

THE ANZAAS MERCURY

ANZAAS: Empowering the Community with Science

∞ Issue No. 9, March 2001 ∞

Editor's Edict

In this issue we look at the Antarctic and what it tells us about life on planet earth in **Antarctic Science: Crucial Paradigm to Australia and The World** in ANZAAS Debate, in **Ozone Depletion: 2000 and Beyond**, and our Book Bite on "Trial By Ice" for J.K. Davis explorer.

We also bring you the fat on the ABC science units' fiasco, the meaning behind the police-demonstrator clashes at the World Economic Forum in Melbourne, and government finally funding for controlling dryland salinity. *-Duncan Rouch*

Adam's Airing Comment From The Chair By Paul ADAM

Year of Innovation

Sometime in 2001 there will be a federal election. The major parties have identified higher education and research as key areas, and look set to start a bidding war. This is probably the first time for many years that these issues will have had such a high political profile, and the attention is both timely and welcome.

The Prime Minister has recently announced the Government's response to 'Chance to Change'. I would encourage members to offer their thoughts on the proposals by both Government and the Opposition to the next issue of the Mercury.

The proposals for more funding for the ARC and CRCs are very welcome. The recognition of the need to stimulate industrial R & D is also welcome. Although at first reading I had difficulty understanding the new taxation arrangements - the Government is clearly and properly anxious to avoid the rorts which it claims were a feature of the previous scheme, but will the complexity be a discouragement rather than an incentive?

Stimulation of research is vital for our future, but equally vital to the long-term research effort will be the need to attract able students into science courses, in order to provide the next

generation of researchers. The applications for science and education courses in 2001 suggest that there has been an increase in interest, but these students will need to be nurtured. Substantial investment in the teaching infrastructure of universities will also be required; in this election year what might Dr. Kemp be able to offer?

Degrees for sale?

The Christmas/New Year period produced a range of media coverage on stories about education standards in Australia. In part this was an annual event, triggered by the release of the HSC results, but an additional factor this year were reports based on as yet unpublished survey by the Australia Institute.

I was not a participant in the survey, nor have I seen the results, but the thrust of the media reports - that universities

Contents

<i>Editor's Edict</i>	1
<i>Adam's Airing -Comment From The Chair</i>	2
<i>ANZAAS News</i>	3
<i>ANZAAS Debate: Antarctic Treasures</i>	4
<i>The Ozone Hole and Beyond</i>	5
<i>ABC Science Units' Fiasco</i>	7
<i>Land Salt Issue Finally Crystallises</i>	8
<i>Perrin's Points</i>	
<i>Book Bite</i>	

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give especial consideration to full fee paying overseas students - would seem to me to be unlikely to be sustained as a generalisation.

It is true that universities are increasingly dependent on overseas students for a substantial proportion of their income. The market for overseas students is an international one - Australian universities are competing with universities in North America and Europe for the same limited pool of students. One of our selling points is quality; if it were established that overseas students were given an easy go then recruitment would suffer. I can recall many occasions where individual students have begged me to improve their marks, but in over twenty years I have received no representations from the university administration, either directly or indirectly, to alter the marks of individual students, be they Australian or from overseas.

Where allegations have been made I would hope that they are tested by the current Senate Inquiry. It is in no-one's interests to have such claims remaining unsubstantiated.

The wider concerns about declining standards have, I expect, been voiced about every generation of students. While I believe that there are grounds for concern about competency in English (a problem, in my experience, which is greater in Australian than overseas students) when it comes to assessing standards in science there is a dearth of objective data. In tertiary education we are engaged in an exercise of trying to fit a quart into a pint pot (or its metric equivalent). If I look back to my undergraduate days I spent a great deal of time on "classical" systematic botany and plant morphology. This knowledge has stood me in good stead, but undergraduates today do not study these topics in depth. I could argue that today's students have deficiencies in their knowledge and that standards have slipped. On the other hand today's students know a great deal about molecular genetics, a topic scarcely invented in my youth. Disciplines evolve and expand, and while there is a case for extending the basic first degree from three to four years (a case unlikely to be viewed favourably in Canberra), we must be selective in compiling curricula. Just because a topic was important, even essential, thirty or forty years ago doesn't mean it should be treated similarly today. I am not arguing that we should not be concerned about standards in universities,

clearly they are matters of vital concern, but I would suggest that in making assessments we need more than rosy tinted reflections on the past.

