

the Skeptic

Volume 16, No 2

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a journal of fact and opinion



Tele-psychic Scam Exposed

Thinking critically
Seeking the evidence
Challenging the claims

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Australian Skeptics Sponsors Eureka Prize

The Eureka Prizes reward excellence in Australian science. They are aimed at raising the profile of scientists and at exciting the community about science and its relevance to our industry, our environment and the way we live.

Managed by the Australian Museum on behalf of a group of sponsors from the private and public sectors, they have been awarded since 1990. Each Eureka Prize, except for the Australian Museum Prize, consists of a trophy and a \$10,000 award.

In 1995 the five Eureka Prizes awarded were:

The ABC Eureka Prize for the Promotion of Science was won by Professor Ian Plimer, Dept of Geology, University of Melbourne, for "The use of geology to understand the history of the planet";

the Pol Eureka Prize for Environmental Research was won by Dr Paul Fraser of the CSIRO Division of Atmospheric Research;

the Australian Museum Eureka prize for Industry was won by the Cairns Port Authority;

the New Scientist/Reed Books Science Book Prize was won by Dr George Seddon, Dept of English, University of WA for his book *Searching for the Snowy*;

the DEST Peter Hunt Prize for Environmental Journalism was won by Kirsten Garret of the ABC Radio Science Unit.

Nomination forms for Eureka Prizes can be obtained from:

Office of the Deputy Director
The Australian Museum
6 College St, Sydney 2000

Ph (02) 320 6230

Fx (02) 320 6056

e-mail ddoffice@amsg.Austmus.oz.au

Beginning in 1996, Australian Skeptics will be sponsoring a new Eureka Prize entitled The Australian Skeptics Eureka Prize for Critical Thinking (ASEPCT)

This prize is to encourage young scientists to investigate the acceptance of popular beliefs that owe little to the rigours of scientific method. The award will be made to postgraduate students or post-doctoral researchers under 30 years of age in the physical or life sciences and related humanities areas for a completed or planned body of work in these topics.

While the other Eureka Prizes are for completed bodies of work, the ASEPCT seeks to reward ongoing research into those areas of popular belief that are the subject of our Aims. We also wished to provide encouragement to young scientists at the beginning of their careers.

Examples of the type of project that we are seeking to reward might be (but will not be confined to): medical research into claims made for certain 'alternative' health therapies that are gaining acceptability in the community, despite having no scientific research to recommend them; research into the psychology of irrational belief; research into spurious claims made for the age of the earth by pseudoscientists.

As the 1996 Eureka Prizes will be awarded in November and as it will take a considerable time to assess the applications, those who are seeking to apply are urged to contact the Australian Museum for nomination forms as soon as possible.

We are also seeking the services of a number of specialist assessors and ask that volunteers contact us at our address.

**Editors: Barry Williams
Harry Edwards****Subscription:
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News and Views

The recent federal election once again highlighted the level of accuracy obtained by assorted 'psychic' prognosticators in their predictions of future events.

While a minority of the astrologers and others predicted that the government would be returned and a majority predicted the correct result, none of them foresaw that the result would be one of the greatest landslides in Australian political history. This is remarkably similar to the range of views expressed by political commentators who rely on their inside knowledge of the political process. Curiously, the oft maligned opinion polls were remarkably prescient about the magnitude of the Coalition victory, but most commentators did not believe them.

The only recorded prediction we can find that the Coalition would win by a very large margin is one by our very own **Harry Edwards** who had a letter published in the *Manly Daily* to that effect. The fact that it was published shortly before the 1993 election only serves to prove that Harry is a man ahead of his time.

My own prediction in the 1993 election (Vol 13, No 1 p6) "The federal election will be won by the party whose campaign director has a four letter family name. Further, the second letter of the name will be 'o' and the third and fourth letters will be identical." was proven to be exactly accurate when the Labor Party won under the direction of Bob Hogg. This prediction can now be shown to have carried over to the 1996 election, when the Coalition won under the direction of Andrew Robb. Don't ask how I do it - it's a gift I can't explain.

* * *

Browsing in a book shop recently, my eye was taken with a selection of 'books on tape', all of which seemed to be titles to do with Personal Development and the like.

One title leapt from among all the

rest. Had I been more flush with coinage of the realm, nothing would have deterred me from purchasing it. The title was Leadership Secrets of Attila the Hun, read onto the tape by the author, whose name I unfortunately do not retain, so taken was I by the imagery of the title.

Surely, I thought, here is an opportunity for the Skeptics to broaden our publishing compass. Social Welfare Secrets of Genghis Khan or Hitler on Multiculturalism anyone?

* * *

If you want to know anything, read a book; or so the popular saying goes. But what is one supposed to make of the blurb for a series of Beginners Guides offered by one of the book clubs?

Among a list containing Postmodernism for Beginners and Keynes for Beginners, I found this interesting description of Marx for Beginners:

"... this is an ideal introduction to one of the most influential thinkers of the twentieth century."

Karl Marx died in 1883 didn't he, so how did he become a 20th Century thinker? Is this what postmodernism means, or is it proof of survival beyond the grave?

* * *

Two recent events have focused public attention on the abilities of so-called psychics to help police in their investigations.

The disappearance of a young Sydney woman, which was later revealed to be her brutal murder, brought a great deal of media coverage. Prominent among the stories were the claims of various 'psychics' to have leads to her whereabouts. When her body was found, by a transport driver, it was in bushes by a road leading to the Port Botany shipping terminal. This prompted claims from a European

psychic who claimed that he had provided evidence that caused police to search buildings in the Botany area. News reports breathlessly shouted that his efforts had led police to 'within metres' of where her body was found. Other, more sober, reports said that the area of the search was 'within two kilometres' of her body. Yet other psychics claimed that her body was 'near water'. All claimed that they had helped find her body.

We are not privy to all that went on and we confess to being a little surprised that a psychic could hit on the Botany area by chance. However, if the 2km quoted in news stories is right, we invite readers to consider how difficult it would be to search an area in metropolitan Sydney with a radius of 2km.

As for 'near water', I invite any reader to get a large-scale map of the Sydney area, to draw a circle with a radius of 100km, and try to locate an area that is not 'near water'. More especially considering the rain we had received in the week concerned.

* * *

The second case concerned the drilling of test holes in the floor of a warehouse in Adelaide, searching for remains of the Beaumont children, who went missing 30 years ago.

A wealthy local businessman, impressed by the claims made at the time by the late Dutch 'psychic' Gerald Croiset, paid for the investigation.

To date, the drilling has produced no results.

We may get more information on both these cases in the future, and the SA Skeptics are keeping their eyes on the Adelaide case, however, we can only be concerned that the media pay too much attention and give legitimacy to claims for which there is no evidence. It gives no aid nor comfort for distressed relatives to be given pseudo-evidence by a group of people who are generally regarded by police as wasters of valuable investigation time. ■

Victorian Attitudes

Kathy Butler

If you missed our speakers' night in Feb then you dipped out on an excellent evening. The topic of the debate was "should illicit drugs be decriminalised?"

Our speakers were: Mr John Dalziel of the Salvos, Chief Inspector John McCoy of the Vic Police Drug Squad, and Dr Nick Crofts of the Macfarlane Burnet centre for medical research. (Since the publicity for the debate, these three have been nicked by sundry TV & radio stations for their own shows! Flattery?)

Since Premier Kennet set up a special committee to investigate the drugs problem in Victoria there has been much discussion on the subject. I am rather confused over one piece of "evidence" which all sides of the discussion claim for support - the Dutch situation. Holland, it seems, has recently relaxed its drug laws and, depending on whom you ask, this is either 1) an idea about which the police are enthusiastic or 2) a situation which the police find unworkable. The drugs problem in Holland is thusly either a) improving or b) deteriorating. Seek The Evidence indeed! (See Steve Roberts' summary of the debate p 7)

* * *

The Medical Scientists Association of Victoria (MSAV) is the professional and industrial association for those fine, upstanding pillars of society who test your blood, urine, amniotic fluid and other icky body substances for various diseases and disorders.

They are also involved in vast amounts of medical research, shining the lights in all the dark corners. These lords of the laboratory are the everyday upholders of the scientific method.

So this MSAV member was a little distressed to see that the new award allows me to take sick leave with a certificate from a naturopath! After shooting off a rather fiery fax to said association I spoke to the secretary

who was surprisingly still quite friendly to me! He explained that the sick-leave provisions were just transported across from the nurses' agreement and that this was an (accidental?) consequence. (What this says about the nurses' award is best left to the reader.)

Nevertheless I would encourage all medical scientists to avail themselves of this provision. I hereby proclaim myself to be a naturopath. Any scientists requiring a day off work because of the effect of the conjunction of the planets on their health (etc.) is welcome to contact me for a certificate. My fax and E-mail addresses are inside the front cover. What's next? Perhaps you could get time off in advance because a clairvoyant said you were going to be sick.....

* * *

The dreaded April 1 disease struck our fine city again this year, at the hands of no less than Victorian committee member, Prof Ian Plimer.

During his regular ABC radio broadcast he happened to let slip about the new subatomic particles which had been discovered. These golfball-sized particles called "Getons" were causing rather a stir in the world of physics, it seems, and their effect when meeting up with their negative partners (the Getoffs) was no doubt to be the subject of many PhD's to come.

The gullibility factor in this town must be pretty high, since I heard excited callers phoning various other science shows about them all week!

* * *

Our Victorian roving reporter, Shane Delphine, has sent us a postcard from Turkey (you might recall his letter in the previous issue about a Thai conman). This striking epistle depicted a lovely picture of Mount Ararat, complete with pack mule to add local

colour. Shane explains that he will be returning to the mount at a later stage in search of Noah's Ark. At the moment the peak is covered in snow. Do bring us back some gopher-wood souvenirs, wont you, Shane.

* * *

By the way, Shane, some mail came for you while you were away.

It seems you are on the mailing list for some sort of new-age publishing house. The brochure advertises various words of wisdom from self-proclaimed "healers" and "past life regressionists", but the one that takes my fancy is a book with a rather snazzy cover showing diagrams of DNA, showing me how to "learn cellular regeneration techniques and DNA exercises" (I kid you not!). "Unlock the mysteries of the DNA helix!"

This seems to be a bit of information that Watson, Crick and Franklin have overlooked. Their Nobel prize work seems to be deficient in the area of DNA exercises.

I recommend the author of this little gem rushes this off to *The Lancet* or *Human Genetics* for instant rectification!

* * *

Don't forget to check out the web site: <http://www.skeptics.com.au>.

School Science Awards

The NSW Branch is pleased to announce that it has become a sponsor of the annual *Young Scientist 1996* awards, organised by the NSW Science Teachers Association.

We are proud to be associated with an event that encourages school students at all levels to take an interest in science.

Summary of the Drugs Debate

Steve Roberts

The Victorian Skeptics recently sponsored a debate on the drug problem at Poynton. The debate was opened by President, Kathy Butler, who suggested that, as Skeptics, we need to inform people who are not looking at evidence properly.

The speakers, and a summary of their points follow.

Dr Nick Crofts of the Macfarlane Burnet Centre for Medical Research: Drug abuse is only a symptom of social problems. The effects of a drug's being illegal are generally worse than the effects of the drug itself. Much hidden drug use occurs but causes no problems. Drug users that do have problems tend to be people that already have social problems. Prohibition has caused terrible new problems in societies that have traditionally tolerated drugs. New drugs users willingly seek out drugs as an escape from an uncaring world and to get peer acceptance. It is politically easier for society to blame the drugs rather than admit its own failure to care for people. Newspapers create myths and bend the facts to fit their own campaigns. Major traffic in drugs is not being interdicted successfully, even in prisons. Controls on drugs have not only failed but have also worsened the situation.

Chief Inspector John McCoy of the Vic Police Drug Squad: The rule of law must be upheld. Heroin use has varied throughout world history but has been heavily reduced on occasions by strong law enforcement; we can do this again. People want drugs because of society's failures, so we need to change society, starting in schools. Even heavy addiction can be cured and social help is available for the problems that lead to drug use. Police do catch drug traffickers but courts tend to free them. Politicians are aware of public opposition to

liberalising drug laws. The problems of controlling drugs may be daunting but can be solved by police, judiciary, health and educational sectors working together, plus individual responsibility. Criminals will turn to even worse things if the drug trade is legalised.

Mr John Dalziel of the Salvation Army, a welfare worker: Drugs are the symptom of social problems. People resort to them when society fails them, and are generally ignorant of the harmful effects. Drug use is connected with other crimes, thereby compounding the social problems. Other societies tend to regret their experiments to liberalise drug controls. Enforcement is not a significant goal compared to better education and attitude shift - and this has been demonstrated not only with drugs but also with drunk driving and other examples. Most people do not know enough about drugs to make a rational decision about their use, society must therefore provide better education. Liberalisation would have undesirable effects and would not effectively change the situation, therefore we must focus on education.

John Ross (scientist and politician): Drug abuse has nothing to do with drugs; it is a symptom of social ills. Legislation has evolved as a response to perceived drug problems. Technical guidance failed to be useful. Behavioural changes are needed, on many other problems as well as drugs. Laws are needed now, and reflect public opinion which is against having drugs, but laws would become irrelevant if individuals were more responsible. Laws are attempts to change cultural behaviour, not only about drugs but about everything else.

A full transcript of the debate is available from:
Victorian Skeptics,
GPO Box 1555P, Melbourne 3001

Gold Coast Skeptics

John Stear

The first get-together of like-minded persons organised by the newly formed Gold Coast Skeptics was held at Bond University at Robina on the Gold Coast on the evening of Tuesday April 30.

Despite torrential rain and gale-force winds (we are not aware that any local clairvoyant predicted the extremely inclement weather) the function was attended by twenty sceptical people who were enthusiastic in their support of the Gold Coast group.

The President, Graeme Laing, fortified with a brace of XXXXs, addressed the gathering and outlined our aims and intentions. Needless to say there were many present who were aware of the need for some seriously applied scepticism on the Gold Coast, where crystal healers and gazers, charismatics and charlatans are almost, but not quite, as numerous as the grains of sand on our beautiful beaches.

The group plans to hold another get-together in June to coincide with the Great Australian Science Show in Brisbane. We hope to have an important speaker to address the multitude. Loaves and fishes and other nibbles, miraculously multiplied, will be available on the night at reasonable cost.

Providing the creationists are mistaken (as usual) and the speed of light remains constant, details of this function will be provided in due course by fax, phone, e-mail and snail mail.

State Groups!
Send us your phone, fax,
e-mail numbers,
meeting notices and
programmes we will
include them
in future issues.

CONVENTION NOTICE

Skepticon 96

Roland Seidel

Hi, folks. Here are answers to a few questions about the convention. (I never know whether to call it a conference or a convention. Is there a difference between conferring and convening? Do we convene to confer, intervene to infer, wintergreen to winter fur or bishop to queen four? It's a tough job organising this thing but at least I've still got my wits about me.)

When & where is it?

The 1996 Skeptics National Public Convention will take place at Monash University, Wellington Rd, Clayton over the weekend of September 21, 22. This is the weekend before the Grand Final of our dominant parochial religion / war substitute so locals need not fear the dilemma of divided loyalty. It's also very springy weather in Melbourne at that time, which is generally fabulous, but we're depending on the Grand Final attracting any possible rain to the next weekend.

Who will be there?

Annie Warburton, a journalist in Tasmania and a face becoming well known to the Skeptical community, will present "Adventures of a Media Skeptic". We've got a few journos this year and I have been reflecting on what I know about journalism. I remember Clark Kent and Peter Parker (Spiderman), Kolchak in *The Night Stalker* and the modern spin off, *The X-Files*. There's Watergate, The China Syndrome, Four Corners, Nightline, Stateline, Dateline, Lateline, Frontline and Witness (Wankness?). It must be a very interesting world for a Skeptic to live in. Annie mentioned encounters with New Agers on the path to immortality and homeopaths contemplating the notion of proof. Tall tales and true from the public pen.

Dr. Andrew Gibbs is a famous name for those who have been following the False Memory Debate. He seems to be our local expert in the field, appearing in courts and generally fighting the good fight. He doesn't look much like Elizabeth Loftus, but then, who does? Andrew will bring us up to date on false memory and will probably recount all sorts of bizarre stories. In chatting with him he revealed a big interest in consciousness and related brain issues and may give us the latest on that as well. I hope so, I will certainly encourage him to do so. I don't believe a convention is complete unless it has some brain stuff in it - in fact, it was the prospect of meeting Susan Blackmore that is largely responsible for my joining the Skeptics so I want that thread picked up.

Lesley Vick will be there. She is the president of RSA (Rationalist Society of Australia), a companion organisation that can actually claim to be a philosophical school and even appears in Ward & Humphreys' *Religious Bodies in Australia*. (The Humanists also appear but the Atheists don't - makes you wonder, doesn't it?). The Skeptics used to be a philosophical school in third century BC Greece but we're

just a bunch of party-poopers, apparently. Lesley is going to tackle the ultimate problem of how you actually make any headway in getting the public to think straight. It reminds me of a discussion I had in our local coffee shop (Hippy Haven, Tecoma) on 'life-force' - it's not easy.

Dr. Mike Ablett is Director of Research at Bristol-Myers Squibb (sounds like some new crustacean) where they make drugs. He's going to tell us how they do that and compare it with some of the 'alternative approaches'. If you've caught the recent TV programs on plants as medicines (opiates/poppy, aspirin/willow, digitalis/foxglove, quinine/cinchona) you will agree this is a fascinating area. With penicillin growing less useful there has been lots of energy put into screening programs looking for new drugs from plants and animals (I understand frog skin is interesting - maybe the hippies who smoke cane toads are on to something). There's growing interest in native medicines just when native peoples are regaining the dignity they lost - and some peoples are, understandably, telling us to go jump. It's a funny old world.

Peter Smark from the *Sydney Morning Herald* has agreed to talk to us about Econometrics. This came about from a few things. Peter Martin of the 7:30 Report put on a piece recently where he looked at Economic Forecasters, many of whom, it seems, simply average the predictions of their peers to arrive at their own prediction. There are others who make maverick predictions which are quite spectacular when they are right - but they are not always right, and being wrong is not so noticeable. Phillip Adams interviewed an historian, Anne Geneva who wrote a book on Seventeenth Century Astrology wherein she drew a parallel between that and twentieth century economics. They both have a stranglehold on political and business decision making (no-one makes a decision without first consulting an expert), they both offer a complete 'world view' through which events can be understood, they are both taught at Universities and highly revered, but the punch line is that the excuses offered by either system when it is wrong are virtually identical: bad data, insufficient data, new influences and the killer - it hasn't happened yet but it will! Economics has been floundering, somewhat, after the erosion of faith in Keynes, having now an embarrassment of theories. There is room for scepticism here.

Karl Kruszelnicki will be joining us. Who knows what he will talk about but he has mentioned some novel ideas on spontaneous human combustion. Karl is often compared with Julius Sumner Miller, whose chair he even holds, apparently. Yes, he is a bit wacky, always entertaining and provocative, a fabulous science communicator, sounds as if he knows everything about anything but preferably the weirder the better, radio, TV and print personality, a man with a passion for science and a mouth to match (no, I don't know what it means either). But! Unlike JSM, he is

not a grumpy old codger constantly whingeing about how soft and pathetic young people are today. Kruszelnicki, the name you love to hear but hate to spell - don't miss him.

Oh, and Richard Dawkins will be there as well. I have been disposed to complete my reading of Dawkins and, I must say, *The Extended Phenotype* is an absolute elephant stopper of a book. A bit techo but, by Jiminy Cricket, the best compendium of evidence for evolution I've seen and all in the service of a big (BIG) idea. Get it - consume it - digest it - it'll do you good. Just for the record, the books are *Climbing Mt. Improbable* (Viking - Penguin), *River out of Eden* (Allen & Unwin), *The Selfish Gene* (Oxford), *The Extended Phenotype* (Oxford) and *The Blind Watchmaker* (Penguin) - and they will all be available at the conference.

Richard has just become Professor of Public Understanding of Science at Oxford and is without doubt the most articulate and strident advocate of gradual Darwinism in the world - certainly the busiest. Quite apart from the simple matter of keeping the public informed of developments in science Richard has the usual run ins with fundamentalist types who regard evolution as the devil's work and strive to insulate our children from it in schools. While the Monkey trials of 1925 look like getting a rerun in America (several states now have regulations restricting the teaching of evolution - and we have the memory of Queensland under Jo) we need the inspiration and fortitude of people like Richard.

Richard's wife, Lalla Ward, is also coming and is notorious in her own right. Shakespeare buffs may know some of her other performances but Dr Who fans will recognise her instantly as Romana II from the Tom Baker period around 1980. It is not planned that Lalla speak to us, they're taking the opportunity to squeeze a New Zealand holiday in between a conference in Austria in August and publishing tours in USA in October. By the way, Dr Who clubs out there, why don't you answer my letters?

We had thought that Richard could fit in a tour rather like Susan Blackmore's last year but the schedule is too tight. They will arrive in New Zealand on the 7th, essentially for a holiday but there are four speaking engagements there already, come to Sydney on about the 17th for a few media events and to speak at the Australian Museum, to Melbourne on about the 20th for a gig with the Rationalists, then the Convention on the 21st and 22nd, fly to Brisbane on about the 23rd for something at Griffith University, then be keynote speaker at the Apple Computer conference on the 24th and 25th, get to Canberra on the 27th to open the ANU Centre for Public Awareness of Science and then hop a jet for the USA where ravenous publishers await. I was given to observe that it is a peculiarly parasitic relationship that we have with the famous and to hope that someone is watching out for Richard.

Speaking of voices against fundamentalism, Ian Plimer may make an appearance. Ian is head of Earth Sciences at Melbourne University and our knight in shining armour. We never know when he will be in Turkey or Kalgoorlie or some other remote geological hot spot, or when he will be wrestling on the floor of some expensive court room fending off the forces of Creation Silence (dear Ed, don't fix the spelling - I just can't bear to put the word science that close to fundamentalist nitwittery). We owe Ian more than gratitude for the victories he has achieved on our behalf so if you see him at the convention, go up and shake his hand and say thanks.

How much will it cost?

I don't know yet. I'm tackling costing real soon now but it's obvious that it will be more than last year. We're a bit more up market, we're not taking any chances on the food supply, and the committee are starting to get fancy ideas on making it a more memorable event. There will probably be more stuff to buy as well. It is clear that you will not go home empty handed and the cry of 'cheap at half the price' is not unexpected. Yes, yes, I too was once a struggling student - we won't forget. Sorry I can't be more specific. Watch this space.

What was that crap in the last issue?

I asked for a bit of audience involvement in the last issue and I mustn't pass up the chance to further press my case. Send any responses to these to Skeptics Conference, PO Box 1555P, Melbourne 3001, Victoria.

1. How did you become a Skeptic?

Some people have always been sceptical, for some it gradually dawns, for others it comes with a bang and for others it has never really mattered at all. Some of us spent a lot of time genuinely pursuing the mystical and metaphysical, some have never been interested. But why on earth did you join the Skeptics? If you watch a TV show called *Front Up* on SBS you will realise the truth of the old line that everybody's story is interesting. What's yours?

2. The language of Skepticism.

Words give form to ideas. You can't think about things properly without naming them. This has its dangers, of course. Marshall McLuhan called it the 'Label Libel' hypothesis; just because you name something doesn't mean you understand it. But I'm looking for wit and insight. Have you found any good epigrams? "Belief: it's what you do when you don't know."

Do you have any new descriptions of things of Skeptical concern? "The Gypsy Effect": that compelling illusion that the vague narrative of divination systems like astrology has personal meaning in it and that the meaning was planted there to be found by you. In fact you construct the meaning yourself from your own raw materials and the gypsy gets the credit.

3. What's bad about it?

Why do we bother struggling to reduce irrational thought? Why do we so vigorously dispute the claims of mystics and despair at the flood of New Age magazines and alternative health systems? What is the advantage of being sceptical and the disadvantage of being not so? What is the cost? Where are the victims if it is dangerous? Does it really matter? Were the Middle Ages that bad anyway? I'm looking for confirmable evidence that individuals suffer and communities are damaged.

4. The Medical Mystery.

Chiropractic claims that 95% of disease is caused by subluxations. Homeopathy claim that 7/8 of disease is caused by 'psora' (itch). It struck me that one of the problems with orthodox medicine is that it is so much better than all the others that we expect it to know everything. So I started asking medical practitioners this question, and I invite you to put it to your own health practitioners after you have noted your own response. Given the century or so of orthodox medicine that we have enjoyed, what proportion of the human body do we now understand? See you at the convention. ■

EXPOSE

Psychic Tele-phonies

Harry Edwards

If you are feeling ill you see a doctor. If you have a dispute with your next door neighbour you seek legal advice, and when your car breaks down you probably ring the NRMA or the RAC.

Listed in the telephone directory are pages of community and welfare services, staffed by trained personnel, who will give you a free consultation or advice on everything from the arts to money and health to housing. Why on earth then would one "dial a psychic" and pay \$5 a minute for similar, albeit far from professional, advice? The answer is, of course, that those who patronise this type of service, labour under the misapprehension that they are consulting a supermind - one endowed with a supernatural ability or with access to an oracle that enables them to pontificate on all and sundry with undisputed authority. But what do they really get for their money?

In *the Skeptic*, Vol 14, No 2, I drew attention to a telepsychic scam in the USA - an estimated \$100 million dollar-a-year rip-off in which untrained and unqualified persons posing as psychics were dispensing their wisdom from cues written on the backs of tarot cards.

The Australian Psychics Association was quick to jump onto the band wagon, despite an exposé by (American) ABC-TV's *Primetime Live* and subsequent adverse publicity, and advertised its "dial a psychic" service on Sydney TV Channel 7.

Looking through the Telephone Information Services listed in the telephone directory, I was amazed at the diversity and number of services available. By no means were psychics in the minority. Under 0055 were *Psychics Live*, *Stella Stars*, *Tarot*, *I Ching*, *Dream Interpretations*, *The Runes*, *Gypsy Dice*, *Gypsy Love Tarot*, *Ancient Dice Oracle*, *Arthur Bowman Astrology*, *Horoscopes - All*, *I Ching Ancient*, *I Ching Love*, *Love Scope*, *Numerology*, *Prophetic Dreams*, *Tarot Line*, *Zodiac Partner Compatibility and Psychic Live*. *Individual Horoscopes*, *Money Tarot*, *Numerology by the Stars and Your Perfect Partner - find them by the stars*. And under the 190 listings I found *Psychic Network Live*, *Chantell's Psychic Connection*, *Chantell's Astrology Direction*, *Rodger Elliot Tarot*, *Phenomenon Decoder on Occult Sciences*, *Psychic Sciences*, *Psychic Connections*, *Astrology Live*, *Astrology/Numerology Line*, *Spirituality Hotline*, and *Psychic Express*. (This list incidentally is incomplete, and not one was listed under "Entertainment"!)

Going through the listings, I mused that for a few bucks on a wet afternoon one could have a bit of fun ringing the more unusual services such as *Dial an Insult*; *Elvis - Talk To The King* (p45), and *Is my penis too small?* (p47). How the latter could be determined on the phone intrigued me.

The players

The latest to join the gravy train is Athena Starwoman, well known to readers of women's magazines for her horoscopes, love spells and allied metaphysical nonsense.

Born in Melbourne, the 51 year old Athena (who gives her address as 14 East Sixty Fourth St, New York, United States) is a director of a \$2 company known as **Twin Star Productions Pty Ltd**, situated at 10 Crown St, Sydney. Its principal activity is listed in an Australian Securities Commission's extract as: Writing and Promotion of Astrological [sic] Products.

Twin Star Productions, in conjunction with **Jenius Pty Limited**, Suite 334, 4 Young St, Neutral Bay, NSW (another \$2 company whose principal activity is listed as Film & Publishing) formed a promotional team trading as **Love & Life Productions** at the same Neutral Bay address. (The signature "Jennie Godfrey", one of Jenius' directors, appears on the "Metaphysics Certificate of Merit" and above the word secretary of the operators' agreement.

In the financial year ended June 30 1995, Twin Star Productions reported its total assets at \$81,150: shareholders' equity as \$36,584, and its operating profit after tax as \$36,582. While these may not be impressive figures, it should be borne in mind that this is a new promotion just getting off the ground. (Para 1 of Love & Life Productions' newsletter dated 14th January 1996, refers to "...the early stages of a new promotion such as this." Its potential can be gauged from the figures in connection with the Victorian promotion detailed later in this article).

Pseudo-psychics

Advertisements currently appearing in women's magazines and broadcast on Sydney Radio station 2UE, promote "Athena's Psychic Friends" and "Athena's Tarot Line". In the former, we are asked to "Call now and speak live with one of Athena's Psychic Friends who will guide you on your future path." Billed as "Australia's top Psychic Astrologer", Athena Starwoman says in an advertisement in *Woman's Day*, "the response [to the tele-psychic hot line] has been amazing, (so amazing in fact, that in March, a midnight to 2am shift was scheduled). People are realising that they too have psychic powers and once they have the key to this knowledge, there's almost nothing that they can't do." The cost of a call is \$5/min, with higher charges for mobile and public phones. Legion Telecall Pty Ltd of 153 Walker St, North Sydney is the service provider. In these systems, Telstra gets 1/3, the service provider 1/3, and the information provider, in this case Athena's company, gets 1/3.

So who are Athena Starwoman's "psychic friends" and

just how “psychic” are they? And, more importantly - what does one get for one’s money?

Given that the person you are speaking to on the other end of the “psychic” line can advise you on anything in seven areas of life - love, spiritual, social, physical, financial, mental and career - one would assume that they are fully trained and highly qualified counsellors in many areas. Well, credit where credit is due, they have done a training course (four hours) and have a Certificate of Merit to prove it!

Like the “professional psychics” accredited to the Australian Psychics Association, there is no evidence that any of Athena’s psychic friends possess extraordinary abilities or powers, psychic or otherwise, and considerable evidence not only to the contrary, but which reveals that they are part of an organised business whose only effect appears to be to deceive and fleece the unwary.

Positions vacant - psychics

How are these “hot-line psychics” recruited?

To find out it was first necessary to arrange for someone to call the promoters to indicate an interest in employment as a telepsychic. Provided there is a vacancy and one presents a reasonable personality on the phone, the next step is an interview to determine what your psychic capabilities are. The interview creates the impression that as long as you can claim to have fallen on your head as a baby, had a gypsy grandmother or knew who was calling when the phone rang, you were definite “psychic” material.

Having obtained a position, my mole informed me that Athena is a friend of Simon Turnbull, and aware of our infiltration of the Australian Psychics Association (see Operation Termite, *the Skeptic* Vol 14, No 4.) was quite paranoid about the possibility of a mole in her own operation. As a consequence, and unlike the APA, she makes a thorough check of applicants’ metaphysical backgrounds. This check however, only goes as far as confirming that you had completed a course conducted by a professional psychic, but what evidence is there that the persons conducting these courses are themselves psychic? Notwithstanding her counter-espionage precautions, they were hardly a match for 004 *et al* as we see!

Having “qualified”, my mole was presented with her credentials: a Certificate of Merit of the Ancient Order of Metaphysics. (The contradictions and false claims made therein are self-evident); information on operating procedures; a list of Love & Life products for sale (Cosmic

Experience Cassette \$20, Secrets of Immortality \$35, The Essence of Healing \$70 etc), and was required to sign the Operator’s Agreement.

Item 2 (c) of the agreement reads:

“The operator shall provide psychic advice, or other advice services as agreed, as part of the Service in accordance with the general intention of the scripts and outlines provided by Love & Life and shall not digress in any substantial respect from those scripts or outlines... Under no circumstances shall the operator make any prediction or give medical or psychological advice without the prior written consent of Love & Life.”

Item 2 (g) of the Operator’s Agreement reads:

“Love & Life may terminate this agreement at any time if the operator fails to give psychic readings pursuant to the scripts and outlines...”

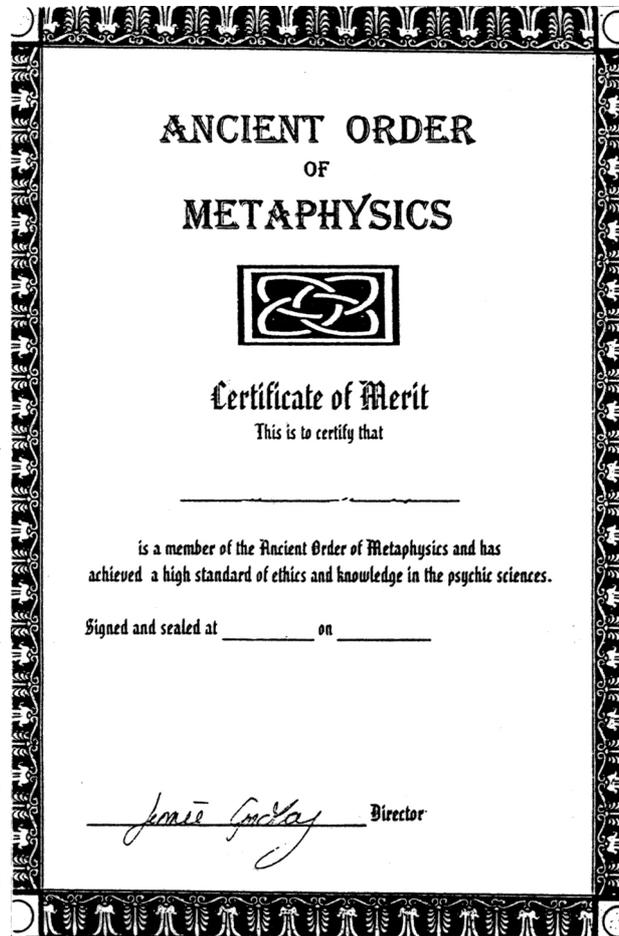
These items are significant as they irrevocably restrict “psychic” readings to a prepared script, there is no room here for any original psychic insights and to minimise the areas where the possibility of legal redress may occur.

Divine wisdom.

Most revealing is the 47 page booklet, the “Divine Heart Booklet” issued to the newly “qualified and certified” psychics. The manual starts with a welcome to the “Psychic Counsellors of Wisdom”, explains the policies, ethics [?], standards and operational details of the organisation, contains a few pages on astrology, plus an index listing 12 pages of Messages and Answers To Questions. The latter section is the heart, soul and mind of the “psychic” who simply refers to the appropriate heading in the manual and reads

the basic response. A typical answer/response to a question on finance can be found on page 42 and reads,

“Money seems to be going out more than coming in at the moment. Difficulty balancing the finances and having enough to make ends meet. Affirm financial abundance instead of poverty consciousness. Now is the time to sit down and do some serious budgeting. Find a friend who has a good financial record, or hire an accountant. It will be well worth every cent. You need help from a professional, to now cre-



ate healthy patterns of dealing with finances.

It seems as if there is an unamendable [sic] hole in your pocket, and everything you earn falls out and to the ground before you even get a chance to hold on to it!

There is a need to be more frugal with the money. Cut back in areas that are not so necessary, and make a stop to any frivolous overspending.

It is also time to stop thinking 'I don't have enough', and to start making positive affirmations to yourself 'I now have everything I need'."

Profound stuff, what?

In the January 1996 issue of the *Cosmic Newsletter* there is a reference to the "oracle" (metaphysical euphemism for "imagination") in connection with a complaint from a caller in Darwin. The client, who had taken notes of her reading complained that she had called a psychic line but the reader had only chatted to her about her problems, had not sounded very confident, and had not resorted to her cards or the oracle. The newsletter writer goes on to remind readers that they must "always refer to the oracle during your calls. Remember, you have the special gift to be able to call on help and guidance that comes from a greater source and then impart this to your callers." Further, the stated policy of Love & Life Productions (p 13) is that "all negative readings are to be read in a positive way", and "under no circumstances does a reader have approval to advise that the questioner or someone around the questioner is dying." In other words, even if the cards turn up bad news - don't tell them.

What sort of psychic power must you have to read off a prepared script?

Never give the suckers an even break

In a special advertorial newsletter dated January 14, 199(5) [sic] addressed to "Psychic Counsellors", the writer refers to TV Advertorials on January 4 and 5 1996, and the good response generated. However, concern is expressed that the newly joined psychic counsellors' calls are of a too short duration and that they should lengthen them - anything from 20 minutes to 2 hours [at a cost of between \$100 - \$600 to the client]. With the newsletter came a tick list of topics to be used to keep the client on the line once the original enquiry had been dealt with.

In the March newsletter, under the heading "satisfied customers", reference is made to the Preferred Reader Service. This service caters for those repeat callers who prefer a particular reader. In a subtle hint, the writer goes on to say, "...our records have shown that the most requested readers on this service are those who have the more substantial call durations." Another hint for prolonging calls follows with, "...advise the caller around the 10 minute mark how long they have been on the line and ask if they would like to stay on the call - the 10 minute mark (\$50) being a reasonably affordable figure. After this time we leave it to the discretion of the reader when to remind the caller, but it seems that too much reminding also seems to be badgering the caller..."

