and repeatability are basic to the "Mars effect". My answer to Eysenck here is best expressed by the remarks by George O Abel, professor of astronomy at the University of California at Los Angeles, ("The Mars Effect", *Psychology Today* July 1982). "To date, the only claims in favour of a Mars effect for athletes are based on data gathered by the Gauquelins themselves [including the Belgian Committee], and none of the studies have been properly supervised." "Fortunately, science is a self-correcting discipline. Right ideas are not rejected and wrong ideas accepted indefinitely. The Gauquelin studies have attracted worldwide attention. Almost certainly, future tests will be made. If they are properly controlled" [double-blind under strict supervision by disinterested parties] "and come out positive, and if the results survive the many necessary rechecks, eventually the planetary correlations will become an accepted part of science. But I believe that it is far, far more likely that in 20 years or so the Mars effect and other planetary correlations will have been forgotten - having gone the way of the rejected N-rays of Rene-Prosper Blondlot, or of James V McConnell's flatworms (planaria), which acquired the intelligence of their companion worms by eating them. By then, the Gauquelin theories, I suspect, will be replaced with new bizarre ideas at the fringe of science."

My reason for not commenting on the metallurgical studies after metal bending is because there is no evidence that the metal bending and the subsequent studies were carried out with the necessary rigour, including competent magicians at the metalbending presentations. Also my understanding is that since James Randi exposed the flim-flam of metal bending, the conjuring trick has disappeared from any serious paranormal presentation.

If the nine examples described by James Randi in his account of the deception practised by his two magicians/pseudo psychics at the Washington University are not indicative of being "regularly able to fool the researchers" but a "gross oversimplification", Eysenck does not state what is "the true state of affairs".

It has been reported that the late Arthur Koestler willed some \$800,000 to fund a psychical research laboratory. It will be interesting to see if a competent conjuror is part of the research team when it is established.

David Hume - The Miracle Unmaker

Vol 3, No 2

Joe Rubinstein

In my article sketching the history of sceptical philosophy ("2300 Years of Scepticism"- the Sceptic Vol 1, No 3) I briefly referred to David Hume as one of the most important philosophers of scepticism. Hume, however, deserves more detailed consideration, not only because of his outstanding contribution to philosophy but also as an essayist, moralist, historian and economist par excellence. He was very witty, warm-hearted and sociable; qualities not too often encountered among philosophers.

David Hume (1711 - 1776) was a Scot and very proud of it. He completed his studies in Edinburgh, travelled widely and lived in Bristol, London and Paris. It was in Paris that he was Secretary to the British Embassy for several years.

David Hume's major philosophical works are: *A Treatise on Human Nature* (1739), *Essays Moral and Political* (1741), *On Miracles* (1748), *The Enquiry Concerning Human Understanding* (1751) and *The Enquiry Concerning the Principles of Morals*. Twice in his lifetime Hume applied for professorships of philosophy - at the universities of Edinburgh and Glasgow. Despite his fame as an outstanding philosopher, he was rejected on both occasions on the grounds of his atheism. In 1761 the Vatican put all his writings on its Index of forbidden books.

Throughout his life Hume was well liked and respected by many contemporary thinkers and writers. He counted among his friends the economist Adam Smith, biographer James Boswell and writer Jean-Jacques Rousseau. His writings greatly influenced Immanuel Kant, John Stuart Mill and Adam Smith.

Hume remained a steadfast sceptic to the end of his life. On his deathbed he was still discussing with Boswell the impossibility of immortality, unlike Woody Allen in his comic film who, while not believing in an afterlife, plans to take a spare pair of underpants 'just in case'.

The great merit of Hume's philosophy is that he was the first thinker to thoroughly analyse the nature of belief.

The principle tenet of Hume's epistemology is that "all our ideas are copied from our impressions". Metaphysics are rejected. Knowledge can only be derived from our sense perceptions and is only probable. "Necessity is something that exists only in the mind, not in objects." If we are able to constantly observe that B follows A we can reasonably expect

that these events are causally connected. The emphasis here is on *constantly*.

"We have no other notion of cause and effect but of certain objects which have been *always* conjoined together ... objects have no discoverable connection together; nor is from any other principle but custom operating upon the imagination that we can draw any inference from the appearance of one to the experience of another."

According to Hume we can form impressions (meaning ideas in a concrete rather than abstract sense) of events, space, time and identity but we cannot perceive causality which can only be inferred. A strict demonstration of causality is thus impossible. Bertrand Russell, although finding some difficulties with Hume's scepticism, finds him hard to refute. Russell regards Hume as "one of the most important among philosophers" but adds plaintively "one cannot but hope that something less sceptical than Hume's system may be discoverable."

An interesting example of Hume's philosophy applied to a specific problem can be found in the following refutation of the claims of an infinite cause, so predominant in religion-oriented philosophies.

"From any effect we can observe, we can infer an unobserved cause which is only sufficient enough to produce that particular effect - no more and no less. From any given effect we can argue to a given cause that is only as great as that which could produce that effect. We have never observed effects other than finite effects. We thus cannot infer an infinite cause."

Clearly we, the debunking sceptics, can see that there is a lot we can learn from Hume. "In all the incidents of life we ought to preserve our scepticism. Nay, if we are philosophers, it ought only to be upon sceptical principles..." As is well known, the claimants of paranormal power fall flat on their faces when they have to repeat any alleged psychic feat. Hume required 'constancy' of effects before even beginning to infer causes and furthermore would certainly not accept an inference which is in conflict with the body of knowledge already inferred from other valid observations. If he lived today I'm sure he would have been a member of CSICOP.

If he was wrong after all and his immortal soul is floating somewhere in the other world, I assume he is an avid reader of *the Skeptic* and for his soul's amusement I shall conclude with a little story which I think he would appreciate, being an expert on miracles.

In a Sunday school the teacher is trying to illustrate to the children the nature of miracles. He gives little Johnny an example. "Johnny, imagine a good pious man who decides to climb to the top of the church

tower to admire the view and, when at the top, slips and falls down one hundred metres to the ground, then gets up and walks away unharmed. What would you call that?" Johnny: "Coincidence."

The teacher tries again. "Alright, Johnny. The same man goes up the same tower, slips again, falls to the ground a second time and still nothing happens to him. What would you call that?" Johnny: "Luck!"

The teacher becomes exasperated. "Listen to me, Johnny. What would you call it if the man goes up for the third time and exactly the same thing happens?" Johnny: "I would call that habit."

Schools and Popular Media Tend to Foster Belief in the Paranormal

Vol 3, No 3

Guy Saunders

In a remarkably short time since human beings were concerned only with food, shelter and procreation, the species has reached a stage of knowledge and intellectual development which legitimately excites wonder. We could be considerably more selfcongratulatory if it were not for the bomb and one other area where we have made no advance at all since mediaeval times, except in a very limited and prescribed way.

There was a time when we had reason to believe that a universal and relatively high level of education would eventually be the means of eliminating superstition and primitive fears of the unknown - the kind of phenomena which appear at first to have no satisfactory, natural explanation. We could hope that at least it would provide some balance to the gullibility of the foolish.

Alas, no. We may well ask what has happened to the scepticism which used to be the mark of intellectual man and woman. It has flourished briefly on occasions in human history only to be swamped by resurgences of general and undisciplined belief; long periods of unreason. I was too young to understand when the current period began and I will almost certainly die before the next age of enlightenment.

After more than 30 years as a journalist and editor, the last ten of which were spent editing a journal for teachers of all grades to college lecturers,

I am left with the opinion that teachers form an occupational group peculiarly susceptible to the claims of the paranormal, and that the popular media pander shamelessly to the public ignorance of the truth behind most such claims.

Far from throwing the keen light of reason on the murky depths of illusion and fraud associated with almost every manifestation of so-called psychic phenomena, universal education has probably stimulated an uncritical interest. For a start, teachers are bound to be the unwitting agents by creating that level of literacy necessary for their pupils to become acquainted with the subject.

That is their admirable purpose, of course, but from that point they should more often encourage the spirit of intellectual enquiry, not the tendentious "could be something in it" attitude. It is difficult for them to go against their own superstitions, unfortunately, and it is my experience that, too often, they believe there "could be something in it".

That other, more powerful educational influence, the popular media, having a vested interest in entertainment, gives much more coverage to the colourful myths of paranormal phenomena than it does to exposing the frauds. Most journalists I have known, particularly the senior people, subs and editors, have been well-informed and sceptical by nature. Their part in publicising the myths is often as cynical as the teachers' part, in one sense, is innocent.

The evidence for the spread of belief in what should be unbelievable is pervasive. At any given moment there are people sitting under wire or wooden pyramids (making them has even been a school craft project) absorbing energy or simply feeling good about it. Others may be squatting cross-legged in self-induced trance, alone or in groups, with or without guru, and may be chanting mantras.

Those practising transcendental meditation (popular with some school staff groups) are told that they may learn to levitate, become invisible, or leave the body behind while they go off on astral travel. It can be considerably more expensive than normal air fares without the advantage of hostess service.

In the same newspapers which publish stories concerning the progress of the Voyager space probes and advances in medical science, readers may see advertisements for eastern mystics, tarot card readers, numerologists and palmists. Read more than one newspaper on the same day and one may be confused by the conflicting claims of the astrologers.

Even in the area of long-tolerated and respectable religious faith, there has been a noticeable takeover by the more fundamental, charismatic and more

emphatic sects. The newspapers also carry their sometimes quite extraordinary claims and they obviously enjoy immunity from the Trade Practices Act.

That all these devotees of the new faiths, supernatural powers and ancient superstitions need the help they cry out for is painfully self-evident. Undoubtedly, some get it or believe they do, which can be the same thing. But this clamour for help is itself a sign of the times. Is it merely coincidental that there have never before been so many agencies secular, spiritual and even governmental - all offering help?

If you are lonely, depressed, suicidal, pregnant but don't want to be, there they are at the end of a telephone, day and night, awaiting your call. That such agencies are needed is also painfully self-evident. It suggests to me that what humanity most badly needs is a new and better-informed age of reason, a new age of enlightenment.

A healthy scepticism is not only needed to counter the spread of belief in supernatural fraud. The recent Hitler Diary fraud prompted my listing in an article elsewhere some of the historical and literary fakes which have fooled not only a gullible public for generations, but deceived experts and academics, scientists as well as scholars of the humanities.

These included the Mussolini diaries, spurious biblical manuscripts, letters allegedly written by famous people, false biographies and autobiographies, several works of fiction masquerading as fact, and at least one 'Shakespearian' play which went to stage to the dubious credit of its 17-year-old author.

Most of these probably cause more amusement than harm but the same cannot be said for the plausible von Daniken books on mankind's possible origins in space, and Adamski's (and other) accounts of personal contact with visitors from space, and certain other books dealing with the paranormal.

In a class of its own in this category was "The Third Eye" by T. Lobsang Rampa, who claimed to be a Tibetan mystic, later discovered to be a CH Hoskins who had never been far from London. This book and the author's other titles, also mystical nonsense, and most of those mentioned above, are in my local library and almost certainly in others.

The sad fact is that books like this tend to become best-sellers because of what people prefer to believe. The occasional published refutations are rarely as persuasively written or promoted and are usually only read by those who were not persuaded of the truth in the first reading. True sceptics are vastly outnumbered by the naive and gullible.

I have already suggested that formal education does

little to counter belief in what ought to be unbelievable. I would go further and claim that relatively high level of education is an important factor in predisposing people to a less than critical acceptance of not only things paranormal but other kinds of nonsense also.

One needs, for instance, a certain level of literacy and interest if one is to come into contact with the literature and the practitioners of mystical cults. and what I will call generally, the nonsense industry. This may extend from the most esoteric beliefs and rituals to something seemingly harmless like art criticism.

There is usually a specialist vocabulary involved, if not an out and out jargon. It is an interesting paradox that whereas a large vocabulary is a great help to those who write and speak professionally, as most teachers must do, it can also be a handicap as I will demonstrate by anecdote later in this article.

It might be said that if one has an ear for the music of consonant and vowel when stylishly expressed in a comfortable environment without distractions, one might tend to be more affected by the sound than conscious of the content. The priest in his high pulpit, his voice and appearance enhanced by the cavernous, ecclesiastical surround, scarcely needs the convention that he may drone on uninterrupted.

The modern English vocabulary has been expanded enormously to meet the needs of the arts and sciences and the professions, some of which have a kind of obsession with words, education being an obvious example. It has been a growth designed to assist communication and does so in certain circumstances. It can also serve to obscure and mystify.

An impressive store of words is necessary if one is to speak and write like some lawyers, educators and art critics, for instance, but understanding them may be another matter. Art critics and lawyers are not always required to inform those who hear or read them, of course, but it is different for teachers. Some educationists are aware of the problem of jargon, as articles in their professional publications indicate, but they have not defeated it.

The problem may be recognised elsewhere to some degree but the fact remains that if one wants to fool people with words, it is necessary to choose audiences with a high level of formal education and high-grade vocabularies. It has been proved that a selected group of experienced academics can be made to think that they have learned something from a lecture of cleverly contrived nonsense, provided the setting is staged properly.

An experiment was reported in the *American Journal of Medical Education* a few years ago. An audience of 55 school administrators, psychiatrists,

psychologists, social workers and teachers had a hired actor introduced to them as Dr Myron L. Fox. He was to lecture them on "*Mathematical game theory as applied to Physical Education*". It is all high-sounding, deliberate nonsense.

The purpose of the experiment was to demonstrate the importance of personality in teaching and it succeeded spectacularly. After the lecture, 42 from the audience agreed that it had stimulated their thinking. Only 14 had any criticism. They said that Dr Fox had tended to dwell on the obvious.

Professions other than teaching were involved in that experiment but it supports my point concerning the level of education necessary before one can be victim to such hoaxing. I have made teachers my particular concern in this article because of my experience with their professional and intellectual interests, and the unique opportunity they have to influence children.

I found that younger teachers particularly were uncritically interested in transcendental meditation, biorhythmic cycles, pyramid power, and similar things. I knew far too many who refused to believe that Uri Geller could not bend spoons except with his muscles and who were convinced that this planet was under observation from highly intelligent life from space.

"You must keep an open mind," they would tell me. They were inclined to get very annoyed when I suggested that as with most things, moderation was necessary with the open mind. Open it too wide and there is room for all kinds of untested belief and plausible nonsense to drop in.

Often they were highly likable people with a talent for friendship, socialising, and getting on well with children. Most, I am prepared to believe, were much admired by their pupils because their imaginations and personalities were relatively free of the colder disciplines of intellect.

Interest in the paranormal is not confined to young, primary teachers, of course. It's in the secondary and tertiary areas also. There are psychic groups in universities and the interest is not limited to the so-called softer disciplines. One of the most publicised devotees of levitation was a senior lecturer in mathematics at the University of NSW.

He achieved spectacular publicity in *The Weekend Australian* early in 1980, but I recall no follow-up except the article by Mark Plummer in *the Skeptic*, No. 1, 1981, which explained that members of the Transcendental Meditation group which advertised their course in levitation (it cost \$5,000 then), were not prepared to demonstrate their mysterious powers publicly.

That is a strange thing because television networks, which have paid out thousands of dollars on magic shows featuring levitation as an illusion, would surely bid high for a demonstration of the real thing. Do the world's airlines, which in a sense have millions invested in the power of gravity, pay well to keep the phenomenon secret?

I usually try and keep sarcasm out of my articles on psychic phenomena but it is always difficult with levitation because the word shares its source with levity.

*In fact, I've always looked askance
at those who claim to fly in trance.
The one suggestion, not unkind,
is that they do it in the mind.*

It is unfortunate that a profession so influential in the intellectual development of children and older students should have so large a proportion of its members caught in the paranormal web. My attempts to persuade individual teachers, and the profession as a whole (through articles in their official journal) to take a more critical look at persons or groups claiming to possess unnatural powers, have not been very successful.

It might be thought that if journalists, editors, and electronic media people are really more hard-headed than teachers, they should be the target but, as I've indicated earlier, they have an interest in exploiting myths and although they may also publish exposures, they are usually provided too little, too late.

In its February 3 issue this year, for example, my local daily, *The Advertiser*, ran an interview with Uri Geller in a syndicated story from the London *Daily Express*, and carried a picture caption saying that opinion was still divided over Geller's psychic powers. I wrote promptly providing the facts of Geller's exposure as a fraud some six years ago but my letter did not appear. There are many reasons why editors of big dailies reject letters but difference of opinion is not usually one of them, so I waited patiently. Some time later I was pleased to read in the same newspaper a review dismissing a new book on telepathy as a serious study because it had cited Geller as an example of psychokinesis. It said that Geller had been discredited in 1977 when his manager co-operated with James Randi and admitted to complicity in mass fraud.

I have little doubt that thousands of people all over the world are going to continue believing in Geller's magic, von Daniken's chariots, in psychic surgery, levitation, and the whole bag of unproven phenomena, no matter what is published. I have come to the reluctant conclusion that it is more a state of mind

than a matter of evidence.

The way back to sanity is through the children which means that teachers will have to graduate with qualifications that include a commitment to that spirit of enquiry mentioned in my opening paragraphs - the scepticism which used to be the mark of intellectual man.

This does not mean any loss of that sense of wonder at the marvel of life and creation and subsequent evolution. It can and should enhance it. There has always been something tawdry and suspect about magic, and something wonderful about the struggle towards enlightenment.

Children should be taught early in life that they have nothing to lose by suspending judgment over those things which seem to have no ordinary explanation at first. They even understand, for instance, long before they know anything about aerodynamics, that aeroplanes are not held up by magic.

It may well be that wisdom lies in understanding that Man may not be the measure of all things, but he's a fool if he does not behave as though he is.

Guy Saunders is a former newspaper and magazine editor, who spent ten years editing the official Journal of the South Australian Institute of Teachers.

Editor's Note

One of the more pleasing results of the formation of Australian Skeptics is the number of teachers who have become subscribers to the Skeptic. Of our subscribers, they form the largest single occupational grouping and many of them are instrumental in having the magazine purchased for school libraries. Yet even these teachers comprise only a small part of the total Australian teaching profession, and the level of scepticism about the paranormal shown by young people indicates that the concerns raised by Guy Saunders are still very much with us.

Book Review

Vol 3, No 3

Mel Dickson

Science: Good, Bad, and Bogus Martin Gardner, Avon Discus paperback

Americans spend most of their free time watching television, according to a 1965/66 survey reported in J.P. Robinson's book "How Americans Use Time". More complete figures are given below.

Activity	% of free time
watching television	58.0
reading newspapers	15.0
reading magazines	3.5
reading books	2.6
relaxing, thinking	2.6
listening to radio	1.7
listening to records	0.9

Obviously, watching television is the favoured occupation. Now the television industry in the USA is unconcerned about truth or beauty, but instead is concerned with ratings. People get what they choose to watch - fantasy; trivial situation comedy; sensational events; reports of sensational discoveries; news about the USA and little about the world outside. There is very little investigation in depth - little critical comment that might help viewers sieve grains of fact from politicians' and journalists' chaff. No one is going to learn much about truth, beauty, or the real world from television.

Since reading newspapers is the most popular free-time occupation after TV, it is conceivable that the papers could provide an antidote to TV. They might bring out of the closet the skeletons that TV sweeps under the rug. Alas, the papers seek readers by precisely the same means as TV. While quality papers like *The Times* teeter on the brink of collapse, Rupert Murdoch tours the world buying up papers and making them profitable by filling them with sensational trash.

To me, it is therefore no wonder that the population is generally so credulous (two out of three believe in psychics). They are seldom exposed to critical thinking and do not learn to think critically themselves. If I was a believer in conspiracies, I would claim that this is just what any government wants - a docile public that accepts whatever it is told. Television is the opium of the masses - to misquote Marx.

Perhaps the best media to counter the flood of trivial and misleading information that surrounds us are

books and magazines. These do not have to cater to mass markets and need not be beholden to advertisers. One can take time to read and digest a book and one can then seek out further books or articles with a contrary point of view..

But it is clear from the above figures that reading books is a minority interest. It is therefore all the more tragic that so much that is written in books is untruth represented as fact. The public have a touching faith that anything written in a book is true. And books can present erroneous messages very seductively, with beautiful colour plates, with misleading confusions of fact with fantasy and with references to many other books which all confirm the particular astonishing conclusions being announced.

I enjoy fantasy myself, but I like it identified as such. When a book such as David Rorvik's "In His Image" is published (it purported to be a journalist's account of the first successful artificial cloning of a man) I am offended. The public were duped into thinking that heartless old science had spawned a new Frankenstein-like nightmare. The press went into paroxysms of silly fears (Would clones suffer an identity problem? We already knew - natural clones, identical twins and triplets, sometimes do.) And, like other misinformation, it was hard to correct. Serious reproductive biologists denounced the fraud, but earned small paragraphs in the press.

The very least that is required to counteract this mischief is that newspapers and magazines which carry book reviews, which are the nearest that many will get to the books themselves, should have books that announce any amazing new event or discovery reviewed by some very hard-nosed critic who is informed on the particular field in which the discovery is being claimed. Of course, there are newspapers and magazines that already do this. The *New York Review of Books* and *Scientific American* are examples. Alas, these are not read widely and their critical messages reach only an already discerning public.

We are therefore very fortunate that one of the hardest-nosed sceptics around, Martin Gardner, has made a collection of his book reviews and essays, in which he debunked many latter-day marvels. Among the topics that are dealt with are "Hermit Scientists" such as Velikovsky and Price who held very unconventional views on planetary cosmology and geology respectively, 'pop' science writers like Lyall Watson ("Lifetide") and Gary Zukav ("The Dancing Wu Li Masters"), "Close Encounters of the Third Kind" and "The Preachers" Oral Roberts and Herbert Armstrong.