In most, possibly all, universities there has been a decrease in staff student ratios, loss of small group tutorials, decline in library resources and inability to update much equipment in teaching laboratories. The impact of these changes on standards is likely to have been considerable. Unfortunately an increase in research funding, however necessary and welcome, will not necessarily lead to improvements in teaching.

As part of the general media frenzy the 'Sydney Morning Herald' turned its spotlight on the problem of plagiarism and in particular, the availability of essays and other assignments on the web.

For as long as I can remember there has been a trade in assignments, and part of the task of academics is to detect recycled assignments. This task is made more difficult by the diversity of material now available but one way around the problem is not to set the same assignment twice! I have perused a number of 'standard essays' on the web - some of them aren't very good and wouldn't (or shouldn't) gain pass marks even if undetected.

The HSC results produced the anticipated flood of letters to the press and statements by politicians. The NSW Minister for Education, Mr. Aquilina, was moved to make the surprising claim that the weighting of subjects in the compilation of the University Admission Index was producing a generation of physicists at the expense of historians. The trends in tertiary admissions would not seem to bear this out! More worrying, because the sentiments seemed to have a degree of popular support, were a number of letters expressing the view that the inclusion of English in the calculation of the UAI would mean that a number of potentially excellent scientists and engineers would miss out on admission to University. Unfortunately for those of this belief, the ability to communicate is essential for a career in any profession.

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

ANZAAS NEWS

Youth ANZAAS 2001

Youth ANZAAS 2001, in Adelaide during January was a great success, thanks to the South Australian Division: for a report see the current ANTENNA issue.

ANZAAS Web-Site Revamp

The ANZAAS web-site is in the throws of redevelopment to bring it into the 21st Century, thanks to the General Secretary. So keep your eyes open soon for the new brighter look and features that make it easier for you to find the information you are after.

National Science Week in Victoria

For National Science Week the Victorian Division is running a free public forum called "Genes in Your Mouth: Genetically Modified Crops and Food". Following the presentations there will be time for open discussion followed by light refreshments. Victorian members please support this with your presence.

What? Hear about GM crops and food - the science behind them and the issues for consumers.

Where? Theatre A, Richard Berry Building, University of Melbourne (off Swanston Street).

When? 6.00pm-7:45pm, Tuesday 1st May 2001.

Speakers: Professor Margaret Britz, Dept of Food Science and Agribusiness, University of Melbourne; Dr Ed Newbign, School of Botany, University of Melbourne; Bob Phelps, Director of the Australian Gene Ethics Network.

Chair: Dr Andi Horvath, Museum of Victoria & 'Einstein-A-Go-Go' on 3RRR FM Radio.

Contact for further information: Belinda Lovell, Tel(day): 9905 4087, e-mail: belinda.lovell@sci.monash.edu.au

Victorian Members' Barbecue

In a pre-National Science Week event Victorian members are warmly invited to meet the committee at a barbecue on April 8th at Studley Park, Kew, near the boathouse. Bring a friend or Family, picnic rug, and BYO snags and alcoholic drink. Salad and soft drink will be provided. Action starts at 12 noon. For further information call Roger Brown on: (03) 9510 7702.

The ANZAAS Debate: Antarctic Science: Crucial Paradigm to Australia and The World

What is important about that ice-covered continent, Antarctica? Patrick G. QUILTY AM, Honorary Research Professor, School of Earth Sciences, University of Tasmania, dons the snow-suit and braves the cold to get the answer for you.