Avarice - a deadly sin

Not content with deceiving the public with phony psychics, Love & Life Productions' tentacles reach out for the superstitious and uninformed offering *Athena's Love Spells*, (Copyright), and an invitation to join the newly founded Ancient Order of Metaphysics and the International Cosmic College [for a fee of course].

In addition, January saw the creation of a prerecorded line called *Athena's 7 Lucky Symbol Line* and *Jennie Godfrey's Guardian Angel Psychic Line* 1. Another well-known personality involved in the operation is Deborah Gray, who uses the name "Bellthane" to advertise *Bellthane's Magic Psychic Line*.

March saw the launching of a *Gay Psychic Line*, and *Genie's Crystal Ball* run by Athena's niece. Readers are instructed that if they don't use the crystal ball they can use whatever they like - tarot, runes, or the manual, which means that they are not providing the service advertised and for which the client is paying.

Even their own employees are susceptible. After doing readings for one month, they then have to wait till the end of the second month for their pay, their invoices made out to Jenius Pty Ltd. Readers have to supply their own headphones at \$129 - \$149, and are invited [expected] to attend Reader Training Sessions conducted by Athena's husband, Dr [of chiropractic] John Demartini. The session on December 7, 1995 at the Sydney Ritz Carlton was offered to readers at half price (\$75) and a Psychic Training Evening presented jointly by Athena Starwoman and her husband at the same hotel on November 28 1995, cost \$500. [Not a misprint]. My informant advises me that the briefing session turned out to be a promotion for Demartini's book and seminar.

The Melbourne connection

Euphoric with my informant's success in penetrating and exposing Athena's dubious operation, I turned my attention south of the border, where Eugene and Karen Louise are principals in what I perceived to be another "live psychic hot-line" scam.

Geers International Pty Ltd, trading as **Star*Match International** of 21 Junction Road, Blackburn North, has its office in a huge Victorian farmhouse and is also the residence of Eugene and Karen-Louise (Karen Raney). Although advertising under their own names and different phone numbers, Eugene and Karen Louise are business partners.

In the February 19, 1996 edition of *Woman's Day* (p69), Eugene asks readers to call on various 190 numbers for "immediate accurate answers on relationships, love, money, career, sex, marriage and success". He also advertised for "Tarot, Psychic and Astrology Readers". In barely discernible print at the foot of the ad we are informed that the service is for "Entertainment Only".¹ Curious to find out whether Eugene and Karen Louise's operation was similar to that of Athena Starwoman and cohorts, I contacted a sceptical confederate in Melbourne, (code name Martha Hari) who professes no psychic abilities or experience, and asked her to apply for a position as a tele-hot-line reader.

The Eagle has landed.

Young, good looking, intelligent, quick thinking and presentable, my mole rang for an appointment and was immediately granted an interview. She turned up with a fake resumé extolling her spiritual training and achievements, and the following summarises the main points in her report.

“Judging from the real estate and contents, and figures quoted by the manager Caroline Wilkins, Star*match is obviously a lucrative business”, Martha wrote.

“The interview was simply a chat about what I did. I answered honestly - I studied genetics and psychology at uni, and (tongue-in-cheek), psychic healing under *Pastor Henry Edwards!* As far as what sort of psychic experiences I’d had, again I answered truthfully, that I’d helped many people with their problems and could also pick the sex of babies before they were born².” Caroline was impressed and asked me to tell her a little about herself. ‘This is always difficult when you are put on the spot, most people think it should work on and off like a tap, but we know it doesn’t work that way’, I said, repeating the psychics’ credo, ‘but let me give it a try’. Knowing the business was newish and was positively booming I continued, ‘I feel you are on the crest of a wave travelling very fast, I don’t know if that’s personal or in business, and you don’t like it when things get out of your control’. [don’t we all?] There was a pause and then, ‘That’s quite true’ Caroline said, ‘so you’re a psychic’. The resumé was never asked for.

And that, dear readers, is how easy it is to become a psychic hot-line reader for Star*match. No experience other than say-so, no psychic powers, no knowledge of astrology, numerology or tarot, no study involved and no talent other than that required to deliver a patronising one-liner. And these people set themselves up as fonts of universal knowledge to advise and counsel those in need. To check out whether the service was really for “entertainment only” Martha asked whether most people rang the lines “for a bit of fun”, she was assured that this was definitely not the case, and that most people asked for serious advice.

My mole was then lectured on how to log-on and how the system works, and told that she should expect a conversation to last at least 10 minutes (\$50) to get to the “heart of the problem.” Caroline’s average is 18 minutes (\$90). Unlike Love and Life Productions, there was no manual of ready made answers but there was a book, *Cutting The Ties That Bind* (\$30) operators were expected to recommend. Furthermore, operators are advised that “in the case of clients obviously in need of ‘real’ counselling they should be referred to a practitioner.”

After her first shift, Martha reported some interesting asides that reflect badly on the need of some women to get their act together and seek some **real** therapy. Generally their anxieties were about relationships, and all sought reassurance about the future. Two of the calls were made from offices, which would indicate that businesses would be footing the bill, and are therefore, also victims of this racket

Financial rewards

Now let’s take a quick look at the money earning potential of this scam.

Star*match claims to employ 70 operators, on three, four hour, shifts per day, seven days per week.

Maximum potential turnover: 70 ops on four hour shifts seven days per week @ \$5/min.

= \$588,000 per week or \$30,576,000 per annum.

As above but with each operator logging only 60 minutes of calls each day

= \$147,000 pw or \$7,644,000 pa.

As above but each operator logging only one ten minute call each shift.

= \$ 24,500 pw or \$1,274,000 pa.

As an indication of the earning capacity of each operator, in her first shift (9 am - 2 pm), Martha logged five calls, two at 5 mins, and one each at 10, 12 and 17 minutes respectively. Two hundred and forty-five dollars gross income for Star*match³. Bear in mind too, that Martha is new to the job and has yet to develop the art of prolonging calls. Remember Caroline’s claimed average of 18 mins.

Multiply any of the above figures by the number of tele-psychic businesses throughout Australia, and it lends credence to the claim made in America that the tele-psychic business is a multi-million dollar scam. And don’t forget the sidelines. Of course there are overheads. Operators get paid \$0.70-90 a minute, and there is the providers fee and the advertising costs. However, it would appear that there is more than enough left over to keep a large pack of wolves from the door.

Confirmation of my guesstimates came from an unlikely source - an article, *Future Shock*, in the February issue of *New Woman*.

The article, about the burgeoning psychic business with emphasis on “Live” psychic and horoscope lines, quoted the following facts and figures. Up to \$100,000 per month on 0055 numbers. One psychic line generating up to \$150,000 per month based on a typical call lasting seven minutes, at an average of \$0.70 per minute. Pre-recorded horoscope and psychic messages regularly take up the top four positions in the InfoCall service, and Telstra has allocated almost 1000 numbers to the latter services. Ian Parry Okeden, 2UE’s producer of *Cosmic Connections*, featuring Bridget Pluis, claims the local telephone exchange is jammed with 3000 to 4000 calls per show.

Summary

* There is no evidence to show that any tele-psychic operator possesses any “psychic” or counselling ability, and much evidence to the contrary.

* There are no tests of applicants’ claims to be psychic, the results of which would be accepted as evidence by any rational or scientific body.

* Unqualified advice on all matters is being disseminated *ad hoc*, with total disregard for its wider implications.

* Readings that are allegedly individual, are predetermined and of a basic, general purpose nature.

* Employees are encouraged, even directed, to prolong calls to increase the earning capacity of the promoters.

* Clients are persuaded to purchase unproven and questionable products.

* Outside businesses become vulnerable when employees make unauthorised and expensive phone calls.

Conclusion

The unwary, the uninformed, the lonely, the indecisive, the bereaved, the gullible, the financially embarrassed, the lovelorn, the vulnerable, the aged and many more seeking advice in one area or another, ring Athena's "psychic" friends and Jennie Godfrey's *Psychic Guardian Angels* under the impression that individual advice is being given them by counsellors endowed with supernatural abilities or who have access to divine intelligence. In reality, they are being read to from prepared scripts and inveigled into paying for lengthy and expensive phone calls and 'meta-physical' claptrap. Regardless of the enquirer's circumstances, they are all given the same, all-purpose generic answers.

Business income is guaranteed for the proprietors, Telstra has the responsibility for recovering any bad debts. When one considers the possibility of aged and lonely pensioners and others in straitened circumstances being conned into spending up to \$600 on a phone call, the potential for damage to vulnerable clients is obvious, and the ethics of these "services" are called into serious question. Given the evidence, in my opinion, there can be no doubt that Athena Starwoman, Jennie Godfrey, their cohorts, "psychic friends" and Guardian Angels are operating an unconscionable business to help themselves - not their clients. I believe that the foregoing activities invite proceedings for the purpose of obtaining substantial corrective advertising orders, and for the rights and obligations arising under the respective Crimes Acts of the States.

One final observation. It appears from the ease with which the psychic "tele-phoney" businesses were penetrated and exposed, that despite the operators' claims to possess a variety of extraordinary powers, the awesome concentration of "psychic powers" left them just as vulnerable and gullible as those they deceive.

The ultimate revelation in the Victorian investigation is the true identity of Martha Hari, the one person least qualified or acceptable as a psychic, who has made a complete and absolute farce of the claims made by Victorian tele-psychic hot line operators to possess any psychic powers. She has agreed that it would be in the best interests of scepticism and of the public to reveal who she is, none other than - Kathy Butler, the President of the Victorian Skeptics!

Notes

1 The *Jennie's Guardian Angel Psychics* advertisement in the *Sydney Sunday Telegraph TV Extra* reads:

"All the Guardian Angel Psychics are selected by me personally for their experience, accuracy and love vibrations. Their advice could open the doors to a new and happier life for you - with greater success in love, relationships and your career."

However, this is negated in barely discernible fine print across the bottom of a representation of an angel which reads: "For entertainment purposes only."

In Eugene and Karen-Louise's regular advertisements (*Sydney Sunday Telegraph, TV Extra*) the words "readings are for guidance only", are included, again in barely discernible type, printed vertically and very easy to miss. While this is open to interpretation, it does suggest that readings should not be taken seriously - contrary to what Caroline said at the interview, and not what clients perceive the service to be. It would seem to me, that most people would only take in the bulk of the advertisements, the fine print (if interpreted as a disclaimer) allowing a cop-out should the occasion arise.

2 My mole's real life occupation is geneticist.

3 This message from Martha Hari (sorry, Kathy Butler) was received after this article was placed.

"Some of you may be wondering what I have done with my ill-gotten gains from my professional "phone-psychic" career.

First, at time of writing I have yet to get a pay cheque. However, if one does materialise, it will be straight off to the Salvo's. I am assured that there if you seek their advice in times of personal crises you are likely to get a properly trained counsellor who is also free! (In common with the psychic hot-line, they are also in the phone book!)

My thanks go to confederate, Jeanette Raphael, who stood ready by the phone should confirmation of my psychic abilities have been sought by my employer!

Martha Hari

(No relation to Edwards, Hari.)"

Kathy has subsequently advised us that she received a cheque for \$44.86 for her services, which she immediately donated to the Salvation Army.

Since this story was released to the media, Harry has been inundated with calls for interviews and comments. We regard the subject of this story as a very serious matter and will press for legal investigations to be conducted into it. ■

A Note of Thanks

Kathy Butler, who acted as Harry's Martha Hari in the above investigation, deserves our admiration and gratitude.

It cannot have been easy for her to front up to an interview for a scheme that she knew was dubious and to keep a straight face while being questioned about her 'psychic' abilities. Nor could it have been easy for her to give her callers good, sound advice while maintaining the facade of someone with a pipeline to infallible paranormal information.

Kathy is not a professional investigator, nor is she an actress; she is a scientist - a geneticist - and this sort of thing does not fall within the expected skills range of your average scientist.

On behalf of the *Skeptic* editorial team and all other Skeptics throughout Australia, may we say well done and thank you to Kathy for her assistance in making this investigation a success. ■

CONSPIRACY

Gunpowder Plot

Brynn Hibbert

When the president of our august society received an eleven page letter printed all in capitals which starts I HAVE DISCOVERED WHY GUNPOWDER EXPLODES! he passed it on to this fearless reporter with a suggestion that I resign my Chair of Chemistry and admit my part in the world wide conspiracy.

Suppressing the obvious answer to the author of the letter, "Because you set fire to it", I feel I should try and answer some of his concerns.

Apparently since a child, our correspondent had attempted to make black powder using a recipe from the Oxford English Dictionary. That he had failed to create a substance that went bang is, of course, the reason he can now write to the Skeptics.

After a review of extracting gold with cyanide, and a list of several black powders, the nub of the letter was reached ...

I DON'T HAVE TO ASK YOU THE NEXT QUESTION. I CAN TELL YOU. YOU HAVE NEVER, EVER, EVER, EVER MET SOMEONE WHO HAS MADE BLACK POWDER THAT WOULD PROPEL A BULLET. YOU HAVE NEVER, EVER MET SOMEONE WHO KNOWS SOMEONE WHO HAS. AND YOU HAVE NEVER MET SOMEONE WHO WORKED IN A FACTORY WHICH MADE GUNPOWDER, OR KNOWS SOMEONE WHO HAS.

Alas, in this complex world in which we live you could substitute CAT FOOD or MICROCHIP for BLACK POWDER, and probably be correct.

There is a world wide conspiracy to suppress the true nature of gunpowder, a secret known only to the ALCHEMISTS who were generally murdered and intimidated because of it. POZZOLANIC, not charcoal, is an ingredient of gunpowder. Pozzo-what? I hear you ask. Pozzolan is a volcanic ash used in cement making and, in the opinion of at least one person in Australia, is the secret ingredient that can RELEASE THE POWER OF LIGHTNING. The reason for the suppression of the truth is that GOLD is the most vital element for life and may be extracted using real black powder. *Inter alia*, the toxicity of mercury and cyanide then become evident as these are substances that readily combine with the body's gold.

I suspect our hero's early attempts foundered on the need to have the ingredients in a very finely divided state. It is the extreme exothermicity of the reaction coupled with its occurrence over a large surface area in a confined space that leads to the bang. An illustration of this happened,

tragically, in a *Billy Cotton Band Show* (a 1950s *Hey Hey its Saturday* from the BBC) in which a piano was set to 'explode' at the end of a sketch. A small amount of stage gun powder was placed in an upright piano, just enough to make a bang and blow out the plywood sides. The pianist was killed in the blast, which turned out to arise from the ignition of a couple of bags of flour that had been added to the piano to create 'smoke'. The finely divided flour burnt so quickly it contributed to the explosion.

Back to gunpowder, it is certainly true that its origins are obscure. From the late fifteenth century a story has been in circulation [Partington, 1960] that gunpowder and cannon were invented by a mysterious alchemist, magician or monk Berthold Schwartz (*Bertholdus niger*, Black Berthold, ca 1380). The legend follows our correspondent quite closely in that the discovery was supposed to be made while BS was cooking up mercury, sulphur and saltpetre in an attempt to extract gold. Black Berthold is unlikely to have discovered gunpowder as it was certainly known to Roger Bacon in the thirteenth century. He could have learned of gunpowder from Arab sources, who, in turn may have received their wisdom from the Chinese. Despite many later references to vast knowledge of the ancients, a reasonable date to put on the first appearance of gunpowder in China is sometime in the eleventh century.

SO I AM WORKING ON A PLAN TO MAKE A VIDEO TO RECORD AS EXACTLY AS I CAN THE EXPERIMENTS CONDUCTED BY THE FIRST REAL ALCHEMISTS. I KNOW EXACTLY HOW THIS WAS DONE. THE ALCHEMISTS MIXED "BLACK POWDER" WITH MERCURY AND FORMED A GREY METALLIC LOOKING SUBSTANCE ONCE I'VE MADE THIS VIDEO, SHOWING IN DETAIL EACH COMPONENT OF THE CHEMICAL REACTION AND THE METHOD USED BY ALCHEMISTS I'LL HAVE THE MEANS OF EXPLODING THE MYTH WHICH SURROUNDS THEM (yes he really did write this!).

The final entreaty is to ask if any Skeptics have access to chemicals and facilities that they might contribute to the cause. In declining to offer such services (evidently I must be in the pay of Governments, the Church etc I would point out that chemicals are dangerous in the hands of the uninitiated - they explode, are toxic, carcinogenic and are thoroughly nasty. As for the Alchemists, they probably did not even give rise to chemistry, but were a non-viable evolutionary branch that lost out to the artisans who were

Cont p 23...

ASTRONOMY

Oh Heavenly Body, How Shall I Name Thee?

Duncan Steel

Only a few months back the good editor of this journal was swearing blind that if he ever heard of asteroids again, he'd go barmy. Obviously he did, because within a few weeks he'd asked me to pen (Pen? How does one pen something on a computer?) an article telling the readers how such objects are named. I'd say it was a long story, but time constraints, not to mention your attention span, makes me keep it short. Well, not as long as it could be, anyway.

First, let's think of celestial objects in general. Do those adverts you read in the personal columns of magazines, as you furtively search for the really juicy expressions of lust from anonymous people with no shame, really allow you to "Name A Star For The One You Love"? The answer is NO, and suggests another suitable campaign for the Skeptics: such adverts are bogus.

A few very bright stars have retained their names since antiquity (like Sirius, Arcturus, and the movie-star Betelgeuse), but the billions of others just get catalogue numbers. If you did but know, 3C-273 is a pretty exciting object, as is IRAS 16455-6312, and I once had to do a project on Theta-One-Orionis-C. But by-and-large stars and more distant celestial objects (galaxies, quasars, pulsars, and so on) exist for the astronomer just as reams and reams (or should I write "megabytes and megabytes"?) of numbers and code letters. The relevant authority - the International Astronomical Union (IAU), with its HQ in Paris - does not recognize any naming of stars apart from the very few which have retained their names from ancient times.

Moving closer to home - well, the planets are only some tens of millions of kilometres away - our celestial neighbours were also named in antiquity, at least as far out as Saturn. When Uranus was discovered in 1781, Neptune in 1846, and Pluto in 1930, they were given names in accord with the relevant mythology, which I'll leave you to look up.

That does not complete the objects to be named, however, and the moons of the outer planets were all given appellations which were judged by the Working Group on Planetary Nomenclature of the IAU to be suitable. This led to some argument at times, with the committee often being consulted as various spacecraft led to new discoveries. Craters on the Moon were named mainly for prominent scientists, which meant that males were rather well represented; to try to redress the balance, when the surface of Venus was mapped in recent years using the radar on NASA's Magellan satellite in orbit around that planet, it was decided that the 4000+ separate surface features - cra-

ters, volcanoes, mountains, plateaus, and so on - should be named for deserving women, real or mythological. There was one drawback for aspiring females wanting a perpetual memorial: you had to be dead first.

Comets? These get the discoverer's name. Actually, there may be up to three independent discoverers recognized (as in Comet Nishikawa-Takamizawa-Tago), if more than one person gets word to the Central Bureau for Astronomical Telegrams at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts, before any announcement is made. This can lead to confusion - for example, Bill Bradfield of Dernancourt, South Australia has eighteen comets called "Bradfield" to his credit - and so there is also a numbering and lettering system that I won't bore you with.

And that brings me to asteroids. Actually, "asteroid" is a synonym for "minor planet", and it is the latter term which is officially recognized by the IAU. The first such body was discovered from the Palermo Observatory on the first day of the nineteenth century; since all Australian Skeptics will by now have had occasion to argue with others with regard to when the next millennium begins, I feel confident that you can work out which day I mean. The discoverer, Giuseppe Piazzi, clearly had an eye for the main chance, because he named this object Ceres Ferdinandea: the first part honoured the patron goddess of Sicily, whilst the latter part represents him greasing up to his own patron, King Ferdinand of Naples and Sicily. There was then an unholy argument as the Mediterranean-dwellers argued with the Germans about the name: the latter had decided that they would call it Hera or Juno. It seems that the Brits kept out of the argument since they were still insisting that Uranus should be called "Georgium Sidus", for the batty king then on the throne. (Skeptics who have seen the movie *The Madness of King George* will appreciate the little joke there). This piece of brown-nosing (the joke gets better!) worked for William Herschel, who had first spotted Uranus, since the king appointed him "Royal Astronomer" (no, not "Astronomer Royal": there was already one of those) on a pretty pension. Astronomers have long recognized that it is not only the stars that glitter. But in the end the Continentals won out, and we all call it Uranus now. I'll refrain from any crude jokes about how it is pronounced, your majesty.

Piazzi half got his wish, because his discovery is now named Ceres; I have no idea whether he got at least half of the money that he was expecting, but since his descend-

ants also practised the second-oldest profession (astronomy, I mean), I guess that they must have been convinced that there is gold in them thar skies.

Over the next few decades many more minor planets were discovered, and keeping tabs on names became a bit of a chore, and so it was decided that a romantic, individualistic number should be added before each name. Ceres became (1) Ceres: the parentheses are *de rigueur*, but to hell with them here. Next came 2 Pallas. Juno was soon picked up, as number 3; then there's 4 Vesta, 7 Iris, 8 Flora, 14 Irene, 16 Psyche, 21 Lutetia, 43 Ariadne, 48 Doris, 119 Althaea, 146 Lucina, 153 Hilda, 243 Ida, 250 Bettina, 335 Roberta... Hell, the ladies seem to have done pretty well, although poor old Muriel had to wait until 2982 (the number, I mean, not the year).

By the 1920s, with photography being used in conjunction with wide-field telescopes, minor planets were being found willy-nilly, and some were being lost again: needles thrown back into the cosmic haystack. Because of this it was decided that a system of preliminary designations would be adopted; it works like this. Each month in the year is divided into two parts: days 1 to 15, and 16 onwards. These are labelled sequentially from A to Y, with the letter I not being used. (That stems from the pre-computer days with it being the desire that I and 1 not be confused, nor Z with 2; but the O/0 problem, which is really the worst, was not tackled). This makes 24 half-months in the year. Then in each half month, minor planets are additionally labelled from A to Z, again with I being omitted, making 25 available letters.

The first asteroid/minor planet discovered this year was 1996 AA, the next one 1996 AB, and so on; the first on January 16 is 1996 BA; and the fourth in the first half of March was 1996 ED. If more than 25 are discovered in any fortnight, then the letters are recycled with a number after them; 1996 AA1, 1996 AB1, 1996 AC1, etc. In March 1981 a total of 1244 asteroids were catalogued, the last one being 1981 ET49. We have over 100,000 in all with preliminary designations of this form, and that's only a minute fraction of the total awaiting discovery and tracking.

Now, after any particular asteroid has been observed for long enough such that its orbit is well-defined and it should not be lost in the future - although we need to keep tabs on them - then the object is given a permanent number (in the sequence starting with 1 Ceres; we're now up to 7000), and the discoverer is allowed to *suggest* a name for it. That name is not always accepted by the IAU Small Bodies Naming Committee - for example, names commemorating politicians or people associated with aggressive acts of war are not allowed unless they've been dead for at least a century - but the majority are passed, and the minor planet officially named.

As one might imagine, scientists are pretty well represented in the names, and 2001 Einstein got a suitable epoch-making number. We are not all philistines, however; witness 1034 Mozartia and 1815 Beethoven. Whilst Beethoven got a number appropriate to the years in which he lived - I guess he was still basking in the glow of Symphonies 7 and 8 then - in some ways it would have been

better if the name for that asteroid had been Waterloo instead. Mark Twain was a splendid chap, as minor planet 2362 demonstrates, but I guess the fact that he got his memorial ahead of 2984 Chaucer and 2985 Shakespeare indicates which side of the Atlantic most of this work was being done.

But don't let me mislead you into thinking that all the minor planet names are given to long-dead individuals. Living people of merit may also get such semi-perpetual memorials, and I am currently involved in preparing the citation naming a minor planet for a certain prominent Australian cricketer, enough said.

That modern-day astronomers have earthly concerns, like money, is amply shown by 2138 Swissair. A touch of whimsy comes in with some names: 2309 Mr Spock is named not for the Vulcan logician of *Star Trek* fame, but for someone else with pointy ears; in fact the astronomer's cat. I could list a lot of asteroids with names that are not altogether too serious - hell, we enjoy a laugh too, and there's not much fun involved in running a telescope through a cold winter night - but I wouldn't like to bring my profession into dispute.

I'll leave you with one to puzzle over: 3142 Kilopi. When 31416 comes around, I'm going to suggest Myriapi for it, which you'll understand so long as you know that "myriad" is an adjective, not a noun. Nowadays, using modern technology and data processing techniques, it is not out of the question that we'll be naming Megapi within fifty years; but by then the honour will have become the equivalent of Andy Warhol's "Fifteen Minutes of Fame." There's already a pecking order developing amongst astronomers, the determinant being how low your asteroid number might be.

Footnote

Since we received this article, Duncan has forwarded us a message he received that should bring joy to all Skeptics.

The International Astronomical Union announced in a Minor Planet Circular on May 3 that asteroid 3163, discovered in 1981 by C T Kowal, has been named 3163 Randi. The citation reads:

"Named in honour of American magician James Randi for his continuing efforts in debunking the claims of the paranormal community and exposing the tricks that charlatans use. His use of scientific techniques in many disciplines has contributed to the refutation of suspicious and fraudulent claims of paranormal results".

Our congratulations go to James for the honour he has received, which only serves to prove what all Skeptics have always known. He is a real star. Another prominent Skeptic so honoured is Martin Gardner, who has 2587 Gardner named in his honour.

The Editor in Chief would like to point out that while asteroids 1703 Barry and 1763 Williams may not be named in his honour, he can find no reference to either Harry or Edwards in astronomy books, which is only as it should be. ■

UFOLOGY

Alien Incompetency Theory: A Unified Theory to Explain UFO Phenomena

Chris Rutkowski

Editor's Introduction

Readers should be aware by now that I have taken to reading the Internet with a great deal of glee. It is a harmless habit, if one has the time, and amid all the hilarious drivel one comes across an occasional nugget. The story which follows is one that falls into the latter category.

It has always been my contention that, if aliens are visiting Earth, and if the claims made about them are even partly true, then they must be among the most inept advanced life-forms in the Universe. Imagine my surprise to find an article that not only confirms my preconceived view about aliens, but has developed it into a fully fledged theory.

When I contacted Chris Rutkowski to seek his permission to reprint this article, he responded with a gracious approval and the observation that, as it would be published in the Southern Hemisphere, it would appear upside-down and would therefore not breach his copyright. If there is one faculty a good sceptic needs, it is a well honed sense of the ridiculous. I would suggest that Chris Rutkowski meets this definition with room to spare.

Now read on.

One of the most significant issues in ufology today is the attempt to explain the wide variety of conflicting, confusing and bizarre elements of the UFO phenomenon. In every subfield of ufological studies, there are aspects which strain the logic of even the most seasoned researcher and cause one to doubt the rationality of the genre.

To this end, a new theory has been developed by members of Ufology Research of Manitoba (UFOROM) which appears to explain most, if not all, of these baffling elements. The theory, labelled AINT, is the Alien INcompetency Theory, and describes how all the confusing aspects can be explained by assuming one simple tenet: aliens are incompetent.

To illustrate the theory, one need only to look at examples from within the phenomenon itself, including its outlying subfields. First, let us look at alien abductions.

Abductions

One of the basic premises of alien abductions is the conscious recall by abductees of their experiences aboard alien spacecraft. Nearly all abductees report that during their ordeal, the aliens create some sort of mental block within their minds so that they cannot remember what has

occurred. Yet, as evidenced by the huge number of abduction accounts published and under investigation, these mental blocks are ineffective.

This is odd, considering the advanced technology and knowledge reported to be held by the aliens. Some abductees report that their captors claim thousands of years of development beyond our own, yet they, too, have failed to produce a lasting screen memory that can withstand our feeble efforts to unlock it via simple hypnosis techniques duplicable by any charlatan or stage magician. Why would this be (Vladimir Simosko, a UFOROM associate and noted Fortean researcher, has suggested some alternatives. Aside from sheer incompetence, he notes two other possibilities:

1. aliens have a wacky sense of humour; and
2. they want us to remember, despite the pretence of intending us to forget.)

Another curious observation is that nearly all abductees report aliens with roughly humanoid shapes and comparable sizes, but with different origins and purposes. Some aliens tell their victims they are from Venus, some from the Pleiades and others from Zeta Reticuli. Since space science has learned Venus cannot support life, this is obvious misinformation. As for the Pleiades, these are stars much younger than our Sun and without hope for planets with suitable living conditions at this time.

Some aliens claim their home planet has deteriorated from misuse and pollution, and wish to warn us about our own disruption of our planet. Others suggest they need our biological material to breed new life (literally) into their gene pool, perhaps to regain such things as emotions or other human characteristics. It is interesting that these scenarios imply that the aliens have somehow caused their own demise and that without our help they are lost. In other words, they made some serious mistakes. It is not too much of a stretch to suggest they were incompetent in managing their resources!

Of course, some aliens are said to claim that they are superior to us and have their own agendas. This is precisely the claims an incompetent person would make to cover his or her mistakes in order to keep from being embarrassed.

We can look at other aspects of abductions for further evidence. One abductee studied by John Mack described how she woke up one morning after her abduction, wearing lavender underwear. This was baffling to her because she didn't own any underwear of that colour. Mack quickly interpreted this to mean that the aliens had somehow made

a mistake on board their craft during a busy mass-abduction, and mixed-up abductees' clothing. Other abductees have reported returning from their abductions with slippers on the wrong feet and other items of clothing either missing or improperly fastened. In a case studied by Budd Hopkins, an abductee's earrings were found to be in backwards after her ordeal on board a craft.

This all speaks to one explanation: the aliens were incompetent. One would hope that superior beings who have been watching humans for many years would have easily picked up nuances such as the colour of our clothing and the way jewellery is fastened to our bodies.

Simosko would again note that this could be a display of an alien sense of humour, or perhaps an intelligence test of some sort. Regarding further refinements of AINT, he offers four postulates:

1. If the aliens are intervening to help us along, they are incompetent because it isn't working out too well; humans remain relatively unsophisticated and not very tuned-in to the universe.
2. If the aliens are intervening by holding us back, it isn't working all that well, either, since although an overwhelming majority of humans are tuned-out, there are a number who are attempting to raise the level of consciousness: Mother Theresa, the Pope, Sun Ra, the Dalai Lama, Sharon Stone, etc.
3. If the aliens are trying not to intervene, they're even more incompetent than the other postulates would indicate.
4. If there are several different groups of aliens, some helping and others preventing our advancement, this is proof of incompetence because they cannot get their act together.

Crashes

Another aspect of the UFO phenomenon is crash/retrievals. Associated with the idea that some alien ships have crashed on Earth is the concept that Terran government or military bureaucrats have failed to keep the crashes secret, allowing some documents to be leaked to UFO researchers. (More on this later.)

The most famous crash story is that of the Roswell incident, in which a flying saucer apparently crashed during an electrical storm in New Mexico in 1947. While researchers have spent many years tracking down witnesses and speculating as to where the ship might have gone down, the obvious question has never been asked: Why did it crash in the first place? One only needs to consider accidents of terrestrial vehicles in order to realize the answer: pilot or driver error.

It would be truly remarkable to consider that an alien pilot who has navigated his (or her or its) craft through interstellar space using highly-advanced technology and propulsion would be unable to maintain level flight through a mere thunderstorm. There is only one reasonable and possible explanation: the pilot was incompetent. Considering the large number of saucer crashes now claimed by researchers, it would seem that many aliens have difficulty flying their vehicles. Surely this could imply that many are incompetent.

Crop circles

We can look to crop circles as further support for AINT. Allegedly, crop circles constitute a form of communication between aliens and ourselves. It is implied they are trying to warn us of or prepare us for some upcoming fateful situation through the creation of agriglyphs consisting of complex mathematical patterns and obscure symbols. Why would they attempt to communicate with us in such a fashion? Why not just send a radio message or write something in English or Japanese on a sheet of cardboard? Why 100-foot-wide Mayan lettering in marketable durum? Obviously, their communication skills are less than exemplary, especially since researchers cannot come to an agreement as to the exact messages (other than something about impending earth changes). The aliens must be, of course, incompetent.

Men in Black

What about the infamous Men-in-Black (MIBs)? They are described as human in appearance, though possessing some characteristics that give them away. Their facial pallor is often olive or grey in colour and their eyes are wide and staring. Their movements are jerky and their speech stilted. They may ask people unusual questions or otherwise show an unfamiliarity with terran customs. For example, in response to the query: "Hey, buddy! What you lookin' at? You want a knuckle sandwich?", a MIB might say, "Yes, please, with some mayonnaise." Such actions easily show they are not humans at all; if their purpose was to mimic humans, their imperfections show that they are, again, incompetent.

Contactees often will share their imparted knowledge from their alien mentors. Unfortunately, practically all contactees claim contact with different aliens from different planets and with different messages to humankind. (They are similar to abductees in this way.) When pressed to ask their channelled entities for more palpable proof of their claims, or perhaps a useable prediction or two, the contactees are told by the aliens that Earth is not ready for the knowledge or, instead, given a vague diatribe about 'parallel vibrational states' or 'temporal matter disruptions.'

An examination of other channelled material finds many other examples of alien doubletalk and bafflegab. Rather than accepting the channelled information as revelations from higher beings, the lack of content of the messages suggests something else: the aliens themselves don't know the answers or lack the information as well. Again, we can ask how an incredibly advanced civilization would not be able to give one single example that would prove their superiority. Could it be that they do not know the answers, despite their reputed intelligence?

One can also ask why aliens would choose to abduct people from lower castes or social status rather than those in positions of authority. Why don't they land on the White House lawn? Perhaps they don't know to do so. How could they not know this?

They are incompetent.

Implants

Even the implants found inside some abductees are curious. Each one is of a different size, shape and/or composition, and while there is a trend for some to be found in abductees' noses, others are found in feet, shoulders, wrists and knees. Surely, if the aliens are conducting a scientific test, their methodology would be consistent. In fact, the implants appear to be little more than chunks of metal or calcified plastics rather than microtransmitters. Perhaps the alien doctors don't know that they are doing.

Bureaucracy

In all of these examples, it is possible to interpret the aliens' actions as being far from superior. In fact, they seem rather ridiculous. But, if the aliens are really superior beings from an advanced civilization on a distant planet, why are they acting in such an illogical manner? We can point to a parallel situation here on our own planet. Why, given our own relatively-advanced technology and level of knowledge, is bureaucratic infighting delaying the construction of the space station? Why is NASA nearly bankrupt?

We also can look at examples in areas other than space science. Why would politicians lobby for tighter controls on cigarettes because of cancer dangers, but pass bills that would subsidize farmers to grow tobacco? Why do bureaucrats create subcommittees to investigate wastes of time and taxpayers' money? Why would politicians sponsor a covert activity to break into a psychiatrist's office in a hotel? (For that matter, why would people vote for politicians, knowing their track records for honesty and integrity?) Why can't my subscription to a magazine get renewed, even when I send the check in four months before the subscription expires? And why are 60% of all automobiles recalled by the manufacturer during the first year they are on the road?

The answer, of course, is incompetence. Bureaucratic bungling, political wrangling and general ineptitude are responsible for most of the problems in the world today. Politicians and bureaucrats create such confusion that it is clear they themselves have no idea what they are doing.

Now, imagine a highly-evolved technical civilization on a distant planet. Its society functions well, with the exception of a comparatively small number of its population. These would no doubt be their most ineffective politicians and bureaucrats. What better way to remove them from the general gene pool and workforce than to send them off on interstellar voyages that, with relativity, would return them many, many years later, if at all?

Because they are incompetent, they would be confused as to their mission. They would be clumsy pilots and navigators and, because they lack the true knowledge of their society, they would be unable to tell anyone anything about their purpose or scientific capability with any degree of understanding or common sense.

As evidence that this is true, a cursory study of the terrestrial government cover-up of UFO crashes shows incompetence as well, but this time with regard to human bureaucrats. The presence of a vast number of leaked documents shows that the government (even a shadow

variety) cannot function effectively because it is, after all, still a government (which, by definition, is incompetent).

Conclusion

Therefore, we can observe that bizarre aspects of the UFO phenomenon are explained best by assuming the aliens are incompetent. More to the point, they must be the most incompetent examples of their race, namely the bureaucrats. The Alien INcompetency Theory is borne out by an examination of the available observations and claims of witnesses, and can finally explain what is going on. An understanding of this situation will certainly change the way ufologists will approach their subject.