But most of the reviews deal with the pseudoscience

of parapsychology. Gardner has examined the work of the leading practitioners in this field (JB Rhine, Targ, Puthoff, Charles Tart) and finds it has proved nothing in all the years of experiments in the field. He dissects the frauds of Uri Geller and exposes the gullibility of Uri's scientific supporters.

This book is like a sequel to Gardner's earlier "Facts and Fallacies in the Name of Science" (Dover) which I warmly commend to all who do not own a copy. Many of the topics in the earlier book are brought up to date and the two books together make a valuable reference for information about dubious ideas and discoveries and the people who popularise them. No sceptic should be without them.

But even better are the lessons in sceptical enquiry and debate that this book provides. Most of the reviews were published in journals that adopt the eminently fair practice of publishing letters by authors defending themselves against the criticism in the review. These letters are published along with the review and also Gardner's reply to the letter. It's rather fun. Often a wounded author responds hotly with what seem to be shrewd blows until one reads Gardner's measured response.

Perhaps because Gardner views the topics with amused astonishment, the book is witty and easy to read. One of the quotes that opens the book is "One horse laugh is worth a thousand syllogisms" (HL Mencken) and horse laughs are used generously to make Gardner's points.

I have already said that no sceptic should be without this book. I will go further and say that he should also give it away as a present to all his nearest and dearest, especially any who need encouragement to rethink their reality.

Dr Mel Dickson is a biophysicist, director of the Electron Microscope Unit at the University of NSW and is a member of the National Committee

To Believe, to Disbelieve or to Investigate

Vol 4, No 2

Mark Moravec

On what basis should we approach claims of the paranormal? If we look at the history of the paranormal, we find that there has been a very wide range of responses. Consider the people involved. There is the percipient who reports his or her experience, who makes a pronouncement on the case, the mass media that circulates the story, and the general public that adopts certain attitudes towards the reported phenomena. All have made judgments and statements which are often mutually contradictory and which have formed the controversy that we know as the paranormal.

Examine any particular type of alleged paranormal phenomenon - be it ESP, UFOs, ancient astronauts or astrology. If there is one thing in common between them it is the emotional responses, the conflicting pro and con beliefs, that have been generated. It seems that many people find it hard to be objective when confronted with paranormal claims. Instead, the phenomenon appears to act as a Rorschach inkblot that reflects the individual's beliefs.

What are some of the beliefs that have arisen out of the paranormal controversy, and what is the best approach to take in evaluating paranormal claims?

The True Believer

"I've been convinced for a long time that flying saucers are interplanetary. We are being watched by beings from outer space." - Albert M Chop

"The basic purpose behind all UFO phenomena today is to prepare for the coming of Antichrist, and the setting up of World domination under the Devil." - Arthur Bedle

One polarity of response to paranormal claims is to readily believe in the claims even if there is very little supportive evidence offered. With the more extreme responses, this attitude can be described as gullibility. Let us take the example of UFO phenomena. UFOs are important because a significant proportion of the public believes that they exist. Gallop polls conducted over a 12-year period asked national samples of adult Americans whether UFOs are "something real or just peoples' imagination". Of the 93 to 96% who had heard or read about UFOs, an increasing proportion thought that they were real: 46% in 1966; 54% in 1973 and 57% in 1978 (Swift, 1980).

There are dozens of hypotheses about the nature of UFOs including the hypotheses of misidentifications of mundane phenomena, natural earth phenomena along the lines of earthquake lights or ball lightning, hallucinations during altered states of consciousness, secret weapons, time travellers, etc. Yet the vast majority of people automatically equate UFOs with alien spaceships. Thus in many countries there exists a cultural myth that we are being visited by spacecraft from another planet. Yet to date there exists no physical evidence which unequivocally supports the extraterrestrial hypothesis. The will to believe is stronger than the evidence that exists.

The belief in extraterrestrial UFOs reaches its most extreme form in the case of the "contactees" individuals who claim to have communicated with UFO entities and/or been temporarily taken on board the "spaceships". The strength of this will to believe is demonstrated by an American UFO cult documented by sociologists Festinger, Riecken and Schacter (1964).

The members of the cult believed they would be saved from a predicted natural disaster by being picked up by flying saucers (neither of which eventuated). Several of the cult members quit their jobs several weeks before the predicted disaster. One of the highly educated in the movement, a local professor, was to say: "I've had to go a long way. I've given up just about everything. I've cut every tie. I've burned every bridge. I've turned my back on the world. I can't afford to doubt. I have to believe. And there isn't another truth. This is a tough time but we know that the boys upstairs are taking care of us."

The practice of taking paranormal claims at face value, and believing in them irrespective of whether or not there is any evidence to support them, is unfortunately quite prevalent. Need I remind you of the thousands of people who believe that extraterrestrials constructed the pyramids and started off the human race; that the positions of the planets determine the good or bad fortune of the next 24 hours; and that one way of keeping razor blades sharp is by putting them under a model pyramid.

The True Disbeliever

"What can we add here to such an affidavit? All the reflections which it suggests will present themselves to the philosophical reader in reading this authentic attestation of an obviously wrong fact, or a phenomenon physically impossible." - P Bertholon, 18th century physicist on meteorites.

The tendency towards emotional over-reaction and implacable belief is not limited to those that propound

paranormal claims. Some critics of the paranormal can behave just as irrationally. Whilst the 'true believer' readily accepts any outrageous paranormal claim irrespective of the evidence, the 'true disbeliever' just as fervently denies any paranormal claim irrespective of the evidence. The debunker's 'disbelief turns out to be merely a strongly held belief in the opposite polarity.

It appears that in practice there are two kinds of sceptics. The true sceptic avoids taking up a belief. Instead, he or she critically evaluates the pro and con arguments (and their associated sets of evidence) with equal scepticism. In contrast, the debunker has a preset attitude against the existence of paranormal phenomena. He or she will not accept any data or evidence contrary to his or her own view, irrespective of the merits of the evidence.

Ah, you say, but there are legitimate reasons why sceptics adopt an attitude of disbelief towards paranormal claims, even to the extent of not bothering to investigate such claims. The most readily available information about the paranormal is in the form of sensationalist and inaccurate tabloid newspaper stories, hardly the stuff of scientific data. Scientists are limited by finite time and funds in the subjects that they can research. The phenomena appear to be elusive and thus difficult to study.

Perhaps these are valid points. Yet they are matched, if not outweighed, by other non-scientific considerations that also arise. For example, the individual scientist might be ridiculed by his peers if he dared to spend time researching controversial claims. He or she might have to change some longcherished views on the nature of reality if some paranormal claims turned out to be true (see accompanying article on 'anomaly anxiety'). All of which might be convenient; but it's hardly scientific!

Just as the true believers have come out with some howlers over the years, so have the debunkers come out with their own particular brand of nonsense. In earlier times, European scientists refused to even consider the possibility of rocks falling from the sky (ie meteorites). A British astronomer royal opined that "space travel is utter bilge". More recently we have the example of the amazing "star baby" fiasco. Here we have a situation where some of the leading lights of the anti-paranormal movement, namely the chairman and certain council members of the Committee for the Scientific Investigation of Claims of the Paranormal, attacked the pro-astrology research findings of French scientist Michel Gauquelin, yet

used false statistical reasoning and the insinuation of hoaxing in their criticism. Well maybe that's okay, after all even sceptics are human and can make mistakes. But the truly dismaying aspect was the sceptics' repetition of their false counterclaims over a period of years and their attempted cover-up of the whole affair. See the article of Kammann (1982) for the most neutral account of this sorry saga of dogmatic belief triumphing over open-minded research. The true believers and the true disbelievers have more in common than some might wish to admit.

Searching for Answers

"To doubt everything or to believe everything are two equally convenient solutions; both dispense with the necessity of reflection."- Jules Henri Poincare

"Occurrences which, according to received theories, ought not to happen, are the facts which serve as clues to new discoveries."- Sir John Herschel

We have looked at the polarised emotional reactions that people tend to take when faced with claims of the paranormal. But where does that leave our evaluation of paranormal claims? What should we do?

There is only one way that will get anywhere in our search for the correct answers. And that is to take a true scientific approach, suspending all personal beliefs, neither automatically accepting nor rejecting any claims, until a full, comprehensive investigation has been completed. It is scientific investigation, not belief or disbelief, that will get us the answers.

People keep reporting anomalous experiences. The data is there if we are willing to look at it. Let us hope that there exist some scientists who are both objective and courageous enough to have a try at solving some of these persistent mysteries.

References

- Festinger, L, Riecken, H. and Schacter, S. *When Prophecy Fails* NY: Harper and Row, (1956), 1964.
Kammann, R. The true disbelievers: Mars effect drives sceptics to irrationality. *Zetetic Scholar* 10, 1982, 50 - 65.
Swift, D. Who believes in UFOs? *Journal of UFO Studies* 2, 1980, 7-12.

Editor's Note

The issues raised by Mark Moravec resulted in a great deal of correspondence in later issues of the magazine. Most of them are reprinted here.

A Criticism of Moravec's "To Believe... "

Vol 4, No 2

James Gerrand

Because Mark Moravec's approach to the paranormal is not what I understand to be the scientific one of the Australian Skeptics, I, as secretary, write this reply to directly refute rather than await the four months for the next issue of *the Skeptic*.

Mark gives a good and interesting but necessarily short appreciation of the "true believers" in the paranormal but is scientifically unsound when describing the "true disbelievers" and in his "searching for answers". Where Mark is wrong in his approach is his neglect of the fundamentals of the scientific approach. The purpose of science is to tell with some confidence the future. A scientific truth is established when on its use it is found to have some reliability. The proof of a scientific pudding is in its eating.

If after some one hundred years there has been no scientific evidence that anyone has eaten a paranormal pudding then it is reasonable for practical scientists to consider the prospects of the existence of such a pudding is very slight. And so most scientists end up in the category of Mark's true disbelievers in the paranormal because of this lack of any proof combined with the implausibility of the existence of a paranormal transcending the normal, not obeying the laws of science.

And the proof or truth of a pudding is not dependent on the personal authority of who made the pudding. One does not rely on the authority of Newton when using the laws of motion but on the experience that they work: can foretell the future of a cannon ball.

Mark makes much of the fact that some scientists have been wrong in their conclusions, that some have been disbelievers in meteorites, in space travel, that CSICOP disputed the astrological claims of the Gauquelin Meteorites are now accepted as having fallen from the sky because of the weight of evidence not because of who has made or who has decried claims. Space travel is now very much a reality. The rejection of its possibility by an eminent astronomer was I suggest not a scientific implausible but on his lack of understanding of engineering possibilities.

As regards astrology there has still to be advanced any evidence other than what the Gauquelins have submitted. The latter have not made any further claims. Scientists must remain true disbelievers in astrology because of the combination of the lack of any objective evidence and its scientific implausibility.

I agree with Mark that a person may face ridicule if putting a view or submitting evidence that is counter to the accepted scientific understanding of the day I recall the reputation of a pilot colleague suffered when he claimed he had seen and photographed a UFO. However now that people generally are more aware how readily we can be deceived then such personal ridicule is less likely.

Mark in his "searching for answers" to the claims for the paranormal places hope on their being some objective and courageous scientists. The experience of the Australian Skeptics and its parent body CSICOP tells us that as well as scientific objectivity we need the help of those whose business is to deceive: the magicians, and those whose profession is to understand how we can become deceived: the psychologists.

"Believe" - A Response

Vol 4, No 3

Mark Moravec

I was pleased to see that my paper, "To Believe, to Disbelieve or to Investigate?" (*the Skeptic*, Vol 4, No 2) has provoked comment on some of the issues raised.

I agree with at least one point in James Gerrand's critique. That is that psychologists have a relevant role to play in examining claims to the paranormal. Indeed, in a number of my published papers, I have strongly advocated the involvement of behavioural scientists, both to ensure quality control of the data derived from human subjects as well as to research possible psychological explanations. My statement advocating the involvement of "objective and courageous scientists" most certainly includes the potential contributions of behavioural and social scientists. Magicians, too, have a useful role to play in a consultative capacity, especially in controlling against fraud in parapsychological experiments.

On other points of Gerrand's critique, I will have to disagree. I think that James confuses my criticism of science as practised (or malpractised) for criticism of the scientific method itself. There is nothing wrong with the ideals of science. The objective application of scientific method is absolutely essential if any progress is to be made in researching alleged paranormal phenomena. To achieve predictability is one important aim of scientific research. But it would be naive to hastily dismiss all paranormal claims merely on the grounds that we have not yet been able to achieve complete and instant predictability.

Otherwise, we would have banished our meteorologists and psychologists long ago. And the latter specialists have had the benefit of much more time, finance, personnel and other resources. The alleged elusiveness of some phenomena can be used as an excuse by some paranormal proponents for lowering their standards of research. But it can also be used as an excuse by some sceptics to avoid the effort of objective investigation and to replace it with the easy option of ridicule.

Whilst the scientific ideals are fine, it is when people's beliefs interfere with the application of those ideals, that problems arise. In the case of meteorites, the scientific establishment did finally consider the evidence and accept their existence.

But the point is that it took several decades for this to occur. And it was not because of the absence of physical and testimonial evidence, it was because the scientists of the day were blinded by their own beliefs and preferred to ignore the available evidence. I simply advocate the objective scientific investigation of paranormal claims. We will learn more by this than by allowing emotion-laden beliefs in the existence or non-existence of such things to determine our conclusions.

Reply

Vol 4, No 3

James Gerrand

Mark, your agreement as to the need for psychologists and magicians is pleasing. But is it "emotion-laden beliefs" that have, if not "blinded", at least greatly distorted your reading of my criticism?

I did not mention "achieve complete and instant predictability". My words were "tell with some confidence the future" and "A scientific truth is established when on its use it is found to have *some* reliability," (my emphases here).

Meteorologists keep their credibility, unlike rain-dancers, because their predictions can be used with some confidence (they keep a running check on their success rate and use same to try and improve their predictions). The theories of psychologists have become more useful and so credible in recent years as more emphasis has been placed on the evaluation rather than on the production rate of psychological theories. To achieve predictability is not just one important aim of scientific research, it is its fundamental basis, it is the bottom line of science.

Response to Mark Moravec

Vol 4, No 3

Peter Hogan

In his article, "To Believe, To Disbelieve, or To Investigate" (Vol 4, No 2) Mark Moravec makes the point that it is important for sceptics to investigate and test paranormal claims. To make the point, he has portrayed sceptics (and by implication Australian Skeptics) as firm disbelievers in the paranormal. I feel that Mark has over-simplified the sceptic's position and I would like to give another view of scepticism.

I see a sceptic as being a doubter who refrains from committing him/herself until there is sufficient evidence to justify that belief. With regard to the paranormal, the doubts are very strong because:

(a) from experience, claims of the paranormal generally don't stand up to investigation;

(b) most paranormal events are inconsistent with the well tested and well integrated theories of science.

Hence a sceptic will regard a paranormal event as most unlikely. However most sceptics will concede that we cannot definitely say that a paranormal event is impossible. So we keep an open mind but insist that claims of paranormal events be investigated scientifically.

I refer Mark to the Aims of the Australian Skeptics. It can be seen that the main claim is "To investigate scientifically and with an open mind, claims and events of a paranormal nature".

Mark has also made some serious accusations about the conduct of some CSICOP members when dealing with Michel Gauquelin's research on astrology. Apparently, Mark's source of information is an article in the *Zetetic Scholar*. I would point out that it is the policy of that journal to be an open forum for both sceptics and believers. Hence I think it would be unwise to rely too much on this source without further supporting evidence.

Peter Hogan is a science teacher and, at the time of writing, was a member of the National Committee. He remains a member, and heads the Creationism sub-committee of the Victorian Committee.

Letter to the Editor

Vol 5, No 1

Geoffrey Dean

In his article advocating an objective approach to paranormal claims, (*the Skeptic* Vol 4, No 2) Mark Moravec cites the CSICOP investigation of the Mars Effect as an example of "dogmatic belief triumphing over open-minded research". In a comment on this point (*the Skeptic* Vol 4, No 3), Peter Hogan states "Apparently Mark's source of information is an article in the *Zetetic Scholar* (ZS). (Since) it is the policy of this journal to be an open forum for both sceptics and believers... it would be unwise to rely too much on this source without further evidence."

From this comment it is clear that Hogan has not read the article, in which case he is singularly unqualified to comment. Let me set the record straight.

The author of the article in question "The true disbelievers: Mars Effect drives skeptics to irrationality". ZS, 1982, 10, 50-56) the late Richard Kamman, was Associate Professor of Psychology at the University of Otago, co-author of the debunking book *The Psychology of the Psychic*, a CSICOP Fellow at the time, and had spent seven months examining the evidence and writing to the parties concerned. You can hardly get better credentials than that. Kamman concludes that the CSICOP investigators "have persisted in offering the public a set of demonstrably false statistical arguments against the Mars Effect in spite of four years of continuous and steadily mounting criticism of their logic", and that "when the whole record is examined over five years, there is almost no instance where merit wins out over self-serving bias". Please note that Kamman's article was not solicited by, and was not originally written for, ZS.

The investigative journalist Piet Hein Hoebens, who was privy to much of the goings on, described Kamman's article as "eminently fair, highly readable and ... remarkably restrained" (Hoebens "Some further reflections on the Mars Effect affair". ZS 1983, 11, 25-28). Professor Anthony Flew, another CSICOP Fellow, concluded "I can no longer resist the conviction that CSICOP has made a dreadful mess of its investigation" Flew. "The Mars Effect controversy". ZS 1983, 11, 25-28 The same conclusions were reached after an exhaustive investigation by science historian Patrick Curry (Curry, "Research on the Mars Effect". ZS 1982, 9, 34-53). In fact several CSICOP Fellows (including Kamman) and Technical Consultants resigned in protest. (Truzzi. "Personal

reflections on the Mars Effect controversy". *ZS* 1982, 10, 74-8 1).

In other words, Hogan's cavalier dismissal of Moravec's point is unwarranted and certainly not in keeping with the fine sentiments appearing in the same issue (and originally prepared by Hogan) about Skeptics aiming to provide reliable information. The same applies to Hogan's innuendoes about *ZS*. So again let me set the record straight.

Zetetic Scholar is the Journal of the Center for Scientific Anomalies Research in the USA. It was started in 1978 by Marcello Truzzi, Professor of Sociology at Eastern Michigan University. Truzzi was a founder and co-chairman of CSICOP and editor of its journal (then *The Zetetic*, now *The Skeptical Inquirer* {SI}). He resigned from CSICOP because, in his view, it was acting not as an impartial seeker after truth, but as an adversary hostile to any paranormal claim, and he felt that such an attitude prevented impartial inquiry (Truzzi, Editorial *Zetetic Scholar*, 1982 10, 3 -5). And of course, in the Mars Effect debacle, these fears have been precisely realised. Which is all the more lamentable because CSICOP has done, and continues to do, many excellent and enormously necessary things.

As a result, *ZS* is rather like *SI* (the same topics and even the same authors appear in both), but is inclined to mediation rather than debunking. Truzzi insists on quality, so the level of scholarship is extremely high, certainly higher than in *SI*. I have personally visited Truzzi and *ZS* in the USA and was most impressed. Many people talk glibly of impartial inquiry, but few achieve it - and Truzzi does it all the time, better than anyone else I know.

To say, as Hogan does, that *ZS* is a forum for both sceptics and believers is misleading. It is certainly a forum, but only for informed, responsible inquiry of the highest standard, and then only on topics with some claim to potential scientific status. It works by *ZS* obtaining a stimulating paper that is sent to large numbers of experts around the world, who then contribute comments. The paper, comments and author's rejoinder are then published together, with an invitation for further comments. In addition *ZS* contains literature surveys and superb bibliographies that alone are worth twice the subscription price. In short, *ZS* provides resources you cannot find anywhere else. Responsible sceptics cannot afford to be without it, in exactly the same way they cannot be without *Skeptical Inquirer*.

Dr Geoffrey Dean, a computer scientist, has spent more than two decades studying astrology and is the author of many critical articles on the subject.

The Terbot Hoax

Vol 4, No 2

Mark Plummer

"Would all those who want a private reading please raise their hands?" About a third of the audience over a hundred people - at the Karrilika Theatre in Ringwood, Victoria raised their hands for a private reading with Steve Terbot - the "psychic" from San Francisco. It was the climax of Terbot's brief career as a psychic.

In the past week he had appeared twice on national television, on a top-rating radio show, at universities, at public venues and had been widely accepted by hundreds of thousands of Australians as a "psychic". He had endured a savage and libelous attack by Philip Adams and done things not normally done by visiting "psychics". He had allowed sceptics to be present vigorously attacking him, while he performed on radio and television, and had finished all his public appearances with vigorous question and answer sessions. Now in front of him were at least a hundred people who were willing to pay for private readings. At a minimum of \$25 each reading, he could collect at least \$2500 in a few days...

... except that "Steve Terbot" was really Robert Steiner, Chair of the Bay Area Skeptics, consultant to the Committee for the Scientific Investigation of the Claims of the Paranormal (CSICOP), member of the California Council against Health Fraud, writer and author. He had been brought to Australia by us for "Project Hook".

The idea of bringing Bob to Australia had its origins in April 1983, when Mark Plummer, our National Chairperson, visited Bob in San Francisco. Bob showed Mark videos of himself on television and related how he staged one-night shows in which he posed as a "psychic" for the performance before revealing himself as a magician at the end of the show.