First, some history all Australians should know! Australian involvement in Antarctic science can be traced over 200 years, perhaps a little tenuously, to the time of Cook. He had crossed the Antarctic Circle on his second voyage and called into Tasmanian waters on his third and final voyage after visiting sub-Antarctic Kerguelen Island. Bellingshausen, often ranked with Cook as an explorer, called into Sydney in 1820 during his circumnavigation of the Antarctic, and is usually credited with being the first to see real evidence that there is a continent. The activities of Biscoe, Wilkes, Dumont d'Urville, Ross and many others ensured that Australia would be recognised as a worthy and reliable region for departing from, or sailing to, the Antarctic, and, along the way became a centre of, and worthy subject for, scientific research. The global magnetic field and the search for the South Magnetic Pole were major concerns of world science and Australia and Antarctica were important elements in the quest. In the late 19th and early 20th century, Australia again became important in the Antarctic context with the expeditions of Borchgrevink, Amundsen, Shirase, Mawson, Shackleton and, to a much lesser extent, Scott. In 1947, following the territorial efforts of Mawson's BANZARE, the Australian National Antarctic Research Expeditions (ANARE) began, leading to permanent Antarctic and sub-Antarctic stations, a role in the International Geophysical Year (1957-58), and a respected subsequent scientific endeavour.

Along with the scientific and expedition status has been a leading diplomatic function through the establishment of the Antarctic Treaty and developments of instruments under it, especially the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) that has its headquarters here, the only major international convention to do so.

So, have we done enough or are there reasons to continue into the 21st century? The answer is that there are very strong reasons to continue there; some are short term, for Australia's own interests, but others are longer term and part of an international role for Australian science.

Short-term values. Obvious short-term value comes from meteorological studies. Those Australians living along the southern reaches know that so much of our weather originates in the Antarctic and improvements in prediction have been aided by studies in the higher latitudes. Related valuable studies are those on stratospheric ozone where our contribution is for global integrated studies but also for our own interests because ozone depletion and the attendant

enhanced UV-B flux begin at the time Australians first venture out into summer sunshine to the beaches and bush. Australia does not have a great reputation as blue-water fishing nation but a small number of Australian companies are venturing into the southern waters, probably a harbinger of growth in this industry. Because of Australia's juxtaposition against Antarctica in Gondwana, we can learn a great deal about Australian geology from studies in the once-neighbouring parts of Antarctica. This goes a long way to explaining seafloor features between the continents, and telling of the history of our own landforms and vegetation.

Longer term - 20-30 years - values. But perhaps the most significant developments are yet to come in pursuing a longer-term perspective. Antarctica has many unique features that ensure a long-term role and Australia is in very good position to contribute to long term research and to benefit from it. Many of the contributions and benefit will come from long term observatory functions. Meteorology and related studies will continue and new values emerge. Seismology and magnetic studies will continue to help gain an understanding of the way the inner world works, with

resultant improvements in our ability to predict how mineral deposits form and where to find them. Continuing geological mapping and research will augment this thrust. Antarctica is a key location for monitoring the Nuclear Test Ban Treaty with the value that accrues to global peace.

Space weather and medical studies. - In the next few decades, human travel into space will become normal rather than the unusual event it now is.

Already plans exist to have significant numbers on the moon by mid-century, and even small establishments on Mars. These ventures will need to be conducted in an 'atmosphere' of safe space weather. The polar regions are the best place to monitor space weather but the Antarctic has advantages because of the peculiar diplomatic/territorial situation there. We need to be able to predict space weather in the same way that we obtain the evening weather forecasts. In the relatively short term, this will require detailed monitoring of the sun to gain an understanding of the way it functions in a cyclical way, rather than simply monitoring events as they occur. In the longer term, the same will be true for events elsewhere in our galaxy to predict major cosmic ray events from outside our own solar system. In addition to this study that is basically physics, there are training values because the Antarctic appears to be the best place on earth to mimic some aspects of extraterrestrial environments. Antarctic medical research has provided an invaluable data set on what happens to small groups in isolated environments for significant lengths of time - both physiologically and psychologically.

Future of the global environment. Because of the 400,000+ years age of the ice sheet, its ability to record in fine detail changes in global atmospheric composition and ice volume, and to allow integration with equivalent but longer term records held in marine sediments, Antarctica is a unique place to study the transition from the past, through

“If Australia wishes to benefit, economically, environmentally, or in terms of international reputation as a contributor to solution of global issues, it has to maintain and even enhance its role in this increasingly important part of the globe.”

the present into the future. This incorporates many different disciplines - glaciology, oceanography, geology, meteorology and this all depends on modelling for integration - perhaps the biggest and most important scientific endeavour in human history. These studies are in their infancy but already Antarctic research has made critical contributions to our understanding of the way the earth operates, the way it has changed over the ages, and has allowed observations to be incorporated into global models that now mimic reality quite well. The next 10-15 years will see major advances as computers and models improve.