Author's note:

As an astronomer, I share the majority view that intelligent life exists elsewhere in our galaxy (but not necessarily here on Earth!). I believe it *possible* that an advanced, technological civilization may have found ways of traversing interstellar distances without violating physical laws. However, after 20 years of research and investigation, I do not see any incontrovertible evidence of this.

My opinion is that if UFOs are not physical phenomena, they definitely are sociological or psychological phenomena. In either case, they are worth scientific study, because they have permeated the minds and imagination of the populace.

I am interested in bridging the chasm between believers and debunkers in an attempt to catalyse rational discourse on these topics. I know that, deliberately or otherwise, incorrect information has been propagated by individuals who have made names for themselves in these fields of study. Because of some training in deconstructionist educational theory, I am critical of published research and popular interpretations of the UFO phenomenon.

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Jest a moment with Harry

An English clairvoyant has just sued for divorce on the grounds that her husband will commit adultery next month.

UFOLOGY

Alien Autopsy Update

Barry Williams

By now almost everyone on Earth must have heard of, if not seen, the infamous 'Alien Autopsy' film that appeared on TV screens around the world late in 1995.

Briefly, the story alleges that a US Army cameraman filmed two surgeons performing an autopsy on an alien body recovered from a crashed vehicle at Roswell New Mexico in 1947. The story improbably asserts that, for some unexplained reason, the Army failed to collect all the film from the unnamed camera operator and he retained them until he sold them to a British entrepreneur, Ray Santilli, in the past few years. Santilli then sold rights to televise parts of this 'amazing' film to TV companies worldwide and, amid much media hype, this was done.

Shortly after the programme was aired, controversy broke out, not only among sceptics groups, but also among various factions of UFOlogy's True Believers. It is a curious thing that the UFOlogy movement is as riven by faction and schism as ever the Christian Church was. Each group has its own messiahs, its own inerrant dogma and its own firm conviction that all other groups are part of a conspiracy and cover-up. There are even some rational UFO groups conducting sober investigations of curious phenomena, but who have no firm belief in ET visitors. But these are a minority in a movement where the fringe is also the norm.

In this atmosphere, it is not surprising that there are as many UFOlogists challenging the claims made for the Santilli film as there are sceptics. And 'anomalies' in the 'evidence' there are aplenty. For example, despite offers by Eastman Kodak to authenticate the age of the film, Santilli has not provided any samples to be tested. Although the TV version of the story quoted pathologists and special effects experts who claimed that the scenes shown could not be faked at reasonable cost, many other specialists in these fields have since claimed that this is not the case. Despite good evidence, from recently released and previously secret Air Force documents, that what crashed at Roswell was a balloon used in secret US atmospheric testing for Soviet nuclear explosions, many UFOlogy groups still believe that an ET ship crashed, even though they don't believe the Santilli film is genuine.

Much of the objection to the veracity of the film stems from the work done by the supposed pathologists: the 'internal organs' removed from the 'body' were just lifted out and appeared to have no connections with anything else; the 'blood' that flowed at the cuts has been described by critics as being very much like standard magicians tricks; the way the 'body' lay on the table suggested to special effects people to indicate that a dummy had been cast from a standing individual and not from a prone body - it just didn't lie right. Some UFO factions object that the 'body' had six fingers on each hand, when they *know* that the 'real' aliens only have three.

Various other parts of the story have been challenged, including the claim by Santilli that the unidentified cameraman had also filmed the Trinity nuclear explosion at Los Alamos in 1945. Army records list all the camera operators who were present at this test, and none of them matches the claims made for this man.

When I saw the film shown on Australian TV, I couldn't avoid the feeling that, not only was the film a hoax, it was a poorly constructed hoax. I couldn't quite pin down why, apart from my natural scepticism about any such story. Although I was not sufficiently knowledgeable to pick up the flaws in the story that appeared later, I felt that there was just an indefinable *something* wrong with what was shown on the film. It just didn't smell right.

Then, on SBSTV on April 11, I saw a French programme, *Secrets of the Mummy*, which dealt with an autopsy conducted on a 2,500 year old Egyptian mummy to determine a number of things about Egyptian mummification practices, what diseases the mummy had suffered from in life, and other matters of interest.

The differences in behaviour of the pathologists and other experts in this programme from those exhibited in the 'alien' autopsy film were striking. Meticulous care in dissection, inspection and notation on the one hand, contrasted with cursory and haphazard cutting and probing on the other. At most times in the Egyptian example there were not less than 12 people present, representing a number of medical and historical disciplines, while in the 'alien' example there were only two people working, apart from the camera operator. This is very unlikely in a genuine case of an alien autopsy.

When we consider that the dissection of an Egyptian mummy is a rare (but not unique) feat, while the first dissection of a specimen of alien life is indeed a unique occurrence, then the behaviour exhibited by the 'pathologists' in the latter case does not even approach what we should expect, if it were a genuine event and not a crude hoax. It is inconceivable that responsible professionals, involved in the very first investigation of alien anatomy, would be so cavalier in their approach to their professional responsibilities as this film would have us believe. It just does not ring true. In fact, this film has more flaws than one would find in a skyscraper.

While it is by no means an infallible test, and while it does not rely on any particular piece of evidence, the natural sceptical response "if it smells like crap, it probably is" is one that I commend to all readers.

For those that like to keep abreast of all the machinations of the UFO movement, I thoroughly recommend a subscription to *Skeptics UFO Newsletter*, published bimonthly by Philip Klass at US\$20.00 pa. Available from 404 "N" St SW, Washington DC, 20024 USA. ■

NUTRITION

Food Combining

Glenn Cardwell

The TV puppet characters Wallace and Grommet constructed a rocket to take themselves to the moon. The only provisions they took was a packet of crackers, for the moon is made of cheese. Stilton? Wensleydale? They couldn't decide, but cheese it certainly was.

I have never met anybody that believes the moon is made of cheese. The Australian Dairy Corporation discounted all ideas of moon-sourced cheddar once the NASA moon landings of the 1960s proved beyond doubt that the moon had no cheese-like properties, at least on the surface.

Why is it then that people believe in food combining, a concept based on a similar ancient fantasy that has been proven time and again to be false? We know so much about the digestive system that the idea of food combining has the same credibility as lunar Edam.

I can only guess that espousing the value of food combining suggests you have superior nutrition knowledge based upon a platform belief that the current food supply and eating patterns are inherently evil. Frankly, I don't know.

Food combining is based on the premise that protein and carbohydrate cannot be digested together and such a combination will putrefy or ferment inside the stomach causing severe fatigue.

Dr Martin Rehfuss is one of many in the medical fraternity who has used facts to try and discredit the food combining myth.

"There is no evidence either in the literature or in my investigation to lead me to believe that proteins and carbohydrates are incompatible in the stomach" he said in an address to the American Medical Association on 15 June 1934, over 60 years ago!

He was referring to his own research studies and others published in the previous 20 years demonstrating the complete digestion of foods in all combinations.

"One of their dictums is the presumed incompatibility of proteins and carbohydrates, the presumption being that proteins require an acid medium for their digestion while carbohydrates require an alkaline medium".

"A fact that has apparently escaped the proponents of the carbohydrate-alkaline theory is that no carbohydrates are ingested which are not followed by a direct acid response on the part of the stomach" said Rehfuss.

We had a fair inkling that protein and carbohydrates were digested simultaneously way back in 1833 when US Army doctor William Beaumont published studies on his patient Alexis St Martin. In a hunting accident St Martin suffered a gunshot wound to the stomach.

Once he had healed he still had an opening, or fistula,

right into his stomach. Beaumont took the opportunity to conduct 238 experiments, including some where he put a range of foods on a piece of string through the hole into St Martin's stomach. He found that all foods, regardless of the protein and carbohydrate content, disappeared through digestion. Beaumont had learned more about digestion than some people were ever to learn 160 years later.

Typical of the early food combining zealots was William Howard Hay who graduated from the medical school of the University of the City of New York in 1891. In his book *How to always be well* he believed that the combination of foods eaten was very important for health. He wrote "Any carbohydrate foods require alkaline conditions for their complete digestion, so must not be combined with acids of any kind, as sour fruits, because the acid will neutralise. Neither should these be combined with a protein of concentrated sort as these protein foods will excite too much hydrochloric acid during their stomach digestion".

The Hay System promotes the practice of eating three meals per day with meal one being alkaline foods only, meal two protein foods with salads, vegetables and fruit, and meal three comprising starchy foods with salads, vegetables and sweet fruit. There should be an interval of 4.0 to 4.5 hours between each meal.

In the 1930s Hay opened a sanatorium called Hay-ven in Pennsylvania where patients could try his philosophy of not mixing proteins with carbohydrates. Hay can be excused for his theory as textbooks of the time were not always clear on digestion.

In 1935 Dr Stewart Baxter proved that the pancreatic enzymes for digestion of carbohydrates and protein are secreted simultaneously regardless of the type of food eaten. The theory of protein carbohydrate incompatibility was in shreds.

Every textbook of physiology since has covered this basic knowledge of digestion. Many self-proclaimed nutrition gurus have ignored the facts and continued to use Hay's ideas. As they say, don't let facts ruin your income generating potential.

A knowledge of basic physiology and digestion is not a claim that can be made by food combiners Harvey and Marilyn Diamond, authors of *Fit for Life*. In recycling myths of the last century, they say that meat needs an acid juice while potato needs an alkaline juice and if you eat the two together they neutralise each other (p40). The protein then putrefies and the starch ferments.

'Because there's all this putrefaction, fermentation, and resulting acid, what actually is in the stomach at that time is a mass of spoiled, rotting, foul-smelling food' say the

Diamonds. That's the mathematical equivalent of claiming $2+2=5$.

Let's stick to the facts (or $2+2=4$). Every morsel of food you swallow has two choices. It can be either regurgitated (not pleasant) or it can go through the digestive system (a lot more fun). Most takes the latter route. The stomach is acidic because the acids help kill the nasty bacteria in food and begin the process of protein digestion. All food must experience the acidity of the stomach before reaching the intestines, just like you have to go through primary school before attending secondary school. Like, there's no choice.

By far the majority of digestion happens in the small intestine. It is alkaline to neutralise the stomach acids and provide the best environment for all digestive enzymes, mainly from the pancreas, to fully digest all the food components: protein, fat and carbohydrate.

The acidity of the stomach and the alkalinity of the intestines is very closely controlled by the natural processes of the body and isn't affected by the type of diet or the combination of foods eaten. Indeed, the acidity of the body (pH 7.4) is kept within tightly defined limits independent of the acidity of foods eaten. If it wasn't you would become very sick, very quickly. (A woman in the US died of severe acidosis with a pH of 6.9, thought to be caused by Kombucha, a home-made yeast drink).

Even if we rely on just a little commonsense, the concept of food combining doesn't stand up. If you couldn't digest protein and carbohydrate together most of the world's population would be in serious trouble. The world's favourite food is rice, a delicious combination of protein and carbohydrate. The same goes for bread, pasta, baked beans, breakfast cereals, milk, yogurt and many vegetables. What would you eat if all these foods 'fermented' in your body?

The Diamonds suggest avoiding milk and yogurt altogether, yet make the ludicrous statement that "if a food is a natural protein starch combination (such as beans) is eaten alone, the body is capable of modifying its digestive juices and timing their secretions in such ways that digestion can go on with a fair degree of efficiency" (p43). Wow! Any explanation or proof offered? Nope.

A major reason humans have survived as a species is because they were able to eat, digest and absorb the nutrients from any edible food that came their way. There isn't a single culture that based their eating habits on food combining. It is only in recent years where food has been in abundance that people have had the luxury to fantasise about what they eat. Those who are starving eat whatever's available, with not a thought for food combining.

Lost in the quackery is that there are some food combinations that can be useful to the body. For example, eating a vitamin C containing food as part of your meals improves the absorption of iron. A good reason to include fruit or vegetables (raw or quickly cooked) with your meals. On the other hand drinking tea or coffee with meals can reduce iron absorption. The tannins in tea and coffee combine with the iron to make it very difficult to absorb. (I also find that a good shiraz combines wonderfully with almost any food).

Probably the best example of humans being able to

digest protein and carbohydrate together happens at the start of life. Breast milk is a perfect blend of protein, carbohydrate and fat. No woman has been born with one breast labelled 'protein' and the other 'carbohydrate'.

So, the next time someone tells you that meat and vegetables cannot be eaten together, give them a quick lesson in history and basic digestion. Of course, if they ride a horse and cart, use a kerosene lamp and are still awaiting the outcome of World War 1 then their thinking could be up-to-date.

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...Gunpowder from p 15

busy making gunpowder, extracting metals, tanning leather, making glass and generally theorising about it all. As Salzberg [1991] puts it "Chemists, like alchemists, want to be rich, live a long time and go to heaven, but they go about their aims differently".

One of the great problems in being a scientist is that it all has to make sense. We cannot focus on a little bit of reality and theorise away, if our conclusions violate the rest of experience. Thus our correspondent while complaining about the terrible EDUCATION such that ...

AND AT LONG LAST WITH MY ACCUMULATED KNOWLEDGE AND EXPERIENCE I HAVE BEEN ABLE TO ESTABLISH SOME REAL FACTS ABOUT CHEMISTRY WHICH I WASN'T BEING TOLD AT SCHOOL, OR UNIVERSITY OR IN THE LABORATORY

should perhaps focus on his own 'scientific method'.

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SCEPTICISM

20 Wasted Years

Geoffrey Guilfoyle

Zetetic. Zetetic? No doubt something to do with the Aztecs or a particular period of Celtic culture. Or perhaps it means the opposite of pathetic. CSICOP. CSICOP? Um, a law enforcement agency dedicated to the arrest and conviction of people displaying psi ability?

Wrong on both counts. But as readers of *the Skeptic* you already knew that, didn't you? (If you didn't you are either encountering this publication for the first time or buy it only in the hope of gaining valuable clues as to the identity of the egregious Sir Jim R. Wallaby. Hint: try viewing it as an anagram.)

CSICOP is The Committee for the Scientific Investigation of Claims of the Paranormal and *The Zetetic* is the former name of *the Skeptical Inquirer*, the official magazine of that organization. In other words, they are the US version of the Australian Skeptics. [Curiously, they view the Australian Skeptics as the 'Down Under' version of CSICOP. Poor deluded fools.]

Zetetic apparently means 'sceptical seeker' and refers in particular the followers of the sceptical philosopher, Pyrrho. So it isn't surprising that CSICOP chose this as the name of their journal. Even less surprising is the subsequent dropping of this name. Appropriate it might be; pronounceable and immediately understandable it isn't.

It may not even have been appropriate. As one reader pointed out: the word zetetic found its way into 19th century English consciousness as a synonym for 'flat-earther' due to the appropriation of the name by Samuel Rowbotham, the 'zetetic astronomer.' This duly crossed the Atlantic to the USA where several zetetic societies dedicated to the propagation of various fringe theories sprang up.

Thus CSICOP's *Zetetic* became the *Skeptical Inquirer*. Of course the 'official' reason for this change is that when the original editor, sociologist Marcello Truzzi, left after a 'doctrinal' dispute, he took the name with him and set up his own journal called the *Zetetic Scholar*. Curiously, Mr Truzzi, one of the early pillars of CSICOP, now seems to be firmly on the side of the paranormalists.

So why do I mention all this? Because this year sees the 20th anniversary of the *Skeptical Inquirer*. Vol I, No 1 (all 90 or so pages of it in A5 format) emerged from the printers in the (American) Autumn of 1976. Now before everyone bursts into a round of 'Happy Birthday' let me say this: all that energy and passion and intellectual ferment has been in vain. CSICOP and the Australian Skeptics have achieved little or nothing since the inception of both organizations.

Over the last few months I have (to the undoubted delight of Messrs Williams and Edwards) given a considerable quantity of Australian legal tender to them in return for back issues of *the Skeptical Inquirer*. I am now the proud owner of a copy of almost every edition ever

produced.

It has made depressing reading. Nothing appears to have changed in the last 20 years. To prove my point let us look at the topics covered by the first edition of *the Skeptical Inquirer*.

Vol 1, No 1 had a major article on L. Ron Hubbard's contribution to psychology: Dianetics. True, Dianetics soon fell apart, partly due to critiques from sceptical psychologists, mental health professionals and interested observers like Martin Gardner. However quicker than a weed smothered with fertilizer it grew again, transforming itself into Scientology, a bigger, better controlled and more profitable entity. It also has sharper teeth. Just ask the Victorian Committee of the Australian Skeptics.

Vol 1, No 1 also had a socio-psychological analysis of why psychics are no better at seeing the future than anyone else. It studied in particular a statistical analysis of predictions made by psychics in 1973 and 1974. In short: psychics aren't. Each year *the Skeptical Inquirer* and *the Skeptic* review the 'hit' rate of psychic predictions for the previous year and demonstrate just how ordinarily these seers perform. Does this sway believers? Not one bit.

Look at Jeane Dixon. She was one of the biggest stars on the seer circuit then. Despite being repeatedly shown to be a fraud she hasn't retired in disgrace from the scene. She might burn less dimly these days but, credit where discredit is due, she's a stayer.

Biorhythms. A success at last. A very minor one. Critics managed to kill this (mostly) American concept before it moved from fringe acceptance into the mainstream. I see it as a fad which had its moment then faded more from public disinterest than any other factor. Now before you say that it was open to impartial scientific testing and found wanting let me get in that so is astrology and it is as strong as ever.

As minor a phenomenon as biorhythms was, it still took several years before it completely sank from view. As late as 1980 an 'expert' in the subject toured Australia giving lectures and interviews. Vol IV, No 2 of *the Skeptical Inquirer* contained a letter lamenting this from a certain Mark Plummer who went on to suggest that Australian readers of the magazine might form their own sceptical organization. [I wonder what ever became of the idea.]

Von Daniken. Now there is a triumph, albeit a mixed one. Under sustained criticism from the scientific community (and with **no** thanks to the media) he eventually faded and vanished — but not before making a fortune. Yet did his ideas wither with him? Some, like the Nasca lines, have; others, like 'who really built the pyramids?' haven't. If his name no longer commands public recognition or respect the phrase 'ancient astronauts' and what it represents has percolated into the public

consciousness, albeit not as strongly as the equally ludicrous 'Bermuda Triangle.'

Personally, I think the scientific criticism (which never really caught the public imagination) had less effect on discrediting him than von Daniken himself did. Each of his follow-up books was more ludicrous than the one before. It sank his credibility completely. There is also the boredom factor. The public found new and equally exciting (and loony) fads to believe in. Crystals and pyramid power, for instance, both in their turn now in eclipse. The newest craze is Guardian Angels. (Mine are called Adolf and Stalin.)

The book reviews in Vol I, No 1 covered the UFO controversy (which 20 years on has seen many changes in cast and plot twists but still flourishes), Uri Geller (now doing advertisements in between suing James Randi but still considered by many the 'genuine' item) and a book called *The Sphinx and the Megaliths* by John Ivimey. This last bit of nonsense tries to show that a colony of Egyptians in England built Stonehenge. Thank goodness this sort of Danikenesque (nifty word, huh) nonsense doesn't get an airing any more. Or does it?

Seen any good documentaries lately? Sorry. Let me rephrase that. Seen any bad documentaries lately? One hosted by Moses (ahem, sorry, I mean Ben-Hur, er, Charlton Heston), for instance? Recognize any similarities in the approach? This one started off reasonably enough by questioning the age of the Sphinx and then descended into logic that would make even the Monty Python team feel bewildered. Who do you think built the Sphinx? No, not a colony of druids from England. Be sensible! The correct and inexorable answer is the same critters that built the megaliths on Mars. Oh, and the face of the Sphinx is that of a black African (or perhaps a Martian, assuming the aliens, or Martians, were (are?) black humanoids. Or something like that). [See! Here we are back with the 'ancient astronauts' theme. Who said von Daniken is dead?]

The most disheartening part came with reading the 'capsule' pieces towards the end of the first edition. One mentioned the plan by *National Geographic* to conduct research at Loch Ness. Jump forward 20 years. Have people stopped going to Loch Ness? Have pseudo-scientific groups given up trying to find any trace of Nessie? If you answered 'yes' to either question all I can say is you must have been living in a remote monastery for the past two decades.

Another end piece in Vol I, No 1 told of a court case brought against the 'godmen' of India by Abraham Kovoov from the Sri Lanka Rationalist Society. Did he succeed in discrediting them? For the depressing answer read *the Skeptic*: Vol 11, No 4 (Summer 1991). The 'god-men' phenomenon is as strong as ever.

UFO sightings that aren't quickly explained become established 'fact' and proliferate. As soon as one psychic crumbles up pops another to champion the cause of the credulous. Parapsychologists continue to promise that definite proof of psychic phenomena will be obtained 'soon.' Lack of scientific evidence doesn't worry many (most?) of the general population who see these phenomena as undeniably existing. Anyway, they or their Auntie Gertrude once had a paranormal experience so that proves it exists. Backyard engineers still produce an endless range of 'positive

coefficient' or 'inverse energy' machines which they claim will end the Arab oil monopoly. Conspiracy theorists are growing more numerous and their ramblings more nutty than a bottle of peanut butter. Quack medicine is increasingly respectable. Carlos Castaneda and 'Don Juan' have metamorphosed into James Redfield and *The Celestine Prophecy*, not to forget *Mutant Message Downunder* (although aboriginal activists wish everyone would). Von Daniken and the Nasca Lines have given way to the Face On Mars.

The Transcendental Meditation movement still teaches levitation and now runs candidates in Federal and State elections under the banner of the Natural Law Party. In the never ending search for rating and sales the various organs of the media continue to offer the same sensationalist and completely unbalanced view of paranormal phenomena they always have.

So how do we tackle this? The readers of, and writers for, *the Skeptical Inquirer* examined this problem in various editions during the late 70s and early 80s and came to various conclusions:

- Teach critical thinking and more science in school.

[Good idea, but has it ever happened? If so, it obviously hasn't worked.]

- That journalists, reporters and publishers take more responsibility for what they show and/or print.

[Yeah, right, and pigs will not only fly but astral-project. The media has *nothing* to gain and *everything* to lose (ratings and sales) by being fair and impartial.]

- A public information campaign by sceptical organizations to make people aware of the need for critical thinking and to counter shoddy science and reporting.

[This is what CSICOP is all about; this is what it does; this is what it has not achieved and can't achieve. The very people who need this most — the proponents of the paranormal and the representatives of the various organs of the media — believe they *are* thinking critically and using the scientific method (as they understand it). It is we nay-saying dogmatic, soulless, humourless, rationalist, atheistic, materialist, capitalist, etc, sceptics who are the shoddy ones. Nor is the public interested. Flying Saucers from the 10th dimension grab the imagination; a documentary on the Mariner and Viking projects doesn't. Proof is nothing; belief is everything. Just look at religion. Look at the secular dogmatic faiths such as Nazism, Communism, Maoism and fundamentalist feminism and environmentalism. The UFO and New Age movements have their religious wing as well, the creed of both which goes something like: enlightened beings/the Earth Mother will soon/is now arriving/arising to save the faithful from the Bomb or pollution or materialism or (insert your favourite politically correct evil here)].

The Skeptical Inquirer and *the Skeptic* preach to the converted and only to the converted. At my place of work I have a woman of Sri Lankan extraction who agrees with me that astrology is nonsense — western astrology, that is. But not eastern astrology, which is the real thing. How is it the 'genuine' item? I don't know. She refuses to discuss the matter because I'm not Asian or a believer, so I won't

Continued p 27...

HEALTH CLAIM

At Last — A Cure For Fatness!

Geoffrey Guilfoyle

Recently a letter marked Private & Confidential in bold blue print arrived on my desk at work. My first thought on picking it up was: this is from the Tattslotto people notifying me of a 1st division win. This delicious fantasy quickly evaporated. Reality reasserted itself. The letter came off-peak and from a post office box in Ashburton, Victoria. Inside I found a sealed envelope marked: "Please - open this envelope as soon as you have read my letter. Thank you."

The letter came from Dr Malcolm K. Canning of the National Health Institute and was dated Friday 10 am (but without any indication as to the month or year). The following quotes from the two page letter (with my comments in brackets) will give you an idea of the medical breakthrough Dr Canning had to report:

"I have selected you to take part in the most incredible weight loss discovery of the 20th century: THE MEDEX DIET PATCH!"

[Confession time. I am just a teensy-weensy bit overweight. My friends (if I had any) might call me pleasantly plump. I won't reveal what my enemies say. Anyway, the doctor had me hooked. I wanted to know more].

"Even if you've never been able to lose weight before, you will lose at least 2 kilos per week without having to diet."

[Sounds even better. I love pizza and chocolate — far too much].

"Every medical journal has talked about this new discovery."

[This is news to me, unless by 'medical journal' the doctor means *New Idea* or *Cleo*.]

"Your doctor knows about it."

[Mine must be a quack, for he professes ignorance (tinged with surprise and scepticism). Such a nay-sayer!]

"How is it that you can lose at least 2 kilos per week even if up to now nothing else has worked? Because before the Patch was invented (which adheres to the skin) diet products were absorbed orally. Therefore, at the mercy of the digestive sugars."

[Whoa! Digestive sugars? Surely he means those enzymes such as amylopsin which break down sugars like maltose, glucose and fructose for absorption. Still, Dr Canning must be correct. After all he is a medical doctor, isn't he?]

"The MEDEX DIET PATCH (containing *Fucus*)...."

[Ahem, I think it is pronounced foo-kus rather than... well, you figure it out.]

"As soon as it adheres to the skin, this Patch regularly releases, for 16 hours, a constant quantity of *Fucus* that spreads through the skin where it dissolves massed fat

deposits."

[How does it tell the difference between the (good) unsaturated fat and the (bad, in high levels) saturated fat? How does it decide which lipid and sterol fat molecules are in excess and which are needed by the body? What stops it attacking the insulating fat around the muscles instead of the proverbial 'beer gut'? More to the point, what happens to all that loose fat?]

"*Fucus Vesiculosus* penetrates your skin until it reaches the massed fat deposits where it works hour after hour at speeding up your metabolism in a safe and natural way."

[Hold on. Didn't he just say that it dissolves fat? As for speeding up the metabolism, surely a little exercise will do that just as well and for a fraction of the cost of a Medex Diet Patch? In any case, how do I know it is safe? How do I know it works?]

"I believe that I can answer your concerns, due to three incontestable facts:

Fact No 1: It is a scientifically established fact that *Fucus Vesiculosus* has a natural herbal property which speeds up the metabolism in a safe and natural way.

Fact No 2: It has been scientifically proven by controlled medical tests that people who could not lose weight with conventional methods lost at least 2 kilos per week with the MEDEX DIET PATCH.

Fact No 3: Now, and this is the most important part for you: I could not offer you the MEDEX DIET PATCHES if I wasn't absolutely certain that they will make you lose a least 2 kilos per week."

[Well, you can't argue with evidence like that? I certainly feel reassured.]

When I opened the second envelope I expected to find copies of laboratory reports, scientific articles published in reputable science journals and endorsements from medical organizations like the AMA. What I got (surprise, surprise) was melange of personal endorsements, before-and-after pictures, an order form, a certificate of warranty, and a question-and-answer booklet which told me nothing of any substance — in other words, the expected blurb.

But wait!

How could I have been so sceptical? Included is a sheet marked ANALYSIS AND STAFF REPORT from Stanley Erwin, Scientific Director to Charles Frost, the President of the National Health Institute. At last! A *bona fide* scientific report.

Well, no. There is no indication where the test was carried out and who conducted it or any information on Stanley Erwin's affiliations or his qualifications. Calling myself the principal dancer of the Shonk E Ballet Company doesn't necessarily mean I'm a good dancer. The protocol for the test of the product alone indicates that Stanley Erwin

is to scientific research what I am to the world of classical dance. Here is what Mr Irwin had to say:

“1. Experimental Protocol: Different scientific studies have shown that the MEDEX DIET PATCH causes a weight loss of at least 2 kilos per - even with people who could not lose weight through traditional methods - this has brought us to conduct our own test on 62 women and 38 men [a suspiciously neat 100 total]. Each of these subjects, who were all overweight by at least 4.5 kilos, had tried various diets and diet related products without any measurable success. Every morning a new Fucus Vesticulosus patch was applied to the skin. A strict control was imposed on the subjects so that they would continue to eat as usual, and not diet.”

Convincing, isn't it. The rest of the 'analysis' is in the same vein. The envelope also contained the resume and achievements of Dr Canning. Career highlights include (with, as ever, my comments in brackets):

- * 1973 Graduate of the Paris Faculty of Medicine (*Broussais - Hotel-Dieu*). [My French is even worse than my dancing but the *Hotel Dieu* (Hotel God) bit worries me.]

- * Certificate in Homeopathy Training. [Uh-oh. It makes me wonder what exactly the Paris Faculty of Medicine teaches.]

- * Specialization in Nutrition and Aesthetics. [Aesthetics?!!]

- * Herbal Medicine and Trace Elements training. [Where? In what way? Does smoking marijuana and taking vitamin pills count?]

- * Founded the International College for treatments related to aging. Present position held: President. [So what? Anyone can create a company and/or business and/or association with a fancy name.]

- * Founded the European College of Nutrition and Treatment of Obesity. Present position held: President. [Again, so what? I am currently the Comrade Chairman Fuhrer of World Association of Megalomaniacs. But that doesn't mean I have any real competence or influence.]

- * Lecturer for major French and American companies. [Unnamed]

- * Author of several books which deal with dietary plans in France as well as in the USA and Canada [How many were published — and by whom?]

- * Medical consultant: FIT Society (USA) Conception and production of all natural and aesthetic products. [Huh?]

- * Medical consultant in nutritional problems to the Saudi Arabian Family. [Which Saudi Arabian family? There are quite a number of them.]

I do not question Malcolm Canning's right to style himself as a 'Dr', I merely question his credibility. Perhaps the NHI is a genuine medical research institution and the Medex Diet Patch the greatest breakthrough since the polio vaccine. Maybe it is worth the \$74.95 (plus \$6.50 p&p) a month they are asking. Perhaps their failure to offer solid documentation as to the authenticity of their claims is an oversight. Perhaps.

However I suspect that the good doctor Canning and the NHI will have moved on by the time you read this — probably to an equally anonymous post office box in

another city where they will enlighten the ignorant about the virtues of the Medex Diet Patch.

I have put the envelope from Dr Canning in my 'Skeptics' file along with those telling me of a fantastic opportunity to make half a million dollars in 6 weeks; the many other offers I receive to purchase various other products for ailments science just can't seem to solve (like arthritis and baldness); various brochures dropped in my letter box on behalf of the Natural Law Party during the last State and Federal elections; and the letters from those nice men (a different one each time) in Lagos, Nigeria who keep writing to me asking (in tortured English) for my help in moving off-shore the excess budget of some illicit project undertaken by the Nigerian government. (The exact spiel varies slightly each time.)

But that, as they say, is another story. ■

...Wasted years from p 25

comprehend. To balance this another co-worker thinks both western and eastern astrology are highly suspect. She doesn't question it too loudly, however, for her mother (a strong devotee) makes money on the side by doing horoscopes.

Mark, an otherwise inquiring and sceptical computer programmer, believes in the power of crystals and has plenty of anecdotal and personal evidence to support his claims. No, he doesn't know exactly how it works. He agrees it must be electromagnetic in nature but in a form as yet undiscovered by science. Yep, the famous EUTS (energies unknown to science).

Then there is Richard, a genuine creationist. He is intelligent, non-dogmatic, and not blind to the realities of science and the difficulties of reconciling science and the Old Testament. However faith conquers all doubt and nothing in *the Skeptic* or *Skeptical Inquirer* (or even Ian Plimer's *Telling Lies for God*) can budge him.

A former co-worker was a sucker for pyramid schemes and chain letters; another bought bucket loads of herbal potions regardless of the claims made for them. Aromatherapy is currently the 'in' thing among many of the female members of the firm (and one or two males). Generally, however, astrology seems to be a most accepted pseudoscience with ESP and UFOs running a close second.

Sometimes I feel I'm the only sceptic in the place and the level of scientific ignorance appals me. I'm forever photocopying articles from *the Skeptic* or *Skeptical Inquirer* on this or that piece of nonsense and going into battle for the scientific method and a more critical, more questioning attitude to unproven claims. Always I'm rebuffed with comments like: science doesn't know everything; you're being closed-minded; they all laughed at Columbus; I know it is true because my (sister, brother, uncle) experienced it; scientists originally said flight was impossible; I was a sceptic too, until.... And so on.

They are perfectly comfortable with their beliefs, beliefs which are true for them and do not require proof. Nothing changes. Nothing can change. So (and this is the crucial question) why bother? What has 20 years of CSICOP and 15 years of the Australian Skeptics achieved? ■

RELIGION

Nature of Religious Experience

Kirk Straughen

Introduction

For some religious people the most important indicators of the truth of their belief come from their religious experiences or those of the founder of their faith. Such experiences can take many forms; there are those ecstatic mystical trances and contemplative suspensions of the sense of reality, coupled with an overwhelming sense of a spiritual presence that may take the form of a vision of some kind. These events are not all that common, but many believers claim to have had a religious experience at least once in their lives. In this article I shall attempt to determine whether these events are the result of natural or supernatural causes

Religious Rituals

An examination of religious rituals may provide some clues as to the cause of religious experiences. Many religions have rituals that appear to change the participants' state of consciousness. For example Yakuts, Buragats, Altai, Turks, and Eskimos all practice shamanic rituals. Shamans intercede with the spirits, travelling on a journey to their realm. The ritual begins with drumming and dancing as the shaman summons the spirits that will guide him on his journey.

The shaman carries his own drum, controlling his journey. However, in other religious ceremonies, the entranced person is moved by the beat of many different drummers. These rituals are often called "possession trances", and they form the centrepiece of the Voudoun cult found in West Africa and the Caribbean.

Anthropologists have looked at these rituals the world over and despite their apparent differences, they have found that fasting, water deprivation, exposure to high or low temperatures, long periods of physical exercise such as running or dancing, and rhythmic sound are common factors in their structure.

The changes in brain activity associated with trancelike rituals have been documented by Professor Julian Leff of London University, and analysis has shown that these experiences have their roots deep inside the brain, where fundamental changes in the electrical rhythms of thought can have powerful effects on experience and behaviour. Visions, tranquillity, and hallucinations are the result.

These electrical rhythms, often called alpha, beta, and theta waves are in fact patterns of firing neurons washing backwards and forwards through the brain. Different patterns of brainwave activity have long been associated with different mental states.

The altered rhythms induced by rituals appear to conform to the following pattern - fast electrical waves centred in the brain's frontal lobes (the seat of memory,

imagination, thought and intelligence) give way to much slower alpha waves emanating from the hippocampal-septal region (this area affects mood in the motor activities of the body). In some cases, very rare theta wave patterns are seen which are linked to feelings of peace, happiness, and self awareness.

When high voltage low frequency waves from the hippocampus begin to affect an area in the brain called the amygdala (concerned with mood, feeling, and instinct), the person, as well as seeing visions and hearing voices, twitches uncontrollably and may suffer seizures: behaviour which is shared by spiritualist mediums, fundamentalists speaking in tongues, and voodoo dancers.

Biochemical Mechanisms

The altered state of consciousness induced by rituals appears to result from the reduction in levels of serotonin, a neurotransmitter, one of the chemicals that carries messages in the brain. Meditation and sensory deprivation decrease the stimulation of serotonin-producing cells, whereas long periods of vigorous and rhythmic exercise, such as dancing and drumming, first boost serotonin production, and then actually reduce it as the body's inhibition mechanism cuts in to compensate.

Serotonin is responsible for controlling a group of cells in the hippocampus called CA-3 cells, which in turn are responsible for synchronising internal brain activity to external events and stimuli. Low levels of serotonin cause the CA-3 cells to become easily excitable, and lose the ability to achieve this synchronisation. When this occurs, brain activity becomes disassociated from reality, producing feelings of oneness and tranquillity.

In addition there is a naturally occurring oscillation in the levels of serotonin in the left and right hemispheres of the brain. Altering the serotonin levels through the use of rituals can prevent this oscillation, allowing the right hemisphere of the brain (usually associated with intuitive or creative abilities and unconscious processes and emotions) to dominate the left, more logical and regimented hemisphere.

So far I have dealt with rituals that produce religious experiences by altering brain activity. But how do we account for religious experiences that occur when no ritual is present, or when the ritual does not possess the required characteristics? The unconscious, that part of our personality which is said to shape much of our behaviour may hold the answer, for according to the Swiss psychologist Jean Piaget, the major portion of conscious thought is guided by unconscious patterns.

