

# THE ANZAAS Mercury

ANZAAS: Communicating Science to the Public

Issue No. 3, June 2000

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## Editor's Edict

This issue of the ANZAAS Mercury mows through the ever increasing mountain of information on Science and Technology to bring you specially selected features on current issues in improving science and its social impact. We show the end is in sight in controversy over Genetically Modified foods, in the **ANZAAS Debate**. Robyn Williams asks if ANZAAS is Dead, Why Won't it Lie Down? We also have reports on Energy and the sustainable planet, and the success of ANZAAS activities in National Science Week. **Perrin's Plate** reminds you to renew your subscription. We would like to hear from you, please send any comments on the newsletter or ideas for future articles to the Production Editor at [d.rouch@landfood.unimelb.edu.au](mailto:d.rouch@landfood.unimelb.edu.au), or to the postal address in the box below. -*Duncan Rouch*

## Adam's Airing

Comment From The Chair By Paul ADAM

### **Morality and R&D Investment**

The expenditure on research and development by Australian industry is low by standards of other first world countries, and is declining. In several recent submissions ANZAAS has argued that the national interest requires an increase in industry involvement in research and that the incentives offered by Government to industry to promote research need to be improved.

The revelation that tax concessions for research had been granted to the tobacco industry indicates that in the event of future submissions to Government we may need to reconsider our position.

When the controversy over tobacco erupted the Minister, Senator Minchin, strongly supported blanket tax concessions. If an industry activity satisfies the definition of research it should be eligible for any concessions without any other test being applied. The Minister argued that to do otherwise would be to impose a morality test.

Those opposed to support for the tobacco industry pointed to the global toll from smoking related diseases and questioned why public money should be spent on such projects as the development of stronger cigarettes for Africa. I find the thought of research to promote smoking abhorrent but does the Minister have a point; if we make an exception for one sort of research are we opening a Pandora's Box? There is a number of issues on which various groups in society may wish to curtail research. Once a precedent has been created would governments seek further opportunities to curtail research? We need to recognize, however, that there are already many mechanisms that impose limitations on absolute freedom to conduct research. Research on humans and on other vertebrates is subject to regulation by institutional ethics committees, and research proposals are frequently modified as a result of requirements of ethics committees. Research on early stages of embryo development in humans is subject to severe restrictions. These controls have

evolved over the years and reflect changing public concerns over various issues, and further regulation might reasonably be anticipated in the future. Present restrictions have been imposed on the basis of "moral" arguments. The Minister's reluctance to contemplate making a moral decision in relation to research by the tobacco industry appears to ignore the precedent of numerous existing limitations on research imposed on moral grounds. Greater involvement of public opinion in setting research agendas nevertheless has dangers. Creativity and innovation may be suppressed and whole areas of research could be terminated. The challenge will be encourage greater dialogue between scientists and the public, so that scientists have a better understanding of public concerns, and the public has a better appreciation of what scientists are endeavouring to achieve. If in future submissions ANZAAS is to qualify its call for support for industry R & D how should the qualification be worded? What test, if any, should research proposals pass in order to be eligible for financial support? These are topics that could be the subject of debate in future issues of the 'Mercury'.

## **Federal Budget:**

### **Bad Marks Again for Government**

About the budget there is very little to say, unless there is something buried deeply in the fine print (as was the case last year). There is a small amount of extra money for biotechnology, and that is welcome. There is, however, nothing major to address the problems of declining infrastructure, or the problems of universities. Although there are some measures for school education there appears to be nothing that is science specific or which does anything for the next generation of science teachers (a generation that has been 'stolen' before it even existed!). It is a budget which does very little for the future-- and strong science must be a major component of any future if we are to improve national well being, play our role in the wise use of resources and be active world citizens.

## What is it About Dinosaurs?

Recently the ABC has repeated the series "Walking with dinosaurs", very shortly after the first showing. Dinosaur exhibitions are guaranteed to increase museum attendance and books, videos and dinosaur memorabilia sell well. The average five year old is perfectly comfortable with the formal names of or range of dinosaurs (something which gives rise to a wry smile when I think of the occasions when I have been criticised by a lawyer for not using English names for plants; curious from a profession given to quoting obscure Latin phrases).