In October, our co-patron Dick Smith went to the CSICOP conference in America, saw Bob in action and was suitably impressed. On returning, Dick agreed to Mark's suggestion to pay Bob's airfare but warned Mark that the whole venture could only be successful with the utmost secrecy.

Mark then asked our national committee to approve a secret project and to establish a threeperson sub-committee of himself, our national secretary James Gerrard, and one of our magic consultants, Mike Wilton.

It was hoped that the project could be initially

In the Beginning

organised by just four people - the sub-committee and Barry Williams, the NSW branch chairman, with others being brought in only when essential for the project. As the potential for leaks increased with new people being involved, the sub-committee decided not to tell other Skeptics unless they could be actively used in the project.

Those recruited were told the barest minimum at the last possible moment. Right up to the moment of the expose, only about six people in Australia knew Terbot's real name. To detect possible leaks, those told were also given a couple of items of disinformation.

The first task was to create a "psychic". The name "Terbot" is (almost) an anagram of Robert, and it is also the name of a French fish! It was thus a fishy project, with the main aim to show how believers could be hooked by someone posing as a psychic. Only one person deciphered the code - Ross Dimsey, a Skeptics committee member.

A close friend of Bob's, Phil Herter, provided an address and phone number for Terbot in the US. Only three other people in the US knew before the date of the expose: CSICOP Fellow James Randi, Bay Area Skeptics secretary Earl Hautala (who guarded Bob's house and business) and Mike McCarthy, the editor of the Bay Area Skeptics newsletter, *Basis*.

We also needed a front person in Australia, who would have an address and phone number to take enquiries from believers and the media. They had to have no traceable connection to the Skeptics, nor should they be a scientist or academic who would be suspected as a possible Skeptic. Ray Warren runs an automobile tuning service called "Raytune". and he always answers his phone "Raytune". Thus, Mr Ray Tune became Steve Terbot's "cousin", and handled many phone calls and enquiries.

To give Terbot pre-publicity among the believers, we decided to leaflet the Albert Best meetings in Melbourne and Sydney as a large number of believers would be attending. Leaflets were handed out by Jack Dunn and Kathy Goddard in Melbourne and Mel Dickson and Don Laycock in Sydney. Although these four were Skeptics, they have not had a high profile and were unlikely to be recognised.

Copies of the leaflet and a personal letter from Terbot were sent to major psychic groups and newspapers. These helped to get Terbot's name and claims known prior to his arrival, so that he would not be a complete unknown.

The major item of pre-publicity was to be copatron Philip Adams' column in *The Australian*. Philip also assisted in the financing of the project, and contacted Peter Faiman and Peter Howden of GTV-9

Melbourne's Special Projects Department to arrange for Terbot to appear on the *Tonight with Bert Newton* show.

At Easter, Mark Plummer went to Sydney to discuss all the arrangements with Barry Williams, and came home via Canberra to brief Richard Carleton on the project.

After returning to Melbourne, Mark finalised arrangements for Terbot to appear at Monash and Melbourne universities. At Monash, a venue and publicity were organised by Psychology lecturer Malcolm McMillan and Greg Savage of the student Monash Psychological Society. At Melbourne University, Arts student Kathy Goddard set up a bogus "Psychic Research Association", and organised meeting facilities and publicity.

It was planned to have dinners for Bob after the expose so that Skeptics could meet him - but how to give sufficient notice without breaching security? The solution was to tell Skeptics that Dr George Henderson, a psychologist and member of CSICOP in England, would be speaking at Skeptics dinners. The leaflet said that Skeptics would "enjoy his clipped English accent and turn of phrase".

On May 5, *The Australian* ran Phillip's article attacking Terbot in strong and obviously libelous terms. That same evening, the first security problem arose. Mark was addressing a meeting of Melbourne Mensa on the Skeptics. Just prior to the start, one Michael Gamble approached Mark and stated that he was most interested in the subject, and had seen a Robert Steiner performing in San Francisco a year ago. He asked Mark if he had heard of him.

Mark's paranoia surfaced. Was Michael really from a believer group, letting him know that they knew all about the project? The sub-committee discussed Michael at length, and decided there was no alternative but to tell him of the project and ask that he keep the secret - which he did. How many other Australians had seen Robert Steiner in action, or on TV, in America?

Mark had made a security decision, which in retrospect was probably wrong, not to tell Derryn Hinch prior to Bob's arrival. Mark had intended to inform Hinch once the Terbot tour was underway, and then ask him to do the expose and to consider putting Bob on his radio show afterwards.

However, Hinch read Phillip's column and joined in the attack on Terbot on his radio programme of Monday, May 7. Thus he unwittingly joined the conspiracy! After the programme, Hinch was quickly filled in on the project, and agreed to attack Terbot again on the Bert Newton show the following

Thursday.

Bob arrived on May 9, 1984. His first appearance as Steve Terbot was at Monash University the next day, under the auspices of a student body, the Monash University Psychological Society. Advertising was restricted to classes of psychology students some twenty-four hours before the meeting, and the general student population two or three hours beforehand. Bob was described as a psychic researcher and the meeting as a lecture/demonstration. Fifty to sixty people turned up, and only two, Malcolm McMillan and the chairperson Greg Savage, knew of the hoax.

Initially there was hostility as well as scepticism. Bob's adroitness in dealing with a rather rowdy group soon had the audience on his side. Probably the most impressive of his "demonstrations" was the "telepathic" transmission of a word "chosen" from a dictionary as a result of a seemingly random set of computations on a small electronic calculator. But the whole presentation was impressive, and by the end, most of the audience seemed prepared to grant his "psychic" abilities.

That night, Steve Terbot was presented to the Australian public on the *Tonight with Bert Newton* show. Bob was keen to convey the concept of testability to the audience, and that a great deal of "psychic phenomena" are, in fact, magicians' tricks. Thus, he decided to use card effects, and allowed Derryn Hinch to vigorously attack him on the show. (We hope that the next jet-setting international psychic will also allow Hinch to attack them equally vigorously!)

Terbot's appearance started the debate as desired: was he a psychic, or was he a magician? No-one asked whether he was a psychic or a sceptic pretending to be a psychic!

Terbot's first major public appearance brought more phone calls to Ray Tune, especially from believers who had received leaflets at the Best meetings, asking how they could obtain "tickets" for the Ringwood performances. Believers are apparently used to purchasing expensive tickets to listen to visiting "psychics", and were surprised when Ray Tune told them that admittance was free, but satisfied when he hinted at a collection at the end of the meeting. Of course, there was no collection.

Terbot's appearance also brought a reaction from magicians, some of whom contacted Hinch, and others who contacted Mike Wilton wanting to expose Terbot immediately. Sceptics also started phoning committee members, wanting to help design a test.

On Friday, May 11, the morning after the first appearances on the Bert Newton show, Terbot was a

guest on Derryn Hinch's top-rating radio show. He continued his argument with Hinch, performed some cold readings with members of the audience, and argued with sceptics who phoned the station.

James Gerrand was one of those Sceptics, demanding Steve's address so that he could "contact" him to draw up the protocol for the "test". James officially referred Steve to Mike Wilton, and a protocol was drawn up over the weekend, in case believers wanted to see it.

Dr Charles Osborne of the Chisholm Institute rang Steve, who invited him to appear on the platform at the Ringwood meeting, but Dr Osborne declined, saying he was keeping a low profile in psychic research these days. It's a pity Osborne did not appear - he could have brought some of his forty "psychic" children. (These seem to have disappeared since Randi's visit to the Chisholm Institute.)

From the Derryn Hinch show, Steve went to Melbourne University for the inaugural (and final) meeting of the Melbourne University Psychic Research Association, where Bob mystified hundreds of students with his "psychic" powers, using cards, cold reading and the cutting of a newspaper article. This last act was considered the most incredible: how could a chance cut of the newspaper column be the exact text that was found to be written in a sealed envelope on the wall?

After the meeting, Steve sampled Melbourne's public transport and was surprised to find members of the public recognising him from his appearance on the Bert Newton show. The following day he went to Melbourne's wildlife fauna park. In the three hours he spent there, he was continually stopped by people wishing him luck in the test. He encountered no hostile reactions and was clearly accepted as a psychic by the general public.

The next day, Sunday 13, was spent with the subcommittee discussing tactics for the following week. One Sunday paper had carried an article on Steve, and had not given any indication that the writer knew it was a sceptical plot.

On Monday, May 14, it was back to the Bert Newton show. This time, two accomplices had been arranged to be in the audience. Steve did some card and cash effects, but his most impressive act was a "cold reading" of a member of the audience. Her reactions were very believable. Steve assured the compere that they had not met. This was quite true - their prior contact was by telephone!

Tuesday, May 15 was Steve's meeting at the Karrilika Theatre at Ringwood. This was an important meeting, for, in two and one half hours, Steve would

be on display to an audience composed largely of believers, and would be permitting a full questions-and-answers session (unlike other visiting psychics, who either have no session, or arrange for questions to be written down and "screened" by the chairperson). If the believers suspected anything, they would be given plenty of opportunity to voice their views.

By now, believers were climbing on the Terbot bandwagon, and Steven asked two of them to be supporting speakers at the meeting. Astrologer Marina Collins and spiritual teacher John Fitzsimmons were certainly hooked by Project Hook! Their appearance lead credibility and helped create the atmosphere of a typical believer meeting.

Steve covered a wide range of psychic areas: cold readings, predictions, ESP, muscle testing, telepathy. He had one accomplice in the audience - Joan Warren - and his reading of her was remarkably accurate, achieving a level easily equal to that of other clairvoyants who have performed in Australia.

His most dramatic reading, however, was not of an accomplice, but a stranger. Steve was able to apply Rule 2 of cold reading to her very effectively. Her reactions were those of one clearly convinced of Steve's powers, and during question time she vehemently denied being paid and became a strong supporter of Steve.

Question time was vigorous, with sceptics not in the know attacking Steve, Steve defending himself well, and believers coming in with comments that clearly showed they were convinced Steve was psychic. But it was the clear response to the question as to how many wanted private readings that showed the meeting was a success.

The audience was also delighted when Steve Terbot announced that there would be no collection at the meeting. The audience burst into applause when he explained that he would be collecting \$120,000 from the Bert Newton Show clairvoyance test, and therefore did not need to take up a collection to cover costs.

The next day, tactics were reassessed. The original plan was for Steve to go to Sydney on Thursday, May 17, then spend the weekend in Canberra, hold a meeting at the Lane, Cove Town Hall on Monday, May 21, and return to Melbourne for the expose on Tuesday 22.

Gary Wiseman, "Australia's foremost psychic", offered to meet Steve at the airport and interview him for his column in a Sydney paper, and to appear with him at Lane Cove. But Barbara Hicks of the Cronius Centre in Canberra telephoned with wishes of support, apologising that she could not organise a meeting at such short notice. It was decided to cancel the

Canberra visit.

Against the possibility of another successful Sydney meeting "hooking" a couple of hundred believers was the problem of maintaining security for another week. Far too many people knew already, and an expose by others would leave us with egg on our faces. Steve Terbot had been created and accepted; we had made our point. After consultations with the sub-committee, Channel 9, and Derryn Hinch, the expose was moved forward to Thursday, May 17.

That night, Mark Plummer appeared with Steve Terbot, Derryn Hinch, Bert Newton and Kevin Arnett. After some introductory questions from Bert Newton, Terbot revealed himself to be Robert Steiner. The hoax was exposed!

The Steiner Tour - Post Exposure

Vol 4, No 2

Mark Plummer & Bawy Williams

The morning after the expose, the Melbourne Age carried two items on the hoax. One was a factual account headed "Psychic a fake but hoax was real." The other, by its TV critic, queried whether it was the role of a night-time chat show to warn of fakes by setting up its own fakery. Bob went back on the Derryn Hinch 3AW radio show and the calls were clearly polarised. The believers were hostile, the sceptics supportive. One caller asked Bob if he realised he was being exploited by Bert Newton and Derryn Hinch. While Bob was on 3AW Mark Plummer went on radio 3MP to explain the Sceptics' involvement in the hoax.

On Friday afternoon Bob flew to Sydney and spent Saturday and Sunday sightseeing. On Monday morning Bob appeared on the Channel 9 Today show and that night Bob was the main event at a public meeting at the Lane Cove Town Hall. This drew an audience of around 70, considerably down on the Melbourne meeting. The reasons for this drop were two-fold; a constraint on pre-publicity necessitated by having to preserve Bob's 'secret identity' until the last moment, and by the earlier than planned revelation of the 'secret identity' which presumably discouraged a number of true believers.

During the weekend prior to the meeting the NSW Branch was contacted on several occasions by

Mr Simon Turnbull, an executive member of the Australian Psychics Association (APA). Mr Turnbull made a number of disparaging remarks about the standing offers of Messrs Smith, Adams and Hinch, and made vague references to a sum of \$200,000 being raised by APA, from an unnamed overseas businessman to stand as a counter challenge. Pressed for details as to how a sceptic could win the challenge, Mr Turnbull again vaguely mentioned "proving that psychic abilities do not exist". When it was explained to Mr Turnbull that such a condition provided the money with a degree of security that would make both the Bank of England and Fort Knox envious, he dropped the line.

He then suggested our meeting would be much better attended if Bob would debate him on the issue of psychic abilities. Bob, with the full concurrence of the NSW branch, demurred on the grounds that public debates tend only to confirm the prejudices of the proponents of both points of view, and that there would be no benefit to the Australian Skeptics in providing a free platform for those very people whose claims the Skeptics seek to investigate. Further, a debate would have run counter to the advance publicity for the evening.

The meeting began with a brief talk from Bob on his reasons for being in Australia and the general motivation of CSICOP.

He then proceeded to demonstrate his magical skills which confirmed his professionalism, and confounded his audience. This included a demonstration of ESP card reading in which the whole audience took part. Out of 25 cards, the results clustered around the figure of 5, as would be expected by chance. Three extreme results of 19, 17 and 16 were obtained which caused some fluttering in the psychic dovescotes, until it was pointed out the "successful" experimenters were accomplices (indeed, they were two committee members of Australian Skeptics and the chairman's daughter). Even the most dedicated believers should have been sceptical of such results.

The only unusual result was that the NSW chairman obtained an unplanned score of 0. This will no doubt be seen as proof positive of the closed mind of a dedicated Skeptic. After an interval, Bob conducted a demonstration of "psychic surgery".

During question time Bob frequently clashed with Mr Turnbull. It became apparent that true believers have a strong resistance to being disabused of their beliefs. One gentleman referred to a "mystic" who had studied in China and who could, by "internal conceptualisation" break a chopstick with a piece of paper. Bob demonstrated this trick, using a pencil in

the absence of a chopstick, but the gentleman was not convinced. Kent Blackmore, a Sydney magician, revealed that the "mystic" referred to was in fact a member of his magic club, and that, far from claiming to be psychic, would "be horrified to think that his magic was being used to support psychic claims".

While in Sydney Bob also appeared on John Singleton's radio 2KY programme, and made a telephone interview with Radio 3UL at Warrugal, a Victorian country station.

Bob flew back to Melbourne on Wednesday, May 23, where he had more time to relax. He attended a magicians' meeting, gave media interviews to the *Australasian Post*, *TV Week* and the *Adelaide News*, visited a top medical administrator to discuss health fraud problems and returned to Monash University.

Bob's second appearance at Monash University was at a special Staff Colloquium in the Department of Psychology, titled "Hoaxing and belief in the paranormal".

Bob gave an account of his Australian visit and expanded on a number of points from his United States lecturing experiences. He performed several tricks, one an ESP trick using the Zenner cards. While the distribution of most scores followed the normal curve, three scores were way above chance expectation. As with the Sydney meeting, the explanation was collusion. Several instances of misdirected attention were discussed and followed by a most impressive misdirected disappearing silk.

The audience consisted of some fifty staff members and graduate and honours students who discussed the problems of using hoaxing in this way in a very lively manner. Both the student paper, *Lot's Wife*, and the official university paper, *Monash Reporter*, reported on the hoax. After several more media appearances, Bob returned to the USA with our deep gratitude.

Project Hook's Final Catch - AIPR

Vol 4, No 3

Mark Plummer

A major aim of project Hook was to catch Australian believers by showing they would support Terbot's claims to be psychic and/or they were ignorant of the magical tricks, psychological ploys and the deceptions used by some psychics.

After the hoax was revealed Dr Michael Hough,

the Secretary of the Australian Institute of Psychic Research (AIPR) sent us a draft copy of an article for their *Bulletin* titled "Skeptics' Terbot Hoax - AIPR not hooked". We were delighted to read that the AIPR had indeed been hooked by Bob Steiner's post expose presentation.

One of the tricks used by Steve Terbot/Bob Steiner at his public meetings to demonstrate "telepathy" was to affix an envelope containing a line of words in a prominent position. He then held up a newspaper clipping and a pair of scissors and invited a person in the audience selected at random to tell him where to cut the clipping. The person tells Steve to move the scissors up or down and then to cut at a position decided by the person. Steve Terbot makes the cut and the cut off portion drops to the floor. The top line from this cut off portion is read by the person and is found to match the words in the envelope. Amazing.

It is a magical trick involving the sort of deception used by Geller and others. It is performed by James Randi and other magicians including our magic consultant. Even some Skeptics, after considerable practice have been able to master the trick.

Dr Hough stated in his draft that "Bob switched clippings while the person was coming on stage. This trick is never used by psychics." I suggested to Dr Hough that he change it to "I believe Bob switched..."

We can assure Dr Hough that Bob did not change the clippings. In the first issue of the AIPR Bulletin a description is given of magical tricks performed by Glen Falkenstein. The article states that Glen Falkenstein has ESP ability. At least one of the tricks described can be found in many books on magic.

Randi has written to Dr Hough telling him to forget any notion that Falkenstein claims any psychic powers. Randi says Falkenstein is the best of today's performers in his field but is just that alone. In explaining the newspaper clipping trick as involving "switching" and Falkenstein's tricks as ESP ability the AIPR has demonstrated an ignorance of the fundamental principles of magic deception and psychological ploys.

Until the AIPR is prepared to try and understand magic and the precepts of deception their psychic research is worthless and they are wide open for any trickster, "clairvoyant" or "psychic" to convince them that they have psychic powers.

Dr Hough's other amazing assertion is "This trick is never used by psychics". As no person anywhere in the world has ever scientifically proved that he/she is a genuine psychic it is quite true that the newspaper clipping trick or any other trick is never used by genuine psychics.

Dr Hough made a fateful assumption when writing his article on Project Hook - that the project was finished. In fact he became its final catch.

Philosophy of Scepticism

Vol 5, No 1

Peter Woolcock

Occasionally, correspondents with *the Skeptic* tell us that they have witnessed 'genuine' cases of paranormal activities. In this article I wish to give the general argument as to why anyone, let alone a Skeptic, should treat one-off cases of the supposed paranormal with extreme caution.

David Hume, in the 18th Century, put up the classical sceptical argument against a ready acceptance of the occurrence of exceptions to our well-established beliefs about how things happen (Hume, 1976). He aimed his arguments at miracles rather than pseudoscience, but they have equal force against both. Suppose there are certain relationships we have discovered that have always held so far between two events when these events occur under controlled conditions - eg when we let go of a heavy object (event 1) it falls (event 2), unless it is a living creature with wings.

Suppose that we know of lots of occasions when this relationship would have been broken if it was physically possible for it to be broken. For example, suppose a wingless animal like a pig would have escaped certain death by flying away if it could have flown.

The fact that pigs never escape death or injury by flying is overwhelming evidence that they can't fly. Suppose, further, that whenever we investigate supposed cases of pigs flying the great majority of these turn out to be either frauds or mistakes, whereas the remainder occur under such circumstances that it just so happens that we can't get them to happen again given suitable checks and controls.

Suppose, lastly, that whenever we set up adequately controlled test situations where this relationship would be broken if it could be, then it never gets broken. When these four conditions are met, we have what Hume calls a "law of nature". *Pigs can't fly* is a law of nature.

All of physics and chemistry is based on laws of

nature. Science, however, is not the only place we find laws of nature. We use them all the time in everyday life. They are the assumptions about how our world works that explain why we behave as we do. Consider the examples given by Anthony Flew:

"If, for instance, official secret information gets out from a government office, then the security people try to think of every possible channel of leakage: and what never appears on the check lists of such persons is psi-gamma. When similarly there has been an explosion in a power station or other industrial plant, then the investigators move in. At no stage will they entertain any suggestion that no-one and nothing touched anything, that the explosion was triggered by some conscious or unconscious exercise of psi-kappa." (Flew, 1980,)

Things like psi-gamma, ie knowledge obtained by extra-sensory means, or psi-kappa, that is movement caused by mental means, are cases of exceptions to laws of nature. The crux of Hume's argument against miracles (or pseudoscience) is that the weight of evidence in favour of a law of nature is so strong that it is always far more likely that there has been fraud or error than that there has been an exception to a law - especially if the conditions under which the supposed exception has occurred were less rigorously controlled than those that were used to establish the law of nature.

This doesn't mean that scientists can't think something to be a law of nature, then later turn out to be mistaken. Hume merely requires that the evidence that there had been an exception to a law of nature be at least as strong as the evidence for the law. As we only treat something as a law of nature if the evidence for it is enormously strong, then the evidence for an exception must also be enormously strong. Scientists are right to doubt that an experiment has overturned a law of nature until public repetition of the experiment by a number of scientists has ruled out the possibility of cheating or error, which will only be done if the experiments by those other scientists are properly controlled.