Religious experiences are most likely to occur at a time of high expectation or arousal, a state in which left

hemisphere activity is dampened down. Under these conditions the right hemisphere may externalise unconscious thoughts and emotions, which are then experienced as if coming from outside the self. For example, a widow mourning her husband may hear his voice, or a worshipper may see God or feel its presence while deep in prayer, or while attending a religious function. These altered states of consciousness may be in part a response to anxiety; an attempt to transcend our woes and enter another mental state in which our fears are dispelled by a sense of the numinous.

Another possibility is that these experiences result from a physiological predisposition. For example, at the University of Witwatersrand in South Africa, psychiatrist Vernon Neppe established a correlation between the temporal lobes (associated with our sense of self, along with our perceived relation to space and time, dreaming, the sensation of movement, and smell) and such phenomena as the sensation of unseen presences, out of the body experiences, and visions. Using known symptoms of temporal lobe epilepsy, Neppe compared a group of people reporting these experiences with a control group not reporting them. He found that the people who claimed to have had such experiences reported an average of six temporal lobe symptoms, while those in the control group reported none.

God

In the previous section of this article, I outlined the physiological and psychological basis of religious experiences. However, these explanations aside, could these experiences be caused by God? I shall now attempt to answer this question.

What is God? Those western philosophers who have entered most seriously and profoundly into the discussion of this question - philosophers such as St Anselm, Aquinas, Descartes, and Immanuel Kant - appear to have meant by the term God at least the following: a reality that transcends space-time, and is the ground of being and value. What does this mean?

These philosophers appear to be saying that God is not to be conceived of as a natural object, as one of the many objects that we might encounter within the realm of nature; secondly God is a reality rather than a being because our notion of a "being" is to speak of a spatiotemporal something that exists in some places but not in others, at some times but not at others. God does not possess "being" or "existence" in any sense that we can comprehend.

When philosophers say that God is the ground of being and value, it appears that they mean God is the non-spatiotemporal cause of all that is; that all of existence is founded upon the reality of God.

This definition of God is all very well, but does such a thing 'exist'? There are at least three arguments which attempt to prove that it does; the Ontological argument, which attempts to show that the existence of God can be inferred from the idea of God; the Cosmological argument, which claims that the existence of the world presupposes, implies, or points to the existence of God; and finally the Teleological argument, which attempts to reason from the assertion that there is order in the world to the conclusion that God exists.

Conclusion

The consensus of opinion amongst philosophers is that none of these arguments can demonstrate the existence of God. The reason why these arguments fail is because they are attempting to solve a metaphysical problem.

Problems relating to what transcends possible human experience preclude the conditions of their own solution. It is not because of the limitations of our intellects, but because the problem (transcendental reality) possesses attributes (incomprehensible "existence") which are so outside the realm of human experience that we cannot solve them or fruitfully approximate a solution.

However, the absence of an argument proving that something exists does not, of course, prove that the thing in question does not exist. Be this as it may, the burden of proof rests with those who make the affirmative claim. For example, I cannot prove that there are little green men living on Mars; there may well be, but reason requires that I assume that there are none, unless, or until, some evidence is produced to indicate that there are.

In conclusion, I think that the facts available to date favour a natural explanation for the cause of religious experiences; for even if God does "exist" how can it interact with the world of nature, which it would need to do in order to produce religious experiences in the brains of individuals? How can two things without any properties in common, such as the material universe and a transcendental reality interact in any way at all?

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Dawkins for Sydney

Richard Dawkins, Professor for the Understanding of Science at Oxford and one of the world's best known biologists and writers on science, will be visiting Australia as special guest at the 1996 National Convention in Melbourne. He will also be speaking in Sydney on either September 18 or 19, at a public meeting jointly hosted by Australian Skeptics and The Australian Museum Society.

Final details of dates and venues will appear in the next issue of *the Skeptic*.

TECHNOLOGY

A Live Cobra in your Suit Pocket

Geoffrey H Sherrington

Isn't the mobile telephone a wonderful device? In an earlier age, two people talking by phone could feign the paranormal and astound audiences with feats of prediction and recall. So why be sceptical of the telephone of today?

There have been a couple of famous instances of people eavesdropping on mobile phone conversations. It is interesting to read those cases when both sides of the conversation are reported, because it is not uncommon to use different frequencies for send and receive. Therefore, the listener who hears both sides is not your casual ham playing with one scanner, but a deliberate person with two or more devices purposely equipped to listen to more.

It is also interesting when the report concerns a long conversation, especially if one or both of the mobiles is on the move, like in a car. This is because there are automatic switches that change cells and frequencies as the phone moves about.

So, you are talking on your mobile and you are going out of range of one cell and moving into a better one. You are about to be switched. How does the exchange know which cell is the next best one for you? Because they track from whence you call and predict where you will be.

This all sounds logical enough, except for a few disturbing aspects that are gaining momentum in the smart talk around town.

The first of these is that the SYSTEM (in capital letters, like BIG BROTHER) has the ability to turn on your phone when you have turned it off, to locate your position for whatever purpose. (Your phone need not light up when this happens; but it has reserve battery power that enables you to store auto-dial numbers, so it is seldom really, fully, turned off). One purpose of remote turning-on the phone could be law enforcement, like this:

Prosecutor: So, at the time of this robbery in Sydney, you were in Adelaide with your digital mobile phone.

Goner: Yes.

Prosecutor: Your Honour, might the court be cleared to hear evidence in camera that might be contrary to that last statement?

People can get themselves into all kinds of phone trouble. Ever hear of the wife suspicious that hubby has a girlfriend, who has a habit of pressing the last number dialled key when she returns home to find him looking cherubic?

Another little worry that is creeping in for mobiles concerns measures to prevent unauthorised listening. Every now and then a short code is transmitted by the system, to scramble the frequency. The idea is to cause the interloper to spend a long search on his scanner to relocate the channel, by which time it will be changed again. Too bad about this one. Smart talk says you can buy equipment which

picks up these coded switches as they happen and transfer your listening device just as fast as the system does.

We are not talking about Megabucks to get into this business. Make what you like of this quote from *Takedown*, by Tsutomu Shimomura (ISBN 0 436 20287 5):

"With commands that can be punched into the keypad of an Oki phone, it is possible to obtain all kinds of diagnostic data on how the phone is behaving, such as its signal strength, that are quite useful for phone technicians. Many brands of cell phones also happen to function just as well as the Oki as cellular telephone scanners. Few people realise that if they know the right buttons to push on their cell phone keypads, they can easily listen to all the phone conversations that are going on in the neighbourhood - a trick which is, of course, a violation of the Electronic Communications Privacy Act..."

Normally the programs that control a cellular phone are hidden in a ROM chip inside the phone. However, most phones have an undocumented interface to the outside world that makes it possible to control the phone remotely from a computer. We examined the software carefully and worked back from the 1s and 0s embedded in the chip to the original commands intended by the software designers... (Reverse engineering) ..."

If this clever talk is correct, it raises dramatic possibilities for legitimate calls to be intercepted by a third party, who could give illegitimate answers and so violate the integrity of the conversation that is so fundamental for the use of phones.

There are, of course, people who do not wish to have integrity built into phones. They want an offence to be created if people use coded messages in a way that snoopers cannot decipher easily, or at all. There is extensive US debate about public key encryption and other devices which let your friendly FBI agent listen in whenever your friendly magistrate allows a wiretap, or when you use the Internet.

I can see this shaping up as one of the major issues of our time. People, almost universally, hold personal privacy in high regard. Some people, especially law enforcement freaks, believe in a right to listen in on privacy just in case a law is being broken. To the latter, I would say "Shove off, mate!" There are classical ways to solve crimes without privacy intrusion. Show a bit more skill in the classical ways and you won't need to be the peeping Tom of the airwaves.

Unfortunately, the invasion of personal privacy is expanding in rough proportion to electronic advances. There are now, in some parts of the world, surveillance cameras with optical character recognition abilities to read car number plates. These can be used to track vehicles from

place to place, for example to see if a car is systematically exceeding a speed limit. The more you think about this technology, the more fertile the misuse you can imagine. Is there much difference between a tattoo on the personal forehead and the licence plate on the car, when officials can read either, unseen, from a distance?

Legislators and enforcers might feel that they are having a ball being at the leading edge of this largely-invisible invasion of privacy. However, Nature knows how to cut both ways and we have an interesting example from the Internet. One can buy a small electronic device, a speech encoder, to attach to the home computer. This can then be used to talk directly by Internet to a person adequately equipped at the other end, who could be anywhere in the world that Internet goes. The cost of this device, although it is not as clear as Hi-fi, is quickly paid for by the first free calls.

This concept sends shivers down the spines of the draconians of the law, because it represents information over which they have no control. Imagine if you will, that while a UN Peacekeeping force is strutting its propaganda in a war zone, declaring a cease-fire seen around the globe on TV, an individual can be simultaneously talking to a victim being bombed and can even record the bang-bangs. Such a report, of course, is potentially dynamite. Power coming out of the end of a telephone receiver? Like it or not, that's the idiom for today.

We know it's nice to have a Yuppy phone in the suit pocket, but I suggest that my colleague is right when he says it is as dangerous as a King Cobra. No problem while handled properly, but disaster when someone makes a mistake. And they do.

My bet is that some Authority will make a mistake by trying to deny what I have written, or try to cover it up.

Postscript.

About 31 March 1996, after I wrote the above, a news item reported the recovery of several stolen mobile radios 'because they emit a signal that can be detected by satellite'. This might be partially true.

Some brands of mobile do not use the keypad to access the hidden information from the Nokia example above. For one well-known brand, it is necessary to remove the main battery and short two terminals. This trips an internal switch to enable keypad interrogation, with the likelihood that you can determine if anyone is listening to you. Naturally, law enforcement people don't like this information to be spread. They prefer to behave as if they have paranormal powers of deduction. ■

**And it came to pass that he did moveth
his domicile and he did not report this
change unto the proper persons and his
Skeptic was not thereafter delivered unto
him.**

**Thereupon, much wailing and gnashing of
teeth were his fate unto eternity.**

Taiwan Skeptics

Harry Edwards

Taiwan is apparently a major stamping ground for visiting New Age loonies. Following a visit by representatives of MUFON, the following editorial appeared in the major English language newspaper, *The China Post*, (17/4/95, p4). Headed "Study of UFOs can be helpful", it gives an insight into how people are not being encouraged to think critically.

"UFO study has been growing in popularity on this island over recent years, culminating in a news conference last Friday in which two pieces of metal a researcher claimed had come from extraterrestrials were displayed.

To be sure, UFO sightings have rarely been reported here and few of our people believe in the existence of flying saucers. But interest in the subject of extraterrestrials has been increasing. *This is a welcome trend.*

It means that our people are more curious about what may lie outside our planet. Interest in such matters helps us enrich our imaginations and broaden our horizons.

Traditionally, Chinese are concerned almost exclusively with human affairs and pay little attention to nature and the physical world. *This is the main reason China has been lagging behind the West in science and technology.*

Whether such things as flying saucers really exist and whether our planet has been visited by aliens are mysteries which may never be conclusively solved in our lifetimes. Yet they do make fascinating subjects for study and discussion as well as for movies and books. (*Not to mention selling newspapers!*)

Trying to solve these mysteries can arouse a deep appreciation of the enormity and intimacy of the universe. More of our people - especially young people - should be curious about the rest of the universe. *Such curiosity is helpful in leading to a serious interest in science.*" (My emphases throughout.)

While most readers will be familiar with the Chinese belief in the aphrodisiac powers of powdered rhino horn and tiger bones, it may be news to hear that roosters' testicles are also highly valued as they are supposed to make men virile and women's skin more supple.

Kaohsiung customs officials recently seized 10 tons of chicken testicles being smuggled into Taiwan in a shipping container from Hong Kong, labelled "frozen shrimp." Now at a few grams each, that's an awful lot of chicken testicles!

However, the main concern seems to be the effect such a consignment would have on the local economy. Poultry farmers in Taiwan rely on the extra cash they receive selling chicken testicles, and the illegal import would have significantly depressed their value had they made it onto the market.

Much of the Taiwan Skeptics' time has been taken up with the sexual vampirism affair. This weird, bizarre belief is significant to skeptics due to its claimed (and with the civilisation and records, possible but less than most likely scenario) age of 5000 years, along with its sister Taoist

Continued p 56...

SCIENCE FORUM EDITORIAL

Relativity, Infinity, Cosmology

(and all that jazz)

In recent issues we have published articles and letters from contributors questioning or challenging some of the foundational assumptions of modern physics, mathematics and cosmology. In this issue we publish responses from a number of other contributors, commenting on the points raised, which are generally more supportive of the orthodox positions in these fields.

Some readers have questioned whether we should publish these articles, whether their publication somehow lowers the believability of *the Skeptic*. Those are fair questions. Is it appropriate, in *the Skeptic*, to open our pages to those who are sceptical of some areas of generally accepted scientific knowledge that they regard as dubious? Or should we tell them that there are certain areas that are beyond criticism, or even that their criticisms are uninformed and ill-founded (which they might well be) and that therefore they have no right to air them?

It seems to us that it is important that we should not close our pages to those who wish to challenge orthodoxy, even though some of those challenges might be ill-informed or betray a misunderstanding of what orthodox opinions actually are. Surely the idea that 'nothing is sacred' (nothing is beyond question) is fundamental to scepticism.

The collective and wide ranging wisdom and expertise of the subscribers to *the Skeptic* would be difficult to match in any similar sized group. But, taken individually, that expertise tends to be concentrated in specific areas, just as it is in the world at large. We are all lay people in most fields. The age of the generalist, all round 'expert in everything', probably died out with Sir Joseph Banks.

If a subscriber, with a background in linguistics (for example) finds some facets of relativity (for example) to be beyond his comprehension, or if he finds that the language used by physicists to describe those facets to be in conflict with his understanding of the language, then what other forum exists for him to question these matters? He could write to a professional language journal and find that everyone else agrees with him, or he could write to a professional physics journal and find that everyone else thinks he is mad. In *the Skeptic* he has a forum where linguist and physicist (or biologist and theologian *et al*) can meet on equal terms and this just might help to smooth over some of the interdisciplinary misunderstandings that bedevil intellectual discourse in our society.

If the linguist's questioning elicits learned responses from practitioners of the black arts of physics or mathematics, and if it encourages those experts to couch their responses in language that non-specialists can understand, (as the following pages attest) then the sum of knowledge of the whole group is advanced, to the betterment of all of us. That would be a useful secondary role for *the Skeptic* to fulfil, in addition to the exposure of

the common myths of our time to the light of critical reasoning.

We would like to offer a note of caution though to all of our contributors. If you read something in *the Skeptic* that offends against your professional understanding of a topic in which you have expertise, it is not necessarily the case that the author is an obscurantist troglodyte, bent on the destruction of modern, scientific civilisation as we know it (though, of course, he might be).

If, on the other hand, in accord with the justly famous Shavian line "All professions are conspiracies against the laity", you think that Quantum Mechanics and Relativity are made to appear that difficult because physicists are conspiring to keep you in the dark about what is *really* going on, please consider the alternative explanation. Maybe you don't know everything. There is no natural law that requires that everything must be easily understood, be accessible by application of simple logic, be explainable in terms of analogy with the known, or be intuitively obvious. The idea of a conspiracy by "the World Wide Scientific Establishment" is one that scarcely withstands even cursory critical analysis, and more properly belongs on the wilder shores of paranoid fantasy.

These fundamental theories and concepts are among the most comprehensively tested of all physical models. They may not be obvious, but they work extremely well and make predictions that have been proven over and over and with extraordinary reliability and accuracy. That is why they are universally accepted by scientists, not because scientists are conspiring to keep the rest of us in the dark.

One area of esoteric knowledge that attracts a great deal of interest is cosmology, a field in which the answers are nothing like as clear-cut as they are in physics. The Big Bang is by no means as certain a theory as is QM and argument persists among specialists and amateurs alike. *New Scientist* magazine has received so much correspondence on this subject that it has published a newsletter, which can be obtained from the publisher, or viewed on their web site *Planet Science* at <http://www.newscientist.com>. But, if the Big Bang is overturned as the explanation of how everything began, it will be by someone who is fully conversant with the current state of knowledge in a whole range of esoteric subjects, not by an amateur who just can't make sense of it.

Meanwhile, we believe that *the Skeptic* should remain a forum for subscribers who wish to question and challenge received wisdom, with the caution that they can expect robust responses if their arguments are not properly thought out. In our view, everyone should have the right to be heard, however, despite postmodernist dogma, not everyone has a concomitant right to be taken seriously. ■

Infinity Defined

Infinity is a concept which has attracted the attention of mathematicians and philosophers for millennia. Mathematically, it is a two-edged sword. On the one hand, infinity is extremely useful. Almost all of mathematics uses infinity in one way or another. But on the other hand, it is so paradoxical that even the best mathematicians can be confused by it.

In his discussion about General Relativity (*the Skeptic*, Vol 16, No 1, pp. 53-54), Alan Towsey also attacks infinity. Alan gives the Koch Snowflake as an example of a mathematical construct that uses infinity. Alan believes this is utter nonsense. The Koch Snowflake is formed by taking an equilateral triangle, and then dividing each side into three equal parts, forming another equilateral triangle. The process is then repeated indefinitely. The first three steps in the procedure are shown below:

It is obvious that the figure produced must have a finite area. But the perimeter is another matter. With each step, the sides formed get smaller, but there are an awful lot of them. The edge becomes very intricate and “bumpy”. Just by looking at the figure, it is

not clear whether the tendency for each side to get smaller or the tendency for there to be many more sides tends to win out in the long run. It is not clear what the final circumference is.

The mathematics involved is surprisingly simple (see Appendix following), but very clear. The length of the perimeter grows without limit. In the limiting case where we repeat the procedure an infinite number of times, the perimeter will be infinitely long. If you start with a triangle of side length one metre, and continue through 10 steps, the length of each side will be just one twentieth of a millimetre but the overall perimeter will be forty meters. It takes just 22 steps for the perimeter to pass one kilometre.

Alan objects to the Koch Snowflake on two counts. The first is that “logically, a finite area must be bounded by a finite line”, but Alan does not give any reason for this statement. There is no logical requirement for a finite area to be bounded by a finite line, or the converse, for an infinite line to bound an infinite area. A single counter-example will disprove Alan’s claim, and the Koch Snowflake is the definite counter-example, and there are others.

However, Alan’s second objection is 100% correct, although irrelevant. No physical Koch Snowflake could be constructed. Even if one had a knife fine enough, eventually you would have sides the size of the smallest possible subatomic particle, which could not be divided further. The boundary would not be infinite, even if it were extremely long. However, no mathematician would claim that a material Koch Snowflake could ever be constructed. It is an idealisation, an abstract shape. The same argument

could be made against any shape. Real circles are always slightly distorted, due to imperfections in our tools. Simply by the fact that they are made of atoms, no square has perfectly equal and parallel sides, or exactly 90° corners. As the atoms are continually in thermal flux (even at absolute zero), any square or circle will be a dynamic figure, continuously in motion. Despite the impossibility of constructing a perfect circle out of matter, the circle exists as an abstract shape, and so does the Koch Snowflake.

Alan has also seriously distorted Georg Cantor’s work. Cantor was driven to a nervous breakdown by the closed-minded opposition of other mathematicians, including Leopold Kronecker, whom Alan quotes approvingly. To describe it as “some scepticism” is like describing Joseph Stalin or Pol Pot as “tough but fair”. The fact that Cantor’s work was mathematically irrefutable is then somehow twisted into the tale of the Emperor’s New Clothes. Mathematicians do not accept Cantor’s work because of a desire to curry favour or a fear of seeming foolish. They accept it because it is correct. One gathers that Alan would

prefer that mathematicians ignore Cantor’s work, rejecting it not because it contains flaws but because it does not fit his intuition.

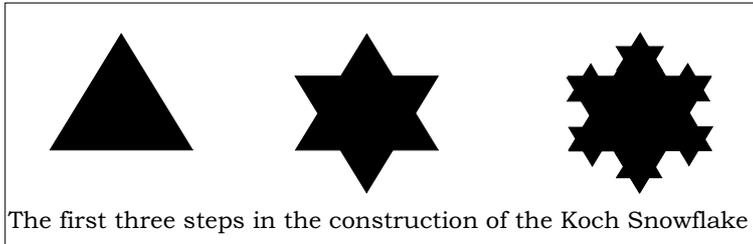
Alan admits that “It is not surprising that [Kronecker] did not always see eye to eye

with Cantor!” Kronecker was more than competent, and made important progress in his field, but his philosophy of mathematics was extremely limited. He has been quoted as saying that “God made the integers [whole numbers]; all else is the work of Man.” Taken to the logical extreme, this would mean that 1/2 cannot be real.

Alan also quotes the Oxford English Dictionary for the definition of infinity. Now the Oxford Dictionary may be the last word for standard English meanings, but when it comes to mathematical terms it is sadly deficient. Its fifth meaning of “infinite” is given as: “Math. Having no limit; greater than any assignable number or magnitude; having an uncountable number of elements, digits, terms, etc.” While this is correct as far as it goes (which is not far enough), the final term is seriously misleading.

A finite set has a last term. For instance the set { 0 1 2 3 } has four entries. An infinite set such as { 0 1 2 3 4 ... } has no last term, so is not finite. But it is countable (what did you expect of the counting numbers?), and so is called countably infinite, or enumerable. Although we cannot put a number to the last entry, as there is no last entry, we can enumerate the entries. The size of this “infinity” is known as aleph-zero by mathematicians, aleph being the first letter of the Hebrew alphabet.

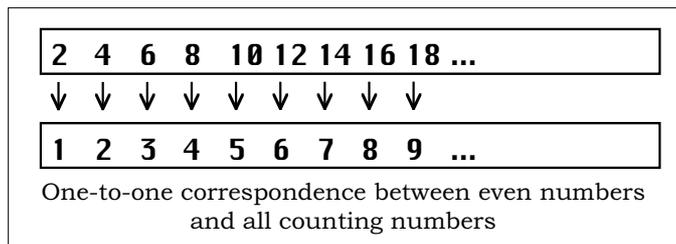
To compare two infinite sets, you simply compare the entries of each. The principle is the same as setting out cutlery at a banquet. If every place setting has both a knife and a fork, then you know there must be the same number of knives as forks, whether there are 10 forks or a thousand, or even an infinite number. By using this simple technique,



The first three steps in the construction of the Koch Snowflake

Cantor showed that many different sets have the same cardinality, or “size” as the counting numbers. For instance, the set $\{ 2\ 4\ 6\ 8\ \dots \}$ can be compared entry to entry with the counting numbers $\{ 1\ 2\ 3\ 4\ \dots \}$. Each entry in the first set has one and only one corresponding entry in the second set. It follows from this that the two sets have the same size, aleph-zero. Similarly, the set $\{ 2\ 4\ 8\ 16\ 32\ 64\ \dots \}$ can be compared entry to entry with $\{ 1\ 2\ 3\ 4\ \dots \}$.

This shows one of the paradoxical properties of infinity, namely that the whole is not larger than the part. This leads to the mathematical definition of an infinite set as a set which can be put into one-to-one correspondence with a proper subset of itself. For instance, as the above example



shows, there are just as many even numbers as odd and even numbers together.

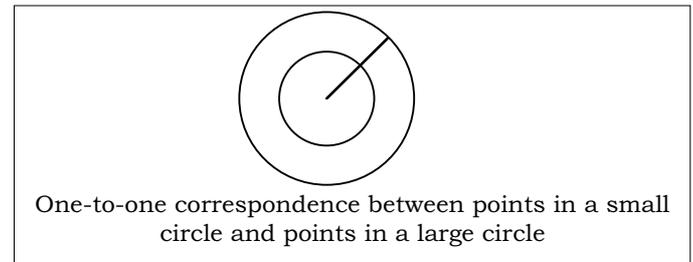
Cantor himself discovered many other strange properties of infinity. For instance, there are just as many points in a line as in a plane. Remember, we are discussing an ideal line with length but not width, and ideal points with neither length nor width. If you consider a real line and a real plane, both made of atoms, then of course the plane contains many more atoms than does the line. But this is because, small as they are, atoms are not ideal points.

Similarly, Cantor showed that a volume has as many points as a line, and that there are the same number of fractions (proper or improper) as counting numbers, even though there are infinitely many fractions between any two whole numbers. (Technically, both the rationals and the integers have the same cardinality.) Furthermore, there are many more real numbers (such as the square root of two, and pi) than either fractions or whole numbers. The real numbers are not countable and cannot be enumerated. There is an infinity bigger than infinity. In fact, there is an infinity of infinities!

The ancient Greeks discovered some of the paradoxical properties of infinity, as did Middle Ages philosophers. For instance, a circle has an infinite number of points on its circumference. But every point has one and only one radius that passes through it. Now consider two concentric circles, one larger than the other. Each radius passes through a corresponding point in both circles, with no points left over. This shows that the two circles must have the same number of points, no matter how large or small the circles are.

The reason that infinity does not behave like any finite number is that infinity isn't a number at all! Or rather, it is not an unique number. Informally, adding one to infinity gives infinity, so infinity is clearly not a single number. But despite its strange and paradoxical nature, infinity does obey rules. These certainly haven't all been discovered, but a great deal of progress has been made by following in the footsteps of Cantor.

Mathematicians today almost never use infinity as a number, and then only as a convenient short cut for a more rigorous technique. The student who dares write something like $1 \div 0 = \infty$ is asking for trouble, although she is arguably correct. Mathematicians are only allowed to get away with being that sloppy after proving they have what it takes. There are far too many opportunities for error when working with infinity. Instead, mathematicians generally



work with the idea of a limit toward infinity. Rather than considering the infinite set $\{ 1\ 2\ 3\ \dots \}$, they work with the finite set $\{ 1\ 2\ 3\ \dots\ N \}$ and then let N increase without bound, or tend to infinity. If this seems more cumbersome, that is because it is, but the advantage is that there is much less that can go wrong, and when it does go wrong it is (usually) very obvious that it has. This circumlocution goes back to Aristotle's idea of “potential infinity”.

Alan also quotes Raymond Smullyan, who alludes to differences in opinion in the foundations of mathematics. This is correct, but again misleading. Any logical system, including mathematics, rests on certain basic assumptions or axioms. These axioms can only be proven by introducing further axioms. For instance, our standard theory of arithmetic rests on the assumption (among others) that $1+1=2$. If this seems self-evidently correct and proper (one pebble plus one pebble makes two pebbles), consider water droplets (one droplet plus one droplet makes one droplet). Since the ground-breaking work of Kurt Gödel in 1930, no mathematician would deny this, nor could they deny that another's choice of axioms were valid (so long as they were logically consistent). The only differences of opinion are regarding the question “Are these axioms useful?”, and this can only be answered with hindsight.

As Skeptics, we constantly see the results of intelligent and well-meaning people who attempt to use “common-sense” and intuition inappropriately. Intuition is based on experience. Given a sharp knife for the first time, no baby would intuitively know that it will cut and hurt. Given years of experience, that same child would know enough not to run the edge of a sabre over unprotected skin, despite never being cut by a sabre before. Intuition is absolutely no use when it comes to infinity, or the conditions on the surface of a neutron star, or the behaviour of subatomic particles. No person has ever experienced an actual infinite number of anything, or set foot on a neutron star, or travelled close to the speed of light. Englishmen intuitively knew that the platypus must have been a fake, because no mammal could have a bill or lay eggs. Logical, careful mathematical reasoning is the only hope we have of understanding the bizarre world of the infinite.

Appendix - Perimeter of the Koch Snowflake

At each step in the procedure, the length of each line segment is reduced to 1/3 of the previous length, but the number of line segments is multiplied by four. This means that the total length increases at each step by a factor of 4/3. Alternatively, we can write out a table:

Step	Number of sides	Length of each side
1	3	L
2	3 x 4	L/3
3	3 x 4 x 4	L/(3 x 3)
4	3 x 4 x 4 x 4	L/(3 x 3 x 3)
N	3 x 4 ^{N-1}	L/(3 ^{N-1})

The length of the perimeter is just the number of sides times the length of each side, so after N stages:

$$\text{Perimeter} = 3 \times 4^{N-1} \times L / (3^{N-1}) = 4 \times L \times (4/3)^{N-2}$$

As N approaches infinity, (4/3)^{N-2} grows without limit while 4 x L is constant. Hence the perimeter length also increases without limit, or colloquially the perimeter is infinite.

Stephen D'Aprano
Plenty VIC

Infinity Extended

Alan Towsey is confused about mathematics and its relation to the real world. May I, as a former mathematician, attempt to set him right?

Mathematical objects have no relation to the real world. Mathematical points are not made up of atoms or quarks or anything we find in the physical world.

Mathematical language is not the same as ordinary language, so it makes no sense to look in ordinary dictionaries for definitions of mathematical terms. Indeed most dictionaries do not even attempt to define mathematical terms - my dictionary doesn't even include a definition for such a common object as a compact group!

So, whereas it may make some sense to claim that physical space is empty, this is not so of a mathematical space. A mathematical space is full of points, lines, squares and all sorts of objects. (Well, some spaces are. Mathematicians know of all sorts of spaces, such as vector spaces, Hilbert spaces, Banach spaces etc and some of these don't have lines and squares). Metric spaces are spaces in which the distance between two points is defined and no, it is not true that all spaces are metric spaces.

Three dimensional Euclidean space is a metric space with the characteristic that, if you take a line and a point not on the line, there is only one line through the point that is parallel to the line. However, Euclidean space has a geometry that is only one of a class of geometries called Riemannian geometries (discovered by Bernhard Riemann in 1854) and these geometries have the characteristic that through any point, there are either no "parallel" lines or an infinite number of such lines. You can construct a two-dimensional version of one such space by considering the surface of a sphere. The points in such a geometry are the

points on the surface of the sphere and a line joining two points is the great circle through the points (a great circle is the curve formed by a plane intersecting the two points and the centre of the sphere). It is easy enough to show that such a geometry has properties just like ordinary flat space, except that a line through a point not on a line, always meets the line - there are no "parallel" lines! It seems reasonable to say that the space described by such a geometry is a curved space. (The study of Riemannian geometries provides a much stronger reason for describing such spaces as curved, but Riemannian geometry is not a subject suitable for discussion in a family magazine like this - it tends to make one's head ache).

Anyone interested in geometry should read the book by Hilbert and Cohn-Vossen, *Geometry and the imagination*. One of the many more technical books is by Annita Tuller, *A modern introduction to geometries*. However, be warned, both are difficult to read and require lots of hard thought.

So, to Koch's snowflake curve. I hope I have made it clear that it is not an argument to say that a line cannot be subdivided because it must be made of "objects" of finite size. Mathematical lines are made up of points and points, we recall from Euclid, have position but no magnitude. So a mathematical line can be divided up infinitely. Alan's assertion that "logically, a finite area must be bounded by a finite line" is, of course, refuted by the existence of Koch's curve. Had he said "intuitively, a finite area must be bounded by a finite line" he would be right, but that just shows that our intuition about lines and areas is often wrong.

Curves like Koch's have received quite a lot of study, they are called pathological curves. Two other examples: (i) Peano (about 1900) showed that, given a square, you can define a curve that passes through every point in the square - a so-called space-filling curve. (ii) Curves which are continuous at every point but don't have a tangent at any point have been known for a long time (Weierstrass, about 1880, discovered the first one). I suggest I noted above that a mathematical line can be subdivided infinitely (infinite is another word that has a well defined mathematical meaning that is not the same as its ordinary meaning). This requires some qualification. A line made up of integer points cannot be subdivided because there are no integers between succeeding integers. However, a line made up of rational numbers (numbers of the form p/q, where p and q are integers) can be subdivided - indeed between any two rational numbers there are an infinite number of rational numbers (The proof is straightforward: consider a and b, b>a, then a+(b-a)/2 is rational and between a and b. We now have three rational points and so we can construct more points between them in the same way. Clearly we can continue indefinitely). So you might think that a line is made up only of rational points. Not so, as Euclid showed, there are lots of numbers on the line that are not rational, $\sqrt{2}$ and so on. Such numbers are called algebraic numbers, because they are solutions of "polynomial" equations such as $X^2 - 2 = 0$ or $3X^2 + 4X + 17 = 0$. Clearly every rational number is algebraic, being the solution of $PX - Q = 0$, but not every algebraic number is rational.

If we have a finite number of objects and to every ob-

ject in one pile there is a corresponding object in a second pile, but there are objects in the second pile without corresponding objects in the first pile, we say the second pile is bigger than the first. (Think of piles of marbles.) This is the idea behind Cantor's classification of infinities - roughly, one infinite set is bigger than another if there are points in the second set that are not in the first. So you might think that the size of the algebraic numbers (its "cardinality") is more than that of the rational numbers. Not so, they have the same cardinality. To get sets of higher cardinality, you have to look at the set of "real numbers" - I won't even try to give an outline of what the real numbers are, you will have to take my word that they do exist. This set of real numbers is bigger than that of the algebraic numbers because there are numbers which are not algebraic, the transcendental numbers.

By now you should be feeling lost. This is not because the theory of real numbers, or the theory of transfinite numbers (Cantor's theory) is illogical, it is just that it is difficult, the sort of stuff (again) that makes your head ache. For those hardy souls who want to try, the theory of real numbers is covered in most good text books - GH Hardy's *A Course of Pure Mathematics* has a simplified approach to the topic. Paul Halmos has written a nice introduction to set theory called 'Naive Set Theory' that I think covers transfinite numbers. However, even the introductory books on algebraic and transcendental number require a lot of mathematical sophistication.

I do not want to leave the impression that mathematics is not exciting or that there is no place for the amateur. Mathematics has always been exciting, almost every age is celebrated as a 'golden age' for mathematics. Everyone who has read any of Martin Gardner's books will know of significant contributions by amateurs (the book 'The mathematical Gardner', dedicated to Gardner, is very good). But amateurs who try to attack well established concepts only look foolish.

One final point If you have a contribution to make to mathematics, then *the Skeptic* is hardly the place to publish it. With the greatest respect, I have not noticed a great deal of mathematical sophistication from the Editors of this fine magazine. And what is mathematical sophistication? To paraphrase Lord Kelvin, a mathematical sophisticate is one:

"to whom

is as obvious as that twice two is four is to you."

**Joe Goozeff
Randwick NSW**

Infinity Expanded

My blood pressure went up when I read the letters from Alan Towsey and John Winckle in which they question the validity of Relativity and some other concepts. I would like to make a detailed response:

Mr Towsey claims that the idea that space is curved is an "absurdity". He cites the SOED definition of 'space': "Continuous, unbounded, or unlimited extension in every direction, regarded as void of, or without reference to, matter." He apparently believes that this means that space can have no characteristics other than that of being "void". Mr Towsey is reading too much into (or out of) the definition. Space *can* have other characteristics, including one which even Mr Towsey would not dispute, namely distance. The space between the earth and the sun is not completely void, but even if it were, we would still be able to say that the distance between them is 150 million kilometres. It is equally valid to talk about quantities derived from distance, such as area and volume. (For example, we could choose three heavenly bodies and say that they define a triangle which has a certain area.) And it so happens that "curvature" is also a quantity derived (in a complicated way, to be sure) from distance.

Mr Towsey further claims that Steven D'Aprano's hypothetical astronaut is not travelling in a straight line, because "he eventually returns to his starting point." Strictly speaking, the astronaut's path is 'locally straight'. That is, any sufficiently small part of the line is straight (a straight line, remember, being defined as the shortest possible line between its endpoints), but the line as a whole is not. Using the sphere analogy: The shortest distance from point A to point B on the surface lies along a particular circumference (great circle). However, if you make this journey, and then continue along the circumference to point C, it may well be that your journey from point A to point C was *not* the shortest possible. (It may be that traversing the circumference in the opposite direction would have made it shorter.)

John Winckle also takes issue with the concept of a straight line in a curved space. He apparently believes that a straight line is "what a piece of string looks like if you pull the ends really hard." Well, suppose that Messrs Towsey and Winckle are at their respective homes and are pulling really hard on the ends of a (very long) piece of string. The path the string will lie along, will be the shortest possible path on the surface of the earth (an arc of a great circle). The path taken by Steven D'Aprano's astronaut is analogous to the path of the string; the path which Messrs Towsey and Winckle would have her take, would lie outside of space-time (if it has an 'outside'), and is analogous to the piece of string passing through the interior of the earth. (And even Messrs Towsey and Winckle can't pull *that hard!*)

The analogy with the surface of a sphere for explaining the structure of space, is not inappropriate. Mr Towsey has obviously misunderstood. The universe is analogous to the *surface* of the sphere, not its contents. It is true that the surface of the sphere is a boundary *for its contents*, but it is the *surface* that we are concerned with in the analogy, and the surface itself has no boundary. There is no logical necessity for the astronaut moving in a straight line in a finite universe, to "eventually come out of it", just as there is no logical necessity for a person travelling along a circumference on the earth's surface, to eventually leave the earth.