The public enthusiasm for dinosaurs indicates that, given the right topic, there is great interest in science and an acceptance of what can be complex scientific arguments. 'Walking with dinosaurs', however, does raise interesting questions as to what may be the limits in science communication. The programs contained much accurate information, and in their portrayal of movement embodied new research on biomechanics. Other aspects of the portrayal contained much speculation, particularly about social behaviour, vocalisation and coloration. Without this speculation the programs would have been much less exciting. Speculation certainly has a very important place in the scientific process, but are there dangers in presenting so much speculation without it being hedged with warnings? The programs were so well done that there may now be a generation (if it is still permissible to use this word) who accept all the speculation as fact.

Leaving such quibbles aside what is it about dinosaurs which so excites the public imagination? If we knew the answer, would we be able to engender the same enthusiasm for other fields of science? Despite (or perhaps because of) having in the distant past played rugby (very, very badly) in the green jumper of Owen house (named after the great palaeontologist Sir Richard Owen - the 'inventor' of dinosaurs) I cannot answer the question.

I would welcome any comments and suggestions for issues that could be addressed (e-mail: [p.adam@unsw.edu.au](mailto:p.adam@unsw.edu.au),  
Tel: (W) 02 9385 2076, (H) 02 9314 2453,  
FAX: 02 9385 1635)

# ANZAAS NEWS

## Comment From Members

(1) **G.C. Lowenthal**, NSW, says while Science Week and other special science events often imply criticism of government, they overlook the counterproductive outcomes of commercialization. Scientific foresight is in conflict for some commercial principles, for example soil preservation is effectively ignored. Before the 1970's natural sciences had plenty of support without Science Week.

*What has gone wrong since the 1970's? Please write to the Production Editor and tell us.*

(2) **G.C. Simmons**, QLD, asks what is in the name of "The ANZAAS Mercury". He points out mercury used to be seen as a purely marvellous element, but is now known as a malignant metal for a disease in Japan and as a widely understood pollutant.

*Ed: this well reflects the current ambivalent public perceptions of science and its applications, from marvellous wonders to toxic pollutants and disastrous events induced by commercial technology. "The Mercury" also stands for the classical news-reporting symbol of the winged messenger.*

## Make Your Mark as Youth Editor

Young members are important to ANZAAS not the least as they are the future of Science and Technology in Australia. We are therefore planning to create a new feature of The Mercury specifically aimed at young members, age 16-21. We require a volunteer to assume the position of Youth Editor to produce the new feature, to be called Antenna. As Youth Editor you will be responsible for producing content of one A4 size page, 4 times per year. No prior editing experience is needed. Both your enthusiasm and your ability to create simple Word documents will make a great Antenna. You must have access to e-mail and you can be based anywhere in Australia. If you are a younger member your experience with us as Youth Editor is likely to be good for your CV. If you

are interested please contact the Production Editor, Duncan Rouch; e-mail [d.rouch@landfood.unimelb.edu.au](mailto:d.rouch@landfood.unimelb.edu.au),  
tel: 03 9217 5205.

## The ANZAAS Debate:

### Genetically Modified Food: The Hard Road to Consumer Acceptance

*Controversy continues over the introduction of Genetically Modified food into Australia. Earlier this year, however, a debate about this issue showed how consumer acceptance could be reached, though the main players have heavy work to do to get there. Duncan Rouch reports.*

In April a debate about Genetically Modified food has produced new light on this issue. In the debate, held in April at the Victorian Dairy Industry Association of Australia conference, a range of experts discussed this controversial area. Seasoned microbiologist Jim Pittard showed why many scientists are bewildered by the public debate, while Brian Arnst from Monsanto helped illustrate how that leading biotechnology company became the focus for global public dissension about the pace of change in agriculture introduced by biotechnology. Peter Kenny from Colmar Bruton, social research, informed the large audience about the attitudes underlying the ambivalence of the public about GM food.