How does all this apply to mediums and Tarot cards? The nearly universal experience of people is that they cannot contact the dead or know their own future. This meets the first condition I outlined earlier. Most of us know the kinds of cases where, if mediums or Tarot card readers have the powers they claim, then they would have used them if they could - eg situations which could have saved their own lives, or those of the friends or families, or would have made them rich, or whatever. We can all be confident that mediums or Tarot readers have no more success in these crucial

test situations than the rest of us.

We also know that investigation into the claims of mediums and Tarot readers frequently result in cases of fraud or error. Finally, we know that neither are successful in scientifically well-controlled tests. (Scientists working in the area, such as psychologists, do not agree on any well-confirmed results - unlike scientists in other areas, such as physicists.)

All of this leads to the conclusion that the overwhelming likelihood in individual cases of mediumship or Tarot reading is that they can be explained within our known laws of nature, and are either cases of fraud or cases where both audience and performer deceive themselves about what is going on.

To turn up to a scientifically uncontrolled or supervised situation and expect to be able to detect fraud or unconscious manipulation and selection is to have far too high an opinion of one's own powers. The untrained observer in conditions replete with uncontrolled variables is no competition when lined up against a professional performer.

John Taylor, Targ and Puthoff, and other highly qualified physicists have been conned by Uri Geller or his imitators because they have assumed their expertise as physicists gives them special protection against the tricks of conjurors. As James Randi insists, however, mere high intelligence and tertiary education do not prevent people being the dupes of professional flummery.

What is needed is the skill of the professional magician and the training of the psychologist, exercised preferably under controlled conditions. The last thing we, as Skeptics, should do is assume that we are the exceptions to the numerous victims of the expert tricksters. In particular, we shouldn't do this when what they claim to be able to do is contrary to the huge burden of evidence in favour of the laws of nature, and we have observed these supposed exceptions in situations with far less adequate controls over manipulation than the ones that have established the laws of nature.

A little humility, please!

References

- Flew, A. "Parapsychology: science or pseudoscience?" in Hanen, M.P. et al, Science, pseudoscience and society. Wilfred Laurier University Press, 1980.
- Hume, D. Dialogues concerning natural religion and The natural history of religion. Colver, A.W. and Price, J.V. (eds). Clarendon Press, 1975.

A Qualified Professional Scientist?

Vol 5, No. 3

Anthony G Wheeler

In the rhetoric between creation scientists and proevolutionists, I repeatedly find criticism of the other side on the basis of someone not being a "professional scientist", or not being a "properly qualified scientist". It seems to me that too much is made of these criticisms, especially by pro-evolutionists.

Science is not a profession as such in that there is no organising body enforcing a standard of conduct, approving training courses, and maintaining a register of approved practitioners. In this sense science differs markedly from professions such as medicine, dentistry, veterinary science or nursing. We may consider the distinction of a professional as being one of remuneration: a professional working at science for his salary as opposed to an amateur indulging a hobby. However, this distinction would exclude many amateurs who have made valuable contributions, both as spare-time hobbyists and independently wealthy full-timers in observational sciences like astronomy. Charles Darwin himself was a gentlemen scientist, as he did not work at science in return for a salary. Accordingly I would suggest that it is wrong to judge a scientist's statements and opinions according to whether he is paid for working at science, or purely as an amateur.

Next we can consider qualifications. Here I find it more difficult, since I work in the Physiology section of a university department in which very few people (myself included) would consider themselves "physiologists". The courses that the staff originally took as university undergraduate students do not restrict the area of science in which they eventually work. Certainly I know more about those areas of science in which I took courses as an undergraduate student, and the areas in which I read articles in journals such as *Scientific American*. Thus I am better equipped to say something useful on these areas than others outside my interests. I am also familiar with the theory and practical difficulties of experimentation in the areas of science in which I teach. Yet I am best qualified to talk on those areas that I know in greatest detail due to being actively engaged in research.

So the confidence with which I can speak, and the authority which my opinions should be awarded, vary greatly from subject to subject according to the variation in breadth and depth of my knowledge. The best indications to any third person of those areas on which I am most able to speak authoritatively, are probably the lists of courses that I have taken, subjects

that I have taught (and how recently), and areas in which I have published research papers. Nevertheless, these criteria are only a guide to my past; my research and teaching responsibilities change and invariably require that I acquire new knowledge and expertise that are not yet reflected in these criteria.

As a result I believe that it is a mistake to dismiss anyone's opinion with the comment that "he is just an anatomist" without being fully aware of that person's depth of knowledge and expertise. Instead I would rather see a rational criticism of the *opinion*, not of the *speaker*.

ESP and Australian Students

Vol 5, No 4 Ken White, Anne Moores, Lyndall Jones and Tony Fogarty, Department of Psychology, University of Queensland.

A recent report in *The Australian* (September 28-29, 1985) that Prince Charles is trying to contact his assassinated uncle Lord Louis Mountbatten via a ouija board, once again focuses popular interest on the spirit world. It may also be the beginning of a range of occult accoutrements that are "by Royal Appointment".

Just what is the extent of popular belief in the supernatural? In Great Britain a few years ago, the popular periodical *New Scientist* conducted a survey into readers' attitudes toward parapsychology. The results, later reported by Evans (1973), were, to say the least, surprising: 350 or 25% of those who returned the questionnaire held ESP to be an established fact, while a further 590 or 42% saw it as a likely possibility. In terms of the dichotomy introduced by Schmeidler and McConnell (1959) of sheep (believers in ESP) and goats (hard line sceptics) almost 70% of the group were sheep; and this, surprisingly, from a reader sample 63% of whom had degrees.

In their 1980 book "The Psychology of the Psychic", New Zealanders Marks and Kammann report that among their undergraduate students 80% believed in mental telepathy, over 50% believed in astral travelling, and almost a third claimed to have personal psychic powers.

These results parallel those reported in the United States where Kendrick Frazier, editor of the *Skeptical Inquirer*, reported findings from a recent (1984)

Gallup youth survey. When compared to earlier 1978 figures, it was found that among teenagers, belief in astrology had increased from 40% to 55% while belief in ESP had decreased slightly from 67% to 59%.

The present report presents some preliminary findings that relate to belief in ESP and astrology among Australian undergraduate students. Results come from a series of studies that have been conducted by graduate psychology students at the University of Queensland. Over 1000 enrol each year in our introductory psychology courses. As all major faculties are involved we have been able to test a representative group of undergraduate students. Throughout all the testing, questionnaires were anonymously filled in to help obtain truthful answers.

In the first study TF reused Nixon's (1925) questionnaire to measure the opinions of 331 students. Among the 27 items, two are of interest. To an ESP type statement, "if you stare at a person's back you can make him turn around, this is a form of telepathy" 125 or 37.8% agreed while the remainder 62.2% disagreed. And to the proposition "people born under the influence of certain planets show the influence in their character", 115 or 34.7% agreed.

Tobacyk's (1983) questionnaire was given by AM to 340 students, and confirmed the existence of similar belief patterns to those found in the USA. Answers to two items are of interest. To the statement "your mind or soul can leave your body and travel (astral projection)" 34% agreed, with 36% being undecided and 30% disagreeing. To an ESP item "some people have the ability to predict the future" a surprising 58% agreed, 16% disagreed, with the remaining 26% being undecided.

In the final study LJ asked 652 students to evaluate 31 paranormal phenomena on a "strength of evidence scale" that ranged from very strong to non-existent. Once again results were startling. Acupuncture, not withstanding the continuing controversy over its specific therapeutic value (see Skrabanek, 1984) was seen as having the strongest supportive evidence, 84.5%. Only 7.7% viewed the evidence as being weak or non-existent. Creationism too, provided interesting figures: 34% see the evidence as strong or very strong, 41% see it as weak or non-existent, while 24% don't know. For ESP the evidence was seen as being strong to very strong by 51%, with only 31% seeing it as weak or non-existent.

Taken together these figures suggest that young Australian adults have the same beliefs as their overseas counterparts. There is obviously widespread belief in paranormal phenomena and an acceptance of the evidence for, and the reality of, ESP.

References

- Evans, C.E. (1973) "Parapsychology - What the Questionnaire Revealed". *New Scientist*, 57(830), 209
- Frazier, K.F. (1985) "Gallup Youth Poll Finds High Belief in ESP, Astrology". *Skeptical Inquirer*, 9,113-115
- Marks, D. and Kammann, R. (1980) *The Psychology of the Psychic*. New York: Prometheus
- Nixon, H.K (1925) "Some Popular Answers to Some Psychological Questions". *American Journal of Psychology*, 36,418-423
- Schmeidler, G. and McConnell, R. (1958) "ESP and Personality Patterns". New Haven: Yale University Press
- Skrabanek P. (1984) "Acupuncture and the Age of Unreason". *Lancet* May 26,1169-1171
- Tobacyk J. and Milford, G. (1983) "Belief in Paranormal Phenomena: Assessment Instrument Development and Implications for Personality Functioning". *Journal of Personality and Social Psychology*, 44, 1029-1037.

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Introduction

It has been shown that practising meditation can be useful in reducing stress levels, and this is a relatively uncontroversial claim.

The same cannot be said for the particular version of it known as Transcendental Meditation, the invention of Indian guru Maharishi Mahesh Yogi. In this form, the meditation contains more than a hint of Hindu religious beliefs, a fact not overtly promoted, by its adherents.

Transcendental Meditation is widely promoted and has made some remarkable claims, among which are the ability to levitate, invisibility and a reduction in crime rates. There is no reason to believe any of these claims, and the proponents of TM steadfastly decline to submit their claims to independent testing.

In more recent times, the TM movement has sought to enter the political arena in many countries, with a distinct lack of success.

Australian Skeptics has, since its inception pressed TM to supply evidence for its outrageous claims and will continue to do so.

Are Meditators Levitators?

Vol 1, No 2

Mark Plummer

Occasionally the media carries reports of practitioners of Transcendental Meditation (TM) claiming the ability to levitate or fly. As such a power would go against the existing laws of physics, it is a paranormal claim well worthy of investigation. Such a power would have widespread uses in the community by eliminating lifts in buildings and making the washing of skyscraper windows easier.

First, a restatement of the claims made by TM practitioners:

* In April 1978, Vince Betar gave the Melbourne Age photos which he claimed showed himself levitating. He declined to be photographed by an Age photographer.

* TM teacher Mr Colin Barnes told the Melbourne Sun in April 1978 that levitation was being practised by about 15 TM teachers. "I know it must sound incredible to people", Mr Barnes was reported as saying, "but it happens. I fly twice a day. I flew this morning and it was really good. It is always good. Sometimes it is overpoweringly blissful. The feeling is really light and airy. Like weightlessness. Yet other times it is like taking off - like someone has given you a boot. It is very easy. Sometimes I can be flying within a few minutes of levitating. It really takes no effort."

Mr Barnes said some levitators went up and down on the spot, while others went forward across the room occasionally touching down and rising again. Mr Barnes said it was definitely not imagination, as they often watched each other fly. He indicated that some levitators rose about two feet off the ground.

* Chris Porteous of the Mona Vale TM Centre in New South Wales is quoted in *Sydney* (April 30, 1978) as saying "Levitation is the first stage of

hopping. You sort of move in hopping actions. It is a very joyful process and most exhilarating... Yes, I can fly" Mr Porteous said he would be able to become invisible after further courses.

* In 1979, NSW practitioner Alan Parkinson discussed flying. He claimed that the force of gravity has been overcome through Transcendental Meditation. He stated that the matter had been scientifically explained by many scientists throughout the world, including John Price, Senior lecturer in Mathematics of the University of NSW.

Parkinson claimed that in scientific laboratories, pieces of metal have been suspended in air by the effect of electrical 'waves'. Parkinson said "we humans also radiate brain waves." These can be detected, recorded and measured by the "Electroencephalograph" (sic). "And the waves are used to enable us to fly."

* In 1980, the new year was greeted by TMers organising their first nationwide meditation session on January 12. Practitioners stated in the *Age* that "when their technique is going well they rise from the ground and float in the air." "First comes a feeling of lightness... Then with experience comes 'hopping' - a brief rise from the floor and back... Adepts manage hovering and levitation." A side effect of this session, according to practitioners, would be the "harmony and orderliness" which could sweep the land when the nationwide session started.

* In March 1980, the *Weekend Australian* devoted a full page to Dr John Price headed *The Rising Art of Levitation*. The article said Dr Price has a regular early morning "fly". Price described a flying session: "I felt a tremendous burst of energy go through me and my spine seemed to be a cylinder of white light.. Then my body moved up and down two or three times... The next experience was my body touching the floor very, very softly. I moved about two metres at that time."

According to Dr Price, levitators have been seen to lift effortlessly off the ground in spontaneous forward ballistic motion or two or more metres. This was often accompanied by shaking of the body, fast breathing and a feeling of lightness.

* The most recent to testify was Neil Phillips, who told the Brisbane *Courier Mail* (June 19, 1981) that athletes at next year's Commonwealth Games might be able to lift their performance by trying a 'flying' course in TM. Mr Phillips believes the first step to help athletes achieve their peak is to teach them the first stage of the Siddha "flying technique". This involved "hopping" in a cross-legged position on a thick rubber mat. The ultimate in the technique is

"lifting off and hovering as well."

In May 1980, Australia's top TMer, Dr Byron Rigby, stated on the ABC *Science Show* that he personally levitated twice daily, in the form of hops lasting about a quarter of one second. Dr Rigby also stated that "we open ourselves to every kind of investigation."

The Australian Skeptics took up his offer, and Secretary James Gerrand responded on March 31, 1981, writing:

"To examine your ability to control paranormally the force of gravity through the exercise of levitation, we would anticipate using various scientific measurement tools which could include video-tape machines to record the phenomena, laser equipment to measure displacement and sensitive weighing machines to measure the force of gravity."

Dr Rigby wrote back on April 16, 1981: "Levitation", as you call it, is not the central issue in the TM Sidhi program, nor is it a claim made in the teaching of the TM Sidhi procedures. If it turns out, as the ancient literature states, that the 'flying' technique can enable people to lift for a sustained period, then I will be as interested and intrigued as you... From your letter it seems there is a need to review my remarks indeed, not one of the statements or 'claims' you attribute to me is true."

The ABC *Science Show* tape was checked again, and we again wrote (May 4) to Rigby, stating: "Our Committee is astonished that you disavow the claims you made in your public radio interview that you personally levitated twice a day... Our Committee now asks you to publicly retract your organisation's claims to levitate. If there were members of your organisation who claim to levitate such as... Betar we would wish to investigate such claims..."

Between the time Mr Gerrand sent his first letter and the reply from Dr Rigby was received, a Sydney Skeptic checked the Corporate Affairs record of the parent body of TM, "The World Plan Executive Council", to find that the organisation had sent \$587,960 to their Administrative Centre in Europe between July 1, 1976, and September 30, 1978. Bearing in mind Dr Rigby's unqualified statement "We open ourselves to every kind of investigation", Mr Gerrand's second letter also indicated that we would like to investigate the exact purpose to which monies sent from Australia to Europe are put.

We have not received a reply from Dr Rigby as at publication.

We do have other sources about levitation besides those of practising TMers.

* In 1979 the New Zealand *Consumers* magazine

told the sad story of Mrs Shirley Koszti, a widowed paraplegic for twenty years. In 1977 she received a pamphlet published by TM in New Zealand advertising the Sidhi course. According to the pamphlet, those who master the Sidhis can levitate and fly. Mrs Koszti paid over \$5000 to the organisation, but is still unable to fly.

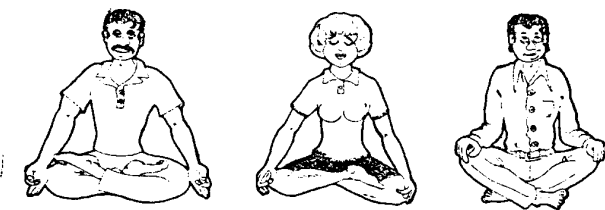
* From England comes the story of five former TMers who spent over \$60,000 on the Sidhi courses. One of them, Mrs Linda Pearce, stated: "It was nonsense. We were all completely taken in. We only taught people to hop around like frogs. No-one ever learnt to fly. You get into a room with springy rubber mats, then you meditate in the squatting position. Then you chant at one another and bounce up and down on the mats. With practice you can get several feet off the ground, but there is no way you can describe it as flying."

A Mr Proctor from Leeds stated that "I've watched hundreds of so-called flying experts, but not once could hover in the air, even for a split second. All they do is bounce and scream with contorted faces in a kind of religious fervour."

Robert McCutcheon, personal secretary for four years to the head of TM, the Maharishi, has testified that levitation consists on sitting on eight to twelve inches of foam rubber and then jerking the body in such a way as to produce a hopping movement. He said that to date no-one has defied the laws of gravity.

With any paranormal claim, the burden of proof is always on the claimant. The photographs of "levitation" produced by practitioners are quite consistent with a hopping movement which could easily be mastered by anyone.

However much TM practitioners wish to prove correct ancient Vedic scriptures which mention flying, their refusal to allow the press to photograph the phenomenon or to allow proper independent scientific scrutiny, together with the statements of explanations, leads to the conclusion that the claim of TMers to levitate is unproven.



Rigby, Osborne Challenged

Vol 1, No 3

James Gerrand

On July 30, 1981, the Melbourne Age published Dr Byron Rigby's claim that TM could make you younger. On July 31, the Melbourne Sun reported that Dr Charles Osborne had stated he had a horseshoe bent by a boy of 15 who was possessed of psychic powers. Both articles publicised forthcoming public lectures to be given by Osborne and Rigby on Thursday, August 6.

The Australian Skeptics had a busy time on that day. At midday we publicly challenged Dr Charles Osborne "to permit the horse-shoe and the boy to be examined by an independent panel of experts who will pledge not to reveal the identity of the boy." Then, that evening, we publicly challenged Dr Byron Rigby "to advise details, including references, of the reported research findings," that "people who have been meditating for a long time can show a biological age up to 12 years younger than their natural age."

Both these challenges were issued personally to these gentlemen by me at the public meetings. We report as follows:

Dr Charles Osborne on "ESP": Public Extension Lecture, Caulfield Inst of Technology

This midday meeting would have been most disappointing to anyone who wished to be told of convincing results from research on ESP carried out by Dr Osborne for the Institute. Dr Osborne, who has a PhD in physics from Monash University, firstly explained that his work was in the field of general ESP, which included telepathy, clairvoyance and psychokinesis. He was not concerned with reincarnation, psychic surgery, astrology or UFOs.

Dr Osborne not only had no results for his audience, but he took personal blame for the bad design of his experiments with his "psychic children". The publicly announced results of these experiments - metal bending, etc - had been challenged by American Skeptic and magician James Randi during his Australian 1980 tour.

Dr Osborne stated the fault in the design was in allowing the children to dictate whether their claimed powers could be examined or not. He also reported that he had closed down his Premonition Unit because, after five years in operation, he had insufficient positive results to justify its continuance.

The public extension lecture was also disappointing to those expecting a standard of

demonstration worthy of a major tertiary institute. Dr Osborne had some difficulty in presenting a computer-programmed display to demonstrate a method of testing the possible use of psychic powers to influence the position of a symbol on a video screen. It seemed the wrong computer programme had been chosen. Then Dr Osborne showed a very poor-quality video tape of an overseas demonstration of claimed metal bending. Even if the tape had been of good quality, such a record is meaningless unless full details are available as to what checks against fraud, etc, were carried out at the time. Even so, film and tape can be so readily manipulated after the event that its use is not convincing.

Dr Byron Rigby on "TM and the TM-Sidhi program": Dallas Brooks Hall

Some 200 people, mainly elderly, attended this evening meeting, many no doubt attracted by the uncritical build-up given by the Melbourne Age a week before.

Unlike the Caulfield lecture, there could be no complaint about the presentation. It was carried out with smooth precision, as befits an organisation owing much of its success to the application of American "snake-oil" selling brought up to date. There was plenty of free TM literature on tables in the hall lobby, glowing portraits of the Maharishi in the hall to inspire, and flowers in abundance for a relaxing ambiance.

Fittingly, an American introduced Dr Rigby, whose credibility is much enhanced by his being a qualified psychiatrist. However, there was no mention of Rigby being the World Minister for Health and Immortality, or of his possessing powers of levitation. Possibly the expose of TM by Philip Adams in *The Bulletin*, and also our Skeptics' challenge to investigate his claim to levitate, may have produced caution in these areas.

After some introductory remarks about how wonderful TM is, Dr Rigby showed slides ostensibly showing a causal relationship between the number of TM practitioners in a city and its crime rate. These figures have been shown to be false by the American Skeptics.

This was followed by a further set of slides to demonstrate the main sales pitch of the evening namely, that a course of TM could rejuvenate. If this were shown to be scientifically true, then your Secretary would be one of the first to queue up for the \$150 TM course! Sadly, I was unconvinced by the slides which, whilst showing plausible graphs, did not indicate where, when, and by whom the research was carried out.

The Australian Skeptics have challenged Dr Rigby to produce the factual evidence to support these claims. We have also challenged Dr Osborne to produce his horse-shoe bending boy. There has been no response to date.

Some Notes on TM

Vol 1, No 3

Mark Plummer

In 1976, Australian newspapers announced that Mt Isa had been chosen as the proving ground for the first major investigation of the effect of TM on the community. The TM Society said there may be significant and easily measured effects on the crime, hospital and health rates in Mt Isa when 1% of the townspeople were practising TM. Dr Paul Wilson, a noted Australian criminologist and Reader in Sociology at the University of Queensland, was quoted (September 18, 1976) as supervising the experiment. The newspaper article stated that at least two similar overseas studies had shown improvements in the communities, such as falling crime rates.