Please note that I have not been discussing whether space *is* curved. This is a matter for the physicists, and I am not an expert on physics. I have merely attempted to explain the *idea*, and why it is not absurd.

Mr Towsey is not content, however, to have a go at the physicists: He also gets stuck into the mathematicians, and it is in this area that I feel that I am on firmer ground.

First, Mr Towsey claims that “logically, a finite area must be bounded by a finite line”. This may seem logical, but it is not correct, and I am puzzled that Mr Towsey apparently believes this even though he has supplied a counter-example (the Koch curve) with his article. He goes on to argue that such a line cannot exist in the real world, because there could be no triangle smaller than the smallest possible subatomic particle. This is a category mistake: lines and triangles are *abstractions*, and don’t exist in the real world anyway. We use them in *models* of the real world. And I gather that there are models of the real world which incorporate Koch curves. (The most common example seems to be a model for the shape of a snowflake.)

Regarding the definition of “infinity”: Notwithstanding what the OED may say, things do exist which are finite and unbounded, as Steven D’Aprano has already explained in *the Skeptic* for Summer, 1995. Nor is it true that an infinite thing cannot be measured: There is in fact a whole hierarchy of infinite numbers, each one different from the others. They are known as aleph-null, aleph-one, aleph-two, etc. (I do not know how these names came about, except that, as Mr Towsey would know, aleph is the first letter of the Hebrew alphabet.) For example, the number of counting numbers (1,2,3, ...) is equal to aleph-null; the number of points on a line is aleph-one; the number of possible lines connecting two points is aleph-two. Each of these sets of things (numbers; points; lines) is an infinite set, and yet it can be shown that no two of them are equal in size. There are (in a manner of speaking) more lines than points, and more points than numbers. In other words, two infinite sets *can* be compared for size and are *not* “both simply infinite”.

It is true that Cantor spent much of his life in psychiatric institutions, but he did his mathematics during his lucid intervals. (Indeed, the fact that a ‘mentally ill’ person can display such genius provides food for thought.) According to E T Bell, in his book *Men of Mathematics* (Simon & Schuster), Cantor’s mental illness was partly the result of vicious professional and personal attacks from the mathematician Leopold Kronecker. The latter appears to have been the mathematical equivalent of a religious fundamentalist. By the way, one of the first thinkers to come out in support of Cantor’s ideas was Bertrand Russell.

**Chris Manning
Pahran VIC**

Ad Infinitum

In his article “Relativity and Related Matters” Alan Towsey follows that trail blazed so brightly by John Winckle and Clive Robbins in questioning some of the models accepted

by 20th century physics. While a skeptical attitude is very healthy, it should not be forgotten that such an attitude must be tempered by adequate investigation and reasoning. Both of these I find sadly lacking in Mr Towsey’s article.

Throughout his article, Towsey repeatedly commits the naive and dangerous fallacy of assuming that any result which is counter-intuitive is therefore necessarily, and obviously, wrong. He does not discriminate between scientific and ‘New Age’ methods of investigation, but regards any result which seems strange at first glance as unworthy of anything other than a superficial attempt to understand it. I suggest Mr Towsey check his revered SOED for the meaning of the word ‘analogy’ in future before ridiculing Steven D’Aprano in his attempt (Vol 15 No 4) to explain one of these seemingly strange results of modern physics. The popular “ant on a balloon” analogy is necessary to easily grasp the concept of unbounded yet finite space-time by a person more accustomed to thinking in three dimensions than in four. (And we must consider the fabric of the universe as four dimensional if we are to understand its large scale structure). It is fatuous of Mr Towsey to talk about coming out of the surface of a sphere when the whole point of the analogy is the reduction from three dimensions to two in order to understand the principle. He utterly misses the point.

Towsey shows a dangerous inclination to follow his intuition to the exclusion of his other faculties when examining the plausibility of a concept in physics, while simultaneously decrying this very same tendency in others. While a ‘gut feeling’ is often a good indication of which reported phenomena (whether bogus or reproducible) require further investigation and substantiation, it is a very poor tool to employ in forming a final judgement. Both types of results require an examination using reasoned logic, applied carefully and correctly. In Towsey’s own words, “it is when we fail to use it properly that we end up in trouble”.

Towsey’s article continues as a showcase of fallacious reasoning. As just one example, he mentions the Koch curve, which is an infinitely long line surrounding a finite area. “Now this, of course, is nonsense, again on two counts. First, logically, a finite area must be bounded by a finite line, and secondly... [ravings deleted]” Apparently Towsey’s towering logic consists of “it’s not true because I can say its negation”. Hardly the calibre of reasoning one would expect in *the Skeptic*. Unfortunately, the rest of the article doesn’t get much more enlightening. In his discussion of abstraction in mathematics, Towsey shows he himself does not grasp that very concept by arguing, among other revelations, that a point cannot be dimensionless! But it is not worth wading further through this litany of errors.

Towsey’s article shows us how important it is to be careful in how we use our powers of reasoning in the search for truth, and provides a warning to beware of simple, but wrong, solutions to complex problems. Just as seriously, it goes against the published aims of *the Skeptic* by clouding inquiry and impeding the quest for truth. I believe he performs a disservice to all of us who are dedicated to that quest.

**Mike Garrett
North Adelaide, SA**

Relatively Speaking

I feel it necessary to correct the unfounded criticisms of Messrs Towsey and Winkle of some aspects of Relativity, lest readers of your excellent magazine get the impression that Einstein's work rests on some shaky metaphysical foundation.

Clearly, the notion of "curved space" is one that gives many people difficulties. This may arise from the fact that scientists commonly use ordinary words in a restricted, technical sense. Examples that spring to mind are Energy, Pressure, Force, Work, etc. Space is another such. Physicists work with different types of space, depending on the problems they have to solve. Quantum Physics has need of a infinite-dimensional space (Hilbert Space). Relativity uses a 4-dimensional space (Space-time). The metrical properties of such a space allow us to precisely quantify the concept of "curvature". There is nothing at all mysterious about it. A non-zero curvature simply means that the space has certain non-Euclidean properties. It can hardly be absurd to suppose that the geometry of the universe may differ somewhat from the ideas of Euclid.

It must also be said that space, in physics, is not simply a void, but the very fabric of the universe. Besides matter, 'empty' space carries electromagnetic and gravitational fields, (not to mention quantum fields) and thus has an energy density which, in Einstein's theory, determines the metrical properties of Space-time.

Relativity is one of the great pillars of modern physics. Not through some strange whim of the physics community but because, firstly, it was able to account for certain observations and experimental results that had hitherto been inexplicable (the Michelson-Morley experiment, the excess perihelion shift of Mercury's orbit), and secondly, it made predictions as to certain phenomena (the bending of light in a gravitational field, the gravitational red-shift, which were subsequently verified).

Because Relativity is of such fundamental importance, it is under constant scrutiny. As new techniques become available, old experiments are tried again with greater accuracy and new ones devised, to test the theory. The mass energy equivalence relationship ($E = mc^2$) of Special Relativity (1905) is in daily use in the operation of nuclear reactors and is the basis of nuclear weapons. The bombs dropped on Hiroshima and Nagasaki gave grim testimony to its truth. The time-dilation effect has long been observed in the laboratory, and more recently has been directly verified by comparison of highly accurate atomic clocks. The inertial effects as the speed of light is approached is a commonplace in particle accelerators, and so on.

General Relativity, too, has been extensively tested (see Clifford Will's book *Was Einstein Right?* for details) and indeed the corrections required by General Relativity are routinely taken into account by satellite navigation systems and communications satellites to ensure the high degree of accuracy they require. As Dr Will points out, the accuracy of the GPS system would be ± 15 km, instead of 15 meters, if the relativistic corrections were not taken into account.

All scientific theories are provisional. If the weight of evidence accumulates against a theory, then it must be

modified or abandoned. But Relativity has passed every observational and experimental test thus far devised, to the degree of accuracy expected in each test. The proof of the pudding...

The cosmological applications of Relativity are clearly more controversial (see Colin Keay's article in the last issue of *the Skeptic*). Einstein's equations do not give a unique solution. Many outcomes are possible; expanding, contracting or oscillating universes, depending on estimates of the parameters involved and also on simplifying assumptions (eg the Cosmological Principle). Interestingly enough, Friedmann and Lemaitre independently discovered in the 1920s (before Hubble's results were known) that Relativity implied clearly that the universe could not be static. Clearly, current data is insufficient to obtain general agreement about many fundamental questions, but it would be fair to say that without Relativity there would be no Cosmology (as a scientific discipline) at all.

Physics seeks the most general, underlying properties of the universe. Intuition and common experience are of little use in the investigation of the subatomic world or the large scale structure of the universe itself. Everyday language is far too fuzzy for these purposes. Here, only mathematics provides a sufficiently precise and compact means of description. We should not be afraid to use it.

It is right and proper that the claims of science are subject to close scrutiny, (as indeed is done constantly within the scientific community) but they are hardly on the same footing as those of tarot-readers, astrologers and Popes. Skeptics should try to discriminate between the legitimate speculations of an empirical science and the flights of fancy of spoon-benders and spiritualists.

Ray de Kretser
Kogarah NSW

It's All Relative

John Winkle has a number of problems with Relativity, both special and general, but hasn't formulated them into simple questions which can be answered without a lecture of many pages length and some equations which would give the editor's word processing program a nervous breakdown. So I will just comment that:

- (a) there is no problem with special relativity;
- (b) there is no problem with general relativity within its (classical) domain of application; and
- (c) there are problems with the Big Bang theory but they do not invalidate (b) or (a).

The Big Bang theory grew out of one solution to the Einstein field equations (the Friedmann solution, going from memory) which made a lot of simplifications but which did seem to explain the apparent expansion which had already been observed. In other words, the universe seemed to resemble some aspects of the Friedmann model. Extrapolating this model backwards in time gives us the Big Bang. If it turns out that this is not realistic (the simplifying approximations break down, for example) then we will have to find a different solution to Einstein's

equations, that's all. We already have several solutions, some of which are candidates for models of the universe, others of which model black holes or stars, and no doubt many solutions with no physical application whatsoever. There are ten of these equations, and probably a large if not infinite number of solutions, but they are not mathematically tractable.

Alan Towsey writes that he is sceptical of the Big Bang theory, of General Relativity (GR), and of certain counter-intuitive results in mathematics. I won't discuss the Big Bang since Colin Keay has been busy demolishing it and he knows a lot more about it than I do (I have always found relative ignorance a bit of a handicap in scientific argument) but I can certainly have a go at GR and Cantorian mathematics.

Alan's dispute with GR basically comes down to the fact that he finds it "absurd". With respect, that is not a scientific statement. Lots of things which were once regarded as absurd have not only turned out to be perfectly feasible but also true. What Alan really means is that he finds the idea of curved space counter-intuitive, while Newtonian Gravity (ING) is not.

Unfortunately, Newton gives us the wrong results in certain cases. The most famous is the motion of the perihelion of Mercury, which should not occur (according to Newton) but was observed astronomically as an unexplained anomaly until Einstein derived it as a consequence of General Relativity. Although the bending of starlight around the Sun and the existence of putative black holes are also offered as evidence for GR, I won't do so since one can derive similar concepts in ING. GR also gives us one unambiguous prediction that time runs slower in a gravitational field: this has also been verified experimentally. Now these effects which allow us to distinguish whether GR or ING is accurate are small indeed, which is why ING is such a useful approximation, but certainly Einstein is more correct than Newton.

As I noted above, the Big Bang may turn out to be wrong without affecting in the slightest way the correctness of GR. We can be fairly certain that any successful cosmological theory must conform with GR or some quantum refinement of GR.

Alan also misunderstands Steve D'Aprano's analogies about spheres. These were not proofs, but attempts to make the idea of curved space more intuitive. So instead of analogies I will list a few experiments which one could conceivably carry out in the real world.

First, you have to decide how you will construct a straight line, either by stretching a string between two points, or by means of a laser beam, or whatever. Then carry out any of the following procedures.

a) select three points in space, and connect them with your straight lines (constructing a triangle) and measure the angles. What is the sum of these angles?

b) construct two lines which are parallel at some point. Move along the lines and measure the distance between them. Is it constant?

I'm sure that Alan would say the answers are (a) 180 degrees; and (b) yes. However, he would not be able to prove it by geometry without using Euclid's fifth postulate which is **not** known to be correct. But if he tried the

experiment in the real world, made his triangle and parallel lines large enough and measures things accurately, he would find his answers would be wrong.

To move to Cantorian mathematics, specifically different kinds of infinities, Alan thinks this is "nonsense" based on the Oxford English Dictionary definition of the word "infinity". It may come as a surprise to learn that the OED gives the common meanings of words, not the technical definition, and hence is not useful in this context. Instead, Cantor's results are again correct but counter-intuitive. This is quite common in mathematics: the Greeks thought that the idea of irrational numbers was counter-intuitive too.

Now to support his intuition, Alan suggests that there is some lower limit to measurement (say, at the size of the smallest sub-atomic particle). This again is a misunderstanding: the Cantorian method is a thought experiment and practical limitations such as that do not hold. Such simplifications appear all the time, such as in Euclid who used the concepts of dimensionless points and lines with zero thickness.

Cantor's genius (and that is not too strong a word) is that he frequently came up with elegant geometric proofs of counter-intuitive propositions. Alan's problem is that when he encounters a contradiction between mathematical logic and his intuition, he would rather reject logic than intuition. However, experience has frequently demonstrated that intuition is not a reliable indicator of physical or mathematical truth.

Andrew Parle
Chippendale NSW

Regarding Relativity

John Winckle wrote (Vol 16, No 1) "By logic we can see that the theory of relativity is wrong, independent of any search for space strings or gravity waves". The theory may be wrong, but if so then a lot of observed phenomena are being successfully explained for the wrong reasons.

I suggest reading *About Time: Einstein's Unfinished Revolution*, by Paul Davies (Orion Productions, 1995, ISBN 0-670-84761-5). This book relates many such observations, including the 1971 experiment with atomic clocks, where time differences between those flown around the earth, relative to the stationary clocks, confirmed Einstein's formula.

And if you want a practical application for this seemingly esoteric theory, how about the accuracy of the Global Positioning System (GPS)? The *ABC Science Show* (RN March 23, 1996) reported that the application of Einstein's equations from General Relativity enables an accuracy of 15 metres. Without these corrections to account for the effects of both relativity and gravity on time, the accuracy would only be about 15 km. If Einstein was wrong here, his mistakes sure help a few well heeled bushwalkers and boaties to accurately know their location.

Evan Gellert
Essendon VIC

Big Bang Questioned

Is there a conspiracy to promote the big bang hypothesis of the beginning of the universe? A conspiracy to bring religion and knowledge together in a unified philosophy, using a scientific hypothesis which does not question the possibility that God began it all?

There is no proof that I can put forward, just a bizarre and frustrating set of circumstances which seem to me to show that the big bang hypothesis is a dogma not to be questioned, which cannot be questioned no matter how hard one might try. Try it yourself, try to get some obvious questions answered and come up against a solid brick wall of lollygagging.

Expanding Universe

It is widely held that the universe began as a gigantic explosion and a large proportion of the community are aware of this explanation of how it all began. It is a new hypothesis arising out of the discovery that the universe is expanding. In 1915 Slipher found that galaxies are receding from us. In 1929 Edwin Hubble showed that there was a uniform relationship in these velocities. He found that the relative velocities between any two galaxies are proportional to the distances between them. A galaxy ten million light years away from us is travelling away from us at ten times the speed of a galaxy only one million light years away from us. This relationship is thought to be the same for all galaxies.

It was then realised that this means that all galaxies must have been at a common point at some time in the distant past. To understand this more easily, imagine the film being wound back. All the galaxies that we can see will seem to be racing back to a point with the further galaxies travelling much faster than the nearer galaxies. It was easy to conclude that the whole universe must have originated at a point, and there must have been a gigantic explosion to cause the huge velocities that the galaxies have.

Fred Hoyle had developed an earlier hypothesis which he called the 'Steady State' hypothesis. He poured scorn on the new hypothesis and called it the 'big bang' and the name stuck. Fred eventually felt forced to accept the big bang when some radiation was discovered which was alleged to emanate from the primordial explosion. This radiation is called cosmic background radiation. It comes evenly from all directions with no actual source.

A Question

Now here is the first question that should be asked and if you ask it, no one will answer you! The question is: "How can that radiation have turned around to come back to us?" In the big bang explosion all matter was created with an enormous amount of energy. All that matter and the radiated heat and light exploded outwards with the radiated energy travelling in straight lines at the speed of light. Behind that all the matter expanded outwards at lesser speeds never to be able to catch up to the radiated energy. How could we be able to see that now? Ask around. You won't find anyone able to give you an answer!

This question is not a crank question. It is commonly asked so I'm not some sort of nut. In the words of Prof Paul Davies, cosmologist of Adelaide University, writer of several books on Cosmology and winner of the Templeton Prize given in recognition of service to religion and science, this and other questions that I have asked him are "standard" and "common".

Other Possibilities

Now let's return to the expansion phenomenon that indicated that an explosion had occurred. When the film was run backwards to that point, why had it to be assumed that this point was where it started? Why were other possibilities not studied? Perhaps the universe did not start at that point but at some stage in between. There are an infinite number of possibilities, instead of the cosmic ovum being a point, why not something the size of a football, or the size of a star or solar system or galaxy or even of infinite size? All of these are more plausible than a point at which gravity, mass and energy would all have to be at impossible infinite magnitudes. Peruse any books on cosmology, ask any cosmologist, you will find no evidence that these alternatives were ever considered!

A point has no magnitude and so there can be no directional or spacial concepts inside a point. So all the matter, within the singularity of the big bang, could have had no orientation with respect to any other matter there. As a result of the alleged big bang matter has spread outwards with each particle having a spacial and directional relationship to all other matter. This raises the philosophical problem as to how and at what stage the particles involved became oriented. This is not the often-discussed problem about uniformity and the development of the uneven universe. It is the problem that if one talks about uniformity, one must talk about spacial relationships and there could have been none in the singularity.

Consider the film again. Run it backwards and everything comes back to a point. But that is only if you assume that the universe is not infinite; it is so if you consider only the galaxies that one can see. If you consider galaxies further and further out you will never get back to a point because other even more distant galaxies will be there and it will always be a volume. The big bang enthusiasts made an implied assumption that the universe is finite. If they hadn't, they would have never come to the point source conclusion. The expanding universe can appear to be matter expanding out from a huge explosion, or the galaxies can be seen to be like currants in an enormous cake cooking in the oven, expanding outwards but not from a common point. Either model would have that uniform relationship, that 'Hubble' relationship, between distance separation and velocity. Peruse all the books on cosmology and you won't find that alternative model discussed. So ask any cosmologist why it was not considered, you won't get an answer!

There are a few more questions that can be asked. The cosmic background radiation is very low heat radiation such as would come from an extremely cold mass. It is claimed that the expansion of space, expanding with the expanding cosmos, has attenuated the enormously hot radiation from the big bang. There are two unproved assumptions mixed

up with this claim. First that space is expanding and second, that expanding space can attenuate radiation. But if it is true, one should ask: "why has the radiation coming from the most distant galaxies not also been attenuated to this extremely low energy?" It hasn't, we can see high energy heat and light radiation coming from the most distant galaxies. It has only been attenuated to some extent due to the Doppler effect on light caused by relative velocities, an effect called 'the red shift' because when light loses energy its wavelength widens and becomes 'redder'.

Another question: "How could the alleged attenuation of the cosmic background radiation have made its spectrum extremely narrow when one would expect it to be widened?" The cosmic background radiation has a narrow spectrum of long wavelength radiation with a temperature of 2.7 degrees above absolute zero, (270.3 degrees below zero, Celsius; 2.7 degrees Kelvin.) The radiation from the big bang would have been the whole electromagnetic spectrum. Attenuation would have widened this further, weakening the low energy red end to nothing and lengthening the short wavelength but it could not at the same time squeeze the spectrum to the narrow band it is.

There is an alternative explanation of the cosmic background radiation, it could have come from an infinite, absolutely cold universe as it started to warm up due to reactions within it. This explanation does not require the implausible invoking of expanding space and does not need the radiation to turn around somehow to be able to be seen by us. Ask around to find out if this possibility has been considered. You won't get an answer.

Questions; No Answers!

I have asked many people for explanations, university physicists, astronomers at universities and observatories, popular scientific magazines like *New Scientist* and *Nature* all to no avail!

New Scientist magazine promised, in 1994, to run a series explaining these sort of questions. The editor wrote, "Because we receive so many letters about the big bang (several hundred a year) we are not able to answer them individually, especially when they deal with fundamental issues like your own. We are, however, saving them and hope to have another go at addressing the most frequently asked questions in an article in the future." But it didn't. I remonstrated recently to be told "the pressures of producing a weekly magazine mean that we are unable to discuss these issues with the many readers who write to us about them."

I wrote to Prof Paul Davies who was interviewed recently by Phillip Adams, a well known journalist, for a series shown late at night by SBS TV, in 1995. I was told to read three of his books in which I would find these "common questions" and the answers to them. I did so only to find no mention of the questions and no answers to them. I complained to him and was referred to a textbook on cosmology, *Principles of Cosmology and Gravitation* by Michael Berry in which I would find discussion of my "standard questions" and explanations, I found nothing. Paul made a suggestion that I would need to study up on maths to be able to understand. Was he trying to intimidate me? Sure, it would make it easier, but if lay people can be presented with explanations of the big bang without undue

use of mathematics, it should be possible to answer these standard questions in the same way. If a cosmologist has a good understanding of his subject one would expect him to be able to explain aspects of his science to a layman.

New Dogma

The big bang was the beginning of time and the beginning of the physical universe and the laws that run it. There could have been no physical laws before that and therefore no context in which to consider or even discuss how it all happened. The cause cannot be discussed nor even contemplated because there is no basis on which to base any conjecture. So the big bang universe can be discussed in terms of the processes that have gone on ever since the instant when it started, but to consider the cause is taboo. The mainstream religions accept the big bang and it is my guess that it is acceptable because it does not question a supernatural cause. So does this establish the big bang as a dogma? Could this explain my difficulty in getting answers to some fairly simple questions? Could all the people whom I have approached be in a conspiracy to protect the big bang dogma from destructive scepticism? I don't think that all these people could be implicated and I'll tell you why. I wrote to a director of an observatory in Australia. He didn't answer, but a year later I spoke to him on the phone on another matter. He recalled my letter and admitted that he could not answer my questions. I then asked him if he could suggest to me someone who could do so. His answer was that there was no one in Australia who could because most of the people who should were just band-wagoners on the big bang ride for the kudos or for easy funds. I would add those who find it easy for their stolid minds to go along with a popular fad as it requires no intellectual effort to justify.

So when you ask around and don't get answers, you will have to wonder why, is it ignorance, is it inability to explain something that is not properly understood or is the person you ask protecting a religious dogma. The cover-up seems to be so widespread and effective that one has to wonder if the big bang hypothesis is a conspiracy to divert scientific investigation.

**Brian Marsh
St James WA**

Banging On

I heartily agree with Alan Towsey's comment (Vol 16, No 1) "I confidently predict that within a few years the theory will be considerably modified if not abandoned altogether." Long study of the theory has convinced me that the universe could not have originated in such a manner. All attempts to reconcile it with the known physical laws always fail.

Consider energy, for instance. One of the basics of the physical laws is that energy must have a source, meaning force cannot emerge from the void. Yet this is just what supporters of the Big Bang theory claim. According to the

usual description of the event, nothing preceded it, for it was credited with bringing the universe into existence before which there was no matter, no space, no time, no anything. So where did the energy come from? Such an event would have required prodigious energy; it acted as if titanic stored force somehow released all its energy in a millisecond. But if such were the case, where had it been stored if nothing existed prior to its emergence. It must have been stored in something; it could not have existed in a disembodied state. That there is no sensible answer to this question convinces me that the Big Bang is a myth. And this is why I predict it will eventually die a natural death.

Its wide support among scientists is possibly due in part to the fact that no one knows how the universe began plus a reluctance on their part to acknowledge this fact. Piqued by the advance of science in so many fields, they are loath to admit this problem still baffles them and in desperation try to prop up the Big Bang despite its many anomalies.

**G. Balston,
Mansfield, VIC**

More Bangs

With regard to the burgeoning cosmology debate, it appears that I misunderstood Prof Keay's original point. I didn't realise (and the original article didn't make clear) that Prof Keay doesn't accept that the predictions ascribed to the Big Bang, (background radiation temperature, hydrogen-helium ratios, etc) are in fact predictions at all.

So, on that basis he felt entitled to claim that the Big Bang theory had made no successful predictions. This smacks a bit of sophistry. At best he can claim that, in his opinion, and in the opinion of a minority of cosmologists, the purported predictions of the Big Bang theory do not, in fact, qualify as predictions; which is not really as strong an assertion.

He also castigates me for using pro-Big Bang sources, and then quotes Fred Hoyle back at me. This really is the pot calling the kettle black! Expecting Hoyle to have kind words to say about the Big Bang is like expecting the Hell's Angels to endorse Vespa scooters.

As a parting comment, I still stand by my original position that religious allusions are best left out of scientific discussions. Look at the furor created by George Smoot's 'face of God' comment when announcing the COBE results. The press concentrated on that one comment, to the detriment of the real value of the experimental results. Religious language tends to confuse the issue, no matter what context it is used in.

**Charles Nagy
South Melbourne, VIC**

Cosmological Answers

The Questions and Challenges sections of the last issue of *the Skeptic* contains three questions from Chris Manning. Chris first asks about the Doppler Shift and the red-shift of light from distant galaxies. This causes the frequency of the light to shift towards the red side of the spectrum. Chris points out that while visible light is being shifted into the infrared frequencies, ultraviolet light is being shifted into visible frequencies, and asks how this red-shift can be detected.

Stars and galaxies do not emit an equal amount of light at each frequency. Their spectrums will be brightest at a particular frequency, fading away to nothing at extremely high and very low frequencies. Thus, the spectrum of a star which is not red-shifted and one which is will be different by a measurable amount.

However, as Chris points out, it might happen to be that the spectrum of light from a distant galaxy happens to be brightest at a frequency which is redder than we expect. Fortunately, the spectrum of light from stars and galaxies contains absorption bands, a frequency where light has been absorbed by a particular element. Every element has a unique pattern of absorption bands. Some, like the double band of sodium, are very distinctive and easy to detect. The red-shift of light from a distant star or galaxy can be accurately determined from the shift in these absorption bands.

Chris' second question about seeing into the past is a valid point. When we look at the star Sirius, we are seeing it as it was eight years ago. To be perfectly correct, we should not state that Sirius is eight light-years away, as we cannot observe Sirius as it is now, but only as it was eight years ago. However, the astronomer who continually said or wrote things like "eight years ago the star Sirius was eight light-years away" would be considered overly pedantic.

The third question regards leap seconds. The Earth's period of rotation is increasing by about one second every hundred thousand years. However, there have been no less than twenty leap seconds added since 1972. This also puzzled me for a while, until I realised that the two facts are unrelated. The one second per hundred thousand years relates to the length of the day, while the twenty leap seconds have been added to adjust the length of the year, compensating for the awkward fact that one year is not exactly 365 days.

Finally I must comment on Chris' fear that human activities were possibly causing the slow-down of the Earth's rotation. As a rough guide, it would take approximately 5×10^{24} Joule of energy to slow the Earth's rotation by one second, or about 2×10^{18} kilowatt hours. My last electricity bill shows a peak usage during the last twelve months of 10 kWh per day per person. If I multiplied this figure by 2000 to estimate the per capita share of all energy usage, I would use approximately 7×10^6 kWh per year. If every person alive used this amount of energy, and every last erg of it were directed to slowing down the rotation of the Earth, it would be approximately one fortieth of that needed to slow the Earth by one second.

**Stephen D'Aprano
Plenty VIC**

More Answers

Chris Manning asks about how we can tell that light is "red-shifted" instead of being naturally red in the first place. The answer is that light from stars has a number of bright lines at known frequencies (depending upon the make-up of the star) and the pattern of these lines is easily recognisable. When these lines have shifted (and they all shift by the same amount) towards the red end of the spectrum, you have a measurable red shift.

Chris further comments that there is a confusion in assigning dates to distance events (such as Sirius or the Crab Nebula supernova). This is correct, but unavoidable. The problem is that there is no way of unambiguously assigning dates to events separated in space. It is simplest, usually, to relate all dates to the date that light arrives at the earth - so we talk about Sirius 'now' and the Crab explosion in 1057 CE. But when we are talking about cosmology, it is sometimes easier to select a frame of reference where the earth is at rest and assign dates that way: so the light was emitted from Andromeda 2 million years ago. You just have to pick up which dating scheme is being used from the context.

Chris' third question is about leap seconds, which he/she correctly points out are not due to the earth slowing down due to tidal effects. The need for leap seconds arises because a second is no longer defined as some fraction of the solar day, but by means of atomic clocks. Thus there is no reason why a solar day must be an exact multiple of a second, and it isn't. Thus occasionally we have to adjust clocks so that midnight does not stray too far from 0.00 hours. This is identical to the leap day which we have every four years (more or less) because the time of the earth's revolution around the sun is not a whole multiple of solar days. As the earth slows down due to tidal effects, the solar day will become slightly longer (with more seconds in it) and more leap seconds will have to be introduced to keep midnight and 0.00 hours synchronised.

**Andrew Parle
Chippendale NSW**

Another Answer

Referring to two questions asked by Chris Manning

Q: How do we know that the light-wavelengths from distant galaxies is 'red-shifted', rather than the stars just generating redder light?

A: When light passes through any gaseous matter some energy is absorbed. This results in the gas being opaque to some light frequencies, and each element has a unique absorption pattern, and the spectrum of light passing through the gas has dark lines at precise wavelengths. This absorption occurs as light passes through a star's outer atmosphere. But light from the stars show these unique absorption patterns occurring at longer wavelengths than exhibited on earth, or in the sun's spectrum. Now this means either, atoms in different parts of the universe require different amounts of energy to kick around their elec-

trons (and those in our galaxy require more energy than anywhere else in the universe), or that the light is being Doppler-shifted by the galaxies moving apart. As the first possibility would require a completely new scientific conception of the universe, the idea of a red-shift is to be preferred.

Q: If the earth's period of rotation is slowing at only roughly 0.00001 seconds annually, why does a 'leap second' need to be added nearly every year?

A1: As the Duchess reminded Alice; "If everybody minded their own business, the world would go around a deal faster than it does." (Alice's Adventures in Wonderland). So the need for twenty leap seconds to have been added since 1972 can be put down to the rise of political correctness.

A2: Each day there are 86,400 seconds, which means exactly 86,400 seconds for each rotation of the earth (and no more than this allowed). However, the (standard) second is also defined as a precise fixed unit of time measured on some fancy atomic clock, not related to rotation of the earth. So, as the earth slows, the 86,400 seconds a day defined by the rotation of the earth take longer than 86,400 standard seconds.

Because it is the period of rotation (ie a day) that is increasing by roughly 0.00001 seconds annually, this means the next year is (0.000001×365) or about .004 seconds longer than normal. (The actual value is closer to 0.005 seconds). As this slow-down is a deceleration, year 2 will be 0.01 seconds longer, year 3 will be .015 seconds longer, and so on.

These fractions add up, and before you realize it (well, actually after 19 1/2 years), all your clocks are a second fast - well, actually, the clocks are right, it's the earth that is a second behind. But, rather than to try to speed up the earth it's easier to simply call the difference an extra 'leap second'. But, by this time, those extra seconds now are adding up at a rate of one a decade, and climbing, so the next one is going to come around in another eight years.

This is rather academic, as the 'original' time of the year has been standardized as that at the beginning of the eighteenth century, so the year is now about $(200 \times .005)$ seconds longer than 'normal', which means a leap second is needed nearly every year.

So nothing unexpected is happening, but I think I prefer my first explanation.

**Allan Lang
Colonel Light Gardens SA**

And Another

In answer to the questions raised by Chris Manning.

The red shift of astronomical bodies;-

On a fundamental level I wish to state that there is no way that we can directly confirm the result of our observations as being absolutely correct. We cannot currently take samples directly from distant stars and verify our speculations about their nature. It is correctly sceptical of all thinking people *not* to dismiss the possibility that things may have other explanations.

The basis for the hypothesis that distant stars are receding is the red shift of the observed light from them, as you

have stated. This red shift is not confined to the red band of visible light. It is due to all the emitted light being shifted, to our view, towards longer wavelengths. The basis for being able to comment on what the original source wavelengths is, is due to the energy spectra that are emitted by various atoms. There are quantum energy states in atoms and only energy of particular wavelengths are emitted by specific atoms. Consequently by observing the series characteristic to particular atoms we are able to make deductions about not only the relative velocity of astronomical objects but their chemical composition.

Simply put if we measure a particular characteristic energy for hydrogen in a laboratory on earth, by finding this line in the spectra from a distant object and measuring its energy, if it is red shifted (or blue shifted for that matter) we can deduce the speed it is moving with respect to the earth.

Astronomers and grammar:-

Your point is valid. Unfortunately both sides are right. Unless someone determines a convention about how we are to state particular things these sorts of confusions will arise. It is possible to logically state that Procyon is ten light years away but until ten years have elapsed it will not be possible to actually confirm, or deny, its continued existence at the time the statement was made. The statement is neither true nor false, absolutely. The usefulness of knowing that, given its continuing existence, it is ten light years away is not diminished. If we ever develop interstellar travel this point may be less valid.

**K Lindsay
Kaleen ACT**

A Question of Quotation

Clive Robbins (*Letters* Vol 15, No 4) seems to dislike people who quote others. Specifically, he writes: "The chronic quoters of other people's work in science hardly differ from the mystics who prove their arguments with quotes from the book that was written before thinking was invented."

I feel that Robbins has misunderstood the point of quoting others in science. As I understand it, quoting others serves two purposes in science.

First, a scientist quotes someone else's work to acknowledge the person who thought of a theory or hypothesis or formula to explain facts or predict results. Without such a quote, the reader might mistakenly think that the author is responsible for an idea. Besides being plain good manners, this form of quoting helps establish priority and ensures that recognition is directed to the right person.

The second purpose for which a scientist may quote someone else's work is to detail who has made observations or carried out experiments which provide the basic facts for science. Without these quotes for the source of observations or experimental data, a sceptic would be quite correct in asking where the data comes from and whether it can be trusted. Many scientists check and recheck the work of others, but one can't be sceptical of everything, hence often scientists will trust other scientists and quote their data without fully checking it. (I'm sure that Robbins

doesn't check absolutely everything he reads in newspapers - some things he takes on trust).

However, it is the quote which allows anyone else to check the data, since the quote points to the original work where there should be enough information that the original observations or experiments can be verified or repeated. Here is the fundamental difference between scientific quoting and quoting employed by less rigorous authors - the less rigorous authors were (and, unfortunately, still are) not sceptical, and quoted legends, hearsay, stories and speculations as if they were fact.

I can't see why Robbins would object to either form of scientific quoting. In fact, as a sceptic, I'm surprised he doesn't demand it.

The value of quoting should be obvious even from the pages of *the Skeptic*, since it has been through using quotes to consult original references that various sceptics have been able discover how material has been misquoted, misused, misrepresented and misunderstood.

**Michael Vnuk
Annerley QLD**

Does Lipton's Chaos Work?

In *the Skeptic* (Vol 16 No 1), Justin Lipton illustrates the Chaos Theory by the iterative equation $x_{\text{new}} = 1 - 2x_{\text{old}}^2$. To demonstrate the procedure, he starts with $x_0 = 0.2$ and calculates $x_1 = 1 - 2x_0^2 = 0.92$. Then $x_2 = 1 - 2x_1^2$ and so on. Later he puts $x_0 = 0.6$ and invites us to calculate the corresponding sequence x_1, x_2, x_3, \dots and compare it with the sequence obtained when 0.6 is replaced by 0.600001. He maintains that although the two starting values differ only slightly, the two sequences "diverge after only a few iterates".

I may be the only reader of *the Skeptic* who is skeptical enough to check his statement, and I find him wrong. Using an eight digit calculator, I found that the two sequences differ only very little. After rounding off to 4 decimal places, I get

$x_1 = 0.28$	$x_2 = 0.8432$	$x_3 = -0.4220$	$x_4 = +0.6439$	$x_5 = 0.1708$
				(0.1709)
				$x_6 = 0.9416$
				$x_7 = -0.7733$ (-0.7732) for both sequences and then:
$x_0 =$	0.6			(0.600001)
$x_8 =$	-0.1961			(-0.1957)
$x_9 =$	0.9231			(0.9234)
$x_{10} =$	-0.7043			(-0.7052)
$x_{11} =$	0.0078			(0.0053)
$x_{12} =$	0.9999			(0.9999)
$x_{13} =$	-0.9995			(-0.9998)
$x_{14} =$	-0.9998			(-0.9999)
$x_{15} =$	-0.9921			(-0.9964)

Will Justin Lipton please let us know where I have gone wrong or, otherwise, supply a more suitable equation. Alternatively, he could replace 0.600001 by the less ambitious 0.601.