One key advance has been in recognising the role that sea-ice formation plays in the global oceanographic circulation system. As the sea surface freezes in winter, it ejects cold, high salinity, high density water which sinks, carrying with it oxygen and carbon dioxide down the continental slope to the deep sea floor. Here it provides the oxygen to keep the benthos alive. Possible reduction or cessation of sea-ice formation will have severe effects on the life at the bottom of the sea.

A lesson from ozone. The recognition of southern hemisphere springtime ozone depletion has illustrated better than any other example, the fact that events at any place on the earth's surface can affect places far removed. Antarctica is the innocent; the cause is in the northern hemisphere. This also enhances Antarctica's role as a site for monitoring the health of the planet (for more detail see Ozone depletion: 2000 and beyond, in this issue).

Feature Article

Ozone Depletion: 2000 and Beyond

Paul Holper, CSIRO Atmospheric Research

This year's Antarctic ozone hole was the largest (in area) on record. It began earlier than usual and peaked in September, attaining an area of almost 30 million square kilometres (nearly the size of Africa).

Minimum total ozone values usually occur at the end of September or early in October. Ozone values above Antarctica then, based on satellite data, were below 200 Dobson Units (DU) over much of the continent, with large areas below 125 DU and a few places below 100 DU. Pre-ozone hole values are about 300 DU. However, the hole did not reach the very lowest values of some recent years.

Every year since the mid-1980s, springtime has brought massive destruction of stratospheric ozone over Antarctica. (The stratosphere is the part of the atmosphere that stretches from about 15 to 50 kilometres above the Earth's surface. The 'ozone layer' is found in the lower stratosphere.)

It is not just Antarctica that suffers from ozone depletion. Over most of the planet, levels of ozone in the stratosphere are now lower than they were a decade ago.

Resources. The Antarctic has been a source of biologically based resources since its discovery - initially seals, then whales, and now fish and krill. For the foreseeable future, other than knowledge, this will continue to be the major resource to be extracted from the region. Developments will come from microbiology and biochemistry of organisms living there. Tourism as an active and growing (though small in global terms) industry and it is the subjects of science that are of so much interest. It is often stated that the next major war will be fought over water and thus it is likely that, in the 20-30 time-scale, icebergs will become a water source. Economics dictate that minerals and hydrocarbons will not be a worthwhile pursuit.

In summary, Antarctic research is still in its formative stages and the world will need research results from the region long into the future. If Australia wishes to benefit, economically, environmentally, or in terms of international reputation as a contributor to solution of global issues, it has to maintain and even enhance its role in this increasingly important part of the globe.

Please join the debate,

by sending your response to Prof. Graham Johnston: Email- 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.

Stratospheric ozone depletion over mid-latitudes means that ultraviolet levels in major population areas of southern Australia are likely to have risen by 10-15 per cent over the past twenty years. This increase is likely to translate to more than a 15 per cent increase in some skin cancers if we do not protect ourselves. 'Slip, slop, slap', is the clear message.

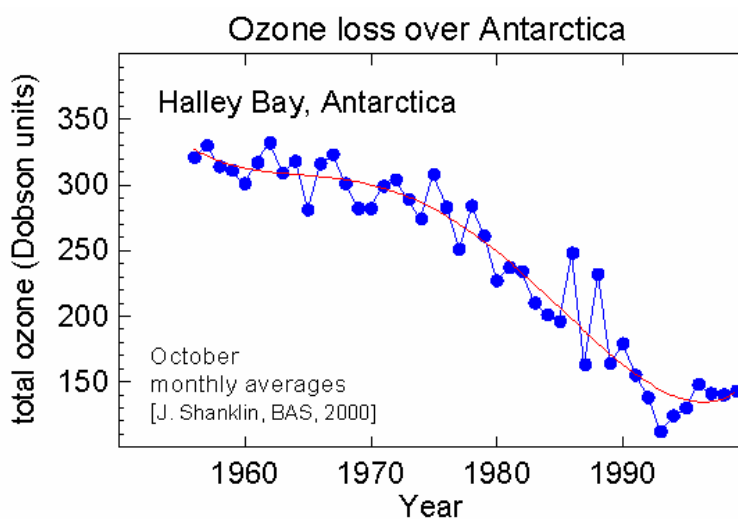
CFCs and halons are doing the damage. In the stratosphere, CFCs and halons release, respectively, reactive chlorine and bromine that destroy ozone. The destruction is catalytic, with each chlorine or bromine radical destroying thousands of ozone molecules.

