



australian institute of biology

# Newsletter

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## President's Report

### **The Institute's Communications**

The Executive of the Australian Institute of Biology has been considering two important tasks in recent times. The first is a revision of our Constitution in order to clear some anomalies and streamline our membership application process. The revised Constitution is included in this mail-out with the newsletter and will be voted on at the AGM in September in accordance with present rules. I hope you will take the time to examine the changes. We have provided written notes to explain the changes we are proposing. From my perspective, the changes to membership are critical, since at present it is too difficult to access some forms of membership and the addition of an affiliate membership allows quick and easy access for new members. The second task has been the development of a symposium program for Adelaide in

September. The first symposium announcement

was posted out a few weeks ago and is also included with this newsletter and is on our website. We have been fortunate in gaining support from several prominent organisations in Adelaide and this promises to be a major event.

I am interested in developing a program that includes a significant part devoted to the Secondary education sector. I don't pretend that we know the best way to do this, and so I am very interested in hearing from anyone with suggestions. I must also apologise for the delay in producing the next issue of the *Australian Biologist*. We do not currently have an editor and I am filling this role.

Unfortunately it has been a very busy start to 2002 for me and this editing role has suffered as a consequence. I hope that I will soon be able to bring the *Australian Biologist* back on track, and there will be three issues in 2002.

### **Symposium 2002**

The Australian Institute of Biology will be holding its annual symposium at the University of Adelaide on **September 23-25 2002**. The theme of the conference will be:

#### ***Evolution in the Australian Biota –***

- Morphological evidence (including palaeontology)
- Molecular evidence
- Adaptation to the Australian Environment

It is expected that registration will be approximately \$100, with a substantial discount for students and retired members. Daily registrations will also be available at a reduced price. It is our intention to hold at least one half day session directed towards senior secondary school students and teachers, and we encourage feedback from members on the form this should take.

### **Call for Abstracts**

The third issue of the *Australian Biologist* for 2002 will consist of thesis abstracts. As with the last two issues containing abstracts, these will include Honours thesis abstracts and any relevant higher degree abstracts.

Please send abstracts, either electronically (preferable) or in hard copy to:

Professor Robert S. Hill  
Department of Environmental Biology  
University of Adelaide  
South Australia 5005  
email: [bob.hill@adelaide.edu.au](mailto:bob.hill@adelaide.edu.au)

### **Fellowship Committee**

The Australian Institute of Biology Fellowship Committee now has the following membership

- ◆ Professor Bob Hill (convenor),
- ◆ Professor John Finlay-Jones
- ◆ Professor Russ Baudinette
- ◆ Professor Maciej Henneberg.
- ◆ Associate Professor Keith Walker

*Bob Hill* July 2002  
([bob.hill@adelaide.edu.au](mailto:bob.hill@adelaide.edu.au))

## Bulletin Board

*(Editor's note.* It was recently agreed at an Executive meeting that there should be a place in the AIB newsletter for brief pieces of information that might be relevant to members. Consequently future editions will contain a "Bulletin Board" which might suit that purpose. Any suitable information would be appreciated – please email to the Editor at: [evkayd@picknowl.com.au](mailto:evkayd@picknowl.com.au))

### ◆ **Community Consultation for Research.**

Australians will be asked to comment on the future priorities for research spending as part of a community consultation initiative launched by Federal Minister for Science Peter McGauran.

Public meetings started in both Adelaide and Hobart in June, and form a key part of the process to set national priorities for Australia's research effort.

A consultative panel, which "wants to hear from everybody who has anything to say about priorities for research spending in this country," chaired by Australia's Chief Scientist, Dr Robin Batterham, is keen to hear from business, universities, research agencies, State and Territory governments and members of the general community.

Meetings were held throughout June in all capital cities as well as regional centres: Kalgoorlie, Albury-Wodonga, Armidale and Townsville.

More information is available:

(a) on the National Research Priorities Taskforce website:

<http://www.dest.gov.au/priorities>.

(b) by contacting Darren Chester (Mr McGauran's office) on 02 6277 7440 or Virginia Cook (DEST) on 02 6240 951

#### ◆ Fellowship of the Institute

If any member would like to see someone nominated for Fellowship in the Australian Institute of Biology, we urge you to contact the convenor (email [bob.hill@adelaide.edu.au](mailto:bob.hill@adelaide.edu.au))

or any other Fellow of the Australian Institute of Biology. We would like to increase our membership generally and the number of Fellows in particular. Members of the Fellowship Committee are listed in the President's Report above.