**Hans Weiler
Croydon NSW**

COMPETITION

Oblique Outlook

In the last issue we invited our readers to exercise their cerebelli to give the true (though possibly oblique) meanings of common proverbs, clichés, axioms, truisms or givens that we encounter in everyday life.

Little did we realise what deeply hidden reserves of perversity we would unleash upon the unsuspecting readers of this journal. So concerned were we for the effects of publication on our readership that we referred the entries in their entirety to a panel of consulting psychiatrist Skeptics, who gave as their professional opinion that some of these contributors are "several cans short of a barbie" (which we understand to be a technical term used in the profession). However, in the fine traditions of crusading journalism, we were undaunted, and the cry echoed round the editorial suite, "Publish and be damned".

We begin with three different views of the same eternal question:

Why does a watched kettle never boil?

As a kettle is heated, it radiates energy in adherence to the Stefan-Boltzmann Law. As energy radiates away from the kettle, it will naturally tend to cool. There is a delicate balance point between the heating of the kettle and the cooling effect of the radiated energy. This balance is only tipped in favour of the kettle boiling when sufficient energy reflects off the surroundings and is re-absorbed by the kettle. If some of this radiated energy is absorbed by an eye (not necessarily human), this will decrease the amount of energy that is re-absorbed and the kettle will not boil.

Said **Stephen D'Aprano** of Plenty in Victoria, however his hypothesis was hotly disputed by **Michael Garrett** of North Adelaide:

The conversion of water from a liquid to a vapour during boiling occurs at the site of microscopic imperfections in the surrounding container.

These 'nucleation sites', as they are called, are usually so small as to require the laws of quantum physics for their mathematical description. Therefore before an act of observation the bubbles of steam forming at these sites are in a superimposed state of being both formed and unformed.

Under normal domestic conditions, the act of observing the pot-water system does not collapse the Schrodinger wave equation as we would expect. Instead the scrutinised water behaves in the manner of cooking food, which is, as any chef knows, to remain in an unresolved state until the moment comes to serve it.

Thus quantum physics demands the thermal energy applied to the watched pot goes not into generating steam, but rather into raising the latent quantum field energy of the pot-water system. This not only completely prevents the water boiling but also results in a dangerous meta-stable energy build up, especially if a pot is carefully watched for

a significant length of time.

If the observer happens to momentarily glance away, the energy stored in this fashion will be explosively converted to large amounts of steam. Such an energy release is often extremely violent leaving little trace of the hapless observer. This fascinating phenomenon has often been misrepresented in the popular media as "spontaneous human combustion".

While **Andi Stevenson** of Moulmein, NSW (via Swan Hill, VIC) gave the question the benefit of her feminist perspective:

A saying used because of its shortness, in preference to its corollary, An un-watched pot boils over the stove, down the back and sides of the stove, and over approximately 40% of the least accessible surface area of the kitchen.

We will leave it to science to decide which of these plausible claims is the correct one, or, indeed to synthesise them into an all-encompassing "Theory of Quantum Potology": However we now must confront Glenelg's resident cartoonist, **Peter Johnson's**, seminal contribution to human understanding

Nothing is as Bad as it Seems

It's an accepted lexiconic dictum that 'nothing' is: "something that does not exist." However, 'something' itself is: "an entity that has real and independent existence." Ergo, 'nothing' does exist; we exist and therefore are also 'nothing' and in reality are not here.

This staggering revelation explains such enigmas as the ease with which one can walk across a road and be hit by car or truck. Not being there we are not seen. Similarly one's spouse invariably does not hear one's side of a conversation. One could go on and on. I have named my revelation The Inevitability of Nothingness. It is my contribution to Psychoceramic Philosophy.

Derham Forbes, who claims to be a student, of Nightcliff NT, (though what there is to study around Nightcliff worries us a bit) weighs in with this piece of zoological exotica:

Why cats have nine lives.

In accordance with Bohr's Quantum theory and the De Broglie hypothesis, the cat exists as a number of wave-particle dualities. These dualities cover the nine dimensions: height, width, depth and time, plus the four identical and parallel quantum dimensions, and the final quantum probabilistic dimension which I have called 'uncertainty'.

Therefore, the destruction of a cat relies on the inversion and subsequent collapse of its waveform. This can happen in two ways. First, it may occur violently: here the height, width and depth waveforms are reduced to zero through

excessive force. Obviously, it is necessary to annihilate all of the nine waveform to destroy the cat, giving an apparent nine lives. Alternatively, the nine waveforms will naturally pass in and out of phase, and at some point in time these waveforms will annul: the cat will then cease to exist.

Intelligent cats have realised that, through time dilation in faster-than-light travel, the time duality can be kept constantly out of phase, preventing the cat from being naturally annihilated. Here resides the origin of the ancient proverb, "a stitch in time saves nine".

While **Andi Stevenson** provided two more perspectives on the cat problem:

Letting the Cat Out of the Bag

The act of putting a torch in a bag, and turning the torch on, whilst entering a black hole. The photons backfire through both sides of the bag simultaneously, at which Schrodinger's cat leaves at faster than the speed of light and runs up the nearest nebulae.

There is More Than One Way to Skin A Cat

There are in fact at least six ways. Take the cat and **** * into the bin. Then get the **** and pull firmly across the *****. (Remainder deleted due to poor taste.)

Although **Chris Tobin**, scion of an old New Lambton dynasty, applies a different bit of applied logic to this vital cat-egory:

Why does toast always land butter-side down?

During the Great Depression, a butter substitute was made from rendered cat's paws (the rest of the cat was used in other imaginative ways). The flavour enhancement was so popular that this ingredient is still in use today, even in margarine.

Now, as everybody knows, regardless of the initial orientation of the cat when dropped it always lands on its feet. This same, as yet unexplained, physical law now governs the trajectory of the buttered toast.

Note: Proof of this hypothesis is provided by the pre-1929 statistics on toast landings, which show no bias to either side.

Which drew a comment from a certain felinophile, **Barry Williams** of Nofixedabode, NSW:

Why do cats always land on their feet?

As any cat fancier knows, cats consider themselves (with some justification) to be the supreme beings of the Universe.

When a cat is dropped, regardless of the initial conditions at the time of dropping, the Universe rearranges itself so that the nearest solid matter places itself adjacent to the cat's feet. The Universe would not dare do otherwise.

This is a function of quantum uncertainty and was proved by Erwin Schrodinger in his justly famous Schrodinger's Cat Theory, for which he won the No Bell (nor collar) Prize.

And **Andi S**, who knows something about everything, follows up the butter thread with:

To Know Which Side One's Bread is Buttered On

A ritual practised by true sceptics, who will not only ascertain the state of the other side of the bread, but will make quite sure that the yellowy spread facing them is not, in fact, margarine.

Continuing with the zoological theme is **Geoffrey Sherrington**, a prominent identity around the environs of Balwyn North in sunny Victoria:

You can lead a horse to drink, but you can't make him water

To make him water, you would need to ignite hydrogen and oxygen under controlled conditions, using apparatus more often found in the laboratory. If you were leading your horse to drink, it is likely your main apparatus would be a flagon of sherry and a brown paper bag.

To which the ubiquitous equinologist, **Andi S**, gives her considered opinion:

Straight From the Horse's Mouth

30% lucerne, 24% oats, 17% chaff, 9% pollard, 7% molasses, 5% saliva, 3% trouser pocket, 2% bailer twine, 2% mouse droppings, 1% snot.

Never Look A Gift Horse in the Mouth; (see above).

Leaving **Geoff**, undaunted, to respond with:

What colour does a chameleon turn when placed on a mirror?

Nature has given the chameleon a colour refresh rate of 9Hz. When placed on a mirror, the animal begins to pulsate until its colour refresh rate equals the maximum, at which stage it is beside itself. In this state it is supported by 32 digits, four on each of its four feet and likewise on its alter ego. A 32 bit colour is called "True Colour" in the world of computer graphics. QED.

Confucius said: "Cow gives milk. Milk gives whey. Woman give way, she gives milk. Woman not give way, she cow."

This can be attacked as logically inconsistent. The correct statement that milk gives whey does not lead to obliquity between cows and women. Also the use of 'she cow' is redundant, since a 'he cow' is a 'bull'. Maybe the error arises from an 'in' joke in the Confucius era (d 479 BCE). In this vein, today's equivalent might read "Woman not give way, she dog". This is more correct, for a 'he dog' has no term equivalent to 'bull': but only partly so, for there is a concise word for a 'she dog'.

It never reigns but it paws

Part of a Nostradamus statement, usually quoted with alternative spelling. It demonstrates the predictive power of Nostradamus, for he could not have known the present composition of the Royal Family when he wrote it.

While **Andi Stevenson**, once again proving that she is no one-track philosopher, gave us the benefit of these observations (Parental Guidance Advised):

You Can't make an Omelette without Breaking Eggs

A form of New Age genetic engineering. To find suitable applicants for the important post of sitting cross legged and saying 'om', an Ominous hormone is applied to the ovaries of a sufficiently spaced-out female disciple. The ova are corrupted, causing the resulting humans to be intrigued with Omniscience and Omnipresence, but unable to enunciate words of more than one syllable. Because they are not quite all there, these people are referred to as 'Om-lettes'.

Born With a Silver Spoon in His Mouth

A medical euphemism for the Uri Geller Syndrome. It describes someone born with an amazing ability to pretend to bend spoons, and the immense amount of money that may be obtained by practising this ability.

All Men are Mortal

The mitochondria, being the powerhouse of the cell, are hence the life of the cell, therefore as mitochondria are continued only through women, women are immortal, but as males cannot pass on their mitochondria, or life, to live another generation, so all men are mortal.

She's a Goner

(archaic) Refers to a native of Gondwanaland

Even A Worm Will Turn

This is due to the action of anaerobic bacteria, demonstrating that putrefaction comes to all of us, however lowly and well refrigerated.

Fish and Guests Smell in Three Days; (see above).**Without A Leg to Stand On**

The first line of an ancient quatrain, describing to those who practise levitation without stage props. It continues "But lots of floor to land on / Who gravity mis-uses / Makes levity and bruises".

Know Thyself

An instruction vital to physical and mental wellbeing, as well as good fun, but further clarification may not be legal within these pages.

Ask No Questions and You'll Hear No Lies

Those who are so stupid that they do not ask questions, are therefore so stupid that they cannot comprehend the lies that surround them.

God Helps Them That Help Themselves

When you're really down, even God will desert you. Alternative meaning; if you have helped yourself this proves that God has helped you, which in turn proves the existence of God, Creationism, Lasseter's Reef and the Grampians Cougar.

The Way to A Man's Heart is Through His Stomach

Wise advice to women the world over. Get a good, long, sharp knife, aim up straight through the stomach, and into the heart. You'll be rid of the bastard in no time.

(**Editors' Note:** Remind us not to visit Moulmein via Swan Hill in the near future, especially if we are invited to dinner.)

Which brings us to a humble apology. In the previous issue we attributed some of our earlier winners to **Simon Saubern**, which drew a cry of outrage from **Stephen D'Aprano** whose works they really were. We sincerely apologise to both gentlemen for this inexcusable error. We

can only say in mitigation that, in the interests of economy, we purchased an extremely cheap spelling checker programme. Unfortunately, this only works on articles printed in an obscure palaeosiberian dialect and, as any professional linguist will attest, the word for *D'Aprano* in this dialect is *Saubern*. Nevertheless, this is not an excuse and we beg both men to call off their solicitors.

The least we can do is to offer **Stephen D'Aprano** space for the remainder of his contribution, despite contrary advice from the Commonwealth Chief Censor.

Why has a faint heart never won a fair maiden?

A faint heart is obviously a weak heart, and anyone with a weak heart would be unlikely to play cricket, let alone bowl competitively. It is effectively impossible to bowl a maiden over with a weak heart without cheating.

Why do chains always break at the weakest link?

They don't. Chains break at any random link, however that link is then defined as "the weakest" after it has snapped. Consider how you might attempt to determine the weakest link so as to predict beforehand which link would snap. The only way is to test each individual link to destruction, thus preventing any test of the chain as a whole.

What is the difference between Red-shift and Blue-shift?

Red-shift occurs when a red shirt is washed with white clothes, and the red shifts off the shirt onto the whites. Blue-shift is the opposite effect: when blue jeans are placed in the wash with whites, the whiteness shifts onto the jeans, causing them to fade.

What is Chaos Theory?

Chaos Theory is the important new field of mathematics. As it predicts that predictions must be unpredictably chaotic and therefore inaccurate, many commentators have been critical of Chaos Theory, predicting instead that its prediction of the inaccuracy of predictions will be shown to be inaccurate, although this would seem to verify the theory. A successful prediction of the inaccuracy of predictions would be a major blow to Chaos Theory.

What is a black hole?

The name "black hole" is obviously colourist and racist and totally unacceptable in these enlightened times. The alternative term "collapsed star" should also be avoided due to the negative connotations of "collapse". The preferred term is "differently-structured space-time structure".

What is the meaning of "A stitch in time saves nine"?

In the latest theories of quantum gravity, a defect is a region of anomalous space-time. A zero-dimensional defect is called a monopole, a one-dimensional defect is a superstring, a two-dimensional defect is a domain wall, and a defect in time is called a "stitch". It turns out that the Universe actually has an additional nine dimensions which are "rolled up" to a size which is far smaller than an electron. In the earliest moments of the Big Bang, the three familiar space dimensions expanded while the other nine dimensions contracted. They would have shrunk to zero size except for the presence of at least one stitch during the first nanosecond of the Big Bang, hence a stitch in time saved nine dimensions.

Why is an ounce of prevention worth a pound of cure?

Prevention is measured using the Troy system of weights, while cure is measured using the avoirdupois system. If we convert both weights to metric, the proverb becomes "31 grams of prevention is worth 453 grams of cure" (to the nearest gram), which is so obviously correct as to need no explanation.

Why do too many cooks spoil the broth?

Extensive research by Idi Amin has showed that the best broth is made from only two cooks, although three teachers or one general can be substituted. Using more than two cooks results in a broth which is excessively fatty, and both unhealthy and bad tasting.

What is the Shyness Effect?

The Shyness Effect occurs when a psychic is exposed as a fraud and a cheat. Suddenly the so-called psychic becomes shy, avoiding all contact with scientists, journalists, and ex-clients. It usually lasts for six to twelve months, although in rare occasions it can last forever.

What is the Lotto Effect?

The Lotto Effect is a strange, unexplained limitation of clairvoyance. Due to some strange Energy Unknown To Science, clairvoyants who have no difficulty predicting that Michael Jackson will have more plastic surgery or that the English cricket team will be thrashed by the Swiss Under-12s are unable to predict the winning numbers every Saturday night, or any Saturday night for that matter.

And then we received these profound observations in a letter from "Lennie", postmarked "Nyngan". We don't seem to have any subscribers in Nyngan, nor do we have a subscriber going under the soubriquet Lennie. We do know that the famous humorous columnist Lennie Lower came from around that neighbourhood, but as he has been dead for half a century, we doubt that this is he. If, of course, Lennie can prove that he is a reincarnation of his famous namesake, he may well be in line for the Skeptics \$30,000 Challenge.

How to disprove antimatter theorists, the 1991 judging panel, creationist dogma and the Big Bang

Young Saubern (actually D'Aprano in the non-palaeosiberian version. **Ed**) (1991 winner) got it all wrong when he expounded: "If you dig a hole in the ground, removing the dirt (matter), the absence of dirt in the hole is in fact antimatter. This explains why the hole disappears when you put the dirt back in".

This is all bull. What about the dirt left over? If you dig a hole in hard, compacted clay soil and try to refill it, there will be some left over, even after matter and antimatter have annihilated themselves. The average comedian would say this dirt could be used to fill another hole, but this is only to fall deeper into the trap because ... what hole? If you try to dig a second hole in hard, compacted clay soil to accommodate the excess dirt from the first hole there will only be a second pile of excess dirt, even after matter and antimatter have annihilated themselves, to go with the first pile. Continue this process indefinitely and most of the land surface of the earth will eventually be covered with excess dirt, which is exactly the way it comes out now!

It should be obvious to any fool that matter (ie dirt) comes out of a hole in the ground ... And since holes aren't supposed to exist anyway, there can't be any holes in my argument and I should be well in contention this year.

(Well you could be Lennie, but as we have no idea who you are, or where you live, you will probably be ruled out of contention. We are not bloody psychic you know. **Ed**)

How to disprove the big crunch

My arguments are proved on examination of a piece of Swiss cheese. Where is all the matter that comes out of all those hole? Such matter doesn't appear to exist any more, therefore it must have been annihilated, yet the holes remain!

I contend that if the universe could be transformed into a big piece of Swiss cheese it would start annihilating itself, contracting as it did so. Ultimately there would be no big (or little) crunch because the universe would have disappeared into the void before such a stage could be reached. The only way to prevent this is to start eating. Basically, if you eat a big enough piece of Swiss cheese your hunger will disappear and so will the cheese. So there! (One matter you overlooked here Lennie, is that this is also an explanation for the 'binding energies' so beloved of particle physicists. **Ed**)

What is the Roche Limit?

If a body is revolving around another body, the closer it gets the faster it has to revolve or it will crash into the second body. (opposites attract? natural selection? dunno) So if you do not know you are standing on the first body and you're not standing on your head, your head will be revolving considerably faster than your feet. The combination of the smell of your feet and that of the dead body plus the other dead body and your spinning head will result in splitting headaches. Alternatively, if you've read this rapidly and you're not standing on a dead body revolving around another dead body you've probably got a headache from wondering why you don't have a headache. Hence your GP, who can't specialise in prescribing drugs to cure headaches will prescribe drugs to cure your headaches. The Roche Limit is finally reached when you've taken every dependent drug the dependent drug company can independently produce and your head's still spinning and you've still got a headache.

And who is the winner? After much soul searching, (not to say counting of bribes) the adjudicating panel has decided that Andi Stevenson and Stephen D'Aprano (or Saubern as he is known in Palaeosiberia) deserve a major prize for sheer volume, if nothing else. If they drop us a line, stating their preference for A Skeptic's Guide to the New Age or In the Beginning, their prizes will be on their way to them by return post.

All other published entrants will receive a copy of Harry's *minim opus* Skeptoon, unless we receive a legitimate excuse by mid-June. This, of course, doesn't apply to Lennie unless he tells us where he lives. ■

CONSPIRACY FORUM

Of Names, Titles and Such

Sir Jim R. Wallaby (Vol 16 No. 1) raises the issue of discrimination against those of us who inhabit the alphabetical nether regions. I must say I was surprised and more than a little pleased to see this issue highlighted in a national journal. I have long been corresponding with editors, publishers and poets in this very regard and have yet to see any activity from the main stream media.

Pleased though I may have been to see the issue in print, imagine my disappointment when Sir Jim chose, from among the myriad examples available, the political process, specifically our political leaders. Correctly, he points out that only 22% of our prime ministers through the years have come from this most unfortunate group, and there is hardly a mention from the ranks of our current state based leaders. Does Sir Jim imagine that his motives will go unchallenged? Does he believe that there are not those of us out here who are prepared to examine his work, and closely? Does he truly think that his own conspiracy will not go unreported?

Sir Jim could easily have chosen the clear discrepancies from among our university graduates, our police officers, our television repair-persons, with which to highlight the problem. He might even have taken Telstra to task for their blatant affront to we N • Zers by having two letters from 'the other side' invade our volume of the metropolitan telephone directory. Instead he chose our politicians.

Let me say that I count many (well, a few) of the A-Mers as close personal friends, and I am aware that, once this discrimination is pointed out to them many will join our campaign. I bear little or no personal malice towards these, albeit ignorant, members of our society. Wallaby - one of our own no less - professes to have taken up the cudgels, although I am yet to see him at a meeting. In fact Sir Jim clearly has his own barrow to push and it is up to us all to oppose his crude attempt to bend us to his will.

And it falls to me to make the first thrust. Sue if you will Sir Jim. I would welcome my day in court.

If we take the figures at face value it could be argued, though Sir Jim cleverly stops short of doing so, that we should use our democratic right to vote in order to redress the imbalance. I myself have argued this from several soap boxes over the years, realising just in time the error I was making. Who, we must ask, is able to provide some hope for the alphabetical back-end? Which of our great political parties can provide, even in part, an answer to the 22% issue? Which party has a comparatively massive 32.46% of its candidates representing my end of the blackboard?

The Natural Law Party, that's who.

Can Wallaby explain this? Does this Quisling, this strutting knight of the realm, have any explanation for his subtle attempt to lead us down the path, or indeed over the landing mat, of the TMers and their wily ways? I shall leave it to the reader to draw his or her own conclusion.

In order to examine Wallaby's outrageous abuse of power I have made a close study of the recent election and its 885 candidates. I will not bore the reader with detail, but let me give you just one example by way of illustrating the subtle tactics employed by the A - M bloc. From New

South Wales, South Australia and Tasmania come five candidates with the name Fisher. Their initials? M, A, T, I and E. They're clever, no doubt about that, our matie from the southern end of the alphabet.

There are five Scotts, also. Their initials? B, L, A, A, and H.

Honestly, sometimes I wonder if there is any hope at all.

**Robert Nixon
Macleod VIC**

Sir Jim's "dyscalculia"*

Returning from the annual hunt at Piddling in the Marsh, I called into the local Hare and Hounds for a pint of bitter and a sample of working class fare. Midst the flake and greasy chips, I glimpsed the name of one Sir Jim R Wallaby Bt., who I perceived, had the unmitigated audacity to lay claim to being an "hereditary aristocrat."

More to the point I ventured, as no gentleman of breeding would besmirch the name 'James' with such a common diminutive, I concluded that he must be of the 'Orstralian' pseudo-aristocracy, or one of those *nouveau riche* chappies whose title was possibly purchased with the proceeds of a Moroccan bordello. Be that as it may, unlike those charlatans who bear such pretentious titles such as "clairvoyant" "psychic" and "readers" of various amorphous objects; aristocratic titles and one's gentlemanly origins can easily be traced by consulting a multitude of reference books available to the public, courtesy of municipal councils. With this in mind, I toddled off to the local library in search of Sir Jim R Wallaby's antecedents.

I started with Debretts *Peerage*. Surely if the man was genuine this is where I would find him. But no, not one Wallaby, Jim or James. There was however, a Sir James R Whataby, whose coat of arms bore a bordure wavy indicating a successful *homo novus* petition for the arms of bastardy. Next I turned to Chambers Biographical Dictionary, with over 15,000 listings - it revealed not one Wallaby dead or alive. Who's Who, in every conceivable category likewise - no jockeys, artists, writers, sportsmen, undertakers, politicians, explorers, scientists, and certainly no blue-bloods bore that name. I drew a blank in the Wordsworth's Dictionary of Biography, and in a companion volume there was no Saint Wallaby. Even if Wallaby was a mythical figure, his name did not appear among the pantheon of gods of yesteryear.

It was fairly obvious in the absence of any reference to authenticate this upstart's claim, that he is either a pretender, a fraud, a fake, or an impostor. Then on the other hand, perhaps he is using a pseudonym or an anagram? A analysis of his name above the article on page 21 of the January 1996 *Skeptic* is enough to convince me of the latter. It is a cowardly device behind which to hide to cover the fact that he is no mathematician either.

In the article he posits a conspiracy - a dastardly plot discriminating against those whose names commence with the letters in the second half of the alphabet. To demonstrate this, he uses the names of past and present Australian Prime Ministers. However, there are obvious flaws in his methodology. Apart from the pitifully small sample number he uses to illustrate the point, he completely ignores some important factors as we shall see.

As a reference source, let's take the Sydney telephone directory which contains approximately 1,200,000 surnames. If we divide them equally into groups A-M and N-Z as Sir Jim has done, we have approximately 750,000 names in the former and 450,000 in the latter, 62.5% and 37.5% respectively, a disproportionate division, not an equal division as he would sagaciously have us believe. This immediately favours selection from the A-M group.

In the last decade or two, the second half of the telephone directory has swollen with the inclusion of oriental names such as Ng, Ngo, Nguyen, Tu, Tse, Tru, Thang, Tien, Tong, Tran, Tuon, Ung, Wong and Wu. Another 10,000 unlikely aspirants to the prime ministership for at least a generation or two. Adjusting the figures to account for this, again helps widen the imbalance.

Another aspect not taken into consideration by Sir Jim, is the fact that the majority of Australian surnames are antecedent to the British Isles thus tending to exclude potentials with names beginning with Q, X, Y and Z. There are approximately 11,000 in that category to further reduce the bias.

We can conclude that with some 60% of Australian surnames originating in England, Scotland and Ireland, the odds are always in their favour. When these factors are taken into consideration, you will find, contrary to our knighted kangaroo's conspiracy theory, that one can logically expect more names beginning with A - M to become prime ministers than those whose names begin with N - Z. Had Sir Jim chosen the presidents of Poland as an example, he would have found that with names such as Pilsudski, Moscicki, Smigly-Rydz, Raczkiewicz and Zawadzki, the N-Z's would have predominated overwhelmingly. But then of course, that's the northern hemisphere where the bath water goes down the drain in the opposite direction isn't it! Like all conspiracy theories, the facts paint an entirely different picture to that based on fantasy.

**Dyscalculia*. The inability to use numbers appropriately.

Sir Henry Edwardes KSK, JP
Newport NSW

An Alphabetical Quibble

Whilst applauding Sir Jim R Wallaby's concern for the democratic process ("C for Conspiracy", *the Skeptic*, 16:1), I feel that I can put to rest some of his fears about an alphabetical bias among our Prime Ministers.

Early in his article, Jim splits the alphabet into two halves: A-M and N-Z. His presumption (which is never stated) is that among the general public, there are an equal number of people in both groups. In fact, the closest split (as any telephone directory will evince) is A-K/L-Z.

If one is to use the A-M/N-Z division, then a quick thumb through the Sydney phone directory suggests that the ratio is more in the order of 64:36. With this in mind,

the Prime Ministerial ratio of 79:21 (taking John Howard into account) no longer seems quite as radical. The difference, I suggest, can be explained by the fact that candidates were listed alphabetically on the ballot paper until 1984. Whilst one's surname rarely made any difference in the actual ballot (the donkey vote is generally thought to be only 1-2%), it sometimes made a difference in the preselection process, with parties favouring candidates who would benefit from the donkey vote.

So how does one explain the fact that the main leadership contenders are Howard, Costello, Fisher, Beazley, Crean and Evans? One factor is that most of the above were elected before 1984, but another is just sheer chance. To the alphabetically-challenged, your time will come!

Andrew Leigh
Pennant Hills NSW

Sir Jim Retaliates

I suppose one needs must dispose of the footling quibbles of the men Edwardes and Nixon before sinking one's teeth into the substantive arguments of Leigh.

Edwardes begins by assuming that my given name is a diminutive of James which, while a perfectly adequate name for one's coachman or other members of the servant class (stout yeomen all) is hardly the sort of praenomen one would wish upon one's self. He then displays his own lack of intellectual adequacy by confessing that he can find records of neither myself, nor my antecedents, in what he describes as 'reference books' in, of all places, a 'public library'. Apart from wondering why a gentleman of breeding doesn't have his own library, one is forced to remind this common knight (who presumably received his 'honour' for Services to the Obfuscation Industry) that it plumbs the very abyss of *infra dig* to seek publicity for one's self in the common prints he has cited. As he should know, no true gentleman would consider exposing his family to such humiliation for a moment - we are not popular musical or televisual performers you know.

Regrettably it is necessary to remind Edwardes and Nixon (wasn't he the chappie who said "I am not a crook"?) that I am not a "knight of the realm", I am a baronet. The difference is profound - knighthoods are conferred on 'worthy' individuals for such nebulous and pointless activities as 'services to the community', while a baronetcy is an hereditary title which usually denotes that one of one's ancestors was sufficiently prominent in the arts of murder, pillage, plunder and rapine as to incur the gratitude of the contemporary sovereign in perpetuity. A far more logical reason for an honour, as I'm sure everyone will agree.

Now to the arguments presented against my conspiracy, which I will summarily dispose of with one devastating fact. Of course the telephonic directories are skewed towards those denizens of the upper reaches of the alphabet, but do these individuals suppose that this came about by accident? It is quite clear to me (and to anyone whose thinking processes have not been stultified by kow-towing to the *status quo*) that generations of persecution has destroyed the procreational abilities of the alphabetically submedian sector. No other explanation fits the available facts. QED.

CONSPIRACY FORUM

More and Better Conspiracies

I have read with interest the exchange between Messrs Rackeman and Henderson regarding conspiracy theories. I was also interested in their mentioning of the 'Green' movement and the religious fundamentalists who have their own spin on traditional conspiracy theories. However, I was surprised that the 'Solomon's Temple' theories of conspiracy (to wit that descendants of the Knights Templar of the Middle Ages are still around and controlling Freemasonry and diverse other conspiracies) are promoted as being on the 'insane' end of the scale. Obviously Mr Rackeman has not been keeping up with his reading of Conspiracy Theory. A few examples of theories published within the last few years:

In *Psychic Dictatorship in the USA* (Feral House, USA, 1995) author Alex Constantine has three major theories:

#1 That 'The Conspiracy' has been abducting people, doing mind control experiments and surgery on them and then hypnotising them to believe they were really abducted by aliens so that a) everyone thinks they are crazy and b) anyone who does believe them and go in search of evidence will be looking in the wrong direction (up).

#2 The 'Satanic Child Abuse' scares of the 1980s were in fact the partial uncovering of CIA experiments on child mind-control to create multiple-personality programmable assassins for their evil schemes. He claims that the False Memory Syndrome Foundation, Cult Awareness Network and similar organisations were set up by the CIA to help discredit the investigations.

#3 That Governments and the Conspiracy are engaged in widespread use of Non-Lethal Technologies such as microwaves, chemicals, gases and ultrasonic headache inducers plus corrupt psychiatrists and hospitals to harass their opponents and conspiracy researchers such as Mr. Constantine.

He also claims that Shawn Carlson, as a consultant to CSICOP, is somehow a CIA plant because he (allegedly) runs a new-age publishing house in California (Gaia Press) and has been seen wearing occult symbols! (Page 64).

He makes numerous other claims and the book is very entertaining, and just a bit frightening.

In the book *The Conspirator's Hierarchy: The Committee of 300* (3rd edition, Joseph Publishing Co, USA, 1994), author Dr. John Coleman, who claims to be a former MI6 Agent, propagates a number of theories such as:

The 'Club of Rome' (which does exist) is nothing more than a conspiracy of 300 individuals plotting to take over the world. Their devious plan is to institute a 'one world government', reduce the world's population to a manageable 1 billion and then destroy industry and

establish feudal rule around the globe. They will legislate to make all females required to have two children by the age of 21, at which age they will be forcibly sterilised. Money will be abolished and everybody issued with a computer-chip debit card so everyone will be in debt. Naturally everyone will be on mind-control drugs so they don't rise up in rebellion or refuse to work. Nation-states who refuse to toe the line will have their drug supplies withheld, leading to disastrous internal upheaval. All this is slated to happen by 2030!

Dr J C also claims that the eco-movement of the 1970s and onwards was formed by the committee through its university networks in order to stop 3rd world countries getting widespread nuclear power and economic independence from The Conspiracy (not a totally ludicrous theory). Dr J C also agrees with many of the theories of controversial US Economist Lyndon LaRouche (see below), and makes a great deal out of the Royal Institute for International Affairs and their many studies and conferences and Henry Kissinger and his allegedly nefarious dealings. Far be it for me to point out that ex-PM Keating was recently spotted by me on television negotiating to work for Mr Kissinger now that he has spare time on his hands.

Dope, Inc. by Lyndon LaRouche and his researchers, is a controversial book on the international drug trade and the alleged kingpins behind it. Mr LaRouche, who gets a great deal of stick in the media as a terrible racist (although I can't say I've ever read anything overtly racist he has written) would have us believe that:

#1 The international drug trade is part of a war between the British and their Chinese allies against the USA.

#2 Top members of the British establishment, including the Royal Family and Queen Elizabeth II, are at the top of this conspiracy.

#3 An international crime syndicate (*Dope, Inc.*) uses American Express, Investor's Overseas Services, casinos etc. to launder money made through their drug dealing activities.

#4 The 'SPECTRE' organisation of the James Bond novels is a fairly accurate representation of the real 'Dope Inc.' organised crime group.

#5 (Last but not least) They had JFK shot, and were behind the attempted assassination of French President De Gaulle.

I apologise for the length of this letter but it is very brief considering the amount of unorthodox information available on the subject and I believe your readers deserve a look into the real world of loopy conspiracy theories.

Ben Frayle
Northcote VIC

REVIEW

Science as a Candle in the Dark

Colin Keay

The Demon-Haunted World Carl Sagan,
Headline Books 1996. 436 pp. ISBN 0-7472-1554-5

Pulitzer Prize winner Carl Sagan, Professor of Astronomy and Space Sciences at Cornell University, is one of the most effective defenders of science in the world today. His TV series *Cosmos* brought him into the homes of half a billion people and the book of the series became the most widely read science book in the English language. A prominent sceptic, CSICOP Fellow in fact, he often speaks out against the rising tide of new-age science, pseudoscience, paranormal science and antiscience which are a menacing threat to our civilization: substituting stultifying ignorance and superstition for the precious hard-won knowledge that has so enriched our lives.

His latest book entitled *The Demon-Haunted World* deals with a widespread assault on science which is leading to its current devaluation in the economic and political agendas of most of the world's most advanced nations. Sagan laments the closure of the US Congress Office of Technology Assessment which provided advice to America's legislators on matters involving science and technology. In the years while the US President was listening to astrologers, there was a countervailing Office providing exemplary advice to their houses of government. Now there is no fount of sound scientific advice to counter the deluge of drivel from the *ignoranti*.

Unhappily, it is much the same for this country. We no longer have a Minister for Science as we once had. Science is now lumped in with a grab-bag of mostly disparate portfolio responsibilities. It has become a minor issue on the political scene, so why bother?

I have borrowed the sub-title of Sagan's book for the title of this review, because it emphasizes his argument that only through science itself that we can preserve the great advances modern western civilizations has achieved in almost every facet of our lives.

In a book studded with many apposite quotations, Sagan sets his theme from Edward Gibbon who observed that in "... ten centuries not a single discovery was made to exalt the dignity or promote the happiness of mankind". "They were the dark ages, steeped in ignorance and superstition. The five centuries from the Renaissance to the present have seen unprecedented progress, but now there are ominous signs that mankind is slipping back into obscurantism".

Sagan draws some enlightening parallels. One that fascinated me was his discussion of alien abductions. He sees the aliens as latter-day demons, which were imaginary creatures half way between man and gods. Having myself heard the testimony of abductees I must endorse Sagan's points of likeness between the actions of the UFO-borne aliens and the ancient succubi and incubi. Sexual implications were close to the surface with demons in those dismal days as they are with aliens now.

The general public's desire to prefer fantasy rather than fact drives the rating-hungry media to dish out what they want. Besides, Sagan points out, it is far easier and cheaper for program producers to prepare and present pseudoscience than real science.

Sagan understands the media and their problems but argues that "... one of the saddest lessons of history is ... if we've been bamboozled long enough, we tend to reject any evidence of the bamboozle". "We must abandon gullibility and embrace scepticism if our race is to continue to progress". But sceptics are unpopular when cherished delusions are attacked, or when hoaxes are conducted to prove a point. This happened right here in Australia eight years ago, when the Carlos hoax exposed media gullibility. Sagan includes a very good account of the event and its consequences.

Sagan expresses biting criticism of education in North America, with clear relevance to our situation here. Like Sagan, I find in primary school children a refreshing sense of wonder about science and the world of nature. Moving on to secondary school pupils, and many university students, reveals that the wonder has evaporated, replaced by peer-reinforced cynicism and the kind of sophistry that allows them only a sense of wonder and amazement at paranormal phenomena. Sagan also attacks the blatant double-standards of elitism: encouraged in sport but shunned in science.

Sagan's interesting discussion of the vital contribution of James Clark Maxwell to our modern age is highly instructive. In a chapter headed "Maxwell and the Nerds", Sagan eloquently emphasises the value of pure science. He introduces the four Maxwell equations which most people have never seen (everyone knows about Einstein's $E = \dots$ well you know it as well as I do) and shows how the power of pure intellectual effort can reveal deep secrets of nature vital to the creation of our present civilisation with its unprecedented standards of living. If the young Queen Victoria, Sagan argues, had been smitten with the desire to provide every household with instant access to the sound and vision news of the day, she would have looked to technologists rather than pure scientists for guidance, and got nowhere. The potential of radio waves, underpinned by the genius of Maxwell and Hertz, would have been unthought of.