Destruction is particularly efficient over Antarctica in spring. During the preceding dark, winter months, stratospheric temperatures fall to below 80°C. Under these severe conditions polar stratospheric clouds form, with

chlorine- and bromine-containing compounds settling on the cloud particles. When the sun reappears in September its ultraviolet rays initiate chemical reactions involving these compounds. The result is a rapid release of active chlorine and bromine capable of attacking and destroying ozone.

The ozone is replenished at the end of spring, when air above Antarctica warms and ozone-rich air from the rest of the stratosphere moves in and brings ozone levels almost back to normal.

Springtime Arctic ozone holes also occur, although they are less severe than their Antarctic counterparts because the



Arctic stratosphere doesn't get as cold as that above Antarctica.

Ozone layer recovery. The Montreal Protocol, signed in 1987, regulates the production of CFCs and other ozone-depleting substances. Production of the most damaging ozone-depleting substances was eliminated, except for a few critical uses, by 1996 in developed countries and will be eliminated by 2010 in developing countries.

Measurements from the Cape Grim Baseline Air Pollution Station in north-western Tasmania and similar stations elsewhere around the globe are showing a decline in atmospheric concentrations of many ozone-depleting substances.

However, the problem is that ozone-depleting chemicals are very stable - one of their major attractions in the past to the refrigeration, aerosol and plastics industries. Some CFCs last in the atmosphere for more than a hundred years. As a consequence, recovery of stratospheric ozone will not be quick.

'More than half a century may pass before the Antarctic ozone hole is repaired and the first clear signs of repair may not be apparent for 20 years,' says CSIRO's Dr Paul Fraser.

In a twist, which emphasises that environmental problems cannot be dealt with in isolation, the *decrease* in stratospheric ozone and the global *increase* in greenhouse

gases are contributing to colder conditions in the lower stratosphere. The temperature drop could lead to more stratospheric clouds and expand the area of intense ozone loss over Antarctica in spring. It may also exacerbate ozone depletion elsewhere, particularly over the Arctic. 'Global warming may delay recovery by 10-20 years,' says Dr Fraser.

Scientists are unable to tell whether the early arrival and record size of the 2000 ozone hole are within expected variations of the hole or are due to the additional influence of other human activities, such as release of greenhouse gases.

According to Dr David Hofmann, from the US National Oceanic and Atmospheric Administration, 'year-to-year fluctuations in the geographical size of the ozone hole and the timing of the ozone reduction are believed to be related to meteorological factors such as temperature and winds, rather than further increases in ozone-destroying chemicals in the atmosphere'.

Good news is the fact that the observed rate of ozone loss in Australian latitudes has slowed over the last decade and is approaching zero. The impact of the large Antarctic ozone holes of recent years, well to the south of Australia and New Zealand, has never accounted for more than a small fraction of the ozone loss over Australia.

NEWS Analysis

Media Savvy Scientists Extract Promise in ABC Science Units' Row

By Duncan ROUCH

ABC Managing Director Jonathon Shire got more trouble than he bargained for late last year when he required savings to be made following reduced federal funding of the ABC. Shire had announced on November 30 that money could be saved by dismantling the various dedicated program units in television and radio. Two of these to be dismembered were the Television and Radio Science Units, which included an end to production of the internationally recognised television program Quantum. The next day ABC radio picked up the science cuts (on The World Today), using the Quantum cut as a concrete focus from internal dissent about the many changes occurring in Shire's efficiency drive, positing that editorial independence was threatened. On the same day ANZAAS wrote to both Shire and the responsible Minister, Senator Alston, expressing its concern. Despite the adverse self-publicity Shire had every reason to expect the disquiet about dismantling of the specialist science units to die swiftly. After all, the scientific establishment had produced little effective resistance to reduced government funding of university science in over a decade of continual cuts.