#### ◆ The Web Site

We encourage members to visit the new AIB

Website. It has recently been updated, and contains a great deal of information which is pertinent to the Organization's activities, as well as information of academic interest in biological science.

#### ◆ Biology Olympiad

Members will no doubt want to wish the 2002 Australian Team well in their endeavors during the 13<sup>th</sup> International Olympiad in Latvia during July.

#### ◆ SASTA Conference 2002

The Adelaide based Executive again made several contributions to the SA Science Teachers' Association Conference in April. These included talks by Bob Hill on "Mass extinction and the history of life", Helena Ward and John Finlay-Jones on "Emerging infectious diseases", and a workshop by Graham Webb on "Meiosis in the male mouse".

**Abstracts of these contributions are published below.**

## SASTA CONFERENCE 2002 – ABSTRACTS

### Emerging Infectious Diseases

*Dr Helena Ward, University of South Australia and Professor John Finlay-Jones, Flinders University*

Although there have been a number of major advances in fighting the spread of infections, including antibiotics, vaccines and the eradication of smallpox, new diseases have continued to emerge, particularly in recent decades. Diseases such as Legionnaires', HIV/AIDS, Ebola and vCJD have provided a new set of challenges for scientists and health workers. This workshop focussed on the possible origins of these pathogens, factors which influence the spread of infectious diseases, and methods of control. Issues concerning biological weapons were discussed, and a number of resources, including web sites, were recommended.

### Meiosis in the male mouse and mitosis in human T lymphocytes

*Dr Graham C. Webb  
Senior Research Fellow, Departments of Animal Science, and Obstetrics and Gynaecology, University of Adelaide,*

As in previous years, this was a genuine workshop, with the participants making, staining and mounting two types of slides from fixed cells. Cells of dividing human T lymphocytes were included, along with those from the testes of a male mouse. Protocols showing all of the steps taken, before and during the session, were distributed. Colour photographs were displayed of the stages of mammalian mitosis and meiosis (also distributed in

black and white) and the participants were given detailed descriptions of the stages which could be found on the slides. Participants were expected to find the stages on their prepared slides, as a matter of "homework", back at their schools.

A suggested problem for brighter pupils to calculate the rate of replacement of red blood cells, the most active rate of mitosis in mammals, was described, along with the solution to the problem.

## ANNUAL GENERAL MEETING

The 2002 Annual General Meeting of the Australian Institute of Biology Inc. will be held at the University of Adelaide on Tuesday September 24th, 2002 at 5pm.

Agenda details are outlined later in the newsletter.

## SYMPOSIUM 2002

The Australian Institute of Biology will be holding its annual symposium at the University of Adelaide on **September 23-25 2002**. The theme of the conference will be:

### *Evolution in the Australian Biota -*

- Morphological evidence (including palaeontology)
- Molecular evidence.
- Adaptation to the Australian Environment

It is expected that registration will be approximately \$100, with a substantial discount for students and retired members. Daily registrations will also be available at a reduced price. It is our intention to hold at

least one half day session directed towards senior secondary school students and teachers, and we encourage feedback from members about the form that this should take.

Please see the application and registration forms further on in the newsletter.

More details are also available from the AIBiol website at:

<http://www.aibiol.org.au>

We encourage you to register as soon as possible after July.

## Report on the Activities of FASTS (The Federation of Australian Scientific and Technological Societies)

### 1. *Release of 'Ten Top Issues' for 2002.*

Australia's peak body for working scientists and technologists announced in January that they believed it was time for the Government to announce the second stage of its plans for science and technology.

The President of FASTS, Professor Chris Fell, said the Government itself recognises there is more to be done.



**Professor Chris Fell**

"We welcomed the Prime Minister's statement on innovation last January as a promising start," he said. "Subsequently Mr Howard said

the job wasn't complete, and we agree with him. Now it's time to announce the second step."

Professor Fell was launching FASTS' annual 'Ten Top Issues' list. The list has suggestions to Government on ways it can increase the impact and profile of science in Australia. He said that some would cost very little to implement, such as removing the unfair HECS

burden on science and mathematics teachers, but he warned more overall funding would be needed.