**(1) Bewildered Scientists.** Microbiologist Professor Jim Pittard, from the University of Melbourne, railed at the general lack of logic in newspaper reporting about GM food, supported by headlines like "Frankenstein Foods", though the Bulletin gained an honourable mention for exceptionally clear coverage. Bewilderment at the emotive structure of much media reports on this topic is understandable amongst scientific professionals whose work depends on clear logic. A new federal government agency with prescriptive powers in relation to GM food and other gene technology is being set up, the Office of The Gene Technology Regulator (OGTR), according to Pittard. Until now this regulatory field was dealt with by the Genetic Manipulation Advisory Committee (GMAC), which has no teeth. Nevertheless, despite lack of specific

compulsory regulations pertaining to GM foods, GM food products have had to satisfy the standard food safety regulations that apply to all foods.

**(2) Public Backlash: The Monsanto Affair.** Brian Arnst was perplexed at the public backlash against his company Monsanto, both in Australia and around the world. Nevertheless by looking at the consumer views reported by Kenny it is now clear what went wrong. Monsanto began as a chemical company for products to the food and pharmaceutical industries. In 1960 it added an agricultural division as a supplier of herbicides and seeds for agricultural crops. When it subsequently moved into plant biotechnology, as an early pathfinder in 1981, it retained its agricultural context and focused on improving crop production, rather than consumer benefits. While Kenny reports that consumers need to see positive benefits for themselves from the application of genetic technology, Monsanto has hardly been alone in concentrating on production efficiency. Indeed almost all innovation in the wider food industry over the last century has been to enhance production properties like manufacturing efficiency, quality, shelf life, ease of preparation, and so on. So in general there has been little expectation that the food industry will generate consumer benefits through enhancing the direct properties of food.

If enhancing manufacturing efficiency is the norm then why has Monsanto been more or less singled out for public anger? The answer is that when environmental activists were looking for a company on which to focus their concerns, and Monsanto appeared as an easy target. What was important to activists about this leading plant biotechnology enterprise was that it was a large global company with a potentially suspect product. The suspect potential product involved the so-called terminator gene technology, which had a potential application in rendering crops that contained the gene infertile. A smart international campaign was run against the company based on argument over the new terminator technology, citing it as yet another tool for a global commercial giant to repress poor farmers across the world. Both these fears were observed in the Colmar Bruton survey. As a result the campaign was highly successful in motivating ill feeling towards the company even though no product based on the terminator technology was ever made by it. Nevertheless, earlier this year Monsanto was taken over by a larger global

company, now called the Pharmacia Corporation. Yet this was no protection and subsequently Monsanto showed a concrete willingness to share key research information it had obtained, to try and diffuse its association with the greedy and environmentally insensitive face of technology.

The irony of the Monsanto affair is that the terminator gene technology targeted by activists might have an application in controlling GM crops in the field. Concern has been expressed about the potential danger of pollen from GM crops carrying across land to fertilize nearby non-GM crops or other plants of the same or similar type. Terminator technology could address such concerns by preventing GM crops at source from being able to cross-pollinate non-GM crops.

**(3) Changing Consumer Views.** Peter Kenny, from Colmar Bruton, gave a comprehensive report on consumer views about GM food, based on market research which produced far more illuminating results than any previously published surveys in this area. He reported a comparison of views from public grocery consumers identified through market research interviews conducted in all capital cities. The number of people interviewed in total was about one thousand, at two dates, August 1998 and March 2000, which allowed monitoring of changes over time in the attitudes of consumers. Over this period awareness of GM foods increased dramatically about 2-fold, from 43% to 83%. Those able to name a GM product rose from 35% to 65%, and 15% of the rise followed one news item on one day in newspapers, namely about GM canola. The high response to this one news item illustrates the high level of public interest in GM food.