Shire, however, was to learn differently over the next three weeks, as Australia's science organisations, along with ABC news and current affairs programs and Fairfax and Murdoch newspapers, developed critical debate about whether Shire's changes would be a danger to the ABC's output and independence. In particular at their news conference on December 6, Shire and Chairman Donald McDonald were taken to task by our Peter Pockley, science reporter and founding director of the ABC TV Science Unit (see the ANZAAS web-site). Pockley also pressed for a response to

communications from the major organisations representing Australia's scientists. Earlier he had reported dissent from the Australian Academy of Science in the Weekend Australian, December 2-3. Ten days later Peter Doherty, Australia's Nobel Prize winner, sent a letter to Shier, critical of the threat to quality science programming, and in particular the slow death of Quantum through successive budget reductions. Doherty's heart-felt criticism was reported in The Age, the Sydney Morning Herald and the Canberra Times on December 18. Finally on December 20 and 21 ANZAAS received defensive replies from both Alston and ABC management, respectively, to its letters of December 1. These replies pledged that the ABC would remain committed to a substantial and relevant science presence on all its media platforms.

Shier and his department managers had developed a scheme for generic program making, to avoid the duplication of resources represented by the previous regime of specialist units. Yet he was unable to gain any public support for the restructure, or positive description of it, during the entire media debate. The root of Shier's trouble in trying to introduce change at the ABC is exemplified in a response by McDonald to Pockley at the December 6 news conference, that "the ABC's independence does not require it to consult any body." Here the mantra of independence is used to justify autocratic control, while Shier appeared unattired by the 'ABC' of modern change management, the basics of which include that the effective manager would;

- Consult the major stakeholders of his/her organisation, particularly if it is a public institution, before introducing fundamental changes. In this case stakeholders would include Australia's science organisations. Moreover, if the ABC is to gain better federal funding it would be prudent to engender the support of major stakeholders.
- Plan a range of options in detail to deal with major changes, and so be fully aware of the key arguments in

advance of any debate. Shier continually gave the impression of being a man lost at sea.

- Inform the publicity department to allow it to respond intelligently to inquiries. The ABC publicity unit appeared more at home with the trivialities of program schedules than the pros and cons of fundamental restructuring, and also when contacted was unaware of the ongoing public criticism in the press over the dismemberment of its science units. ABC publicity was also unaware of the high scientific content of two other programs that ABC television makes, namely Gardening Australia and Landline.

In response to the weeks of criticism about closure of the science and other specialist units the ABC began a new series of self-promotion television advertisements in late January. These included one portraying Sir Gustav Nossal, Australia's most senior statesperson of science, as supporting the newly revamped ABC.

In the row over closure of the specialist media science units Shier may have got his way, as the units stayed closed. He may also have learnt something of the modern management and publicity game at the helm of Australia's culturally most important media organisation. Meanwhile scientists and their organisations have learnt how to gain public voice, in great part by working in unified fashion. These media savvy science organisations have effectively extracted the promise that Shier's ABC will maintain both the quality and editorial independence of continued scientific presentations. They will watch with critical interest as the new programming kicks in during the second half of 2001.

Confronting Globalization At The World Economic Forum

By Duncan ROUCH

On September 11 2000 the police clashed with demonstrators at the World Economic Forum held in Melbourne. The Forum of high-flying economists, business leaders and government ministers, mostly from the developed countries, would have gone largely unnoticed except for vocal opposition from the S11protest group that organised the demonstration. The S11 group was characterized by The AGE newspaper, which sponsored the Forum, as an isolated bunch of leaderless students, that acted without focus, and unthinkingly (26-8-00, 5-9-00). Nevertheless, the protest of S11 against the excesses of global capitalism has echoes with the disquiet and fears about globalization expressed by many Australians, as revealed for example in the debate over genetically modified food (see Mercury, June 2000). Substance to the S11 cause was shown on their web-site, with argument along the dual themes of human rights abuse and destruction of the environment by cavalier global companies.