The Demon-Haunted World is instructive from cover to cover, with a splendid set of citations and suggestions for further reading. From the same author and publisher comes *The Pale Blue Dot: a Vision of the Human Future in Space*. Lavishly illustrated, it also presents some of Sagan's views on the antiscience of the Appleyard variety (as presented by Appleyard three or four years ago in his appalling book *Understanding the Present*). I'll happily review *The Pale Blue Dot* too if some kind person gives it to me for my birthday. ■

REVIEW

All About Atoms

Barry Williams

The Making of the Atomic Bomb

Richard Rhodes, Penguin, 1988, 886pp

This is not a new book and its theme may seem to lie outside the normal areas of concern of *the Skeptic*, but the interest in the fundamental facts of nature displayed by several readers in recent issues makes it a story worth recounting.

The first third of the book lays the groundwork for the remainder, with portraits of the explorers of the nucleus and fairly non-technical expositions of their discoveries. And what a collection of giants in the new science it is. The Curies (Marie, Pierre, daughter Irene and son-in-law Frederic Joliot) from France; the Italians, Fermi and Segre; Germans, Heisenberg, Hahn, von Weizsäcker, von Laue; Austrians Pauli and Lise Meitner (soon forced to emigrate to Sweden); the remarkable quartet of Hungarian emigres Wigner, Szilard, von Neumann and Teller; the Americans Oppenheimer, Lawrence, Compton, Seaborg, Rabi, Bethe and Alvarez; Britons, Chadwick, Cockcroft, Moseley, Penney, and naturalised Britons, Born, Frisch and Peierls and many more names familiar to any with an interest in 20th century science, quite a few of them to receive Nobel in recognition of their work. Towering above this concentration of scientific genius are the seminal figures of Niels Bohr and Ernest Rutherford.

Apart from being a history of a new science, the book excites interest from some of the lesser known sidelights it reveals. New Zealander, Ernest Rutherford, discovered the nucleus, was the first to initiate nuclear fission, was arguably the greatest experimental physicist of his (or any other) time, and trained 11 Nobel laureates. He is reported to have said of science "there is only physics and the rest is stamp collecting". Ironically then, his own Nobel award was for chemistry. The Cavendish Laboratory at Cambridge, of which Rutherford was director for 18 years, has produced more Nobel Prizes than the French nation. In Rutherford's view the potential for nuclear research to lead to the production of usable energy could be summed up as "moonshine".

Bohr, the great theoretician and humanitarian, whose escape from Nazi occupied Denmark to Sweden and whose subsequent flight to Britain in the unpressurised bomb-bay of a converted BOAC Mosquito bomber nearly led to his death, is the stuff of heroic fiction. Bohr's head was so large that the headset he was issued didn't fit, so he missed the call from the pilot to turn on his oxygen when the aircraft climbed to avoid German radar. Bohr, afraid that his Noble gold medal and those of a couple of other laureates left in his care, would be confiscated by the Nazi occupiers, dissolved the gold in acid where it remained until after the war, subsequently being recovered and recast.

Both Bohr and Rutherford were instrumental in helping many Jewish scientists escape from Nazi occupied territory and to find employment in Britain and the USA. The effect of this on the war effort cannot be underestimated. In a curious sidelight to history, Rhodes alludes to why so many of the emigre Jewish scientists, who contributed so much to the Allied war effort, just happened to be physicists. In the milder, though ever-present, anti-semitism of preHitlerian Germany and its neighbouring countries, Jewish intellectuals were discouraged from participating in the more traditional and highly regarded disciplines of academia, so they tended to gravitate to the newer and far less prestigious field of physics. Thus is history changed.

The remainder of the book concentrates on the actual construction of the first atomic bombs, and covers the technical and the commercial difficulties of that extraordinary enterprise. Although science is a universal enterprise, it is difficult (in hindsight) to imagine that any nation other than the USA could have developed the bomb in the time taken. Germany, Japan and the Soviet Union were all investigating the possibilities of nuclear weapon development and of methods of using the energy obtained from fission to drive ships, but none of them were close by war's end.

The USA and their British allies (because it was a joint effort) had the scientific know-how, boosted considerably by the skills of those (mainly European Jewish) scientists who had fled Nazi tyranny, but only the USA had the industrial capacity to engage in such a huge manufacturing enterprise in addition to all of its other war production. Described by French chemist Bertrand Goldschmidt "as large as the entire automobile industry of the United States at that date" it was all put together in three years, at a cost of two billion dollars. Descriptions of the construction of the facilities for production of the various elements of the bomb are awe inspiring, especially considering that everything was being done for the first time and without any real knowledge of how to do it.

Once again, interesting facts emerge. To separate fissionable U235 from the more common, but less useful U238, hundreds of cyclotrons were built. In the wartime US, copper for winding the coils of the machines was in short supply. The US Treasury offered to make its silver bullion stocks available, on the understanding that it was returnable when no longer needed. Colonel Nichols, the Manhattan Project supply officer told Treasury officials that thousands of tons of silver were needed, to be greeted with the response "Colonel, in the Treasury we do not speak of tons of silver; our unit is the Troy ounce". Rhodes notes

Continued p 55...

REVIEW

Addiction

James Gerrand

Addiction - From Biology To Drug Policy

Avram Goldstein, MD W.H. Freeman New York. 1994.

It is being accepted increasingly that the community must be better educated about addictive drugs if the present abuse is to be contained. Effective education requires a knowledge of the facts. This book provides an excellent presentation of the known facts about addictive drugs. The author - pharmacologist, neurobiologist, physician - has studied, researched and taught about addictive drugs for some 45 years, mainly at Stanford University (California). He has focused especially on the opiates (morphine, heroin, methadone) and on nicotine and caffeine.

The author describes the differing chemistry, effects on behaviour, long-term toxicity and compulsive use of the seven drug families - nicotine, alcohol, the opiates, cocaine and amphetamines, cannabis, caffeine, the hallucinogens.

These addictive drugs typically are self-administered - repeatedly, compulsively, even self-destructively.

Part One - Addictive Drugs and the Brain - is an illuminating account of how increasingly in recent years the effect of drugs on behaviour has been found to be based on a chemical impact on connections (synapses) between neurons in the brain. Thus "nicotine, when delivered to the brain in a smoker's blood, combines with the nicotinic receptors at synapses and so mimics the actions of acetylcholine (a chemical) that is normally released there. The action of nicotine ... is typical of addictive drugs in general ..."

Addictive drugs "feel good" because they merely mimic or block the neurotransmitters that function normally to signal reward. They activate the pathways artificially and thus disturb the mechanisms that keep people on an even keel. "It always astonishes me to hear users of addictive drugs and apologists for their use ... defend what is really a reckless attack on the human brain."

The book is full of insights and I shall just mention two that I found most revealing.

"The Vietnam experience sheds light on how strongly acceptance by a peer group, coupled with easy availability, can influence drug use. American young men, ... placed in an environment that was alternately terrifying and boring, with cheap heroin of high purity readily available, and without serious inhibitions on its use, became addicted in remarkable numbers. At the height of the epidemic, some 15% of US ground forces were using enough heroin to have become dependent on it. ...studies ... found that the great majority, after returning home, put their heroin use behind them..."

"Sons of alcoholics, adopted at birth and raised in a non-alcoholic family, were found to have a fourfold greater

probability of becoming alcoholic than did their stepbrothers. Conversely, sons of nonalcoholic parents, adopted and raised by alcoholic parents, did not tend to become alcoholic, even when their stepbrothers did." This result favours "some kind of inheritance of a predisposition to alcoholic addiction."

Part Two deals with "The Drugs and the Addicts". Nicotine is described as addictive suicide. The health effects are becoming increasingly well-known - lung cancer is one major impact but cardiovascular disease from smoking is even more lethal. The author advocates for hard-core addicts slow and deliberate reduction of intake as an initial goal but concludes "the treatment of nicotine addiction is a classic example of the complexities facing the therapist "...Finding conclusively what combination of pharmacological and behavioural therapy works best, and for whom, is the challenge for future treatment research."

In the chapter on alcohol and its addicts, Goldstein points out the general principle: the weaker forms (such as beer) of all addictive drugs, in their natural state, are safer than purified drugs (such as distilled spirits). He instanced how England, as a beer manufacturing and drinking country, did not experience alcoholism as a major health problem until the introduction of cheap gin from Holland in the eighteenth century.

"Alcoholics ... drink to get drunk." "With regard to the withdrawal syndrome, alcohol ... is the most hazardous of the addictive drugs." "There is a shared impression among most professionals that 12-step programs (such as Alcoholics Anonymous) are best for most alcohol addicts."

The opiates, principally morphine

(the chief active ingredient of crude opium from the opium poppy) and heroin (a laboratory-produced derivative of morphine), dramatically relieve emotional as well as physical pain. "Whilst morphine passes relatively slowly from the blood into the brain, heroin floods the brain instantly after injection into a vein." "Thus heroin became the opiate of first choice ... Today it is estimated that nearly a million people in the United States are addicted to heroin."

Morphine is unexcelled for the relief of severe physical pain, "medically caused addiction is ... practically a myth. The reluctance of many physicians to use opiates in sufficient dosage and often enough to control pain is ... unjustified. It is especially absurd for physicians to refuse opiates in sufficient dosage to patients suffering the pain of terminal cancer for fear of addicting them."

As regards treatment, "after stabilisation on a daily dose of methadone, the addicts stopped their frantic search for heroin, seemed to be normalized physically and psychologically, and began to accept rehabilitative services leading to honest employment."

The “Wild Addictions - Cocaine and Amphetamines” can be best summed up by the effect of cocaine on monkeys. “Monkeys, given free access to cocaine, self-administer it to the exclusion of all other activities until they reach a state of sleepless exhaustion and die in a couple of weeks.”

Goldstein’s conclusion on cannabis, “The Highs and Lows of Getting Stoned”, is that whilst smoking a cannabis cigarette will impair judgment, it is not as dangerous as some other addictive drugs, and long-term heavy use may have adverse consequences.“

Part Three “Drugs and Society” discusses how best the community can deal with addictive drugs. “Just Say No” is too simplistic. Usually first use occurs during adolescence as an expression of natural curiosity, a desire to imitate grown-up behaviour or a daring venture into a forbidden realm. In many societies, first use of tobacco or alcohol usually signifies only a minor transgression. Blatant advertising of these drugs no doubt contribute to making these dangerous addictive drugs seem acceptable to minors.

As behaviour is shaped in a social context, changing children’s behaviour must involve teachers, peers, parents - indeed the whole community. Goldstein recommends three steps.

- * Basic information has to be imparted.
- * Means for behaviour change have to be provided, especially teaching children how to resist peer pressure.
- * Methods for reinforcing the new behaviours have to be employed - recognition, praise and other rewards.

Treatment presents a different problem from prevention. A central theme is “Different strokes for different folks.” The most widely used treatments employ slow detoxification with chemical means of reducing withdrawal distress.

The important question of decriminalisation is dealt with in “Lessons from Abroad” through the experience of two nations - Great Britain and the Netherlands - whose policies are based on public-health considerations, not on “war on drugs”. Whilst legalising drugs has not happened in the UK, drug addiction is treated as a disease with great help from its National Health Service. The Dutch are proud of their pragmatic policy - “drug use is neither favoured nor encouraged but is a matter of public health and social well-being.” The Dutch make a sharp distinction between hard (heroin, cocaine) and soft (cannabis) drugs. Cocaine, heroin remain illegal whereas sale or possession of cannabis is a misdemeanour, punishable by a fine. Specially designated coffee shops are licensed to operate in cannabis but under strict rules - no advertising, no sale to minors, no minors allowed on premises. This policy has not led to any massive recruitment of young people to the use of marijuana. Government policy rests on intensive, explicit education. For heroin users, in addition to methadone programs as seen in other countries, a few of the larger cities have established “methadone buses” which tour the city, stopping in the neighbourhoods for an hour at a time and dispensing methadone to all addicts.

In Zurich, Switzerland, a “needle park” was established in 1990 where addicts could legally buy and inject drugs, particularly heroin, with supervision by some doctors. However within a year or two the “needle park” was closed

because addicts from all over Europe had poured into the city and crime had soared.

The author concludes with his detailed recommendations “New Strategies for the War on Drugs” (for the US). Whilst his No.1 is “Consider drug addiction to be primarily a public-health problem” his No.2 is “Consider crime to be primarily a law-enforcement problem”. He is not in favour of legalizing the present illicit drugs because he concludes that any gains in crime reduction would be more than offset by costs to society by expanded drug use. He concludes with detailed strategies for each type of drug. He does suggest a trial of modifying the present prohibition of cannabis. This is a must read for all Skeptics “seeking the evidence” about how to reduce the harm of drug addiction. ■

...Atomic bomb from p 53

wryly that 395 million Troy ounces (13,540 tons) of silver were eventually used.

The part played in the development of the bomb by Australia’s own Mark Oliphant, acting on behalf of the British War Cabinet, is explored in the book which also considers his, and other scientists’ crises of conscience when the developments reached fruition in the explosions at Hiroshima and Nagasaki. One chapter consists solely of quotations from survivors of these events and I challenge anyone to read this and remain unmoved.

An item that should amuse all sceptics comes from a letter Robert Oppenheimer wrote to Eleanor Roosevelt in 1950 “Very shortly before the test of the first atomic bomb, people at Los Alamos were naturally in a state of some tension. I remember one morning when almost the whole project was out of doors staring at a bright object in the sky through glasses, binoculars and whatever else they could find; and nearby Kirtland Field reported that they had no interceptors able to come within range of the object. Our director of personnel was an astronomer and a man of some human wisdom; and he finally came to my office and asked would we stop trying to shoot down Venus. I tell this story only to indicate that even a group of scientists is not proof against the errors of suggestion and hysteria.”

When we consider that this “group of scientists” constituted probably the greatest concentration of scientific knowledge ever gathered together in one place at the same time, we can perhaps be a little forgiving of our fellow citizens when they ascribe lights in the sky to alien invasions.

Richard Rhodes is a writer of real skill who won the Pulitzer Prize for this work, and has since written a follow-up book on the development of the thermonuclear bomb. This is an extremely large book, which holds the attention for all of its 800 odd pages. It explores not only the scientific intricacies of nuclear weapons and energy development, but also the political, military and moral dimensions of the enterprise. For anyone who would like to know the history of how nuclear energy and weapons came about I could hardly recommend a better introduction. ■

U S Round-up

Alien inspiration.

A Baptist church congregation was stunned by Nation of Islam leader Louis Farrakhan in Washington D.C. with the claim that the recent "March on Washington" was inspired by an ET abduction. Farrakhan said that ten years ago, a UFO swept him away to a meeting with the late Elijah Muhammad, who informed him that President Ronald Reagan was plotting a war. How that walk inspired the "Walk" wasn't made terribly clear and, added Farrakhan, "I really don't care if you think I'm a nut." Is the man "psychic" also?

(*Washington Post*, Sept. 17, 1995.)

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Psychic sleuths.

A CIA program, code-named "Stargate" has been in operation since 1975 employing "psychics" to track Libya's Moammar Gadhafi, locate plutonium depots in North Korea, and effect other such "intelligence" coups. Ceasing operations late in 1995, it has cost the American taxpayers US\$20 million. According to University of Oregon psychologist and skeptic Ray Hyman who co-authored a study for the CIA, "There's no evidence these people have done anything helpful for the government." Co-author. Jessica Utts however, contends that the "psychics" were accurate about 15% of the time.

(*St. Petersburg Times*, Nov. 29, 1995.)

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Ghosts everywhere.

More than 3,300 readers called a "900" number in response to Prince Michael of Greece's *Parade* magazine article. "Have You Ever Seen a Ghost? 92% of the callers said yes, and 73% claimed to have actually seen one. 85% of the callers were female, and of those claiming to have witnessed such a paranormal apparition, 61% were female.

(*Parade magazine*, Oct. 29, 1995.)

...Taiwan Skeptics from p 31

field of traditional Chinese medicine (The believers of both say, "if it's old than it must be true. Time tested, really!") Also noteworthy, is the abuse of minors involved, an age of about 14 is often deemed "optimum", making it one of the worst, most lurid of paranormal beliefs.

Taiwan Skeptics asks if there are any Australian Skeptics who are budding Sinologists, or even researchers in ancient beliefs, who may be interested in joining them. Libraries in Taiwan are a mess, and none of the Taiwan Skeptics read Chinese. Translated material of Su-nu ching and scholarly reviews that are not borderline hagiographies (i.e. from the West) are found in Western Universities rather than locally. Especially desired are the works of Sinologist Henri Maspero (English trans. F. Kierman).

Taiwan Skeptics can be contacted through: Tim Holmes, PO Box 195, Tansu, Taiwan 427.

The Power of Prayer

"Health study touts power of prayer," cries the headline. Has Dr Larry Dossey's claim now been persuasively made, scientifically, for the power of God to heal? Well, not quite, as readers make their way to the fifth paragraph. "Scientific studies demonstrate that, by repeating words, *Words or sounds* and passively disregarding other thoughts, many people are able to trigger a... 'relaxation response'..." Harvard Medical School professor Herbert Benson added that visits to the doctor can be reduced 36%, and fertility enhanced, by employing this technique.

(*AP via Tampa Tribune*, Dec. 6, 1995.)

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Short-sighted psychic.

TV columnist Walt Belcher wonders "if Gary Spivey knew in advance that his radio show was going under. Spivey had the plug pulled when WSUN recently changed to an all-sports format. Bob Lassiter and the Hooter girls were also victims.

(*Tampa Tribune* Dec. 5, 1995.)

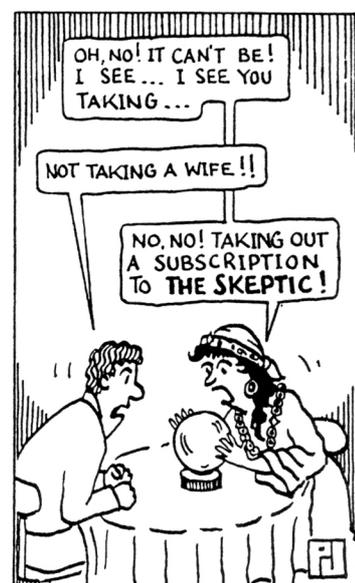
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Death not predicted.

One also wonders if famed astrologer Patrick Walker, whose column was carried in *TV Guide*, had predicted that he would die in his sleep on the night of October 8-9. His published horoscopes for his fellow Libras certainly made no such predictions (one hopes) for either of those dates. Eulogised astrologer Shelley von Strunckel, Walker took astrology "from a Tawdry, rather down-market amusement and brought to it, reflection, elegance of language and thoughtfulness."

(*New York Times* Oct. 10, 1995.)

Courtesy of Tampa Bay Skeptics, St Petersburg, FL.



SECULAR FORUM

A Secular State?

In his *Forum* article entitled “Religious Freedom”, David Maddison raises some interesting points as to the relationship between the State and organised religion, with the conclusion that the current arrangements ought to be modified in order to promote ‘religious freedom’. Very briefly, the argument seemed to be that the official nature of many public holidays based originally around the Christian festivals of Christmas and Easter caused a problem for freedom of religion, and that the approach taken in the United States of explicitly outlawing official involvement in any activity with the vaguest connection with religion would somehow promote religious freedom.

Before looking at his argument in detail, I would like to compare religious freedom in Australia and the United States and why the latter is most definitely **not** a good model for us to adopt. Australia has a much greater degree of real freedom of religion than the US, most obviously demonstrated by the great power of the Christian Right in the US. Religion and politics are intertwined in America to a great degree. I suspect there are few senior politicians who are not either of Christian or Jewish backgrounds or who are avowed atheists. (Their sincerity of religious belief is another matter, of course). Evangelists get involved in political movements, many minority politicians are also pastors (Martin Luther King, Jesse Jackson) or lead quasi-religious movements (Louis Farrakhan and the Nation of Islam). Statements by politicians frequently make a bow in the direction of religion: “I hope and pray that...”, or “God Bless America.” Fifteen years ago several states passed laws requiring the teaching of Scientific Creationism as an alternative to Evolution, and twenty years before that there was sincere (at least, I assume it was sincere) disquiet about the possibility of a Catholic (Kennedy) becoming President.

The powerful influence of religion on American political and social life combined with the official and almost absurdly strict separation of government and religion used to puzzle me until it was pointed out that when religion is that important, a strict segregation with government is absolutely vital. The Founding Fathers set it up that way because each feared the possibility of a religious group using state power to oppress other groups. It applies strictly only to the Federal government and is not observed by all state governments: I believe in fact that some still maintain laws against blasphemy.

It is in this context that we must regard both the official separation of Church and State and the test proposed by Justice O’Connor of the Supreme Court as to whether government action endorses religion.

Australia, on the other hand, has a much more relaxed and healthy attitude on these matters, although it may not be perfect. Religion does influence political life, but not to anywhere near the same extent. In particular, laws do not

seem to favour appreciably any particular religious doctrines. Our constitution prevents a religious test for public office although our nominal head of state, the Queen of Australia, is also the head of the Church of England (a convention with no detectable consequences as far as I can tell). In other words, I do not see that we have the very real problems that the US laws and the test proposed by Sandra O’Connor are needed to deal with.

The other examples offered of religious persecution, the Spanish Inquisition, Eastern European pogroms, etc. are even further from the Australian experience, so there is even less reason for these to motivate a change in our attitudes.

Now let us turn to the specific deficiencies in the current system as determined by David Maddison. These seem to be the origin of the Christmas, Boxing Day, Good Friday and Easter Monday public holidays; Sundays; a claimed presumption that the Unknown Soldier was a Christian; discounts for Christmas cards; stamps celebrating Christmas; the term ‘Christian Name’ on official forms; erection of Christmas decorations on public property; and the embracing of Aboriginal beliefs in the Hindmarsh Island affair.

It would be pointless to deny that Christmas and Easter have a religious origin although I haven’t a clue what that might be in the case of Boxing Day. But it is equally pointless to deny that they are now secular holidays well embedded into Australian society. Many people who are atheist or non-religious would object to changing them without good reason... and yet no such reason has been given. What harm is being done here? It has been claimed that they constitute “forced religious observance” but this is not the case. I and my family do what many Australians do, of all religious persuasions: have some days off work, visit the relatives, exchange presents and eat too much. Nary a genuflection in sight.

The case is similar for Christmas decorations in public places. A Christmas tree is not a religious ornament, even if it has a star (deriving from the star of Bethlehem) or an angel with wings (deriving from God knows where, wings are not mentioned in the Bible) on the top. The ubiquitous image of Santa Claus is not a religious icon: it was created out of whole cloth in the poem “The night before Christmas” written around 1830. Nativity scenes are religious in character but these are rare and rather quaint these days. Personally I think that they are preferable to the completely inescapable round of Christmas songs based around snow and other Americanisms.

The humble Christmas party comes up for a serve as well, on the grounds that it is a Christian celebration. What is Christian about having a half day off work to drink and eat too much, wear silly hats and on occasion indulge in extramarital fertility rituals escapes me. As a non-Christian

staff member I have never felt excluded (except from the fertility rituals) and I haven't met anyone who does.

Exchanging greeting cards at Christmas is another secular activity, in this case promoted by the greeting card manufacturers. Rather like the florists promoting the giving of flowers on Mother's Day. No one is forced to do it, and if you do no-one checks your cards to make sure they have Christian messages on them, so the only question is whether there is social utility in subsidising them. On this point, there is the recent policy by Telstra of giving of free telephone service to homeless people to allow them to contact their families at Christmas. The custom of thinking family at Christmas is in fact a secular one, not Christian at all, and these form the justification for postal and phone subsidies which are applied without religious bias.

Special dispensation for Sundays again has a religious origin, as has the concept of a business week. As long as religious observance is not required I do not see it as a problem. On the other hand, laws which apply specifically on Sundays and which only have a religious motivation should be looked at: unfortunately, David has not offered any examples. Speaking of religiously inspired laws, there are many examples which might be examined such as those against drug taking, drinking alcohol, prostitution, sodomy (in Tasmania), euthanasia and others.

I have not visited the Unknown Soldier so I am unsure as to how it is assumed he was a Christian. I recall the inscription reads like: "A soldier known unto God" which, since it does not identify the deity it refers to, cannot be said to impinge upon religious freedom.

The last (and to my mind the most serious) allegation of lack of religious freedom which David mentioned was the support given to the "secret women's business" in the Hindmarsh Island affair. I agree that taking the claims that the women would be physically harmed by the bridge seriously was ridiculous and would not have occurred if the religion involved was different: nevertheless the reason for this reaction was not religious preference at all but simply guilt combined with the natural talent for silliness on the part of the minister involved. But even without this, it would have been wrong to ignore the protest altogether. A government should certainly take the feelings of the governed into account when making decisions, and feelings generated by religious conviction are not necessarily inferior to other kinds.

The one thing missing from David's article was a clear and convincing account of the harm the current situation creates. The only concrete example offered was alleged abuse of an atheist who objected to the name "Christmas Party". The abusers were allegedly Christian, but I doubt that to be the case (why any Christian would wish to associate the ungodly proceedings of the average Christmas party with Christ is beyond me!) I would not like to comment without knowing the details, but I would be interested to know what reasons the atheist gave for changing the name, and whether the general (non-Christian) populace would find them convincing.

Australia Is Not A Secular State

Forum of the Skeptic, (Vol 16, No 1) had an excellent article "Religious Freedom" by David Maddison. It listed many of the insidious modes of influence still exerted in the community by religion, and some of the forms of religious discrimination.

The article started - "The freedom of the mind is the most important of all liberties. An essential element of that freedom is the freedom to practise *or not practise* religion ..." (my emphasis).

Members of the Victorian Secular Society, and of other bodies of the Network of Australian Atheists, Rationalists & Secularists believe that the mind of anyone inculcated into a religion is not free at all, but is bound by a straitjacket. Only a few such indoctrinated people ever become free to not practise a religion.

The freedom to not practise religion is freedom *from* religion, rather than *of* it. It is a freedom sought to be respected by atheists etc. It is a freedom not yet respected in many countries. The USA is an example of a country which does not yet respect that freedom - atheists are still at a disadvantage - in many States they are inferior citizens, ineligible to hold public office, practise law, serve on juries, even enrol to vote. It is an error to label the USA as a secular nation.

However, Australia is only marginally better, and it also fails any test of secularity. To make such a claim either ignores, or regards as perfectly normal, ties still existing between State and Church, or adopts an incomplete definition of secular. In a truly secular nation, the Church would have *no* special status, there would be *no* more official contact from government than with any other group in the community.

David Maddison's own examples are sufficient to discredit any labelling of Australia as 'secular'. If these are regarded as insufficient, there are many more, overt and covert, examples. A few follow:

Victorian Government grants for maintenance of major cathedrals in Melbourne;

Many of Melbourne's *public* hospitals are managed by Roman Catholic orders;

Employment from public funds of chaplains in public institutions;

Public funding support of religious schools;

Oaths, not affirmations, are the *normal* (not alternative) mode of undertaking to be truthful;

Christian dogma is legally protected from 'blasphemy' or 'blasphemous libel';

Sessions of parliament are opened, and the legal year started, with religious ceremonies;

Commercial television stations are required by legislation to provide free time to religious broadcasts;

The public broadcasting service has a Religious Department in both radio and television arms.

Et al ad nauseam.

Bill Keir
President, Victorian Secular Society

ALTERNATIVE HEALTH-CARE FORUM

Osteopathy: Philosophy and Practice

Nearly one third of the population (5 million Australians) suffer musculo skeletal problems which cause pain or restrict movement.

Osteopaths have been treating Australians for conditions such as back pain, neck pain, headache, tennis elbow and various musculo-skeletal problems since the turn of the century. "Osteopathy is the science of Bio mechanics" (How we move) It is a system of diagnosis and treatment which lays main emphasis on the mechanical problems affecting the body. Osteopathy is the art of safely and gently correcting and optimising the physiological motility and mobility of the whole body.

Central to the Osteopathic concept is that much pain and disability stems from abnormalities in the function of the musculo-skeletal system rather than identifiable or discernible pathology. The musculo-skeletal system includes bone joints, ligaments, tendons, muscles, the fascial tree, and cranio sacral membranes which envelop all the tissues of the body.

Andrew Taylor Still MD (1828-1917) was a medical physician in Kirksville, Missouri. Still first proposed his philosophy and practice of osteopathy in 1874, today there are 169 osteopathic hospitals in the USA, where, apart from employing osteopathic physicians, there are osteopathic surgeons performing the same duties as an orthopaedic surgeon would do in Australia.

Dr Still felt that the musculo-skeletal system was an integral part of the total body and alterations within the musculo-skeletal system affected total body health and the ability of the body to recover from injury or disease. Therefore, osteopathic therapy became an integral part of Still's practice.

The concept of the holistic approach is fortunately gaining increasing popularity in the medical community recently, but the concept expressed here is one that speaks to the integration of the total human organism rather than a summation of parts. The role of the health professional is to treat the patient not the disease. To treat holistically emphasizes that the musculo skeletal system deserves thoughtful and complete evaluation, irrespective of the nature of the presenting complaint.

It is just as inappropriate to avoid evaluating the cardiovascular system in a patient presenting with a primary musculo-skeletal complaint as it is to avoid evaluation of the musculo-skeletal system in a patient presenting with acute chest pain thought to be cardiac in origin. The concept is one of a sick patient who needs to be evaluated. The primary concern should always be the patient's interests, therefore, the need for mutual referral at times to and from a medical practitioner. No singular system is a panacea for all ills.

Osteopathy should not be viewed in isolation nor separate from other systems of medicine, diagnostics, or

therapies. Osteopathy considers the functional capacity of the human organism, and osteopaths are as interested in dynamic processes of disease as those who look at a disease process from the static perspective of laboratory data, tissue pathology, and the results of autopsy.

The distinctive manual skills of Osteopaths are employed in the diagnosis and treatment of mechanical problems associated with every age - from the trauma of birth to the arthritis of the elderly.

Conditions amenable to the Osteopathic approach include: back pain, neck and shoulder pain and tension, extremity pain and movement restriction (eg sciatic pain), headaches of mechanical origin, sports injuries, pain due to postural changes such as during pregnancy, RSI, dysfunction due to mechanical disturbance of the Autonomic Nervous System.

The Osteopath has a thorough knowledge of clinical medical sciences and of differential diagnosis. This enables the determination of conditions which are mechanical in origin from those which are not and which require referral to the patients General Practitioner, or other appropriate practitioner.

Work related injury and illness costs employers millions of dollars each year, much of which could be saved by education and preventative measures, according to the Australian Osteopathic Association (AOA).

Osteopaths see occupational health as more than just staying healthy and safe, important though that is, by looking at the whole person, osteopaths aim to make occupational health a means of achieving peak performance, for both employees and for the organisation.

People don't work optimally if they're suffering from the efforts of postural and emotional stress. This reduces performance, both biomechanically and mentally. Because family stress tends to heighten stress at work and visa versa, people often find themselves locked in a spiral of decreasing productivity in both areas. By looking at all sources of possible stress, the osteopath help's the individual locate where these stresses are stored in the body and take positive action to alleviate them and prevent their recurrence.

Osteopathic treatment is based on the principle that if the body moves well, its parts will function well. It helps the person's innate healing potential to express itself, using gentle adjustments and muscle techniques combined with advice - on diet, exercise, breathing, relaxation and stress management, postural awareness and mental-emotional awareness.

Osteopaths are State Government registered (except in WA) as practitioners of manual medicine. In WA the Health Department is in the process of registering local Osteopaths; until then the Australian Osteopathic Association (AOA) maintains a register of practitioners meeting high competency standards. Most WA AOA members are

registered in other States.

Osteopaths view themselves as complementary to General Medical practice. Recently in the United Kingdom Osteopathy became the first complementary therapy to achieve statutory registration. This was supported by the General Medical Council and the British Medical Association who in a 1993 report referred to Osteopathy as a 'discrete clinical discipline'.

Osteopaths today are trained in tertiary institutions in Australia and overseas. In Australia there are two federally funded six year degree courses at the Royal Melbourne Institute of Technology and Victorian University of Technology.

The Osteopath will take a detailed case history to ascertain the possible causes of the presenting problem. A routine examination of the relevant systems (e.g. nervous system) is carried out along with an Osteopathic examination to enable the Osteopath to reach a diagnosis.

During the examination the Osteopath will use diagnostic skills such as observation and a finely tuned sense of palpation. The Osteopath will palpate range and quality of movement of joints and condition of soft tissues (eg muscles) to determine if they are under stress.

A diagnosis is determined from all of the above information and the Osteopath will advise the patient of the course and type of treatment appropriate. Conditions inappropriate for Osteopathic care and where investigations are felt appropriate are referred to the patients General Practitioner.

Osteopathic treatment consists of all forms of manual therapy including: Soft tissue techniques, Passive stretching (a joint release technique), Mobilisation with Impulse, Gentle release techniques (widely used on children and the elderly), which are given names such as functional, Strain/ Counterstrain and Patient assisted techniques, such as Muscle Energy Technique and Myofacial Release,

Osteopathy is a philosophy of health care and a distinctive art, supported by expanding scientific knowledge. Its philosophy embraces the concept of the unity of the living organism's structure (anatomy) and function (physiology). Its art is the application of the philosophy in the practice which requires the co-operation of the patient in the treatment and the use of manipulation techniques that depend on a high degree of palpatory skill to ensure minimal and specific intervention.

Its science includes the behavioral, chemical, physical, and biological knowledge related to the establishment and maintenance of health as well as the prevention and alleviation of dysfunction.

Osteopathic concepts emphasise the following principles:

- * The human person is a unit in which structure, function, intellect and emotions are mutually and reciprocally interdependent.
- * The body, through a complex equilibrial system, tends to be self-regulatory and self-healing in the face of disease processes.
- * Adequate function of body systems depends upon the unimpeded circulatory mechanism, nerve impulses and neurotrophic influences
- * A rational treatment regimen is based on this

philosophy and these principles to promote the healing.

The Australian Osteopathic Association maintains close links with Osteopathic associations the world over, such as the American Osteopathic Association, The General Council and Register of Osteopaths in the UK and the New Zealand Register of Osteopaths. Speakers from these associations regularly participate in post graduate educational programs conducted by the AOA.

I sincerely hope that this article has been sufficient as a reply to Dr Steve Bassier's article on Osteopathy which he admits was not well researched. For the same reason that one cannot and should not blame modern surgeons for the horrifying agony suffered by the patients of the barber surgeons of old, or the effects of over exposure by the original X-ray equipment, or the more recent drug tragedies from thalidomide and the like, we should not blame osteopaths for their use of stepping stones into the modern era.

Times are changing, and all health professions are evolving, the same as all sciences, technology and nature.

**Dennis Morris DO, MRO, MAOA
Perth WA**

A response

Thank you for forwarding the response by Dennis Morris to my all too brief overview of osteopathy in the last edition of *the Skeptic*.

I thank Dennis for filling in the gaps concerning the therapeutic techniques of osteopathy and the principles behind their use. This has gone some way to satisfying the historian in me.

Unfortunately the scientist in me remains somewhat dissatisfied.

I accept that osteopaths believe that adequate body functioning depends upon "the unimpeded circulatory mechanism, nerve impulses and neurotrophic influences", but no evidence has been supplied to remotely support the view that techniques such as "Muscle Energy Technique" or "Myofacial Release" achieve this, or anything else.

It is not clear from what Dennis has written whether modern day osteopathy has openly rejected the original teachings of Andrew Still, or merely modified them. If they have been modified has this been as a result of clinical trials or, like chiropractic, has the anecdotal evidence of individual patient responses been accepted as 'proof'?

Likewise, if Still's ideas have been replaced with a new theory, what is the evidence upon which this theory is based?

I agree that we should not blame modern surgeons for the actions of those who practised one hundred years ago, but we would justifiably blame a modern surgeon who was still using a technique from those times that had been shown to be ineffective or dangerous.

Osteopathy may well have shed its pseudoscientific past. Modern day practitioners may well have traversed the "stepping stones into the modern era", and now base their practice on solid science. Unfortunately, at present, I still do not have sufficient evidence to be able to say whether this is so.

**(Dr) Stephen Bassier
Heidelberg VIC**

Prophets of doom

Religious Fundamentalist leaders peddling simple certainties to the gullible and the unwary make every effort to avoid being found equivocating about their understanding of bible prophecy. Therefore whenever their follow-me-only-I know-the-way assertiveness leads to a blank wall for the Jehovah's Witness organisation the leaders about face blaming their followers for "misconceptions" from having "conjectured" and "surmised".