Australian Skeptics wrote to Dr Wilson and he replied (June 15, 1981):

"The evaluation was never completed as the TM people pulled out of Mt Isa, for reasons which are still not apparent to me. Incidentally, I have not approved of the two crime studies mentioned in the newspaper article. I quoted the fact that they had been done but quite frankly their data base and results are very shaky. The case for TM reducing crime, mental illness or whatever in any community remains completely unproven."

TM's Novel Defence Plan

Dr Byron Rigby, MB, BS, MRC Psych, World Minister for Health and Immortality, has announced a novel scheme for Australia's defence. According to an article in the *Sydney Morning Herald*, Dr Rigby said that groups of 500 transcendental meditators based on Australia's East and West coasts, could protect us from nuclear attack. Dr Rigby asserted that their collective brainwaves, every morning and evening would keep the Russians at bay. At a pinch, 360 meditators would provide good cover but 500 is good insurance according to the World Minister. TM sent a submission to politicians, but it is not

known if the Defence Department has shown the same enthusiasm for TM as the Health Department.

Australian Skeptics would like to test Dr Rigby's scheme, but we are a little short of nuclear missiles at present.

TM and Crime

Dr Tony Vinson, Chairman of the NSW Corrective Services Commission, is reported in the *Sydney Morning Herald* (August 20, 1981) as believing that TM is "worth a try" as a means of rehabilitating prisoners. Australian Skeptics has written to Dr Vinson asking him what scientific evidence there is to show that TM is valuable in the rehabilitation of prisoners. We also wonder if he is aware that TM practitioners claim to be able to become invisible and to levitate and what effect these abilities would have on the escape rate from NSW prisons?

TM and Medical Benefits

In the Federal Parliament, Australian Skeptic and Member of Parliament for Prospect, Dr Dick Klugman, asked Mr Michael MacKellar, Minister for Health, a question on notice on June 5, 1981:

- "1. Are medical benefits paid for professional attendance consisting of exercises in Transcendental Meditation?
2. If so, on what basis did his Department decide that TM is a medical service?"

Mr MacKellar replied as follows:

1 & 2. "No. However, if TM was prescribed as a relaxation technique by a medical practitioner during the course of a professional attendance, benefits would be payable for that attendance under the appropriate consultation item. In this situation, the benefits are payable on the grounds that there is a physical attendance by a legally qualified medical practitioner upon the patient.

The fact that benefits are payable for an attendance at which transcendental meditation is prescribed could not be construed as an indication of support for the practice. As medical benefits are attracted for consultations by legally qualified medical practitioners, it would be neither practical nor desirable to attempt to restrict the way in which doctors choose to conduct their consultations. I also might mention that a request for a specific Medical Benefit Schedule item for transcendental meditation was rejected."

Professor Keen on Levitation

Vol 5, No 2

Mark Plummer

Late last year (1984) Sydney University physics professor, Brian McCusker, was reported in the *University of Sydney News* as stating that "The Transcendental Meditation (TM) people do teach levitation; but not just to levitate; they teach it as part of their meditative programme of yoga sutra. When you do one of these sutras, you go up".

He repeated this claim on ABC Radio in January and added there was a course currently being run in Sydney with a 90% pass rate. He went on to say that people do not accept it, not because the evidence is bad, but because their own belief system is too rigid. He said scientists wouldn't go to do the course themselves. Professor McCusker displays a set of photographs on his office wall of Transcendental Meditators supposedly levitating with the caption "A problem in modern physics".

I have long had an interest in claims of levitation and the second issue of the Skeptic had a long article on the topic. The article set out claims that had been made by 'levitators' in the media, then followed comments by ex-meditators stating that the so-called levitation was nothing more than sitting cross-legged, then jumping in the air and coming down immediately. This is no problem for modern physics - muscle force of the legs against the ground provides the upward acceleration and gravity the downward.

We also published a letter from Dr Byron Rigby, a Sydney psychiatrist who leads the TM movement in Australia, replying to our request to test his levitation claim. Dr Rigby is described in TM literature as "The Rt Hon Byron Rigby, Chief Minister of Health and Immortality in the World Movement". The "Rt Hon" Byron Rigby stated quite clearly in this 1981 letter that levitation was not a claim made in the teaching of TM and "if it turns out ... that the 'flying' technique can enable people to lift off for a sustained period, then I would be as interested and intrigued as you".

I wrote to Prof McCusker on January 17, and asked him:

- (a) for details of the organisation running the levitation courses in Sydney;
- (b) if he himself had witnessed levitation;
- (c) if he would be prepared to use his good offices to arrange for scientists from Australian Skeptics to observe and measure levitation.

I wrote a similar letter on January 29, again asking for clarification on the levitation courses and

waited for two months without a reply. I sent a final letter on March 25, which was also unanswered. When I told journalist, Heather Kennedy, the whole story she checked with Prof McCusker, who stated that he had no interest in answering claims made by me.

The *claims* were made by Prof McCusker, not by me. As a scientist, Prof McCusker has used national radio to make his amazing claims about levitation, in which he attacked other scientists for not wanting to observe levitation. Prof McCusker has an obligation to clear this matter up.

Prof McCusker will be speaking at Deakin University on September 11 (1985) on "The Nature of Reality". We will hand out copies of this article at his lecture and ask him publicly to answer two simple questions:

1. What is the name and address of the Sydney organisation he referred to on ABC Radio that was teaching levitation in late 1984?
2. Has he ever personally witnessed the levitation of people at this organisation?

We will forward a copy of this article to Prof McCusker before the lecture. We also undertake that, within two weeks of him giving us the name and address of the organisation teaching levitation, we will have a dozen scientists from Australian Skeptics observe and measure levitation to show that scientists are indeed interested in such claims. The results of any such investigations will be published in *the Skeptic*.

Prof McCusker Challenged at Deakin University

Vol 5, No 3

James Gerrand

Professor Brian McCusker was challenged at his public lecture at Deakin University on Wednesday night, September 11 1 (1985). The retired Professor of Physics from Sydney University was asked by me at question time to substantiate his claims made on ABC radio and in the press that there was a course on levitation being run in Sydney with a 90% success rate.

A party of Australian Skeptics, which included National President Mark Plummer and Editor of the *the Skeptic* Anne Tuohy, attended the lecture titled

"The failure of realism and the future of science". At the meeting, attended by some 300, we distributed a leaflet setting out the basis for our challenge. This basis was set out in Mark Plummer's article "Physics Professor keen on levitation" in the last issue of *the Skeptic*. Our Skeptics' objective was to get McCusker to confirm to us his above public statements and advise the name of the organisation which taught levitation so we could scientifically investigate the levitation claims.

It was curious and/or significant that in his lecture McCusker made no mention of levitation. He started by describing how modern science had started in the 16th century with such scientists as Kepler, Galileo and Newton. But Newton, according to McCusker, at 25 had turned from his material physics to theology, writing more on this latter interest than the former. McCusker complained that this latter deist interest and output was ignored by our materialist society. On his application to science my "Everyman's Encyclopaedia" reports Newton writing his, and probably science's, most important work, "Principia Mathematica", at the age of 42. At age 61 he was elected president of the Royal Society, being reelected annually until his death at 85. At age 62 he published his "Optics", provoking a dispute with Leibnitz over priority of scientific discovery. These highlights of Newton's career after 25 hardly suggest a person more concerned with theology than science. As regards posterity's neglect of Newton's theological output, the short and simple answer is that his science has been most relevant to our modern civilisation and his theology largely irrelevant.

McCusker then talked interestingly of modern physics, particularly how Planck with his quantum theory, Einstein with his relativity theory, Schrodinger with his wave mechanics and Heisenberg with his uncertainty principle, had moved physics increasingly away from Newtonian physics. In particular McCusker considered the uncertainty principle meant that realism could no longer be regarded as a basis for science. My comment here is while Newtonian physics has been found to need revision when we reach the outer physical limits say of speed, yet for our normal existence the Newtonian laws are "right on". In the same way in such extremes the nature of realism may change but with our every-day problems, whether they be personal, community or global, the science of realism is very valid if we wish to secure solutions.

McCusker then put forward his main thesis that what scientists have to do is to study not matter but ourselves. He then listed a number of writers, commencing with Freud, Adler and Jung and then

including Buddhism and other Eastern mysticism and finally recommending a modern writer, Ken Wilber, as his authority.

McCusker's theme was that there were 9 levels of consciousness: level one was matter, two was life, three was human consciousness, four was the discovery of our ego, and so on. If everybody took to this philosophy and reached towards the ninth level then all our problems - World War III, hunger, etc, would be solved.

I was disappointed that there was no real debate on this theme or indeed on his earlier propositions relating to reality. I would have liked someone in the audience to have pointed out that the gurus he mentioned, whilst some have been brilliant hypothesisers, have had little of their work validated. Even the work of possibly the most brilliant, Freud, is now being increasingly discredited.

The danger is that if the community, largely poorly educated in an understanding of science and in critical assessment, reads or hears of a Professor of Physics stating that levitation, a person rising off the ground through his mental not physical powers, is a fact then they will tend to believe and accept. It is the same simplistic acceptance that brought guru Jim Jones and his believers to end up in mass suicide in Guiana.

Oh, and how did Professor McCusker reply to many questions? He contended he had replied to our letters (perhaps literally true but he had not answered out requests for information) and anyway levitation occurred in many physical laboratories (but he made no mention of a class being taught in Sydney with 90% success).

I do not think many in the audience still believed that levitation was a proven fact at the end of the evening.

In the Beginning



Introduction

Does the Universe contain any intelligent, self-aware species other than Homo Sapiens? This question has generated a great deal of speculation, much of it sober and rational. The answer is that we do not know. We just do not have enough evidence to decide, although many would entertain the hope that we are not alone.

Is the Earth being visited by alien entities; have flying saucers crashed and have the bodies of their occupants been recovered; are we the subject of biological experiments by star-faring races? These questions, too, have been the subject of a great deal of speculation, much of which can be listed among the more freakish examples of human invention.

Again, the answer is that we just do not have sufficient evidence to decide, which does not stop believers from presenting their views as self-evident truths

Alien Honeycomb Tested

Vol 1, No 1

Mark Plummer

John Pinkney and Leonard Ryzman's recent book "Alien Honeycomb" describes the finding in Australia of "the first solid evidence of UFOs".

The book's preface and the press release state: "The UFO which exploded over a vast, desolate timber property in Queensland, scattered its intricate, eerily beautiful wreckage for several kilometres.

Most of the pieces were collected by officers from the RAAF which, without public announcement, immediately despatched the material to the Pentagon laboratories.

But some of the wreckage was received by private investigators - among them, the authors.

This book chronicles our search for the smashed building blocks of what must have been 'an aerial palace'. It reproduces the commentaries of eminent scientists, perplexed by material whose nature has defied their understanding; and summarises the research project in the United States, which shows that the wreckage contains 'unknowns'.

The gorgeous, hectically-coloured wreckage retrieved from Greenbank promises to yield up scientific secrets that should be shared by all mankind."

Their claim would only be substantiated by the fragments in their possession being confirmed as "exotic" by detailed scientific analysis. But the book does not contain any such analysis. "Commentaries of eminent scientists" turn out to be only transcripts of observations about the fragments made by anonymous scientists. These are at best subjective comments made on looking at and handling the material, and are not based on any thorough scientific testing.

According to the authors, the book "Summates the research project in the United States, which shows that the wreckage contains 'unknowns'". This comment seems to be only based on a quote from "Don", an engineer and "expert in aeronautics". Don turns out to be the person who originally prompted the author's investigations and search for the fragments, rather than an independent expert.

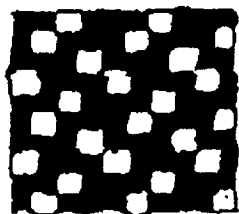
As Pinkney and Ryzman will only surrender their fragments to the United Nations, Australian Skeptics and Sydney multi-millionaire Dick Smith flew a researcher to Brisbane to trace the material and interview Mrs Fraser, the owner of the property where the fragments were found.

The researcher came back with several pieces of the material acquired from Mrs Fraser. These were then treated by Dr Hickle, Senior Lecturer of the School of Textile Technology at the University of New South Wales.

We reproduce his report:

"Both of the specimens submitted for test appear to have been involved in a fire at some time, and were covered in a carbonaceous matter.

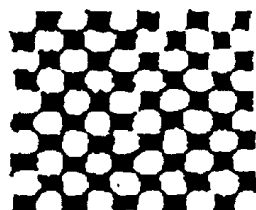
The flat specimen having on its surface a pattern of hexagons, consisted of three layers of similarly woven fabric, the weave pattern for which is:



"This is quite a common and well-known weave pattern called a 4-end sateen or 1/3 transposed twill. Whether the three layers of fabric in this specimen were originally separate or have become fused together as a result of the fire it is not possible to say.

"The so-called 'honeycomb-like' fabric came apart quite easily yielding layers of formed woven fabric, the weave pattern for which is:

"This weave is known as a plain weave, is the



simplest of all weave patterns and has been known for thousands of years.

"Yarns in both weaves were found to be multi

continuous filament ones. Elemental analysis of material in the filaments was carried out using a model ISI - 100A - Scanning Electron Microscope fitted with a model PGT System 2 Energy Dispersive X-ray Analyser.

"This analysis showed that the filaments consisted largely of silicon and calcium, with a medium amount of aluminium, a small amount of magnesium, trace amounts of iron and titanium and possibly very small traces of potassium, sulphur and chlorine. The elements identified and their proportions indicate that the material of the filaments of both fabrics is a glass similar in type to one commonly used in the manufacture of fibreglass. There were no unknown elements present in the materials examined.

Filaments extracted from the specimens were also examined using a Projectina projection microscope at a magnification x500 which showed that all of the filaments were circular in section and extremely regular. Filament diameter was found to be 6 micrometers, indicative of a quality of glass similar to that described as DE in the American Society for Testing Materials Standards ASTM D578-Standard Specification for Glass Fibre Yarns.

"Tests for chemical reactivity indicated the material was extremely resistant to the normal range of solvents, acids and alkalis, typical chemical behaviour of glasses. Again, temperature resistance of the material was high, filaments tending to glow in a Bunsen flame rather than burn or melt, behaviour again typical of glasses. Softening temperature of the material was about 850 degrees C, typical of E type fibreglass. Density of the material was not determined accurately. It was, however, greater than 2 g/cm³.

All of the above tests confirm the results obtained by SEM analysis, viz, the material is glass."

To summarise, Dr Hickle concluded that the materials submitted for analysis were woven fabrics in plain and sateen weaves and woven from multifilament fibreglass. They had obviously in a fire and were covered with carbonaceous matter.

Dr Hickle felt it was highly likely that individual layers of the plain woven fabric had been thermally set into the forms necessary to fabricate the "honeycomb-covered" material.

Fibreglass yarn has been manufactured in quantity in many countries throughout the world since production of commercial grades began in about 1938.

The Australian Skeptics understand that the United Nations General Assembly has yet to debate Messrs Pinkney and Ryzman's request for the UN to test and evaluate their samples of alien "honeycomb".

F- 111s Search for UFO

Vol 1, No 2

Mark Plummer

Police went to Gumdale near Brisbane, recently after a report that a "flying saucer" had terrified a young girl. Twenty other Gumdale residents supported the sighting and police took details from six of them. A check with Brisbane Airport revealed nothing "strange" had showed up on radar. The RAAF at Amberley air base was alerted and a flight of four F-111s on patrol searched for the object without success.

Now Constable Steve Foster of Cleveland Police has convinced authorities that the alien object was from England. Two youngsters in the area had each been sent a model hot air balloon by an elderly relative in England. The balloons were about 1.5m high with red, silver, gold and blue metallic film strips which reflected light. On a trial flight near Gumdale an anchoring string broke and a spirit burner whisked one of the balloons into the air over Gumdale Lights at dusk and people's imagination did the rest.

- *Daily Mirror*, (Sydney), April 13, 1981

UFO's and the RAAF

Vol 1, No 2 Mark Plummer

Some UFOlogists have accused the Royal Australian Air Force of covering up the evidence of UFO's. Australian Skeptics checked the RAAF's involvement with UFO's.

In Australia, the RAAF is responsible for the investigation of unusual aerial sighting reports. The responsibility was vested in the Air Force in the early 1950's when the Australian Government, in common with the United Kingdom and United States Governments, was concerned that UFOs, now called Unusual Aerial Sightings (UAS), might have posed a threat to the national security.

Following many years of investigation of sighting reports in Australia, the Minister for Air, Mr Osborne, made a statement to the Australian Parliament in October 1960 summarising the position. He stated "nothing that has arisen from that three or four percent of unexplained cases gives any firm support for the belief that interlopers from other places in this world or outside it have been visiting us".

Although according to the RAAF, Fred Osborne's

statement still holds true today, the RAAF continues to investigate reports of unusual aerial sightings as a service to the public. Each RAAF base in Australia has an officer responsible for the investigation of UAS. Under present arrangements, anyone who sees (or thinks he has seen) an aerial object which cannot be identified can contact the nearest RAAF base, or if this is not possible, the nearest Police Station. Reports received at RAAF bases are thoroughly investigated and the results sent to Department of Defence (Air Force Office) where they are checked and filed. The person making the original report is advised of the findings of the investigation, on request.

Although the UAS files are unclassified they are not made available to the general public in their complete form as many of the people submitting reports wish to remain anonymous. However a summary of the findings of any particular case can be made available on request. The RAAF thus claims it does not conceal facts about UAS and is prepared to release details of particular reported sightings to the general public on request. This assumes that the case has been reported and investigated by the RAAF in the first instance.

The onus therefore is on UFOlogists to produce the proof that the RAAF has covered up evidence on UFOs.

Book Review

Vol 1, No 2

James Gerrand

UFO's - Close Encounters of an Australian Kind.
Keith Basterfield, A H & A W Reed,

A feature of claims of the paranormal is their hothouse growth when there is no exposure to the cold climate of scepticism. Providing such an exposure is usually a time-consuming and demanding task.

Keith Basterfield has spent the past ten years in examining the Australian claims of sightings or other reported evidence of UFOs (Unidentified Flying Objects). Wherever possible he has visited the scenes and interviewed the reporters of the claims as part of his examination. His conclusion is that about 90% of the reports can be attributed to external phenomena, such as satellites, the planet Venus, aircraft, balloons, and fireworks, while about 9% occur within the mind. The residual 1% still awaits

a reasonable explanation requiring further scientific study and enlightenment.

Much of the lush growth of paranormal claims is produced by the fertilising bulldust of some of the media seeking their profit by stimulating sensational interest in their viewers/readers/listeners. Conversely the growth can be cut back by responsible journalism and it is pleasing to see good and prominent reviews of this book appearing in the Melbourne press. Such exposure is not only rewarding to Keith's years of effort but is only an indication that similar scientific investigation of claims in other areas of the paranormal, which is a main purpose of Australian Skeptics, can expect a responsible media treatment.

Such scientifically based investigation can not only provide further understanding of phenomena but also promote understanding of our own limitations. I recall a colleague and friend who was a Superintendent of Flying Operations when he reported not only seeing a UFO but also filming it. Tom was so much laughed at for this claim that his professional reputation suffered. If this book had been published prior to this claim Tom would have been appreciated that his mind may have misled him and also the scoffers would have realised that what Tom claimed to see was very real to Tom.

I commend Keith Basterfield and recommend his book as an excellent example of the Scientific Investigation of the Claims of the Paranormal.

UFO Mystery Solved

Vol 3, No 3

Mark Plummer

A "UFO" which gained extensive media coverage in Sydney recently has been grounded by the Federal Department of Aviation.

The department has announced that previously unexplained aircraft-like responses which appeared on Sydney Airport screens in June 1983 were due to interference from another radar station near Armidale, NSW. A departmental statement issued on August 17 says engineering staff in Sydney traced the phenomenon to an unexpected interaction between the radar establishments, both of which are controlled by the department.

"The interaction was a result of recent equipment modernisation which improved overall performance, but which allowed interference to occur from one system to another under a unique set of conditions. One of these was the unusual atmospheric conditions over the Hunter River district at the time," the

statement says.

The radar signals, which first appeared in early June, apparently had air traffic controllers at the airport genuinely baffled for some time. They appeared to be from a source travelling at about 2400 km/h, in a region 100 to 250 km north of Sydney. No other radar stations reported picking up the signals, and the usual explanations for such signals (such as interference from satellites, gas pockets, atmospheric disturbances, etc) did not readily explain the facts.

It was obvious media fodder, and when the story broke, it did so with a splash.

Believe it or not...

Sydney Airport Tracks UFOs

screamed the front page splash of the *Daily Mirror* on June 30, 1983.

The story was covered on radio and TV and was followed up for almost a week as reports emerged that the RAAF had placed Mirage jets on standby to intercept and photograph the object when it next appeared on radar screens.

By July 5, though, the RAAF "alert" had been called off as a conviction grew amongst investigators that the signals were unlikely to have been caused by visitors from Alpha Centauri. Now the media was tired of the event as it was becoming very unsensational. By the time the Department of Aviation report emerged, the explanation had about as much significance for the media as the conquests of Alexander the Great, so it was virtually ignored.