Inside the Forum, in one session, there was also some debate on the current disadvantages of corporate globalization, to local communities in the Asia Pacific region. Vandana Shiva, Director of the Research Foundation of Science Technology and Natural Resource Policy, India, argued that technology has been used against developing countries, as in bio-piracy of local agricultural crop biotechnology by large corporations, that is further developed and sold back at inflated prices to the same communities. Sharan Burrow, President of the Australian Council of Trade Unions, shared similar views, stating that companies have a choice between pursuing a more economically divided society of rich and poor, or of putting people into the equation for a

balanced society. An increasing number of Australians are overwhelmed by a sense of powerlessness and alienation in lost jobs, decay of community amenity in bank closures and reduced government funding for health and education. They therefore tend to see profit of large companies as taking priority over quality of life for all. Cultural life-styles are also being destroyed by the ill winds of corporate globalization in many Asian countries. In describing the problems Burrow also recognised that the assistance of the economically powerful members of the World Economic forum is necessary to shape a dignified world in the 21st century.

It can be concluded that for science and technology to be part of the solution, and not the problem, in globalization, the wider issues of social inclusiveness and environmental justice must also be addressed in how the world does business for a sustainable planet.

Five Ways to Destroy Life on Planet Earth

1. **Unsustainable harvesting of plants and animals** (such as trees and fish).
2. **Competition from introduced species** (especially in islands like Hawaii and Australia)
3. **Destroying habitats** (killing one species and therefore those that depend on it)
4. **Islandisation of habitats** (increasing vulnerability to extinction)
5. **Pollution** (accelerating species loss)

There will be no sudden disasters, yet a gradual change to a dirtier, grottier, more difficult world for our children and their children, unless we take appropriate and timely action. The first challenge is to bring home the real costs of unsustainable development to the community, industry and government. -David Attenborough, *State of the Plant*, ABC TV 17-1-00.

Salt Issue Finally Crystallises

By Duncan ROUCH and Paul ADAM

Dryland salinity as a major issue confronting governments in Australia has been identified in an earlier issue of the 'Mercury' (March 2000). Late last year the Federal Government announced an initiative to start addressing salinity, some \$700 million of Federal funding to be matched by the states. The announcement coincided with the start of Mr. Reith's difficulties so that media follow up was limited. Although some state governments have expressed support details of financial commitments are not yet available.

In November the state premiers, at a meeting of the Council of Australian Governments (COAG), endorsed the Commonwealth's salinity initiative and agreed to provide their share of the funding. This is a major advance and will allow planning and implementation to proceed with certainty. The Prime Minister has also given an undertaking to address separately the question of compensation to landholders denied approval to clear native vegetation. Removal of deep-rooted perennial vegetation is the major cause of dryland salinity and it will clearly be necessary to avoid sowing the seeds for further problems by continued broadacre clearing - particularly at the head of catchments.

The total of \$1.4 billion is tiny compared with the estimates, an order of magnitude less than the cost advanced earlier in the year by the National Farmers Federation and the Australian Conservation Foundation as necessary to

address the problem. However, it is a start. Details of what is to be done over the next few years are still sparse, but hopefully the work will provide a foundation for a sustained effort to address what is a major environmental and economic problem. Solutions will involve governments at all levels and the community working together, but will require scientific guidance. Some components of the solutions may already be apparent, others will require continuing research and innovation.

Before spending the money we first need to complete research into the true properties of all our significant waterways and river basins, to approach solutions to dryland salinity in logical and efficient fashion. After years of wrong-headed irrigation practices that have been ingrained by poor government policies, however, it will be a major challenge to change attitudes to support this approach. Farmers are naturally wary of government officials telling them what to do, especially as the officials will have to contradict previous

advice. Australian farmers are used to doing everything themselves and tend to favour hunches to try big engineering solutions, rather than call in outsiders to perform environmental evaluations beforehand, to inform their responses. The Murray-Darling Basin, which is responsible for 44% of Australia's agricultural wealth, illustrates the problematic nature of attitudes: farmers in the northern sector repeated the same irrigation mistakes that had previously been made and corrected in the south. Furthermore, working together as a community to solve issues, as is required to beat the dryland salinity issue, can be seen as 'soft' and not the Australian way. Yet a number of farmers, especially in the wine industry, have taken a lead on land and water conservation. Nevertheless, clearly a lot of money will have to be spent on education, not just with farmers but all Australians, in a flexible way that communicates with farmers and others on their own level.