The semi monthly JW magazine *AWAKE !* from Brooklyn NY is circulated worldwide defending creationism and the bible as God's word. The magazine paints a vivid apocalyptic scenario for the earth, and the United Nations Organisation is described as an "abomination" as it is connected back through the League of Nations to the period of 1914.

Most people with a healthy degree of scepticism will quickly discern in an *AWAKE !* magazine that the usefulness of the magazine can be best left to the paper recyclers. Particular evidence for such worthiness is found in the issues of 22 October 1996, the last issue of the old interpretation and 8 November 1995, the first issue of the new interpretation.

For the greater part of this century the old issues carried the paragraph "Most important, this magazine builds confidence in the Creator's promise of a peaceful and secure new world before the generation that saw the events of 1914 passes away."

The new issues replace the false promise with: "Most important, this magazine builds confidence in the Creator's promise of a peaceful and secure new world that is about to replace the present wicked, lawless system of things." There is now no reference to the 1914 generation and those who believed it longest are certainly too dead to complain.

Fundamentalists hold to their beliefs with a lot of passion. Sometimes this passion boils over into violence or provokes a violent response. The JW Kingdom Hall in the Sydney suburb of Lurnea was bombed during a Sunday meeting in 1986 with one death and much injury and destruction. No one has been charged with the offence but many have been investigated.

LETTERS

Letters about topics of interest to other Skeptics are welcomed.

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

The Australian playwright Bob Ellis was brought up a Seventh-day Adventist and he recounts his life in a Fundamentalist religion in the film/video, *Nostradamus Kid*. In an incident in the film, a marginalised SDA in a group called the Shepherd's Rod commits suicide when his interpretation of prophecy is seen to fail.

Conviction and passion were both present in David Koresh who attended an SDA college in the UK. In his Branch Davidean Seventh-day Adventist compound at Waco, Texas he kept a number of wives after the manner of his bible namesake. He is reported to have used sleep deprivation as a means of gaining a compliant audience for his discourses in bible prophecy. Perhaps on those occasions he also had frequent need for the exclamation *AWAKE !*

**Brian Doak
Thornleigh NSW**

Religious freedom

This letter is a response to correspondence from Allan Lang of South Australia (Vol 15, No 4 p61) and the article "Religious Freedom" by David Maddison (Vol 16, No 1 p7).

On the 3rd June, 1992, on ABC Radio 3LO, a nun from the Sisters of Mercy made a public announcement to the effect that the (then yet to be built) new public hospital at Werribee would be run by their Roman Catholic order and would not, therefore, provide the usual public hospital services such as abortion, tubal ligations, contraceptive advice, vasectomies, etc as had been provided by the 'old' hospital for the past thirty years.

This announcement so annoyed me that I wrote protesting the intervention of the Roman Catholic church into public hospital policy to the

Melbourne *Age*, to the then minister for Health, to the Sisters of Mercy themselves, as well as a local newspaper - but it was all to no avail because the new hospital is now complete and is listed under "Hospitals, Public" in Melbourne's Yellow Pages - p. 1449 as "Werribee Mercy Hospital", with the Roman Catholic proscriptions now in force.

Therefore, to claim - as David Maddison does - that we have a secular state is not correct so far as the State of Victoria is concerned; a fact that Allan Lang could not reasonably be expected to know when he wrote "In no case do governments take action to require these beliefs to be applied to society in general", because he is from South Australia.

But Werribee is merely the latest example of Roman Catholic control of public hospitals in Victoria, others being - Mercy, Bethlehem, Caritas Christi Hospice, St. Vincents - all listed under "Hospitals, Public" on p 1449 of Melbourne's Yellow Pages.

Finally, it should be noted that Victoria's last two Ministers for Health covering this Werribee period, although political opponents, were allies in one respect - they were both Roman Catholics.

Make of that what you will.

**Daryl Haslam
Glen Iris VIC**

Religious timidity

Since I began subscribing to *the Skeptic* I have been troubled by your explanations of why religion, apart from creation 'science', faith healing and so on, is not a *bona fide* target of Australian Skeptics.

In answer to a letter Daryl Haslam wrote to *the Skeptic* (Vol 14, No 4, p 51) you said, "Australian Skeptics takes no position on the social phenomenon of religion ..." You then cite sport, art and politics as other social phenomena not falling within the purview of Australian Skeptics.

I can understand why such social phenomena do not attract sceptical attention, but I believe that demonstrably untenable religious dogma is an entirely different matter (I use the word 'demonstrably' in an intellectual rather than a scientific sense). Whether religious doctrine can

be tested scientifically surely is irrelevant. Don't sceptics first apply intellectual tests to many 'acceptable' targets of scepticism? Not being a scientist, I'm sure my first appraisal any phenomenon is based on intellect.

The basic tenets of Christianity, including the existence of Adam and Eve, the fall from grace, Christ's virgin birth, his bodily resurrection and divinity, should all be subjected to intellectual examination.

The Bible is the core of Christian belief and the question of whether the Bible is inerrant or errant, the literal word of God or not, is of prime importance when examining the credentials of Christian belief. Fundamentalists believe totally in its inerrancy while more moderate Christians are selective of the areas of scripture they believe to be the literal word of God. Because the Bible provides the basis for all Christian beliefs it is plain to me that to be a truly devout Christian one must be a fundamentalist. But the Bible is either inerrant or it is not. It cannot be both. The authenticity of Christ and his teachings relies on the Bible being the word of God and for contemporary Christians to cease to believe that is to deny the most important tenets of their faith.

It seems that modern theologians are prepared to deny what once were immutable doctrines to suit the changing times and to attract previous (and young) believers who have begun to question the relevance of the churches. An example of this is the recent decision of the Church of England to reappraise the traditional view of Hell so that it is now perceived as 'an absence of God' or as Shakespeare said in *The Ages of Man*, 'mere oblivion'. One could be forgiven for thinking that if the personal God of the Scripture exists then he must be considered a dead set pragmatist.

In our increasingly secular society the nature of the changes being wrought by the mainstream churches, rather than attracting new converts, must be cause for concern among believers. If the hitherto inerrancy of the Bible can be abandoned with such ease then the *bona fides* of Christianity should be open to questioning and should be exposed to the intellectual gaze of all.

To further demonstrate that the

question of biblical inerrancy is pivotal to the acceptance or rejection of Christianity, I need only pose a simple question, "Do you believe in Darwinian evolution or do you believe in creation according to the book of Genesis?" If the answer is "I believe in evolution", the response one would expect from most, though surprisingly not all, scientists, most members of mainstream churches, particularly church leaders and most intelligent people, then the following simple hypothesis easily establishes the case for an errant Bible, which in turn exposes the fatal flaws in Christian dogma:

If evolution is fundamentally correct then there was no Adam; no Adam; no fall; no fall; no atonement; no atonement; no reason for Christ to have died on the cross. If Christ died for no reason then he was not divine and Christianity has no basis in fact.

If there really any need then for scientific proof in order to debunk Christianity?

I am aware of the aims of Australian Skeptics and agree with them. But one cannot deny that the monotheist religions have over the centuries, visited more misery and suffering on mankind than all the spoon benders, astrologers, diviners, faith healers, aroma therapists and sundry other frauds and charlatans put together.

I can, of course, appreciate that the Skeptics, as an organisation, must be cautious with regard to what areas of bunkum they pursue. But I can't help thinking that while it may be pragmatic to exclude mainstream (read: respectable) religion from the searching gaze of Australian Skeptics on the pretext of its scientific non testability, it could be seen by some as less than honest.

**John Stear
Coombabah Qld**

It is not that we wish to be "cautious", but that Australian Skeptics has chosen, as an organisation, to concern itself with those areas mentioned in our published Aims; "pseudo-scientific, paranormal and similarly anomalous phenomena" and to investigate claims about them "from a responsible scientific point of view".

There are all manner of other things that people are properly sceptical about; political promises, the claims made by advertisers, the hyperbole of

any number of organisations, most of which do not fall within our aims, and yet Skeptics (being sceptics) are sceptical of them, without any need for the organisation to be formally involved in disputing them. Such is the nature of the mind-set encouraged by scepticism (and a good thing too, in my view).

There are other organisations that provide fora in which your questions can be raised (and have been raised, no doubt, since religion began) and certainly religious exegesis is a well established field. Whether any of the questions have ever been (or are ever likely to be) solved to the satisfaction of all, is another matter entirely. Certainly, there are many questions raised by religious belief that are not in any way amenable to investigation by scientific methods, or, indeed capable of even being considered in a scientific context.

If I may use an analogy, the Qld Cricket Association probably did not take sides in the recent ARL/Super League battles, despite being a sporting body. Is it suggested that it should have, because many of its members would have had opinions on the matter? Was it timidity or caution that prevented them doing so, or was it that it was not within the aims of a cricketering association to become involved in rugby league matters?

This is not to say that *the Skeptic* will not publish articles and letters that address matters not covered by our Aims. This journal is a forum for the views of our subscribers and we endeavour to publish items that interest them. The continuing increase in our readership indicates the validity of that position.

The religious, political and other views of subscribers to *the Skeptic* reflect the range of these views in the community at large, and we do not have a 'party line' that we insist upon.

The important thing to remember is that scepticism and dogmatism are incompatible philosophies and it would be a negation of everything that the term "Skeptic" implies for us to seek to make dogmatic rules about what our contributors may contribute.

This does not, however, mean that the organisation is obliged to 'take a position' on every issue that is raised in *the Skeptic*. To do so would dilute our efforts to homeopathic proportions and to no good effect. **Ed**

Political timidity

The Editors of *the Skeptic* are to be congratulated that their “renewal rate so far this year is the by far highest [they] have ever achieved”. This is certainly success of the highest order which anyone in our modern culture understands. It is success of an intellectual nature but also indicates financial success without which any present day enterprise is threatened and in this way might be considered a mild form of Sophism. Achieving security of tenure is something we all aim for otherwise life may become nasty and brutish.

However, since the Editors are explaining in *the Skeptic* (*Letters*, Vol. 16 No 1.), why it is that the contents of *the Skeptic* must necessarily be limited to articles concerned only with the aims of Australian Skeptics as stated on the back page of the journal, they may not be surprised, if their comments on ‘Politics’ attract scepticism. Their judgment “that if [they] gave over [their] pages to economic or political discussions [their] readers would be much less likely to continue their support” is I am sure quite sound and should certainly continue to guide their efforts but counters the broadest of the aims of the Skeptics “To stimulate inquiry and the quest for truth, wherever it leads.”

If Australian Skeptics were to form a political party, which is not without the bounds of possibility, the party would be a single-goal party to denounce the purveyors of magic and the defenders of the paranormal and might even lead to legislation which would necessarily enhance social ethics. *The Skeptic* does have “a mixture of serious comment and a light-hearted approach” but in spite of the editorial comment which immediately follows that “the world is full of deadly serious publications for deadly serious people, on all sorts of deadly serious... topics and we are not keen to compete with them” I would maintain that the aims of Australian Skeptics are indeed deadly serious.

However successful the Editors of *the Skeptic* may be in excluding political comment from its pages, they cannot deny that, when members of the Skeptics meet, they bring their

political convictions with them and that it can be fairly argued that those political convictions colour their sceptical attitudes.

There are sceptics in the world who maintain that the holocaust never occurred, that Australian Aborigines compose an inferior race, that the ecological condition of the Australian continent has improved as a result of the European takeover, that the history of all hitherto society is the history of class struggles. They maintain these attitudes on what they consider to be ‘a responsible, scientific point of view’ just as stated in the Aims of Australian Skeptics on the back page of *the Skeptic* and on that basis might become members of the Skeptics.

I have not met any such person but have met Skeptics with what I consider to be equivalent opinions on both sides of politics that are in no way so extreme but of similar dogmatic ilk. Such politics are the equivalent of the paranormal and cannot be ignored. Otherwise science, politics and scepticism are all relative and this is why the Editors and for that matter all Skeptics should come clean and reveal their politics. This would satisfy “the quest for truth” surely the most important aim of Australian Skeptics. It might also encourage debate in your journal as to what it truly is, to be a Skeptic and if my suggestion is accepted, how Australian Skeptics might rid Australian Skeptics Inc of relativism and set out with a better understanding of the common political ground on which the exploitive nature of the purveyors of the paranormal might be exposed and the ethical basis of Australian society might be improved.

**Neil Burry (Green/Democrat.)
Adelaide SA**

I don't think we "exclude political comment" from our pages, but, as I suggested in the previous comment, it would not be in our interests to take a partisan political position.

Based on comments we receive, our subscribers seem to inhabit the broad range of the political spectrum, though rarely do they tend towards the extremes of those positions. This is what one should expect from people subscribing to a magazine called *the Skeptic*. Scepticism and extremism would appear to me to be mutually exclusive philosophies.

We are happy to encourage debate on what it is to be a Skeptic and we have received some contributions recently on that topic (which we will publish in a future issue).

Of course, there are people who claim their political views have the imprimatur of science, the Natural Law Party and the former rulers of the Soviet Union among them. Evidence to support these claims is, however, distressingly slight. I think that any such claims should be treated with grave scepticism (if not hilarity).

As for the Skeptics forming a political party and seeking public office, the mere thought fills me with a deep depression. I am much more heartened by the thought that members of all political parties might be encouraged to show a little more scepticism about their own partisan philosophies. It could only do them some good.

On the question of the Editors revealing their own political leanings, Harry is a member of the militant faction of the International Anarcho-Monarchist Movement, while Barry belongs to the bleeding-heart pacifist wing of the World Domination League. **Ed**

Global scepticism

I have been a subscriber for quite some years and always interested in the issues raised in your journal. I have, however, a dilemma.

It's quite simple - I don't think the case for evolution is very good. I think, without having any religious associations whatsoever, that some aspects of creation thinking have some merit. Despite this obviously dull and uninformed belief, and still enjoying your articles, I still consider myself a sceptic - is this possible? Will I, should I, somehow be excommunicated? Can you help me?

I am also interested in areas where I am certainly sceptical and outside the mainstream of thinking, eg recovered memories, all teaching methodologies (language experience as structured teaching) and the general movement of physics into the world of fanciful speculation. My background is in education, psychology and physics, although I am now in private industry and these experiences have all helped

shape my scepticism in a variety of disciplines.

Have you ever investigated any of these areas? I would appreciate any articles that discuss them.

Keep up the interesting and challenging work and remember to be self-sceptical also.

**Dennis Sparrow
Grange SA**

We make no demands on our subscribers, no pledges to sign, no 'party line' to adhere to. The only way to become 'excommunicated' from the Skeptics is to fail to renew your subscription.

It is understandable that 'some aspects of creation thinking' seem to have merit when compared with evolution, because evolution is a quite complicated scientific theory, while creationism is, superficially, much simpler. In this, creationism cheats somewhat, because the existence of a 'creator' is taken as a given. If the existence and antecedents of this creator are added to the equation, then anything said about creation becomes every bit as complex as evolutionary theory and is far less persuasive as an explanation.

We have published many articles on the subjects you mention and we hope that your questions encourage other readers to write about them.

We are always 'self-sceptical' and urge our readers to take nothing on 'faith', including anything said in this magazine. **Ed**

More research

When reading the journal I sometimes have difficulties in reconciling the views expressed in the Editorials with the matter presented in some of the articles. The research involved in the latter sometimes seems to me to be a little *ad hoc* rather than be planned for the purpose of refuting serious, but non-proven or inadequately examined, claims made in respect to psychic phenomena and the like by those being commented upon.

Some of the claims need to be taken seriously because they can have profound effects on people's lives. I ask myself, probably because of ignorance on my part, is Australian Skeptics sponsoring serious, carefully

planned research into the claims of professional and non professional psychics and their adherents, parapsychologists, numerologists, clairvoyants and the like?

Having asked this I have to admit that I myself am doing some simple *ad hoc* research, in part because I am not a qualified psychologist, and in part because I have been unable to find any research in the field that I could participate in. If anyone could advise me of any such research being carried out in Australia I would be most grateful.

I find myself appalled by the fact that Tertiary Education Institutes seem to give less, rather than more, support for research in Parapsychology and Transpersonal Psychology at a time when the general population is becoming more and more involved in these and related subjects. All I am doing is going to workshops, group meetings, clairvoyants etc and just observing what is happening with a degree of participation.

PS Perhaps the first step required is to devise suitable research methods. From reading your article on Dr Susan Blackmore and articles in other journal I could not help asking myself whether she was asking the right questions of her subjects in order to obtain the information she was looking for?

**Joan Johnstone
Ashgrove West QLD**

Research into psychic phenomena has been going on for more than a century without any concrete results. If you compare this to the advances made in every science in that time you should agree that this is a disappointing state of affairs (to say the least).

Susan Blackmore, one of the most experienced researchers in the field, spent 20 years as a parapsychologist trying hard to get reproducible results. She finally concluded that her total lack of success may well have been caused by the fact that there was nothing to find.

I recommend that you read her book *Adventures of a Parapsychologist* (Prometheus Books, 1986) and some of her later works to get a good grounding in what is going on in the field.

Probably the most profitable area of research in this area is into the predisposition of people to believe in unbelievable things. **Ed**

Psychic clap-trap

You must have read the books of Dr Abraham T Kovoov, the late famous rationalist who, although an Indian by birth, lived and worked in Sri Lanka. He was my science teacher when I was in junior high in 1948-9 at St Thomas College, Mount Lavinia, Sri Lanka. As a sceptic, I too go looking for these sorts of things in an effort to expose or debunk them.

In December 1992, I was in Sri Lanka on a holiday. As you may know, in Sri Lanka over 95% of the people are very superstitious. A very good friend of mine Mr Munasingha, a fairly well-to-do land owner, was having some domestic and financial problems. I know for a fact he had heart problems and was on medication. He came to me one morning and asked me to go with him to consult a very famous astrologer who had predicted for prime ministers. The astrologer went through the various calculations based on my friend's birth signs etc and informed him that the new year (1993) would bring him much wealth, his problems would be over and his life would be a ball.

My friend was still not satisfied and wanted confirmation, so we set off to get his palm read. This person too is a famous palmist who has visited Sydney and Melbourne and runs the Palm Clinic in Ratmalana, just outside Colombo. Here again, the palmist went into a calculation of the lines of the palm. His verdict was the same as the astrologers, a very good year, all his problems would be over and he would have very good luck for many years to come. The palmist did not know of the astrologer's story of that same morning and nothing was mentioned of the visit to the astrologer.

I returned to Darwin in mid-January and did not think any more about the incident until I received a letter from another friend who informed me of the death of Mr Munasingha. He had a heart attack in June 1993.

Neither the palmist nor the astrologer said anything about his health. Nothing about a period of danger - nothing but good times. They both stated that his health was good. They were right about one prediction though - all his problems were over.

During my holiday, another friend wanted to take me to an old lady who talks with the dead. I agreed to go with him as I was determined to prove her a fake, at least to my friend. But this was not to be as my friend's wife, knowing what I intended put a stop to the trip.

Ten years ago I had an accident which damaged my lower spine and neck. As a result of this, both my feet, from the ankles down are almost without feeling, but only in patches. Many specialists have examined me and the conclusion is that several nerve ends have been damaged and this will slowly get worse as the years pass. In March 1996, a Sri Lankan 'faith healer', Chinta Karunaratna visited Darwin, so I decided to test her abilities.

Over a hundred people gathered at the temple and we were given a handout. This was read three times by different people over the PA system. When the healer arrived, she read it out once more. All were asked to sit with open palms on knees and eyes closed for five minutes, then the healer sat at the front with palms facing out and all were asked to gaze at her palms, which took about 15 minutes. She then went around each row asking if the people could feel anything, what was the health problem etc, all the time with her palms towards the person. At no stage did she touch anyone and the closest she got was about two feet. When my turn came she asked me what was wrong and I explained. She then spent two or three minutes in front of me, discharging the healing power directly at my feet. Then she asked if I felt anything at all. I answered truthfully "nothing" and without a word she went down the line.

Although her back was often towards us, her helpers assured us that her healing was still flowing through us and would heal us all. From my observations, not a single person seemed to benefit from the healing powers and there were a few who looked worse than me who hobbled away unhealed.

**Brian De Kretser
Anula NT**

New Age Ancient Wisdom?

On a recent visit to Tasmania, I came across an interesting pamphlet, and, although I am *au fait* with the loony fringe through your august journal, I was amazed at the giant strides they appear to be making.

"Dreamspell Calendar of Planetary Service - A new natural cycle calendar based on the Mayan calendar of wave harmonics and resonant fields."

I doubt if the Mayans knew anything of wave harmonics and resonant fields, and any wave motion with strong second and third harmonic components would be upsetting, and not conducive to peace of mind.

"Using this calendar will break the money/time cycle, and heal yourself and the planet." What! No more bills to pay? No cutoff dates?

"By Dec 22, 2012, time will have totally collapsed —."

I don't know much about Relativity, but wouldn't the collapse of time have immense effects on both matter and energy, with dire consequences for Earth and its peoples?

The title of this tape had me running to scan my house insurance policy - "Galactic Precipitation"! And what about Divine Intervention, Photon Belt, Mass Landings (Little green men parachuting into the back yard?) - and DNA reprogramming from the Universe (Can New Agers be made sensible?). Our old favourite, "Government cover-ups", is still available. Is there no end to the possible disasters (or perhaps they're boons?) which can befall us?

The good news is, the phone line is open 7 days.

**Don Tonkin
Somerton SA**

A one-eyed view

I attended with two other sceptics the recent "Bendigo Psychic Expo" on the last of its four days. The event had been well publicised in our local and for all I know other newspapers and was held at one of our best hotel and convention centres.

Admission was \$5 per day and included all presentations by speakers.

The flier given to us on admission promised a galaxy of psychic stars from overseas and Australia and the chance to explore past lives, crystals, auras, soul mates, spirit guides, clairvoyants and more! Private readings with the various psychics were available costing \$25 - \$30 for twenty-five minutes. Books, crystals, tarot cards and other psychic paraphernalia were for sale. The various psychic consultants were not modest in displaying their achievements and the Expo was described as "A Presentation of WISEMAN PROMOTIONS".

We were there for two lectures one on Tarot and ESP and a special treat one on Dreams by Mr Wiseman himself. I tried really hard to keep an open mind about what I was hearing and tried to judge the lectures according to their clarity, intellectual rigour, strength of presentation and so on. What I actually got from the tarot lecture was a mish-mash of history and religion which was simply wrong and the message that you interpret from the tarot cards whatever you wished to interpret and when in doubt just pick up another card. Mr Wiseman on Dreams was no better. I don't think he was looking at us when he took a swipe at those who were sceptical of what he and his ilk had to offer. If only one was prepared to open one's mind sufficiently and keep on doing so revelation would come as it had to him.

What particularly interested me was the demonstration of iridology. This was a popular table and booking ahead for the \$25 session was required. The client rested his or her chin on a special pouch and then the iridologist adjusted the two arms to focus the lenses upon the eyes of the client. She then brought the image of both the eyes on to her computer screen before proceeding with the analysis. She obviously did not need to refer to the charts of the eyes but she used these charts to explain her findings to her client. Before doing so a short history was taken, name, age, occupation and any health problems. I am 53, a paediatrician and consider myself pretty fit through rowing and sculling competitively. Tell one small fib. I spend a lot of my time working in newborn nurseries so gave my occupation as "nurseryman".

My consultant correctly noted that I

was bichromic. In fact she said that I was the most bichromic person (my eyes were of different colour) that she had ever seen. Proceeding through her analysis using firstly my right eye I learned to my surprise that I suffered from lymphatic congestion, wind and bloating but that I had a hyperactive digestive system.

There were comments about my kidney and adrenals and thyroid glands which I have forgotten and I was surprised to hear that I had a poor circulation. There was a note of puzzlement when the analysis switched to that of my left eye because here I appeared to have a hypoactive digestive system as well as showing signs of stress. I was informed that I had mucus in my sinuses which seemed a safe bet.

I expressed some puzzlement at having both a hyperactive and hypoactive digestive system and asked if I should see my doctor about this. To her credit my iridologist did not immediately recommend any psychic treatment or medical treatment for that matter as I had assured her that I was feeling well. "Just avoid yeasts and dairy products and eat smaller and more frequent meals" she said.

Well what a treat. All that information about myself for a mere \$25 and some dietary advice thrown in. Only one thing puzzles me. How come she couldn't tell that my left eye is made of plastic? I have had it for 32 years and I am afraid it has faded a bit.

(Dr) Peter Wearne
Bendigo VIC

Mendham relics found

Thank you for the kind mention in *the Skeptic* (Vol 16, No 1) under the heading "A messiah in our midst?"

As you can see I have been busy since I wrote to you last, I have found a way to transfer images unto almost any material.

I have enlarged the two images in the article, I do hope Tim Mendham is a Skeptic and does not mind me using his image! I have succeeded in transferring the images onto two clay tablets, a piece of wood and to show there is no photo-emulsion involved,

onto two sponges and T-shirt material.

I copied the images on a Xerox Colour Copier and transferred the images using acetone. On soft material I smear a little acetone unto the cloth, place the image (face down) on the cloth, rubbing the back of the copy with a cloth dipped in acetone. Care should be taken not to move the image.

On hard surfaces, plenty of acetone onto the clay, then place the image (face down), more acetone on the back of the copy and using a "burnisher" to rub the image onto the clay. A burnisher is a steel-ball on a pen handle. You can buy them in a stationary shop. This is much easier than heat.

John Johansen
Noranda WA

John sent us two clay tablets, two sponges, a piece of wood, some cloth and paper images of the Generic Jesus and Tim Mendham. They are remarkably effective testimonies to John's skill.

Unfortunately, the clay tablets did not survive their contact with Australia Post and arrived in several pieces.

We are sorely tempted to bury these authentically fractured clay tablets in some archaeologically sensitive site and wait for controversy to ensue. But we probably won't, as the thought of a flourishing Mendham cult taking over the world is one that doesn't bear contemplation.

Ed

Stick up

I am pleased to be able to help the poor apple eater who fears that stickers appearing on apples may be a psychic phenomenon.

It is not supernatural. It is a conspiracy by big business - namely the supermarket industry. They have pressured farmers to put these stickers on the apples.

I have questioned the people in the relevant buying office and they confess to doing it. Their reasoning is that the stickers help check-out operators identify the apples they are weighing so they can charge the customers the correct amount.

I hope this clears up the confusion.

Peter Boekel
Glen Iris VIC

Misanthropy in review

I was saddened by the misanthropic pseudoscience in *The Rise and Fall of The Third Chimpanzee*, echoed in James Gerrand's review of it.

This book is a litany of factual errors, suppositions and unsupported assertions presented as established fact and interwoven with Diamond's opinions on a range of issues- alas, a common sin in popular anthropology.

The lovers of bedtime stories must always acknowledge that palaeoanthropology rests on a narrow factual foundation. Compared to physical sciences or even other branches of biology, the evolution of *H sapiens* is a highly speculative subject, not at all a comprehensive body of knowledge that supports pronouncements about our future.

For instance, Diamond begins his discussion of skin colour evolution with an assertion that sunburn resistance is of no relevance to survival- a startling suggestion from someone who has spent time in our part of the world. His whole chapter on substance abuse is also based on a factual error, namely that man is the only species to indulge in such behaviour. It is common to many species- in fact, only *H sapiens* shows any control of substance abuse.

Given Diamond's preoccupation with our extinction, I expected a detailed and up-to-date discussion of the last hominids to disappear- the Neanderthals. Alas, he sketches a totally outdated portrait of muscular brutes forced into extinction by more facile Cro-Magnons. Most experts now believe that Neanderthals were far more "human" than once thought and have probably blended into some modern populations- of course, this view requires a more sophisticated audience and contradicts Diamond's thesis that extinction of hominids is as simple as anybody else's.

Diamond is not the first politically correct author to decry the tendency to violence and ecological desecration which we share with other primates. But history demonstrates that our qualities allowed progress in a way that invites more than cautious optimism about our survival.

We are certainly capable of

destruction. But most environmental propagandists only bog down in pointless arguments about whether hungry humans or their victims are a more deserving case. The sooner it is acknowledged that a lion eating a zebra, a beaver building a dam and a human pouring dioxins into a river are driven by the same stimuli and get off this issue, the sooner we can ask how our innate behaviour can be channelled to deliver the best long-term results. Alas, Diamond, like most naturalists, is more preoccupied with the impact of industrial *H sapiens* than with offering it constructive solutions.

Our ecovandalism is hardly a match for our grossly under-utilised productive capacity. While un-environmental behaviour makes our planet less aesthetic, it is difficult to sustain an argument that our species is in some kind of decline or unprecedented danger.

Humanity survived some nasty reversals of fortune: the Ice Age, the climatic changes in the Mediterranean Basin and a cataclysm in Eurasia caused by the collapse of the Roman Empire. Only a few centuries ago the plague depopulated parts of Europe by up to 75%. Nuclear weapons are hardly the first threat to our survival.

The lament about overpopulation is twenty years out of date. Every developing society indeed goes through a transitional stage of rapid growth when protection against malnutrition and other dangers is not balanced by birth control; the global population is estimated to have multiplied fivefold from 1700 to 1900. But as soon as progeny has a reasonable assurance of reaching adulthood, this changes: the growth rate of the world population actually peaked in 1970 and has been declining since, the developed countries leading the way. Some OECD nations now have a negative population growth, and nearly all grow less than 1% per annum.

The doom merchants could soon be rendered irrelevant by colonization of space: our species will not only break free of ecological constraints, but will need to make athletic reproductive efforts to return to an optimal population level.

Moaning that we fail to learn from history is a quick way of establishing moral and educational superiority among the trendy ill-read. The study

of recorded history is not a science, Mr Gerrand- it is at best a discipline. For instance, those who can still read should be riveted by late Roman history alas, no two readers will draw the same conclusions from such a large, complex and speculative body of information.

Finally, Mr Gerrand's gratuity about world financiers destroying our planet is worthier of a League of Rights graffiti than these pages. Assertions about freewheeling capitalists being a threat to our species are a melancholy mixture of papism and socialism. There is, to put it politely, no evidence that non-capitalist societies manage their ecology any better. Indeed, the clean-up of what Eastern Europe did in the absence of the profit motive would now be impossible without capitalist finance - by the trillion. Indeed, the repetition of what happened when Romans debased their monetary system should be feared as about the only conceivable event whose repetition may endanger our survival.

I refer interested readers to any undergraduate primer in anthropology instead. Despite its excellent presentation, *The Rise and Fall of the Third Chimpanzee* is just another self-righteous collection of pronouncements cloaked by a version of our natural history that is child-simple.

And wrong.

**Iliya Englin
Lyneham ACT.**

Vinegar diet persists

The efforts of contributor Glen Cardwell (Vol 16, No 1) have apparently done nothing to deter the publicity of the Willow Tree Press.

An advertisement appeared in the March '96 issue of *Royal Auto*, the magazine of the RACV which appears to cover the same ground as that described by Glen. I am not able to analyse it in detail since I am not close to the topic, nor am I professionally involved, which Glen clearly is. The ad appears to display the same irregularity as that described by Glen ie that one can "melt away pounds with a meal-time vinegar cocktail".

It is interesting to note that this ad

has appeared in *Royal Auto* since the ad for the phony TV antenna mentioned by Colin Keay also appeared in this magazine.

One wonders why the alleged virtues of vinegar are only now being promoted with such fervour. I am also intrigued by the apparent need felt by Willow Tree Press to justify itself with the information that it is a member of its local Chamber of Commerce.

This publisher was recently in trouble with the Consumer Affairs authorities regarding a book about proof reading of author's manuscripts. It implied that plenty of spare-time proof reading work was available, which is not in fact the case. Willow tree Press was ordered to circulate all those who bought the book with an offer to buy it back plus postage costs.

**Michael Gamble
South Yarra VIC**

True Sceptics?

Recent publications in *the Skeptic* have made me wonder whether the authors are really sceptics in the sense that I would like the term to be understood. For me, a sceptic is somebody who says: "I doubt the validity of your statement, but I am not sure. I therefore make further enquiries which, hopefully, will decide the question one way or the other".

The true sceptic is humble and polite. He does not say: "I am a Sceptic and as such am entitled to query anything that is absurd or leads to absurd consequences. Einstein and other mathematicians and physicists are fools because their theories are nonsense, leading to absurdities by common sense". Such people do not want to know, they want to tell you. No scientist or philosopher of science, however patient, could explain things to them. These pseudo-sceptics are unwilling to abandon their preset ideas and prejudices, not unlike those that we oppose, although perhaps on a somewhat higher level.

To give some examples: Anyone who understands by 'number' something that can be plotted along a ruler (a real number) must come to the conclusion that $\sqrt{-2}$ is absurd. But if he is willing to accept the concept of

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'number' as something corresponding to a point in a plane (the complex number) $\sqrt{-2}$ becomes understandable. Similarly, anyone who accepts 'straight line' only as something with the properties of the straight line in Euclidean space will always find a closed straight line absurd.

Another thing that a true sceptic should aim to achieve is clear English. Try out your writings on a friend. If he has to read a sentence three times before understanding it, there must be a better way of saying it. If humour is intended, 'smart Alec' style is allowed, but should be used sparingly for maximum effect. Too much spoils the flavour; your readers may stop reading. The same will happen if your article is too long.

Hans Weiler
Croydon NSW

Unidentified Skeptic

I, to my profound shame, have been exposed by those purveyors of the occult and herbal in an untruth. It wasn't my fault.

When challenging some of the more absurd of the prophecies and mysticisms of friends my credentials were questioned. In a moment of pride and arrogance I proudly proclaimed, "I am a card carrying sceptic". To my dismay, and their sceptical credit, the normally credulous and gullible responded, "Lets see it then". Oh sack cloth and ashes, Oh woe betide the prideful, and whoops there goes my credibility.

Its all your fault. Why don't I have one? *The Skeptic* won't fit in my wallet (And Brother Black Lord, Pass the Herbal Tea, won't let me into the temple of the money lenders if I clutch it to my breast).

Lindsay Key
Kaleen ACT

Fear not Lindsay, we're working on some means of identification and recognition for Skeptics. Perhaps readers might care to let us know if they favour a lapel badge, a silly hat, an immensely complicated handshake or something else. Any ideas are welcome.

Ed

Kathy Butler, under one of her many aliases, presides over the Vic Skeptics, when she is not being kept busy infiltrating other organisations.

Glenn Cardwell is a dietitian with the WA Branch of the Australian Heart Foundation. We suspect he eats well.

Harry Edwards, the pin-up boy of the psychic pset, has been experiencing stabbing pains in odd parts of his anatomy for the past few weeks and can't understand why. We can.

James Gerrand is a retired aviation engineer and is a Life Member of Australian Skeptics (if you can call that living).

Geoff Guilfoyle would like to make it known that he is really matinee idol Tom Cruise, but he isn't so he can't.

Brynn Hibbert is Head of the School of Chemistry, UNSW and sits in the Chair of Analytical Chemistry. He monitors pollution, writes artificially intelligent software, and worries about the public's perception of scientists. World wide conspiracies wishing to buy him off may contact him at:
b.hibbert@unsw.edu.au,
<http://www.chem.unsw.edu.au/>

Peter Johnson, cartoonist and resident of a South Australian palindrome, appears in print for the first time in this issue (p45).

Colin Keay, Great Helmsman of the Hunter Skeptics, is a physicist, astronomer and man of letters (which he really must get around to posting someday).

Chris Rutkowski is an astronomer from Canada, which must be an extremely cold occupation in that neck of the tundra.

Roland Seidel, professional mathematician and amateur singer, has sung before the crowned heads of Europe. He is often blamed for the onset of republicanism.

Geoffrey Sherrington, if his contributions to the Obliquity Competition are anything to go by, is in dire need of help.

Duncan Steel is a space scientist - he calls it that since if he says "astronomer" then radio comperes often seem to insult him with "astrologer" - who works at the University of Adelaide. Modesty prohibited him from pointing out in his article that minor planet 4713 Steel is named for him, and so he sneaked it in here instead.

Kirk Straghen is a Queensland public servant who claims to be "beautiful one day, perfect the next" and becomes offended when people are sceptical.

Barry Williams is delighted to announce the birth, on April 13, of Christopher Simon Williams Joyce. Any suggestions that Mr Williams is misusing his editorial position to skate about his new grandson will be met with the full majesty of the laws of defamation.

Sir Jim R Wallaby, who had very little to say in this issue, would like to point out that, even in the Skeptics, the A-Ms outnumber the N-Zs, as a tally of these two columns will prove.

Coming Up

In the next issue we begin a commentary on postmodernism by Dr Mark Newbrook, a linguist.

What else appears depends on you, our readers. Please send your items on disc, hard copy or e-mail. ASCII text is best. Items sent by fax or printed on dot matrix printers cause our scanner some problems. Deadline for Vol 16, No 3 is August 31.