"We cannot escape the hard cold fact that Australia's investment in science and research is well below that of comparable countries," he said. "Unless we take positive action, our expertise, our capacity for top science and our best people are going to fade away. Australia will not join the league of countries like the USA, UK, Finland, Ireland, and Singapore that have successfully adapted their industries to the new economy, thereby preserving jobs."

Professor Fell said Australia should be aiming to get more young PhD graduates working in industry, to encourage greater invention and to reduce dependence on imported technology.

"Singapore attracts new companies to locate there by offering to pay the salaries and expenses of any young PhD graduates they employ for the first two years. We suggest Australia should be doing the same, but for Australian companies as well as international ones," he said.

Other suggestions include:

- Bring forward new investment in science and research announced by the Government last year, so scientists can get to work creating new industries and new

jobs.

- Have a regular call for "big science" projects. Many excellent ideas missed out on funding last year, and the Major National Research Facilities program should be an annual event.
- Science and maths teachers are in short supply in Australia, but they still are forced to pay higher HECS fees than teachers in other subjects. This should be reduced.

### **FASTS TEN TOP ISSUES FOR 2002**

1. BRING ON "BACKING AUSTRALIA'S ABILITY"
2. INVEST MORE GOVERNMENT FUNDS IN THE UNIVERSITY SECTOR
3. ENCOURAGE NEW INDUSTRIES TO RELOCATE TO AUSTRALIA
4. HECS-FREE EMPLOYMENT FOR SCIENCE AND MATHEMATICS TEACHERS
5. FUND "BIG SCIENCE" PROPOSALS
6. DON'T DISCOURAGE SCIENCE AND TECHNOLOGY STUDENTS!
7. ENCOURAGE COMPANIES TO INVEST IN NEW PRODUCTS
8. RESTORE FUNDING FOR CSIRO
9. SCIENCE IN THE NATIONAL INTEREST
10. ENCOURAGE SCIENTISTS TO THINK COMMERCIAL

### ***2. Consequence of a lack of national investment in science?***

PARASITES: THE HIDDEN THREAT

A new report issued in February 2002 warns that Australia's capacity to respond to parasitic diseases affecting humans and animals is being eroded by lack of national investment.

The run-down poses significant biosecurity threats to Australia, from accidental or deliberate invasion by foreign diseases, and a fading ability to control diseases in the face of growing drug resistance.

"An Investment in Human and Animal Health: Parasitology in Australia," was prepared by the Australian Society for Parasitology (ASP). It was the fourth Occasional Paper issued by FASTS, and was launched at Parliament House on Monday February 11, in an address by Science Minister Peter McGauran.

The President of ASP, Professor Andrew Thompson, said that Australia's capacity to respond effectively to new outbreaks exposed the nation to an unacceptably high level of risk. He referred to the occasion when two hundred and sixty seven INTERFET soldiers returned from East Timor with malaria, even though they were issued with the standard anti-malarial drug doxycyclin. "Worryingly, many of them have had relapses after being treated with primaquine," he said. "Malaria is one of the world's biggest health scourges, with three billion people living in its shadow. Growing drug resistance and climate change mean that Australia is going to hear a lot about malaria in coming years."

Professor Thompson also said that one third of the world's population is infected with parasitic diseases to such a level that victims show clinical symptoms. In addition, parasites are also a significant cost factor to agriculture, with annual losses from parasites like sheep blowfly, intestinal worms and nematodes costing Australia over \$1 billion.

He also indicated that Australia were still world leaders in the fight to control parasites, despite an alarming drop in the number of scientists working in this field.

"Medical schools in Australia currently train almost no parasitologists, and the number of positions in veterinary parasitology has

dropped to only six," he said. "We are facing a critical shortage of people in this area."

Professor Chris Fell, added that the problems faced by parasitologists were echoed in most other areas of science and research in Australia.

### ***3. Ten year plan for education***

Professor Chris Fell, President of the Federation of Australian Scientific and Technological Societies (FASTS) made a call to implement this plan in his opening address at an education forum at the National Press Club in Canberra.

Professor Fell said that science, research and innovation were inextricably locked together with the education system at school, university and TAFE. "Any shortcomings in our investment in these areas will be visited on the next generation of Australians," he said. "They will suffer declining job opportunities, a poorer environment, and the cultural impoverishment that comes from a reduced emphasis in education." He said Australia needs enough trained scientists and mathematicians to support an innovation-led economy. This has to be coupled with a general population able to appreciate science and to debate the ways science should be harnessed to the community's benefit.