The survey also examined consumer's views on the advantages and disadvantages of GM food technology. These views showed significant polarisation over the 18 months of the survey period. For example agreement with a statement that application of gene technology improves food products rose from 9% to 25%, while agreement with negative statements about the technology remained at moderate levels. For example, in 1998 17% accepted that gene technology was wrong as it entailed tampering with nature, which rose to 22% in 2000. That GM foods should be better regulated because we do not know their long term health and environmental affects was agreed by

35% in 2000. As a result more people consciously avoid GM food products in 2000, while the majority think current labelling of GM foods is inadequate. Many also believe there is other misleading labelling of other foods, such as the inadequate meaning of 'no added salt'. Moreover, 72% favour greater government regulation of food safety and labelling.

Group discussions with consumers held in 1998 showed that they tend to have strong feelings and opinions, in line with the observed polarisation of responses to market research questions. From their responses in the groups consumers could be classed into four types; (1) idealists, (2) socially concerned, (3) pragmatists and (4) fear mongers. This indicates that four different marketing strategies are needed if consumers are to be persuaded to look positively at GM food products. Nevertheless fear of the unknown is a major factor underlying the views of many consumers, and better labelling is the key.

Most consumers understand a generic explanation of how GM food is produced, but DO NOT want to understand the science, and here are lessons for ANZAAS and other science communicators, as well as Government. Most consumers simply wish to be informed of whether a particular food has a GM component or not, and do not want to know any more. A similar mind set applies to fat in food. Consumers in general wish only to know if a food is normal fat or low fat, and do not wish to know the actual level of fat in a product. This minimum knowledge requirement for consumers is consistent with their support for improved regulation by government: they want government to look after food safety. They favour regulation by an international regulatory body, with compulsory labelling and complete public disclosure. As they wish information about GM food to be accessible but do not want to read it themselves, this implies they wish the media and independent food experts to act as watchdogs over government.

Information in the GM debate is not seen by consumers to be as vital as the attitudes and actions of government and food manufacturers. Farmers are third in perceived responsibility, with scientists last. Nevertheless if we are to have a public debate based on facts, rather than the scare tactics that have been used by some newspapers, the media need to be educated about the

science involved. Thus perhaps it is to the media that ANZAAS should focus its information efforts on this matter. Consumers want GM food to be safe and they want government to be responsible for this. ANZAAS may aid here too, by monitoring implementation and performance of the new Office of The Gene Technology Regulator (OGTR).

In summary Kenny said the four requirements to satisfy consumers that GM foods are legitimate foods are to; (1) produce foods that have direct positive benefits to consumers, not benefits only for producers, (2) address safety and health issues both in the short and long terms, (3) address the role of reduced pricing in driving consumer acceptance, (4) have a strong compulsory labelling system.

**Conclusion.** While controversy about GM foods continues in the media we now have a relatively clear understanding of the main issues, of where different groups stand, and what their roles are in producing a future that contains relaxed consumer choices about GM foods. This includes full information disclosure by food manufacturers and responsible regulation by government that includes international agreements. Despite the backlash in Europe and Australia against GM foods, GM food technology is clearly here to stay. No new technology has ever been rejected by society and GM food is unlikely to be an exception.

Nevertheless manufacturers of GM-containing foods must realize that they have a public license to operate and must work in socially and environmentally responsible ways if they are to remain viable. This is part of a sea-change in corporate responsibility which is affecting all large companies, not simply those in the food industry.

**Please join the debate**, by sending your response to Prof. Graham Johnston:  
Email- [grahamj@mail.usyd.edu.au](mailto:grahamj@mail.usyd.edu.au); Post- Honorary Editor ANZAAS,  
Department of Pharmacology, The University of Sydney, NSW 2006.  
Responses will be posted on the ANZAAS web site.

## NEWS Analysis

### If ANZAAS Is Dead Why Won't It Lie Down?

By Robyn WILLIAMS

When I was President of the ANZAAS Congress in Brisbane in 1992 I wrote a trenchant address about the public awareness of science. On the opening night we put on fancy dress (I strung an alien tie around my unwilling neck) and we, the official party led by the governor of Queensland, trooped pompously onto the stage of the Cultural Centre. Which was nearly empty. I spoke my febrile words to the banks of empty seats. Afterwards, over industrial wine and mousetrap cheese, the men in suits behaved as if everything was perfectly normal.