The reportage of this series of incidents is a copybook example of the media's role in implanting belief in UFOs in the public mind. In the beginning, a few facts are welded together into a "gee-whiz" story which, while not necessarily factually false, is utterly one-sided. Later, after all the hubbub has died down, a prosaic explanation can usually be found for incidents which seemed sensational initially. But by then the story is dead; you won't see a tabloid running a front-page story headlined:

Aviation Department Solves Mystery. UFOs Caused by Radar!

If at all, the explanation for the mystery gets a par on page 15. In this instance, thousands of people now recall that Sydney Airport picked up mysterious readings from an object which appeared to be flying at high speed, but could not be identified. They may remember that the RAAF was involved, that fighters were on standby to intercept. But how many know the cause was tracked down to an electronic mirage? Outside the readers of this magazine, very few.

The Valentich Mystery (Part 1)

Vol 2, No 1

James Gerrard

What do you think happened when Cessna light aircraft VH-DSJ with pilot Frederick Valentich disappeared over Bass Strait on Saturday, October 21, 1978? Put on your judicial robes and polish your sceptical spectacles to consider your verdict on the evidence set out below. This evidence has been obtained from official Department of Transport sources.

Valentich, 20 years old, was not an experienced pilot, having some 150 - 200 hours total flying time. He had not long held his night Visual Meteorological Conditions (VMC) rating which permits flying at night in conditions of being able to see the ground constantly. This was his first night flight over water. He did not have an Instrument Flight Rules (IFR) rating which permits flight in conditions of no visibility with reliance only on cockpit instruments.

The pilot filed a carefully prepared flight plan at Moorabbin for a private night VMC flight to King Island via Cape Otway (the standard track) and return. However, by design, or inexperience, he did not arrange to have the King Island aerodrome lights turned on for his arrival. He departed 6.19pm from Moorabbin Airport and reported to Melbourne Flight Service at 7pm that he was over Cape Otway.

The first indication the pilot gave of any unusual circumstances was at 7.06pm. The following is from the transcript of the recording of communications between pilot (DSJ) and Melbourne Flight Services (FS). (Times shown are GMT)

0906 DSJ to FS "This is DSJ, is there any known traffic below 5000?"

FS to DSJ "No known traffic."

DSJ to FS "Seems (to) be a large aircraft, below 5000."

0906 FS to DS "What type of aircraft is AT"

DSF to PS I cannot affirm it is four bright, it seems to me like landing lights".

0907 FS to DSJ "DSJ" (acknowledgement)

0907 DSJ to FS "The aircraft has just passed over me at least a 1000 feet above."

FS to DSJ "It is a large aircraft, confirmed?"

DSJ to FS "Er unknown, due to the speed it is travelling. Is there any Airforce aircraft in the vicinity?"

FS to DSJ "No known aircraft in the vicinity."

0908 DSJ to FS "It's approaching now due east towards me."

FS to DSJ "DSJ"

0908 (open microphone for two seconds)

0908 DSJ to FS "It seems to me that he's flying over me two three times at a time at speeds I could not identify."

0909 FS to DSJ "Roger, what is your actual level?"

DSJ to FS "My level is four and a half thousand, four five zero zero."

FS to DSJ "And you confirm you cannot identify the aircraft?"

DSJ to FS "Affirmative."

FS to DSJ "Roger, standby."

0909 DSJ to FS "It's not an aircraft it is..." (open microphone for two seconds)

0909 FS to DSJ "Can you describe the er aircraft?"

DSJ to FS "As it's flying past it's a long shape- (open microphone for two seconds)

(Cannot) "identify more than" (that it has such speed) (open microphone for three seconds) "before me right now."

0910 FS to DSJ "Roger and how large would the er object be?"

0910 DSJ to FS "It seems like it's stationary. What I'm doing right now is orbiting and the thing is just orbiting on top of me. Also, it's got a green light and sort of metallic" (like) "it's all shiny" (on) "the outside."

FS to DSJ "DSJ"

0910 DSJ to FS (open microphone for five seconds) "It's just vanished."

FS to DSJ "DSJ"

0911 DSJ to FS "Would you know what kind of aircraft I've got? Is it (a type of) "military aircraft?"

FS to DSJ "Confirm the er aircraft just vanished."

DSJ to FS "Say again."

FS to DSJ "Is the aircraft still with you?"

DSJ to FS (Open microphone for two seconds) "Now approaching from the southwest."

FS to DSJ "DSJ"

0911 DSJ to FS "The engine is rough idling. I've got it set at twenty three twenty four and the thing is" (coughing)

FS to DSJ "Roger, what are your intentions?"

DSJ to FS "My intentions are ah to go to King Island. Ah that strange aircraft is hovering on top of me again. It (open microphone for two seconds) is hovering and it's not an aircraft."

FS to DSJ "DSJ"

0912 DSJ to FS "DSJ Melbourne" (open microphone for seventeen seconds)

In the Beginning

Unidentifiable noises described subsequently as "metallic" were heard through the open aircraft microphone and the pilot failed to respond to further calls. These noises could be from the aircraft contacting the sea.

When the pilot reported unusual aerial phenomena Melbourne Airport Radar carried out a sweep to see whether either the aircraft or the phenomena could be tracked. No contact was made but the aircraft at its reported height and distance from the radar was below the radar horizon. Furthermore the night of October 21 was warm and still, giving rise to temperature inversion which hampered the radar scan.

The subsequent four-day search over an area of 5000 square miles failed to locate any material from the missing aircraft. Because no wreckage has been found, the air safety investigators of the Department of Transport are unable to determine a probable cause of the disappearance.

Other relevant data are: the night was almost cloudless; it was a period of meteorite activity and Venus was bright in the sky; the pilot was flying in that "twilight zone" between dusk and full dark when disorientation can occur; in these conditions lights from Venus, reflections from cockpit instruments and the flashing two lighthouses, Cape Otway and King Island could confuse; two other aircraft had disappeared without trace over Bass Strait in the previous ten years.

So send us in your verdict: the most plausible and the most implausible solutions submitted will be considered for publication. We shall also publish some of the solutions which have been advanced by believers in the paranormal.

The Valentich Mystery (Part 2)

Vol 2, No 2

James Gerrard

In the last issue we reproduced the transcript of recordings of communications between Frederick Valentich and Melbourne Flight Service before Valentich went off air. We asked readers for their comments as to the cause of the disappearance of the

aircraft and pilot. These ranged from the view that the pilot was disorientated and crash landed in the sea to the opinion that Valentich had "set up the Incident" for reasons unknown.

Believers in the paranormal have advanced other explanations. One clairvoyant stated that Valentich was alive and living in a UFO colony under Bass Strait. American psychic Tamara Rand predicted that Valentich's plane would be found under water and that something would be revealed about Valentich.

New Zealand psychic Colin Amery also believes that Valentich is alive and well working with aliens

in an underwater city. However, he has put the underwater city in the Tasman Sea between Tasmania and New Zealand. Amery claims that Valentich will re-appear this year.

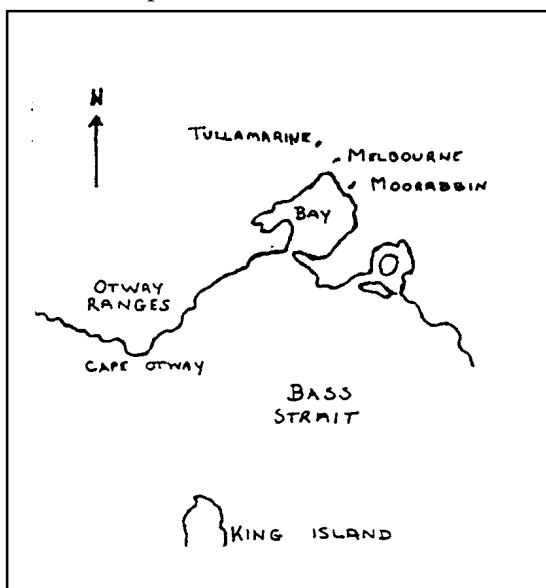
Valentich's father, Guido Valentich, joined the Victorian Unidentified Flying Object Research Association in 1979 and now keeps track of UFO sightings in the Cape Otway area. He hopes to see - something that could perhaps make more happy that my son could have been taken by a

UFO, and perhaps one day he will be returned". Mr Valentich has stated that his son had told him that he had seen a brilliantly lit object near their Avondale Heights (Melbourne) home about eight months before he disappeared.

What are the concrete facts? The following have been determined by the Department of Aviation.

Valentich, 20 years old, with about 150-200 total flying hours, was not an experienced pilot. He held an unrestricted private pilot's license with a Night Visual Meteorological Conditions (VMC) endorsement. This permitted him to operate at night in conditions which enabled him to have constant reference to the ground and to see, and be seen by, any other traffic in the vicinity. He had not long held the night VMC rating; his night flying was extremely limited and this was his first night flight over water. The night was almost cloudless; the air was still and warm; it was a period of meteorite activity and Venus was bright in the sky. The moon did not rise until about 11 pm.

Valentich filed a carefully prepared flight plan with the Briefing Officer at Moorabbin Airport for a private night VMC operation to King Island and



In the Beginning

return. However, by design or inexperience, he did not arrange to have the King Island aerodrome lighting turned on for his arrival. He had an ETA at King Island of 7.28pm. The aircraft carried fuel for 300 minutes flight giving it an effective range of 1046 kilometres at 130 knots.

He planned his course direct from Moorabbin, Victoria's main General Aviation airport, across Port Phillip Bay to Cape Otway, which is the turning and reporting point for light aircraft about to cross Bass Strait to King Island and Tasmania. The flight on this route would be conducted outside controlled airspace.

The plane left Moorabbin at 6.19pm on October 21, 1978 and at 7pm Valentich reported to Melbourne Flight Service at Melbourne Airport, Tullamarine, that he was over Cape Otway. In the absence of any other comment, it must be assumed that up to this time nothing untoward had happened.

The first indication Valentich gave of an unusual circumstance was at 7.06pm when he requested information on any known traffic below 5000 ft in his area. It must be remembered that the flight being made outside controlled airspace, was not under radar surveillance. In any event, at the height of 4,500 ft reported by Valentich and the distance (more than 90 miles) of the aircraft from the Melbourne Route Surveillance Radar at Melbourne Airport, the aircraft would be below the detection area of the radar.

When Valentich reported unusual aerial phenomena, the Flight Service Supervisor immediately requested Air Traffic Control to make a radar sweep to see whether the aircraft or the phenomena could be tracked. Due to the warm and still conditions, temperature inversion was experienced in the Cape Otway area, causing anomalous propagation of the radar transmission, including responses from the Otway ranges which hampered the radar scan. No identifiable return could be seen.

Communication with the aircraft was maintained from the time it left Moorabbin until 7.12:28 (ESST) when unidentifiable noises described subsequently as "metallic" were heard through the open aircraft microphone and the pilot failed to respond to further calls.

It is interesting to note that the pilot at no time showed any emotion during transmission. His communications were conducted in a "normal tone". On failure to respond, the Search distress phase was declared, the Rescue Co-ordination Centre at Melbourne Airport was activated and arrangements were made to launch a search and rescue mission immediately. A night search by a light aircraft was

made, covering the last reported position of the plane but nothing further was seen or heard.

Subsequent appeals to the public by radio and other media for sighting and hearing reports of the aircraft yielded no information relevant to the plane or the reported phenomena.

The resulting publicity, however, did generate some public response to the newspapers and the Department from people remote from Cape Otway about "objects in the sky" over Port Phillip Bay and along the bayside.

As no wreckage has been found, the "incident" is not classified as an accident and the Department continues to have an open file on the matter. The Department noted the speculation that the pilot may have falsely reported his position for some unknown reason, that he may have crashed in the rugged Otway Ranges or he may have flown to another destination. However, on the facts, the Department has no reason to believe that Valentich was anywhere other than where he reported - over Cape Otway - and that he ditched in Bass Strait.

In the four-day search which followed the aircraft's disappearance, seven civil and a Royal Australian Airforce Orion aircraft and several fishing vessels searched an area of 5,000 square miles without sighting any material which could be positively identified as having come from the missing aircraft.

The search was officially suspended on October 25. However, all aircraft and shipping transiting the area between Cape Otway and King Island or crossing the datum point off Cape Otway have been asked to maintain a watch for possible wreckage. Should any wreckage be found which can be positively identified with the missing aircraft, then the search will be reactivated.

What happened?

Valentich, an inexperienced pilot, was flying in the "twilight zone" between dusk and full dark when, according to experienced pilots, disorientation can occur. That disorientation, coupled with Venus, cockpit light reflections on his windscreen and the two flashing lighthouses, Cape Otway and King Island, may have caused an illusion that he was being accompanied by a UFO. This could have caused him to crash into the water.

Or he may have been snatched by an alien in a UFO.

On the facts available we can only speculate. The answer may never be known.

The Aborigine and the Astronaut

Vol 2, No 3

Ian Bryce

In the November-December 1981 issue of *UFO Research Australia Newsletter*, the major article is titled "Some suggestive examples of prehistoric interactions between the aborigines of Australia and extra-terrestrial intelligence (ETI)".

According to the author, John Prytz, this paper (which expands a previous paper) "serves to reinforce my basic premise that enough information exists to suggest that at some time in the past, there could have been some degree of interaction, maybe major, maybe minor, between the Australian aborigine and 'Ancient Astronauts'".

The author adopts a low-key approach, reflecting the strength of his material, and admitting his ideas are suggestions, possibilities and speculations.

The author begins by suggesting that if contact between early man and ETI occurred, Australia has been in a favourable position to preserve the evidence. There has existed a continuous social and cultural link from early times, lacking contact with other races, wars or social upheaval. The author ignores the aborigines' lack of the ability to preserve records. Other races represented their history in writing, painting, buildings, stone constructions, metal and ceramic artifacts and so on.

As oral traditions are the only cultural record the author has to support his claims, he tries to convince us of their high degree of accuracy. He emphasises that the aborigines are not children or savages but are humans with the same potential abilities as ourselves. The legends were so important that every detail and name should be preserved exactly. Their rock carvings of animals are easily recognisable. I am afraid I remain unconvinced that the legends remain unchanged when retold to 400 new generations. The aborigines say the events in the legends occurred in the "dreamtime".

The evidence for UFO intervention is presented in five categories as follows.

Origins

How the aborigines came to be in Australia is unknown, the author explains, but skeletal measurements and other biological factors show distinct differences from neighbouring races. The author continues:

"But the aboriginal is not the only distinct race which once roamed Australia. Aboriginal myths, backed up by the discovery of 40 skeletons in northern

Victoria, are highly suggestive that Homo Erectus, in the more popular guise of 'Java Man', lived in Australia ... side by side with modern type aborigines" until 10,000 years ago and then vanished."

The origin of the Asian and Australian fossils has been studied by many scientists.

The position of the early Java fossils seems clear. They belong to the species Homo Erectus, whose progress can be traced from Africa through southern Europe to Asia about one to two million years ago. The most recent examples are 500,000 years old.

All more modern fossils, including the Neanderthals, belong to the present species, Homo Sapiens. The 40 "robust" Kow Swamp skeletons, dated 9000 to 15,000 years, possess facial features reminiscent of Homo Erectus, it is true, but metrical analysis of skull dimensions shows them to be much closer to the modern "gracile" aborigines than to Erectus. Ancient genetic influence may cause such variations. Such investigations are reported in "The Origin of the Australians", symposium papers of the Australian Institute of Aboriginal Studies.

The author appears to have studied only the daily press. For him to indulge in such conjecture and use it in support of ancient astronauts is an insult to archaeology.

Prytz's other evidence for his claim comes from aboriginal myths and legends. He quotes at length from two articles in *The Australian* by reporter Graham Williams. In the first, Roland Robinson describes legends of a hairy ape-like creature, "with a low forehead, long spindly legs and hardly any neck". These myths are widespread and consistent in detail in southern NSW and Victoria.

So far so good. But what else does Robinson find convincing in the myths? "They relate their versions of actual events or universal truths - the story of the Flood ... and the Resurrection..." And then he describes mythology containing knowledge in "psychology, extra-sensory perception and telepathy".

It is stupid, Robinson said, for scientists to scoff at mythology. "In Australia, we have similar myths which have been proven by scientific fact. The aboriginal dreamtime myths tell of a time when Central Australia was lush and fertile and covered with huge trees ... and giant creatures. The myth accurately describes the Permian period."

Amazing indeed Mr Robinson. The Permian period ended 200 million years ago but man did not arrive until 197 million years later!

The original newspaper article gives us some background on this Mr Robinson. He has been a

horse-breaker, ballet dancer, opera singer, jockey, fletcher, swaggie and station hand, and is now "one of Australia's authorities on Aboriginal legends". I wish him an early success in his next career.

John Prytz next describes the discovery of a skeleton which is particularly tall for an aboriginal (1.89m or 6ft 2.5in), was buried in an unusual posture, and with a necklace of 180 Tasmanian Devil teeth. The teeth were each from a different Devil, and 2000 years older than the aboriginal. The author reaches various conclusions and speculations, but I feel the explanation lies in archaeology rather than ETI. An astronaut with a tooth necklace, indeed!

Remains (Archaeological)

The author describes a stone arrangements covering 400 hectares in the Simpson desert. It was "constructed probably up to 10,000 years ago", whatever that means. The punch line is:

"Such a size of course immediately suggests that total comprehension or meaning, the 'Big Picture', would be visible only from the air ...".

This brings back visions of Von Däniken gibbering as the BBC camera revealed that his "spacecraft parking bays" in Peru were simply the knee-joints of a large bird outline.

Isolation

The Australian continent and its people were physically and culturally isolated for 10,000 years, it is believed. The author asks us to explain various cross-cultural tidbits:

* Some aboriginal rock carvings in Queensland resemble Egyptian hieroglyphics. A museum curator has suggested that Australia was visited by ancient Egyptians.

* A member of the Aboriginal Art Board was struck by the "uncanny stylistic similarities between the work of the first Australians and the first Americans". This includes the use of sand in paintings, dance rhythms and geometric designs in paintings.

* Some face engravings found in Siberia are "almost identical" to some in the Cleland Hills northwest of Alice Springs.

While examining books on aboriginal art, I found a surprising variety of abstract forms. Hairlines can be rendered as layered, dotted or outstanding. Some faces show distinct expressions. Human forms can be realistic, or weirdly distorted, or of cubist Picasso form. Areas are often grained, lined or cross-hatched. It is evident that early races were highly imaginative in their art, and many resemblances can be expected by coincidence if one searches long enough.

* The final tidbit in his section is a rock painting in which the figures' heads have a dotted outline. Nine pages of Prytz's article are headed with a reduced version of this as a logo. Although not mentioned in the text, it is obvious that this material had been included to suggest that the head-dresses represent space helmets.

In considering other explanations I noticed a similarity to a Pitjandjara tribesman with painted stripes. Alternatively, the bark painting of a turtle by the Gunwinggu tribe has a similar dotted outline. Would UFOlogists also suggest that this is an extraterrestrial turtle?

Art works

The one and a half pages of this section deal with rock paintings and engravings discovered in Central Australia by an expedition sponsored by *The Australian* newspaper. The expedition was headed by Robert Edwards, curator of anthropology at the South Australian Museum, and was reported in the newspaper in six parts during April 14-22, 1970.

The findings of the Edwards expedition are described at length. There are circles, small human figures and serpents. One find has a "compact bodily outline, its legs spread slightly ... a small mouth ... horn-like protrusions ... an engraved cross". Prytz suggests the cross is related to Christianity, or perhaps King Arthur of Camelot.

Then the expedition found faces "without parallel in ancient Australian art ... with heart-shaped faces, hooked noses ... horns ... and with laughter and sadness".

Finally some general comments by Edwards are quoted: "... there are all the signs of a break in time between the aborigine and the men who created this art. It is as though primitive people recorded their rough beliefs and crude religion as a sort of bible in the rocks - then suddenly stopped living, and then another man came and adopted the art as sacred and, holding it in awe, began to build his own ritual and ceremony around the sites."

The situation may sound strange, but does it sound like the actions of Mr Prytz's astronauts?

Oral traditions

This section contains two items which Prytz claims are quite suggestive. Firstly he quotes from a 1975 newspaper article which quotes from an 1878 book which reports some conversations with aborigines. When asked "Is the earth round like this ball or square like this box?", two girls replied "Round like a ball". Some choice.

Secondly, the terrifying spirit man Kadaitcha is described. He produces glowing stones from his body. He kills, resurrects and then slowly kills his victim again for no apparent reason. In more modern times a .22 rifle is employed.

What is it that this suggests to you, Mr Prytz? Are these the actions of an extra-terrestrial?

Conclusion

Another piece of evidence appears 'in the final section. Two popular television travellers described rock engravings as showing figures wearing breathing apparatus, and claimed "Experts who have examined these engravings say they were done 10,000 years ago, probably by aborigines who had seen the arrival of creatures from another planet." Want to find out who these experts are? Then you will have to ask the Leyland Brothers!

Finally Prytz concludes "... there is very little need to relate as to how, sometimes by a stretch of the imagination, the above material could be related to 'Ancient Astronauts' ". I am afraid I cannot see any connection.

But at least the method of reasoning of such UFOlogists is laid bare. The desired subject is closely examined at the level of the daily press and the self-styled expert. Any little coincidence, peculiarity or as yet unexplained item is immediately construed as evidence for the intervention of extraterrestrials.

Such UFOlogists do not bother to develop a consistent theory and test it against the facts, as in legitimate enquiry. They abandon their reason in their overpowering will to believe.