Professor Fell welcomed the reformist path being blazed by Minister Brendan Nelson, and the discussion he had opened up on the higher education sector. "We need to make fundamental decisions about our national future, and education is one of the key long-term components. Australia needs a debate - and then we need a ten year plan to improve our educational systems."

He warned that any solution would require significant new national investment. "The truth is that Australia is finding it harder and harder to retain its home-grown talent and attract world class researchers from overseas," he said.

Professor Fell pointed to a new study by Professor Graeme Hugo of the University of Adelaide, which showed that half of the Australians working overseas had no intention of returning. These expatriates referred to better employment opportunities, professional development and higher pay as the attractions of living and working overseas. "Science is an international activity, but it points to something wrong if half our most talented citizens would rather live overseas," Professor Fell said "Our education and research facilities need to be top-class if we are to remain competitive."

#### **4. Response to the Budget**

Professor Fell on behalf of FASTS, made the following comments on the Federal Budget.

"I had mixed feelings about the Federal Budget as it was announced by Treasurer Costello last week. Our media release on the Budget was headed: "Science and the Budget: relief."

We were disappointed that Australia's national investment will continue to languish below OECD levels, but relieved that the funding provisions announced in last year's "Backing Australia's Ability" statement (BAA) are coming through on time.

The overall BAA package is worth just under \$3 billion over 5 years, and the instalment due for 2002-02 is \$403 million. That will be delivered as promised.

So why the disappointment?

The BAA funding is nowhere near enough to get Australia up to average OECD investment in this area. Australia is well behind the countries with which we normally like to compare ourselves; Japan, the USA, and the advanced economies of Asia and Europe. Their investment in science and research is well ahead of Australia's and climbing steadily; Australia was catching up quickly until 1996, but has fallen markedly away since then.

The sector estimated it would take an increased national investment of \$13 billion over a five-year period to bring Australia's spending on R&D into line with that of other

OECD nations. This figure first appeared in a talk by Gavin Brown, then President of the Group of Eight, and the graph illustrating his point is on the Go8 website: (<http://www.Go8.edu.au/media/image2001.04.11c.html>)

It has never been challenged.

2001 looked as though it was going to be a good year for Science. In response to the Chief Scientist's report "*A Chance to Change*" and the outcomes of the Innovations Summit, the Government in January released its *Backing Australia's Ability* initiative with a \$2.9 billion increase.

This was warmly welcomed by the scientific community, *as a promising first step*. As the year progressed and the election loomed, the hoped-for bidding war between the Coalition and the Opposition to demonstrate which was providing the greater stimulus for science and innovation was pushed to one side by more prosaic matters.

Research released by a Swiss institute on international competitiveness revealed that Australia lies in the bottom half of 49 advanced countries in terms of public and private sector investment in R&D and in the willingness of Australia's young to contemplate a career in science.

There were reports from the UK and Canada of significant increases in government spending on science; and our Asian competitors emerged from the bleakness of the Asian meltdown to put forward initiatives to encourage significant R&D efforts to locate in their respective countries.

But within Australia the news was bleak. A round of company takeovers during 2001 meant that Australian scientific R&D was being exiled to Head Offices in Pretoria, London and France. Those seeking venture capital found the climate chilly, with investors burnt by the tech-wreck and institutions keen to ally themselves with the continuing property boom rather than investing in new technology.

In light of these factors, it is FASTS' view that Australia would be better served in 2002 by a greater investment in science and the jobs of the future, than in building up the \$2 billion Budget surplus the Treasurer projected for 2002-03 in his Budget speech.

There ARE occasions when one borrows to make a wise investment and this is one of them. Not many of us, for instance, pay cash for a house. The same applies for Government. A judicious investment in science, research and education would pay off handsomely in the long term.

Any shortcomings in our investment in these areas will be visited on the next generation of Australians. They will suffer declining job opportunities, a poorer environment, and the cultural impoverishment that comes from a reduced emphasis in education.

Australia needs enough trained scientists and mathematicians to support an innovation-led economy. This has to be coupled with a general population able to appreciate science and to debate the ways science should be harnessed to the community's benefit. FASTS is concerned about the status of Australia's scientists and the rewards that they attract. An economy based on innovation will only happen if the best and brightest are attracted to science and see their role as scientists as making a major contribution to national development.