A year later, in Perth, the President was to be Barry Jones. I called him after Brisbane and said that ANZAAS was in deep trouble, the problem was clear and the remedy plain. Unlike its sister organisations in Britain and America ANZAAS had no infrastructure, no executive. Every year the Congress would trek to another state (which usually had not seen one for a decade) and the locals would set about reinventing the ever-smaller wheel.

In Britain the British Association has swank headquarters in Saville Row and staff aplenty. In Washington the AAAS office is a double office block incorporating a publishing house and even a radio station. Such facilities and corporate memory enable both organisations to innovate and, most importantly, ride out hard times.

Not long after Barry Jones's Perth ANZAAS it went to Canberra where, despite Jared Diamond and the national capital's dozens of scientific institutions, the attendance was less than my daughter had at her twenty first birthday party! They counted 300 odd - but that included the journalists. At the last AAAS in Washington there were 1100 registered journos *alone!*

When, finally, in Adelaide, the ANZAAS Council voted for closure, it was a grim confrontation with the inevitable. All of us there were miserable, not least myself. I am a life-fellow of ANZAAS and attended my first Congress in 1972. The efforts to re-establish public events around a National Science Week have involved several alliances, not least the Australian Science Communicators, of which I am the current president. The key to this push is 1. to facilitate the enthusiasms of local groups (each region will want to do something a little different: Science Now in Melbourne, a science writers' festival in Brisbane) 2. to provide a centre, a mission control for science awareness in each capital city.

Meanwhile ANZAAS still survives as a collection of keen folk putting on meetings and offering medals. Youth ANZAAS also pops up during National Science Week and I and others have enjoyed talking to the spirited youngsters. No one, however, pretends that this ANZAAS is a national force nor remotely the throng or mediafest I first attended in 1972.

The neglect of ANZAAS in the past fifteen years has been a disgrace. Nobody took any notice of Barry Jones's and my letter and follow-up lobbying in the early 1990s. Since then the old ANZAAS has died, the Commission for the Future has perished, the audience for science programs on radio and television has collapsed, university science has, in the words of UNSW VC John Niland "become equivalent to a national disaster" and young people are signing up in their tens of thousands to study money-shifting subjects - but not scientific ones.

When I say, in front of state premiers or the prime minister, that "ANZAAS has died" it is to accuse them of aiding a felony. Only Peter McGauran, as minister for science in 1996, took the warning seriously. He gave us the money that since has underwritten National Science Week, ABC trainees and websites, as well as other initiatives.

At the moment the ASC is seeking funds for a science office in NSW which will handle enquiries across the board. We are in touch with ANZAAS through Paul Adam and expect it to share in the benefits once realised.

The paradox of public-awareness-of-science is everyone gives lipservice (even at funerals) but faint support. Well-intentioned bods in small rooms (and

that includes the likes of me) are not enough to transform the dire situation Australia's scientific profile now faces.

## **Save our Planet: Energy and the Sustainable Community**

By Duncan ROUCH

What can you personally do in your own home about stopping the global warming problem? How does buying the right hot water system help put us on the road to creating the sustainable community? What should governments do to smooth the road to a sustainable community? These and many other fascinating questions were discussed in two free public forums run in Melbourne for National Science Week 2000 on the theme of "Energy Future and the Sustainable World". In the forums, arranged by the Australian and New Zealand Association for the Advancement of Science and the Royal Society, a total of seven expert speakers from a diverse range of organisations talked around the theme in persuasive fashion.

From the information presented most people might conclude that they can use much less energy than they do now from traditional sources of energy. So you can save energy, save money and save the earth all at the same time. These sources, such as coal-fired power stations, put a lot of Green House gases, like carbon dioxide, into the sky. The high production of Green House gases by human kind is what threatens global warming.