Deyo's Cosmic Conspiracy and Schuessler's UFO Lectures

Vol 3, No 2

Ian Bryce

Several years ago, Stan Deyo, now resident in Australia, published a weird book propounding UFO and conspiracy theories. Annoyed by his false claims and bogus science, I initiated enquiries and commenced a critique.

When Deyo's ideas seemed to be dying a natural death, I decided they were not worth further effort. In 1983 however Deyo re-surfaced, publicising a lecture series on UFO's with John Schuessler, an engineer

working on the Space Shuttle for NASA. At \$7 a head, the pair eventually grossed about \$40,000 for four lectures. Deyo's book is still being sold, and several reviewers have expressed a desire for an analysis of the science content. Therefore I decided that this strange alliance warranted further investigation.

Deyo's Book "The Cosmic Conspiracy"

First published in 1978, this book has now sold approximately 100,000 copies. None of the serious reviewers has found any merit in it, and, taken alone, Deyo and his book would be of no significance.

The cover drawing is enough to identify the book's areas of interest. It contains a pyramid, flying saucers, a crucifix and a mystical eye.

Valentich Disappearance

Deyo's book opens with a description of the morning he heard of the disappearance of pilot Frederick Valentich. Deyo's mental processes are well described by his own words: "My mind raced from one possibility to another" and "My mind felt like a suitcase - crammed so full it couldn't be shut". This famous "UFO kidnapping case" was investigated by our own aviation consultant, James Gerrard (*the Skeptic*, Vol 2, No 1).

ARL Interview

On p 29 Deyo describes an interview at Aeronautical Research Laboratories, Melbourne. Stan spoke with Dr Tom Keeble, then a director, and others. To check on Deyo's alarming account, I questioned Dr Keeble at length. It turns out that an interview took place, but its nature was nothing like Deyo described, and the engineers concluded he was a 'nut'. Details of Deyo's claims and Dr Keeble's denials are given in Appendix 1.

Radio Interference

Many of the speculations in "The Cosmic Conspiracy" are confused misinterpretations of phenomena well known to experts in their field. For example, on page 43, Deyo wonders what purpose is served by "the gigantic Russian VLF (Very Low Frequency) transceiver at Riga". He suggests the "beat" characteristic is caused by interaction with a similar secret U.S. transmitter.

I spoke with an expert at the International Amateur Radio Union, who confirmed that the Soviet transmissions are known as the "woodpecker" and the "motorbike", which describes their sound. The transmitters are well understood, and are in fact

early-warning over-the-horizon radars.

Deyo's lack of technical knowledge is clearly shown in his confusion over the radio frequencies involved. On p 43 he describes fields of some 10 to 15 Hz, and also 14.3 Hz. But on p 44 he suggests the frequency is 14,327 Hz, and later 14.3 Hz. He has no concept of numbers or of radio frequencies.

Electrostatic Motor

Among the 'Secret Sciences' Deyo describes as evidence for suppression of scientific techniques is Jefirnenko's electrostatic motor, which ran on electricity tapped from the earth's atmosphere. Upon reading the articles he refers to in the *Scientific American*, however, we find a straightforward description which includes a calculation of the maximum power available - a whole 0.075 watts from a 75 metre high balloon!

Technical Basis

Previous reviewers have described the contorted presentation and factual errors, but have not felt qualified to comment on the technical matters. As a scientist, I find Deyo's ramblings incomprehensible, and his appendices quoting other sources are in error.

For example, the Relativity mathematics of Appendix 5 ends with $V_e = 0$, and $t I = C$. If this was assumed at the start, the whole exercise becomes trivial and pointless (try it). Further, any physics textbook will show that $hc/(e \text{ squared})$ does not equal 137 but 7.7 times 10 to the power 12.

Appendix 3 describes a "-gravitator motor" (perpetual motion machine), "negative mass", and "improved mass to weight ratio" - all impossibilities.

Ion-powered Saucer-craft

Deyo's design for a vehicle driven by electro-gravitic propulsion is comical. His 29 "scientific" diagrams culminate in his ion-powered saucer-craft. Among the nonsense-sentences are "... bypassing the problem of structural fatigue due to non-uniform inertial shifts", "laminar fluid lock", "the spinning plasmoid induces an anti-vector current". Further examples are given in Appendix 1.

Religious References

Readers would be puzzled by the unexpected references to God tacked on in many places. The description of the cover painting refers to godhead, the Messiah and the antichrist. Appendix 5 concludes that God is a complex waveform. The reason for this became clearer when I interviewed Pastor Desmond Nelson, of the Church of Christ, Armadale, Perth.

Deyo had joined his flock and become a new Christian just before publishing the book!

The remaining two thirds of the book deal with mysticism, and strange interpretations of the bible. There is nothing which can be rationally examined or tested. Even some Christian publications reject the book after analysis. One describes it as "thoroughly riddled with logical inconsistencies, theological fantasy, awful style, and spurious information".

Appearance of John Schuessler of NASA

Deyo and his book would hardly be worth further attention except for the recent appearance of a space scientist in Australia (in February 1983) for a proposed lecture series with Deyo. Brochures and newspaper advertisements introduced John Schuessler as Project Manager, NASA Space Shuttle Flight Operations for McDonnell Douglas, or simply as Head Scientist on NASA Space Shuttle. Deyo described himself as a Research Physicist, FBI Adviser and so forth. Their joint lectures would expose flying saucers, ET's, death rays and more.

NASA Canberra

While researching Schuessler's background, I spoke to Skylab astronaut Dr Joe Kirwan, now NASA's representative in Australia. Joe made it clear that Schuessler does not work for NASA, and had not been in touch with NASA Australia concerning the visit. It is quite possible Schuessler works for McDonnell Douglas, who have contracts with NASA, and employers are not concerned about private activities of their engineers.

Mrs Louise Deyo

In order to speak to Stan Deyo, I telephoned his home in Perth on February 9. His wife, who has jointly been involved in publicity for the book, said that he was in Melbourne, very busy doing interviews before the lecture, and perhaps she could help. When I asked about Stan's qualifications, she replied, "He is a physicist, in that he does his own private research".

Stan Deyo

I finally traced Stan to the Commodore Hotel and spoke to him by telephone for about 20 minutes. His wife had already phoned him from Perth and complained about my questions, so I was not well received. Deyo said he stood by all his claims in "The Cosmic Conspiracy". I quoted several passages to him and said they were incomprehensible to scientists and engineers. His replies were evasive. When I put it to him that the Aeronautical Research

Laboratory's director's description of the 1972 interview flatly denied Deyo's extravagant claims, Deyo replied "What would you expect him to say?" Finally I asked his basis for describing himself as a physicist and he again answered with a question, "What answer do you want?" My request for qualifications or experience was met only with further questions.

John Schuessler

I interviewed John Schuessler for about 30 minutes. He admitted knowing of Deyo's book 'The Cosmic Conspiracy', but when I quoted nonsense passages to him, he resorted to generalities such as "Many scientific papers from other countries are hard to understand". When I reminded him of Deyo's claim that the US base at Pine Gap has an 8,000 metre deep water bore which acts as an antenna and influences the world's weather, Schuessler replied, "I don't know about Australia".

In response to "The Cosmic Conspiracy" claim that the North West Cape VLF transmitter (which I have visited) can recharge batteries in submarines, Schuessler replied, "I have no way of knowing that".

I feel many engineering and science students could carry out the calculations to disprove these and other claims by Deyo. Why an M.Sc., "Head Scientist on NASA Space Shuttle Project", would be associated with such an author, remains unknown. When I asked Schuessler to comment on Deyo's claim to be a Research Physicist, right against Schuessler's own resume in the brochure, he replied, "He manages his own laboratory, and employs people".

Space Association Press Release

It was apparent that Schuessler and Deyo were attracting reasonable publicity for the evening's lecture. In fact they were mentioned in the news on two radio stations and one television channel.

In the interests of balancing the reports, I contacted such stations to inform them of the facts already known. As an executive Councillor of The Space Association, I prepared a detailed press release (Appendix 1) which was sent to the leading media outlets in Sydney and Brisbane, where lectures were scheduled for the next week. Several reporters telephoned me for further details, but unfortunately once debunked, the lectures were no longer newsworthy, and several proposed items were simply cancelled. Such is the lot of a sceptic.

Information on Schuessler From The USA

Following the lectures, I received information from the USA on John Schuessler's activities, partly from our cousins, the Bay Area Skeptics, of California. He is well known as a scientist working for NASA, and also as a 'scientific UFOlogist'. His most famous case is the Cash-Landrum UFO Injury case (described in his Australian lectures). He has appeared in *That's Incredible* - along with the horse who can count and assorted hauntings as I recall.

Further, he is or was a Deputy Director of the Mutual UFO Network (MUFON), dedicated to "resolving the mysteries of the UFO phenomenon by combining their mutual talent, research, and investigative efforts".

Perhaps Schuessler's understanding of physics is not as strong as his fascination for the macabre. In a *National Inquirer* (USA) article of December 29, 1981, he suggests that a recently discovered intergalactic void, 300 million light years across, was created in a space battle lasting "perhaps just a few hours".

In my physics studies I learnt that the relativity of simultaneity renders short events over such a large volume impossible.

The Australian Lectures

The Melbourne lecture was held at Dallas Brooks Hall and attracted 750 people. I offered my press release on Deyo to those people carrying a notebook or tape recorder. Many of these turned out to be ministers of religion - Deyo has attracted some attention in churches with his suggestions of a secret mystical authority. My brochure was very popular and I was surrounded by people wanting information on Deyo. I made contact with several journalists and people interested in the Skeptics or the Space Association.

Schuessler's Seminar

Deyo introduced the evening, saying that Schuessler came to Australia at a great personal risk and narrowly avoiding bugging. Schuessler presented the first half of the evening. Then Schuessler explained how he became interested in UFO's, and devoted much of his spare time to investigating reports. Some encounters described had a familiar ring - that of Paul Anders and of the boy Ladrum with his aunt and Mrs Cash. Slides graphically showed burns of various configurations, but unfortunately no routine medical reports were given. Schuessler's extensive documentation also included many drawings of aliens and craft by witnesses. Generally he said little that critics would need to argue with. He did however hint that the Federal Aviation Authority seemed to be

covering up several incidents, and suggested that the site of a crashed alien craft had been robbed by authorities during his excavations.

The "Secret U.S. film on flying saucer experiment" turned out to be long since declassified film of a USAF experimental 18-foot, 5650-pound, jet-engine-vehicle. It is now on public view in an Air Force museum, and has been pictured in a *Reader's Digest* publication!

Deyo's Delivery

Stan Deyo took over after the interval and claimed that his many years of research since publishing 'The Cosmic Conspiracy' has made him certain of his claims. Man could use current technology to make a craft fly as UFO watchers have seen.

He then described the Philadelphia Experiment, in which (during WWII) electrical pulses in gigantic coils caused a destroyer escort to vanish, and materialise 200 miles to the south! Stan confided his own theory of the effect - the molecules were vibrated at the speed of light, putting the ship and crew in an „accelerated energy state" in which time stands still. For weeks afterwards the crew could walk through walls, etc. The audience began tittering and groaning as they realised they had paid seven dollars to listen to unscientific rubbish.

Deyo described at length the levitation experiments and mysterious disappearance of a team led by a Dr Townsend-Brown in the 1950s. Deyo tracked them down after 30 years and showed a film of experiments in an old laboratory. Balsa-wood-and-cooking-foil models hanging on strings were being swayed, apparently by electrostatic or magnetic effects - a trivial schoolboy exercise.

Dr Nicholas Tesla, an inventor-cum-eccentric of around 1900, holds a fascination for Deyo. A film was presented showing Deyo demonstrating a Tesla Coil - a large resonant circuit capable of generating 750 kilovolts, and hence spectacular arcs. Such devices, he claims, power flying saucers. Deyo showed how it can light a fluorescent tube nearby. "If you know how, you can pass the return current through the body, safely, using something called the Skin Effect". Oops! A good dictionary will show that the skin effect refers to currents in the surfaces of metals!

UFO levitation operates according to the basic theory of electrodynamic physics, Deyo claimed. We have the technology to make two different propulsion systems. All this research stopped around 1956. Why? No government could do this, it must be a CONSPIRACY! Russia, Britain, USA, Canada, and the Middle East were mentioned.

Deyo moved suddenly to a film on Tesla. When this was over, the lights went on and the stage was vacant. Questions from the audience were avoided.

After the Lecture

As people were leaving, I was fortunate to meet the technician who built Deyo's Tesla Coil at Melbourne University in the old Cyclotron building. Tesla Coils were well known to the more adventurous experimenters of the day, and with their well understood mode of operation, hold no promise of defying gravity.

As well as ministers of religion and the genuinely curious, there were several people collecting conspiracy theories. The local UFO group was represented, and Channel 9 spook expert Kevin Arnett attended. The Melbourne lecture attracted 750. In much smaller Perth the audience was 2,500! Fortunately a letter was published in a Perth newspaper from Mr P. McDonald titled "An Evening Encounter of the Absurd Kind".

Appendix 1.

The following is the text of the Press Release of the Space Association on the occasion of the public lecture "UFOs. ETs & Death-Rays" of February 15, 1983 by Schuessler and Deyo:

"Should your organisation consider publicising this event, there are some facts you should be aware of. We are not familiar with John Schuessler (though it is clear he works for McDonnell Douglas and not for NASA). However, his host and partner Stan Deyo is known in Australia.

1. Mr Deyo repeatedly claims to be a Research Physicist. Extensive discussions with Stan and his associates reveal that he has no such qualification and has never been employed as a physicist.
2. Mr Deyo's book "The Cosmic Conspiracy" shows he lacks an understanding of science. His diagrams and descriptions are incomprehensible to legitimate scientists. For example: his drawing of an "Ion Powered Saucer Craft" (p 187 etc).
3. As part of his evidence for a conspiracy, Mr Deyo on p 29 describes in detail an interview at Aeronautical Research Laboratories (ARL), Melbourne. This was held with Dr Tom Keeble, then director of the Mechanical Engineering Division, and two others. Dr Keeble flatly denies Mr Deyo's account on all points, including the following:
 - (a) Mr Deyo's scientific paper was discussed. Dr Keeble reportedly said "We know your (antigravity) theory works, and your model will work". Dr Keeble on the other hand says that the ARL

engineers could not make head or tail of the papers. (b) Mr Deyo described mind-control experiments. Dr Keeble reportedly said yes, ARL knew of these, and described a secret organisation. Dr Keeble denies this.

(c) Mr Deyo reports that Dr Keeble gestured that the room was bugged by ASIO. Dr Keeble states that this did not occur.

UFO stops train

Vol 5, No 2 Rodger Goldberg

The front page story in Sydney's *Daily Mirror* on January 18, 1985, was:

"UFO Stops Goods Train".

The letters were 5cm high with an insert: "Drivers tell of hovering light". Readers were told that a UFO was believed to have stopped a freight train on the Nullarbor Plain.

Excerpts included:

"Police and Australian National Railways authorities are trying to find out why the train was drained of power. ... Two locomotive engineers watched as a mysterious light hovered for several minutes above their freight train. ... The stretch of line where the incident took place is near the restricted Woomera military base and only a short distance from Maralinga."

I checked with Australian Railways' spokesman John Beattie, who said that the locomotive had not been performing well from Port Augusta and when it reached an upward stretch of track the engine failed.

He stated that an investigation into why the engine failed was routine. He said that the lights were some distance off and were reported because they could have been a light plane in distress. The mechanical failure and the lights were unconnected.

While some papers printed the correct version of the facts in the following days, the *Daily Mirror* did not, to the best of my knowledge, publish a correction. Perhaps the correction was typeset but a UFO drained the story from the *Mirror's* word processors.

Total Internal Reflection

Vol 4, No 2 Lynne Kelly

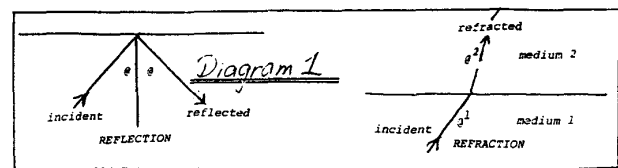
May 21, 1983, and the UFO sightings from the Bendigo area are receiving great coverage. It is easy to understand the theory that the lights in the sky are visitors from another realm, but not quite so clear when the RAAF mention some obscure meteorological phenomenon and the explanation is then based on some other obscure aspect of physics. And let's face it, how newsworthy are Year 11 standard physics theories? Here is an outline of those theories which may lead to a much more plausible, if a little less dramatic, explanation of the lights.

Total Internal Reflection

Firstly for some physics theory. There are three properties of the behaviour of light to be considered. Firstly, in a single medium, light appears to travel in straight lines, and our brains, assuming simple conditions, assumes the light to have done so. But if light is reflected off a boundary, it obviously changes direction. This change obeys the Law of Reflection, that is that the angle of incidence is equal to the angle of reflection.

There is also the phenomenon of refraction, that is the bending of light as it passes from one medium to another. This is the cause of the distortions we observe when looking at our toes wiggling at the end of the bathtub. No one doubts that our toes are in fact attached to our feet, and we all accept that the distortions so caused are merely an optical illusion. When light passes from a more dense medium to a less dense one, it is in fact possible for all the light to be reflected back from the interface. This happens if the angle of incidence is greater than a given angle. This theory is more clearly represented mathematically (Diagram 1).

Every medium has a refractive index, which is a number greater than 1 (the value for a vacuum) and



typically about 3 for dense, but transparent media. The mathematical relationship which describes the bending, or refraction of a beam of light in passing

In the Beginning

from one medium to another is given by Snell's law:

$$n^1 \sin @^1 = n^2 \sin @^2$$

where n^1 is the refractive index of the incident media,
 n^2 is the refractive index of the receiving media,
 $@^1$ is the angle of incidence and
 $@^2$ is the angle of refraction.

Consider the situations: (Diagram 2)

Thus it can be seen that for light hitting the boundary at any angle greater than the critical angle for the two media used, the light will be reflected back from the surface, So for any light which is passing from a more dense to a less dense medium, the light will be reflected back from the interface if the angle is greater than the critical angle. This is not so fantastic a concept. Everyone who has opened their eyes at the bottom of a still swimming pool will notice that they can see a reflection of the bottom of the pool on the top of the water, if they look at the surface at an angle of greater than about 50 degrees. Also they can see out of the pool, by looking up at an angle of less than that.

Applying Snell's Law for this pool case, we have W, the refractive index for air, being 1.0, while for water n^1 being about 1.31 and $@^2$ is 90° , the critical angle, $@^1$ is given by:

$$\begin{aligned} 1.3 \times \sin @ &= 1.0 \times \sin 90 \\ \sin @ &= 1.0 \times 1.0 / 1.3 \\ \sin @ &= 0.77 \\ \text{and } @ &= 50,3^\circ \end{aligned}$$

Hence, by looking up at the surface of the water at greater than 50 degrees will allow a reflection to be seen of the bottom of the pool due to the phenomenon of total internal reflection. Now we are in need of some meteorological enlightenment.

Temperature Inversion

The earth's surface is surrounded by an atmosphere in which the temperature usually decreases with increased height above the ground. As this is the usual case, we accept the usual distortions of the sun and

moon, and assume that this is always the state of the atmosphere. Frequently though, layers exist in the atmosphere in which the reverse is true, that is the cooler layers are nearer to the earth's surface. The cooler layers are also more dense.

This can occur due to a number of reasons, Hot air, being less dense tends to rise, so air movements are from warmer to cooler layers. A temperature inversion can cause an inversion layer in which the layer acts as a lid on upward warm air movements, the lower

layer being cooler, and therefore cannot rise into the warmer layers above, This is common in autumn, and can be seen as a line of pollution if this occurs above a city. Otherwise it is quite possible for the layer to be invisible, as it is really just a density change in the already invisible air.

The Bureau of

Meteorology may indicate such a condition by putting out a warning requesting restraint on the burning off of incinerators due to increasing pollution trapped by the inversion layer. Above the inversion layer it is clear and warm, thus increasing the effect, until a weather change, such as winds or rain destroys the layer.

Combining To Achieve a Sighting

The effects of a temperature inversion on the lights which are incident on it are complicated, and involve the solving of involved differential equations, if the phenomenon is to be fully analysed. The first reference quoted contains the mathematical derivations. It is sufficient here to simplify the effect to a description, with a diagrammatic explanation, which clearly

shows how the images appear (Diagram 3).