Perrin's Points

News To Members From The General Secretary

SUBSCRIPTIONS - Following a decision of the ATO, ANZAAS subscriptions from 1st July 2001 will be subject to GST. Council will be discussing the implications of the decision at its next meeting, but Members should be prepared for an increase in the gross subscription for 2001/2002

Youth ANZAAS 2002 - Following the success of YA 2001, a Queensland member has put a proposal to hold Youth ANZAAS 2002 in Brisbane. The proposal has support from a number of other Members, but to be successful, the event will require "hands-on" and "on the ground" support from local Members. Contact Stephanie Looi through me if you can help.

Youth ANZAAS 2001 - Photographs of some of the happenings at YA 2001 can be seen at :

<http://www.smug.adelaide.edu.au/~idavid/anzaas>

COUNCIL ELECTIONS LATER THIS YEAR - Under the terms of the Constitution adopted at the 1998 AGM, the Chairman, Deputy Chairman, the Secretary and the Member-at-large must retire at the end of a three year term of office. Divisional representatives are elected and hold office according to the Divisional constitution.

DIVISIONAL CONTACTS:

Members should contact the following people for details of meetings and activities in their area:

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Currently there are no official representatives from either Queensland or the Northern Territory and members resident in these areas should contact me for details of meetings and activities (use ANZAAS contact details on the front page).

Book Bite

Trial by Ice. The Antarctic journals of John King Davis.

By, Crossley, L. (editor) 1997. Bluntisham Books, Erskine Press, ISBN 1 85297 047 2, 203 pages, hardbound, \$75. 700 copies published.

Davis was involved in three of Sir Douglas Mawson's adventures to the Antarctic - the 1907-09 British Antarctic Expedition of Sir Ernest Shackleton, the 1911-1914 Australasian Antarctic Expedition (actually three voyages, one to deliver and two to retrieve Mawson) led by Mawson, and, in the summer of 1929-30, the first of the Mawson-led British Australian and New Zealand Antarctic Research Expeditions (BANZARE). On the first voyage, Davis was First Mate and on the others, Captain. The book acknowledges early (editor's comment, not his) that he may have been the greatest captain during the 'heroic era' of Antarctic exploration.

Crossley's edition of Davis' Antarctic diaries is timely, but also defined by the conditions of his will. The book is an ideal companion to *Mawson's Antarctic Diaries* edited by Fred and Eleanor Jacka and published in 1988.

It has been known for a long time that Mawson and Davis had very strong views about each other (although they worked together well in their later lives), and one of the great values of the two books is the chance to compare their views. Now we have those views expressed in their own words. And strong views they were, perhaps conditioned by personality and function more than personal animosity or age (Davis was two years younger than Mawson). Having been a scientist trying to get a captain to do my will (usually this was not a problem), I can understand Mawson's point at times, but I get the impression that Mawson sometimes wanted the captain to perform some tasks on an *ad hoc* basis, an affront to Davis' desire for a well planned program that had been made known to him for some time. His comments on Professor Flynn, father of Errol, are noteworthy and seem to reflect his views on many

scientists, including Mawson, who he often regarded as 'laymen' in terms of the sea.

The book is divided into natural sections devoted to the diaries of individual voyages, except for the first which depends on excerpts from letters home. Between sections, Crossley draws out the character of the man, his history between diaries, and the influences that affected his development. This is well done and highly valuable. He comes across as a rather solitary captain who had expectations of his men that often were not met, meaning that he had to take a closer role in routine running of his ship than would normally be expected.

While often called 'Gloomy' Davis (and he uses the word quite a deal), there is a strong streak of the optimist, looking for better conditions ahead. He was not a 'Hanrahan' as the term 'gloomy' would suggest.

The illustrations are very good and very diverse in both content and photographers. There are not many dedicated specifically to Davis but enough to show the changes as he aged, the characteristic crooked nose and increasingly less cheery appearance.

The book is very easy to read, a good production, but it does have editorial glitches such as the interpretation of glob. oz as Globular ooze when *Globigerina* ooze would have been meant. Also a rather

humorous reference to Tasmania wearing the trilby (to distinguish him from the Governor of Mawson in the cap) in a caption to an illustration. These are minor but not expected in a Bluntisham volume.

To anyone with an interest in Antarctic exploration, particularly Australia's role, this book is a must, preferably to own but otherwise to borrow and read. It is a pity that so few were printed. -By Patrick G. Quilty AM

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