The first forum looked at "Investing in the future: Improving the Energy Efficiency of Your Home." Australians have a big choice in how they can save energy at home, according to Alan Pears, co-director of independent energy consultancy Sustainable Solutions.

How can you save energy in building a new home? Andreas Sederof, of Sunpower Designs and winner of many major building energy efficiency awards, showed how to build new homes using much less energy in the materials than mainstream builders. A key feature to reduce cooling costs in warmer months is to allow good ventilation, by using large opening windows and second stories to create a chimney effect to draw air through the home.

He also talked about using simple, low-cost, shading systems to cut down on heating and cooling costs, so you can use less energy to run a home.

Megan Wheatley, from the State Government agency Energy Efficiency Victoria (EEV), said EEV has a home design advice service. So you can bring your plans to EEV for new buildings, renovations, or home additions to get help in saving energy. Most architects are unaware of the latest principles in energy efficient design, and Alan Pears agreed that independent domestic energy consultants like him could be brought in to advise mainstream architects on home building projects.

What can you do if you already have a home? You can now buy household appliances like refrigerators, washing machines and dishwashers that are much more energy efficient than even a few years ago, according to Alan Pears. When you are shopping, to see how energy efficient an appliance is, look for the Energy Rating sticker on it. The more stars it has the more efficient it is.

What about renewable energy systems like solar, wind and water power? Megan Wheatley said you can run your home using renewable energy systems, particularly solar power for suburban homes. At the moment it is usually more expensive to install, say, a solar hot water system, but the running costs are lower. So you can recover your investment in about 10 years, as well as help produce less Green House gases. If you install a solar power generation system you can currently receive a rebate from the state government worth 50% of the cost. Megan also said that you have to manage your energy needs carefully with renewable energy systems, to get the best value from them.

If you are renting, or otherwise unable to install a renewable energy system in your home, you can still support renewable energy, by applying for the green power option on your electricity bill. Energy companies giving the green power option have to supply a portion of their total demand with power produced by renewable sources. Unfortunately you have to pay extra for the greenpower option, an extra 4c per Kilowatt hour, Alan Pears said.

The discussion moved from the domestic home to the national and global sphere in the second forum on "Energy Future and the Sustainable Country".

Australia had the second lowest energy consumption in total compared to other developed countries according to chairperson Dr Lu Aye, energy expert from Melbourne University. Aye showed world energy use was projected to increase at least to the year 2020, despite the global warming issue. It is the planned increase in energy consumption that makes many conservationists wary of any government or company policy that claims it will reduce global warming.

The idea of a sustainable society was addressed by Carl Mahoney, independent environmental, business and social consultant. Carl first described the serious and widespread social problems, like poverty and violence, that plague even well developed countries like Australia. He went on to say the catchphrase "global village", which purports to reflect closer communication of different nations that evolved in the 20<sup>th</sup> Century, should be replaced by the phrase "Global Battlefield". With a "battlefield" as our starting point how do we create a sustainable way of life that brings quality of life to everyone? To achieve sustainability we need to view the world as a whole, with human helping human and all working with the environment to sustain it for future generations. Saving energy is an important part of the whole picture. We need to be more aware of the consequences of our actions and lifestyle choices if we are to maintain the natural, planetary life support systems. To help us make informed choices we need good scientific information about the environment and our effect on it, and thorough analysis of this information, not just bland executive summaries.

We do not want a revolution, said Carl, simply reformation of our existing ways of doing things, step by step. Improving society should be a partnership between us all. We need more public debate and pro-active leadership from government. Some groups do not help the cause by standing on the fringe outside the mainstream, harshly criticizing the existing ways we live, and not being happy with any change short of revolution.

While governments dither, companies are beginning to take their social and environmental responsibilities seriously. Some large corporations, particularly energy corporations like Shell and BP-Amoco, are wrestling with the idea of a triple bottom line, according to Ray Smith of BP-Amoco. So they will consider

the social and environmental costs and benefits, as well as financial outcomes, of their activities. BP-Amoco through its subsidiary BP Solarex is investing billions of dollars world-wide in developing solar power systems. While conservationists may be cynical about such claims by global energy giants there are good financial reasons for energy companies to invest in renewable energy. Firstly, traditional energy sources such as coal and oil are limited, and will eventually run out. Secondly, use of coal and oil to generate energy leaves energy companies with very large potential liabilities when regulations to reduce Green house gases are finally put in place by governments around the world.