This diagram is obviously exaggerated, as the mathematical derivation will indicate that an angle of only a few degrees

to the horizontal is involved- In the diagram, a circular light beam is incident on the boundary of a temperature inversion layer at an angle equal to, or exceeding, the critical angle for the

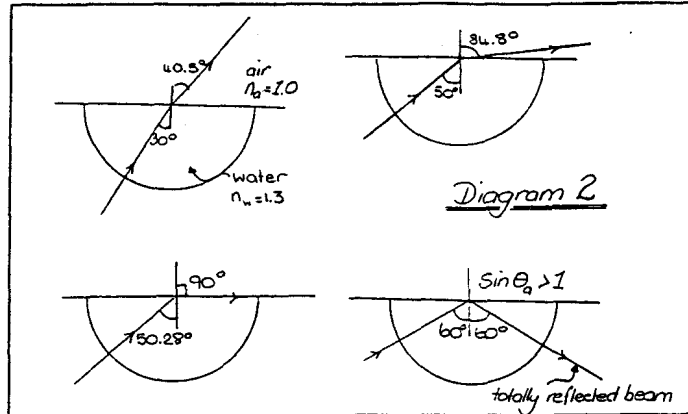


Diagram 2

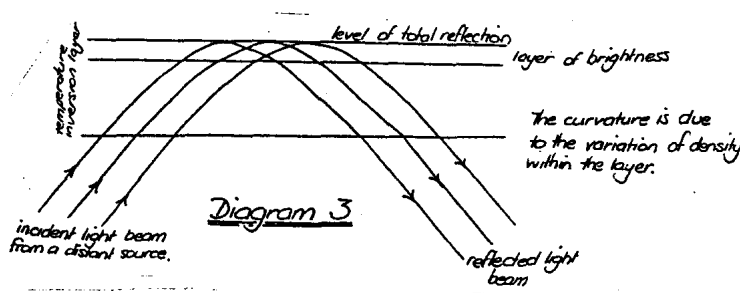
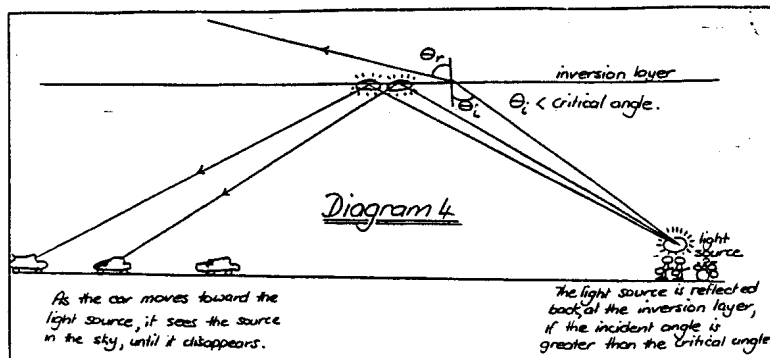


Diagram 3

density differential involved. There is an effect due to the interference of the incident and reflected wavefronts. If the refracting layer is thick with respect to the incident light beam (ie R is greater than A), then sudden brightening can occur near the upper boundary of the refracting layer, if the angle of incidence is close to the critical angle. (detailed in Ref 1, pp 636-637). The conclusion is that the following situation could occur: (Diagram 4)



Driving along a road one evening, a still Autumn day and there in the sky - a light. As we continue, the light moves with us, shimmering, bright, entrancing.

Suddenly the light disappears. What are we to conclude:

1. A UFO, newsworthy, exciting - keeps us in dinner conversation for weeks?
2. A total internal reflection at an inversion layer interface, which shimmers due to the nature of the layer, and an image which disappears when we get within the critical angle? Dull!

The Bendigo sightings

The Bendigo sightings were widely reported from May 20-23, 1983, filling columns of newspapers and minutes of electronic media time with reports of unexplainable lights in the sky. The sightings, as described in the newspaper cuttings examined, mainly involved descriptions of flashing coloured lights. The explanation, that maybe the lights from the ground were reflected back, was rejected in the articles, on the grounds that there were no clouds to reflect the lights. It was, in fact, a clear sky. This is, however, consistent with a total internal reflection effect from an inversion layer. It is interesting to note that none of the 20 light aircraft in the sky over Bendigo saw any of the fights. This is consistent with the reflections theory given. Naturally, reflections do not show up on radar screens and none were recorded in this case.

The RAAF report also includes the meteorological evidence for the nights in question. At Bendigo the weather was fine, still, cool and clear. The official recordings for the nights were taken at Adelaide and Laverton include the fact that there was a significant low level temperature inversion. By inference, it would be likely that the same conditions occurred

widely over Victoria at the time.

Some other reports in the *Sun*, May 26, included lights close to the horizon, like a star but red, yellow, green and white and moving. And so further reports entered the arena. The RAAF investigated these reports and concluded that the sightings were due to "atmospheric conditions". This was reported a little less conspicuously in a few papers eg in the *Age* (June

6) and *Castlemain Mail* (June 7). The articles were not widely read, nor did they give a full coverage of the RAAF conclusions. The initial sightings could be simply the result of the phenomena discussed earlier in

this article.

The RAAF report by Flt Lt B Biddington concluded that the earlier sightings were probably due to the total internal reflection phenomenon. As publicity continued, sightings due to other causes arose. These included a film by Channel 7 cameraman L Bowie, of which the RAAF ventured the opinion that it was the star Canopus, the details of the appearance and position being in agreement. Sightings which were consistent with the position of Venus were also reported. Other sightings were close to the horizon and described as involving changing coloured lights, these are consistent with a scintillation effect, which is another whole story.

Conclusion

Obviously it is not possible to draw definite conclusions as to the true cause of the UFO seen over Bendigo in May, 1983, but of the possible explanations, the effects due to a temperature inversion is consistent, logical and within the known scientific realm. The explanation based on UFOs fits none of these conditions but definitely has the one advantage of being far more dramatic and therefore newsworthy.

References

1. "Scientific Study of Unidentified Flying Objects", University of Colorado under contract to the USAF, D S Gilmore (Ed), Bantam Books, 1969
2. "Unusual Aerial Sightings, Bendigo, Vic, May 20-24, 1983", Report of the Royal Australian Air Force, Flt Lt B Biddington.

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Apparitions, UFO'S and Wildlife

Vol 4, No 1

Gregory V. Czechura

The psychology of perception (and misperception) is complex.^{1,2} Psychological factors in combination with unusual stimuli and/or conditions which interfere with observation (eg poor light, haze, glare, low visibility) not surprisingly result in reports of ghosts, alien spacecraft, fairies and other paranormal phenomena. If the source of the stimulus is recognisable (e.g. as an animal), a distorted interpretation may result (eg yowies³, giant goannas⁴, or some other monster). Indeed, a recent book concerning the Loch Ness 'monster' clearly demonstrates how a number of living animals have helped contribute to the making of this contemporary myth.

If the original stimulus is unrecognisable, then more often bizarre interpretations may result. Such interpretations are often totally at variance with the original source (see relevant discussions of interpretation and reliability of evidence by Binns⁵, Scheaffer⁶, Klass⁷, Oberg⁸, - bearing in mind the number of times Venus has 'chased' aircraft and automobiles or 'hovered' over powerlines!) physical and psychological factors may be responsible for producing distortions of the incoming stimulus. Mirages^{9,10}, size-illusions¹¹, absence of suitable frames of reference for size and depth, conditions of low light and poor visibility and confusion of multiple phenomena⁶ are among the more prominent pitfalls facing the observer.

Even skilled observers may be deceived under such conditions. Indeed, a recent paper on size-illusion suggests that real assessments of size "would seem to be possible in only relatively few, rather special circumstances". The author of this paper makes the following point (with respect to bird identifications): "It seems more likely that real size assessments are rarely made; instead... size is not really judged at all, but is known instantly an identification is made in a subconscious process drawing from prior knowledge of the species size" (emphasis added).

Considering the care taken by most bird-watchers (especially twitchers)¹² in obtaining information to be used in identification, many of the reports of alien animals' presented by Janet and Colin Bord¹³ are quite questionable in comparison. These authors, for example, admit sightings made at night, in mist, under conditions of high contrast and in conditions conducive to mirages or distortion by heat haze (eg still lakes during hot, sultry periods) - or simply

provide little or no information on observing conditions.

In the following article, I wish to examine how animals may contribute to claims of the paranormal if they, or their activities, are not clearly recognised; seeing may not be believing.

Poltergeists and domestic wildlife

Few people are aware of the variety of animals which live in and around their homes - even in highly urbanised/industrialised areas. In many cases, this fauna (including pets) consists of various invertebrates, rodents and birds. Larger mammals (such as possums, badgers and foxes) are also known to penetrate deeply into cities in various parts of the world^{14,15}. The nocturnal activities of many of these creatures ensures that their presence goes unremarked.

The movements, and mischief, of this domestic fauna are rarely - if ever - considered in reports of poltergeist activity. I have yet to see a search conducted of all likely hiding places (eg ceilings, walls, basements, gardens) as part of a poltergeist investigation. Indeed if we examine the nine categories of poltergeist activity listed by Taylor¹⁵, at least six could be attributed to the activity of animals.

1. Bangs against doors, walls and furniture;
2. Doors, windows and cupboards opened;
3. Objects moved or 'thrown'.
4. Displaced objects do not show a 'normal' trajectory, they behave as if they have been transported and may even follow the contours of furniture"¹⁵;
5. Object penetrate into closed spaces;
6. When handled objects appear warm.

Categories 1&2 would result from animal movements in and around the house, category 3 would represent a mixture of movement and manipulation, categories 4&5 indicate manipulation and carrying of objects by an animal agency while category 6 would be a consequence of handling of the object by a mammal.

Nocturnal birds, ghosts and will-o-the-wisps

"After moving horizontally backwards and forwards several hundred yards, it rose in the air to the height of forty feet or more; it then descended and again went through the same evolutions many times. The light was reddish in the centre and resembled a carriage lamp for which we at first mistook it. The light emerged ... flying backwards and forwards across the field... It alighted on the ground a few times ... A slight mist hung over the ground..."¹⁷

A report to delight the most enthusiastic UFOlogist or ghost hunter.? No, it is a description of a rare and

little understood phenomenon - 'ghost' owls. The present explanation is that bioluminescent fungi or bacteria become lodged in the bird's feathers, probably as a result of the owl roosting in hollow trees containing such organisms". Although rarely reported in the zoological literature, how many reports of UFOs, ghosts and Min-Min lights in actuality refer to this phenomenon? The activities of albino and pallid owls and swarms of bioluminescent beetles ('fireflies') under appropriate conditions are likewise worthy of consideration in assessing reports of wraith-like beings or dim lights.

Screams in the night

Australia is well endowed with birds and mammals capable of making eerie calls guaranteed to make the faint-hearted tremble^{19,20}. These range from the eerie wail of the Bush Thick-knee (or Bush Stone-Curlew), the various shrieks, moans and groans of Greater and Yellow-bellied Gliders, the screeches of the Barn and Masked Owls and 'screaming-woman' call of the Barking Owl. One writer²¹ has described the latter call as follows: the call "is single, loud and forcefully given, and an impression is exactly what one would expect from a woman perceiving some object inspiring abject terror". Consequently, alleged hauntings (or yowies) based solely on reports of 'inhuman' screams or wailings should be subject to detailed examination. Furthermore, the noiseless flight of owls may also play an important role in many ghost or alien sightings - especially where an owl may have passed close to an observer but was only dimly perceived. Especially of note are reports of nearby or passing 'presences'.

Bird flocks and flying saucers

Bird flocks have traditionally been used to explain UFO sightings. Daylight sightings, especially near estuarine or freshwater situations, of objects which change shape, disappear or pulsate are very likely to be bird flocks. Waders (or shorebirds), especially when disturbed or attacked by birds of prey, form dense, tight-knit flocks as an antipredator strategy²². These flocks may assume a roughly spherical or elliptical shape. If conspicuous upper- or underwing flash patterns and rump patterns are present or contrasting upper- and underparts, an impression of white flashes may be created as the flock wheels and dodges the predator. The flash patterns serve to make it difficult for the predator to isolate an individual from a group with similar patterns all continually moving in relation to each other²³. When viewed from a distance, the overall impression can be of a dark mass which flashes or pulsates.

To illustrate: During January 1982, while birdwatching in the Dynevor Lakes area (near Thargomindah, SW Queensland), two associates and I observed a peregrine falcon attacking a flock of about 60 sharp-tailed sandpipers overhead. The sandpipers formed an ovoid-shaped flock structure which zig-zagged (about 5 metres above the ground) in response to the falcon attacks. When the birds had their pale underparts presented to the observer a flash effect was produced and further enhanced by the short period of presentation and contrast with the darker upper parts. During the chase, which ended unsuccessfully for the falcon, the flock moved above an area of about 100 sq metres. If we had been further away, it is almost certain that the flock would have been perceived as a dark mass which flashed or momentarily disappeared, depending on lighting conditions, and which remained relatively stationary. (NB Despite spending nearly two weeks in and around these lakes we failed to sight the local lake monster.)

High flying flocks of birds which reflect sunlight or appear dark/light against a contrasting background also have the potential to be reported as solid objects. Could it be also that the sudden right-angled turns of UFOs, as so often reported, are merely the sudden turning or wheeling of a bird flock?

Natural history-based explanations can hardly be expected to satisfy all or most of the above 'paranormal' categories. However, failure of alternative explanations (ie astronomical or meteorological phenomena, aircraft, balloons) may indicate wildlife or other biological agency at work (NB fungi and fairy rings/UFO landing sites²⁴.) The appalling ignorance^{25,26} of a great majority of persons about natural history certainly suggests that misconceptions of such phenomena may be more widespread than is generally thought (eg persistence of snake myths, attribution of erroneous powers and abilities to plants and animals etc.).

References

1. Krech, D et al 1969. Elements of Psychology. (Knopf. New York).
2. Vernon, MD 1982. The Psychology of Perception. (Penguin Harmondsworth).
3. MoInar, R 1982. *the Skeptic* 2 (4):8-17.
4. Czechura, GV 1982. *the Skeptic* 2 (4): 18 - 20.
5. Binns, R 1983. The Loch Ness Mystery Solved. (Rigby: Adelaide).
6. Scheaffer, R 1981. The UFO Verdict. (Prometheus: New York).
7. Klass, PJ 1982. UFOs - The Public Deceived. (Prometheus: New York)
8. Oberg, JE 1982. UFOs and Outer Space Mysteries (Donning. Norfolk)

9. Lehn, WH 1979. Science 205183-5 (13.7.79)
10. Lehn, WH & Schroeder, 11981 *Nature* 289362-6 (29.1.81)
11. Grant, M 1983. *British Birds* 76(8)327-34
12. Oddie, B 1980. *Bill Oddie's Little Black Bird Book* (Methuen: London)
13. Bord, J & C 1981. *Alien Animals*. (Book Club Associates.. London)
14. Davies, W(ed). 1983. *Wildlife of the Brisbane Area*. (Jacaranda: Brisbane)
15. Wilson, E 1983. *The Urban Dweller's Wildlife Companion*. (Blandford, Poole).
16. Taylor, J 1980. *Science and the Supernatural*. (Grenada: London)
17. Sparks, J&Soper, 1970. *Owls: Their Natural and Unnatural History*. (Taplinger.. New York)
- I R Bunn, DS et al 1982. *The Barn Owl*. (Poyser Calton)
19. Fleay, D 1968. *Nightwatchmen of Bush and Plain*. (Jacaranda: Brisbane)
20. Hyett, J & Shaw, N 1980. *Australian Mammals* (Nelson: Melbourne)
21. Fleay, D 1981. *Looking at Animals* (Boolarong: Brisbane)
22. Page, G & Whitacre, DF (eds) 19175. *Condor* . 77.73-83
23. Krebs, JR & Davies, 1978. *Behavioural Ecology*. (Blackwell:Oxford)
24. Basterfield, K 1981. *Close Encounters of an Australian Kind*.(Reed: Sydney)
25. Klauber, LM 1972. *Rattlesnakes*. Vol. 2 (University of California Press. Berkeley).
26. Maxwell, G 1960. *Ring of Bright Water*. (Longmans: London).

Editor's Note

At the Great Australian Science Show in Sydney, in September 1993, I visited the University of NSW Biological Sciences stand. One of the displays consisted of live vision, played back on a computer, whereby one could look at a species of wildlife shown as a still picture and, by activating the screen, show the species in action.

One such display referred to birds sitting on a lake and when set into motion, the flock took off and flew above the lake surface. As they flew in one direction, it was obviously a flock of birds. As they wheeled about in unison, onto a different heading, the light caught their upper surfaces and the flock look on the appearance of a silver, oval shaped, solid object, just as described in Greg's article. It was a most remarkable and convincing demonstration of the point he makes about perception.

Conspiracies - An Adult Fairy Tale

Vol 5, No. 3 Patrick McBride

The proponents of the UFO phenomenon have not yet captured a flying saucer. Imagine their glee in trucking a bona fide extraterrestrial spacecraft from shopping centre to shopping centre, fielding media interviews about the 'craft', and of course letting people hop inside to look at all the 'gee whiz' alien technology. However, according to the UFO conspiracy theorists, the US Air Force has in fact seized one and hidden it on the premises of the Edwards Air Force Base. Not only that, they are also busy building their own.

It's all there in 'The Roswell Incident' by Charles Berlitz and William Moore, not forgetting the inimitable Stan Deyo with his very confused expose "The Cosmic Conspiracy" (reviewed in *the Skeptic* Vol 3, No 2). Both these books, and a seemingly endless procession of UFO-oriented magazines and books, all scream the same thing - "Conspiracy, Government Cover-Up"! They're right, there is a conspiracy - but it's on the other side of the typewriter.

It would be fair to say that those who generate conspiracy theories and rumours are in turn installing conspiracies of their own. Because if there are no 'captured' flying saucers hidden in the hangars of the US Air Force, then there are many who have been the victims of a very successful conspiracy - albeit an unconscious one.

The publications which espouse a conspiracy philosophy are replete with testimonials by unidentified individuals. The writers of books 'exposing' many of these 'conspiracies' are usually adept at gathering hearsay and not much else. The beauty of conspiracy theories for the UFOlogist is that they don't have to actually 'prove' any of their claims. Indeed, how can they? It is supposed to be a conspiracy.

So we have something very unscientific here. Whereas science allows the evidence, gathered through experiment and observation to prove or disprove the hypothesis, UFOlogy, or at least that part of it that dwells upon conspiracy theories, is not hindered by any such constraint. The reverse is true. The evidence doesn't have to speak for itself for it can be said that the less shown the better. For example, UFO organisations in the US had been campaigning for years to have Air Force, CIA and FBI files declassified and released to the public. When these files were released through the Freedom of Information Act they were pounced upon by the UFOlogists. What these people were hoping to find

was conclusive proof that alien spacecraft had visited earth. But they didn't find any such evidence.

So the call went up, Government Cover-Up! While I am not naive enough to dismiss the possibility of governments, and in particular the US government, committing covert acts in the interests of 'security', we must nevertheless demand compelling evidence.

Follow the reasoning of Charles Berlitz and William Moore in "The Roswell Incident". In Chapter 8 of their 'expose', they repeat a story by Mr Reilly Crabb, the president of the Borderland Science Research Foundation of Vista, California. This story was told to him by an anonymous sergeant in the Air Force who, it is claimed, was shown a flying saucer sitting in a hangar at Edwards Air Force Base, by (you guessed it) an equally anonymous fighter pilot, described only as a 'Steve Canyon' type. The anonymous sergeant then goes on to relate how there were many stories claiming that the captured flying saucer was being test-flown by Air Force personnel, usually at night.

The authors go on to discuss the highly publicised attempts by the US Air Force to indeed build their own flying saucers. (From page 136.) "Some \$10 million was spent to develop the so-called AV-9 AVR car disc-shaped aircraft - a monumental flop which never got more than a few feet off the ground and wobbled like a yo-yo when it finally was testflown in December 1959. This technological disaster, according to the Air Force, is as far as anyone has ever progressed in trying to force the saucer shape to conform to the principles of aerodynamics. The case would seem to be closed. Or is it? For recently some of those connected with the AVR project have suggested otherwise - have suggested that the illfated AVRO car was really nothing more than a monumental blind designed to divert public attention from the real research going on with actual 'captured' hardware or attempts at duplicating it."

They then quote a Lieutenant Colonel George Edwards USAF (Ret.) who, in a UFO magazine, claims that that is pretty well what was going on at the time. Are we then to assume that the Space Shuttle is really a blind? That NASA itself is only a front? That a sinister sister agency is carrying our real' space research?

If the US government did capture a fantastically advanced spacecraft 38 years ago, why haven't the results of that research come into existence? Or, like Berlitz and Moore, are we to assume that government agents are zipping around the world in aircraft constructed with 'borrowed' technology?

Assuming that this is the case it means throwing

all rationality out the window. Scientists are still shaking their heads in doubt about President Reagan's 'Star Wars' programme and yet if the US government did have extraterrestrial technology to fall back on, proposals such as the Strategic Defence Initiative would be greatly accelerated and completed far more economically than the figures currently espoused.

It just doesn't add up, and yet the publications claiming these wild fantasies to be genuine are peddled to the public as 'true'. And even more tragic is the public's willingness to lap it all up - almost as though they want very much to believe that these things are happening. It never seems to occur to them that even the most sophisticated Intercontinental Ballistic Missiles and the Space Shuttle are all still hoisted into the air by good old rocket power. The Chinese used rockets as mere fireworks for centuries. Robert Goddard and Wernher von Braun, amongst others have refined the principle to its present day standard, so there is nothing mysterious about rocket power. The evolution of NASA's Saturn 5 multistage rockets can be traced right back to the V1 and V2 'buzz bombs' utilised by the Nazis during World War II. Today's Space Shuttle is still only a variant on a very old idea.

So where are the government flying saucers? According to the conspiracy authors, they are the thousands of UFO's observed by witnesses all around the world - forgetting of course that most of these sightings are simply observations of natural phenomena. After all, even the most hard-nosed UFOlogist concedes that up to 80% of sightings are eventually explained. When one points out that planes piloted by human beings have a habit of sometimes crashing, the UFO conspiracy proponents shriek in delight by saying, "But don't you see? That's why these government departments rush to cover up the evidence every time there is a saucer crash."

So we have turned the full circle. Using mere tools such as logic and rational elimination of superfluous claims, in effect, Occam's Razor, we can't compete against 'reasoning' like that. It has always been said that people love a mystery. I can't help but feel that authors such as Charles Berlitz, William Moore, Erich von Däniken and Stan Deyo, have all known that for quite some time.

Patrick McBride is a member of the NSW police service.