Developed countries such as Australia are bound to introduce regulation, such as carbon taxes or carbon trading systems, under the 1997 Kyoto Protocol on climate change. Both BP-Amoco and Shell operate internal carbon trading systems, to both help save energy and ready themselves for future government regulation. BP-Amoco has publicly promised it will reduce its Green House gas production by 10% of its 1990 levels, by 2010. Moreover it plans through mass production to bring down the costs of solar power systems to make them viable in many countries, even those with much less sunlight than Australia. The world is watching, and BP-Amoco knows it. International guest Tony Irwin, independent Green House gas consultant for the Canadian gas industry, talked about the planned responses of the Canadian gas industry to meeting its likely obligations that will come from the Kyoto Protocol. The Canadian experience could provide valuable lessons for Australian energy companies. Tony presented the Green House Gas Calculator software program that has been developed in Canada. The Green House Calculator helps gas companies work out how much Green house gases they are producing and what parts of their pipelines and refineries are responsible for them. This helps companies to see how they can reduce their production of Green House gases. By developing a standard way of assessing Green House gas production different gas companies can be compared, which opens the door to potential competition between different gas companies to reduce their contribution to global warming.

If we can save energy at home can businesses also save energy? The answer is yes, according to Dr Pratish Bandopadhyay, building efficiency expert from the CSIRO. By the latest design and mathematical modeling new office and factory buildings can be built using less energy in their materials and construction, as well as save on energy in their operation.

Bandopadhyay said if we do not think about what we are doing, we contradict commonsense. For example, the more affluent we come the more money we spend on air-conditioning equipment, that pumps ever more cool air ever faster, which burns ever more energy. This occurs despite the fact that the air comfort needs of a person do not change if he or she earns more money! After all, saving energy at home and work to help save our planet is simply common sense.

## NEWS FROM THE DIVISIONS

### SA

#### National Science Week

By Robert PERRIN

The South Australian Division contributed in cash and kind to NSWk-SA 2000. The cash went to support the costs of the provision of equipment at the venue for the "Sleek Geeks Show" visit by popular ABC JJJ personalities Dr. Karl Kruselnicki and Dr Adam Spencer. The event took place in the Scott Theatre, which was full for the show. In stark contrast to previous years, all people who arrived on time obtained a seat and enjoyed an original and worthwhile presentation by two prominent science popularisers.

While the Youth ANZAAS "Science Saved Me From Sport" evening suffered from inclement weather keeping numbers down, it introduced what must be one of the "finds" of NSWk 2000, Drs Peter Teague and Stephen Russell, who presented a *two-hour* non-stop humorous, superbly illustrated and educational tour of the difficult questions in modern science for students in years 8-12. Organised by Youth ANZAAS and sponsored by the University Alumni Association Sciences Chapter for students in years 8 to 12, the

speakers addressed how real science affects the daily lives of the students, opening up new technical, economic and cultural options for people and jobs. The speakers met head on the disastrous perception among our youth that science and technology is for nerds. They also demonstrated that science and technology is both exciting and important, with many of the topics illustrating the role that research plays in national life, and the place of technology in our economy, with special attention given to science and technology items to which young people can best relate.

## **TAS**

### **Tasmania and the Southern Ocean Book**

By Pat QUILTY

In 1998, the Division held a conference to mark the '98 UNESCO Year of the Ocean. The proceedings of that meeting have now been published by the Royal Society of Tasmania as Papers and Proceedings of the Royal Society of Tasmania Volume 33, part 3.

It contains the following papers: Bray, N: The Ocean Planet (Plenary address), McEwan, A: Australia's Oceans Policy: a role for science, Davis, B.W.: Australia's Oceans Policy: implications for marine environment management, Harden Jones, F.R.: A problem with ecologically sustainable development in Australian waters, Cresswell, G.: Currents of the continental shelf and upper slope of Tasmania, Stagg, H.M.J., Exon, N.F. & Hill, P.J.: Seabed mapping on Australia's southern margin: baseline information for science and marine management, Rintoul, S.R. Southern Ocean currents and climate, Bindoff, N., Rintoul, S.R. & Massom, R.: Bottom water formation and polynyas in Adelie Land, Antarctica, Harris, P.: Sedimentological signatures of sub-ice shelf circulation: an example from Vincennes Bay, East Antarctica.

The volume is attractively presented with beautiful cover images. It is available from Royal Society of Tasmania, GPO Box 1166M, Hobart, Tasmania, 7001. Cost is A\$25 plus postage, which is \$1.35 in Australia, plus GST. This is still good value in this day and age.

A companion volume, about the Heard Island, a world heritage site: "Heard Island Papers", for A\$20 plus postage plus GST, is also available from the Royal Society of Tasmania. Inquire (03) 6232 3529, Email [planning@antdiv.gov.au](mailto:planning@antdiv.gov.au).

## VIC

### **National Science Week**

By Duncan ROUCH

For National Science Week the Victorian Division co-organised two successful public forums with the Royal Society of Victoria on the theme "Energy Future and The Sustainable World". See the report in the NEWS ANALYSIS section.

## **Perrin's Plate**

News To Members From The General Secretary

### **Subscription renewal reminder!!**

**Members are reminded that their subscriptions for the period ending June 30<sup>th</sup> 2001 are now due.**

The 1998/1999 annual general meeting revised the subscription levels as follows:

Ordinary Member: \$45

Concession Member: \$35

Student Member: \$20

[A student member is anyone who is engaged in a course of full-time study at secondary, tertiary or post-graduate level].

## Book Bite

### **Future Makers, Future Takers.**

By Dr. Doug Cocks, CSIRO Division of Wildlife and Ecology, UNSW Press, 332 pages.

As we approach the new century, one wonders where we are heading as a society. Images of the future, as portrayed in the media, focus on consumeristic ideals of how technology and products will make our lives more comfortable, or present doom and gloom predictions like increases in crime and social disintegration. Debate on what society we would like Australia to be in 50 years is generally lacking and our political and business leaders appear unwilling to tackle long term strategies. If we want a society with good long term prospects of survival and offering high quality of life to all, is our current capitalistic democracy equipped to achieve this?

*Future Makers, Future Takers* by Dr Doug Cocks is a welcome book that not only raises the issue of what Australian society will be like in the year 2050, but of how changes to the systems and institutions that are currently in place will determine what options are available to us down the track. Dr Cocks is a human ecologist and is a Divisional Fellow with the CSIRO Division of Wildlife and Ecology in Canberra. His book is based on research from CSIRO's 'Ecumene Project' which was setup to examine how society best go about balancing resource conservation and utilization values through feedback modelling and scenario building.

The book reviews where we have come from, where we are now, and what we will take into the future in terms of social, economic and natural resource capital. It also reviews alternative ways that major aspects of the world's socio-economy and environment could evolve. An underlying assumption is made that Australian society accepts the proactive task of deciding to plan where we would like to be in the year 2050. Three scenarios are selected which reflect contrasting attitudes towards appropriate models for social organization and socio-economy. Each scenario is assigned to a hypothetical

political party to model the various strategies for governance. Each scenario is modelled with the underlying assumption that the party policies are accepted by society and are implemented over the 50 year time frame.

The three parties and their respective mottos are:

- The Conservative Development Party - 'Growth with equity in a quality environment';
- The Economic Growth Party - 'Free to grow'; and
- The Post Materialism Party - 'Social health and a green economy'

*Future Makers, Future Takers* is an unbiased, non-partisan analysis of options for Australia's medium term future. Dr Cocks concludes optimistically that we all have real choices to make now, for determining the quality of life expected for all Australians in 2050. *David Ponsford and Natalie Baran.*

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