FASTS sees much merit in the *Science Meets Parliament* initiative which is now in its fourth year of operation, and we are planning to expand the activity this year to include a Canberra dinner with industry participants to round out the event. This event has prompted a greater awareness of Parliamentarians in the value of investing in science and research. The dates have been set - November 12-13. Despite the arguments in favour of a literate community confident in handling science and technology, the Budget was generally silent in the area of education. This can partly - but only partly - be explained by processes the Ministers for Education and Science, Brendan Nelson and Peter McGauran have in place.

They have shown a refreshing willingness to look at all aspects of science and education, and are looking at research priorities and reviewing (again!) the university sector.

Action is in the pipeline, and the sector would have good reason to be disappointed if these matters were not addressed in the next Budget.

FASTS has recommended that Australia should develop a ten-year plan to improve the national education system. We need to take the broadest look at this position, as science, research and innovation are inextricably locked together with the education system at school, university and TAFE.

This includes taking a fresh look at funding for the arts, social sciences and humanities. While FASTS speaks for scientists and technologists, we are sympathetic to our colleagues in these disciplines. It is in these areas where the funding has lagged even further behind, with only limited access to the new monies from the BAA statement.

There is a whole raft of social issues surrounding the application of science and technology, and a functioning society requires a balance between the sciences and the arts. Without a long-term broad-scale strategy to redress education and research issues, Australia will find it harder and harder to retain its home-grown talent and attract world class researchers from overseas. A new study by Professor Graeme Hugo of the University of Adelaide shows that half the Australians working overseas had no intention of returning.

“They prefer the better employment opportunities, professional development and higher pay on offer overseas. Australia has to get serious about its science, research and education systems, and to look beyond the normal politician's time horizon of ten years.”

## ***5. Reappointment of Chief Scientist***

Australia's peak council for science and technology welcome the reappointment, announced by Science Minister Peter McGauran, of Chief Scientist Robin Batterham

Dr Ken Baldwin, Chair of the Policy Committee of Federation of Australian Scientific and Technological Societies (FASTS), said today that Dr Batterham had been an effective and energetic Chief Scientist.

"The science community has confidence in him as an advocate for science and technology," he said. "We welcome his appointment for a further three years." "His work has been a significant factor in the process of re-building Australia's science base. Dr Batterham has to be given considerable credit for the groundwork leading to Backing Australia's Ability, which brought \$2.9 billion of investment into the science sector in 2001."

Dr Batterham played a key role in presenting the case for science at all levels of Government and industry. His effectiveness continues to be seen in the operations of the Prime Minister's Science, Engineering and Innovation Council.

Dr Baldwin said that the role of the Chief Scientist had never been more important, with Australia's national investment in science and research continuing to trail other competing nations.

"Australia is currently setting national research priorities, and the Chief Scientist has a key role in this process," he said.

For further information about FASTS issues, visit the FASTS web address: <http://www.FASTS.org> or email FASTS at [fasts@anu.edu.au](mailto:fasts@anu.edu.au)

### From the Australian Academy of Science

#### *Changing of Presidents.*

In a presidential note to Academy members in April, the outgoing President of the Academy, Professor Brian Anderson, congratulated the scientists who had been elected as new Fellows of the Academy, and welcomed the incoming President, Professor Jim Peacock. He also paid tribute to Professor John Young, an outgoing Vice-President.



*Professor Jim Peacock speaking at The AIB Symposium in Canberra 2001*

#### *Australia-Taiwan joint projects*

Dr Joseph Yang, Director General, International Programs of the National Science Council (NSC), Taiwan, met with the President and the Foreign Secretary on 2 and 3 April respectively.

The NSC would like to identify Australian organisations that would be interested in participating in four bilateral cooperative activities:

- R&D on biotechnology for animal health and biomedicine (Animal Technology Institute of Taiwan)
- Taiwan-Australia bilateral food biotechnology symposium (College of Life and Resource Sciences);
- Joint research in particulate technologies (National Taiwan University)
- Joint research in the sustainable development area (National Central University).

Academy Fellows who are interested in any of the above activities should contact the

International Programs Officer, Nancy Pritchard;  
[nancy.pritchard@science.org.au](mailto:nancy.pritchard@science.org.au)

### ***Research Infrastructure***

The Academy received funds to undertake a study on major national research facilities. That study is now completed and there are some funds remaining which will enable the Academy to examine the applications to last year's Major National Research Facilities Program, and to also review the programs that support research infrastructure for Australian science. The Academy considers that the broader question of infrastructure should be examined, as research is not well served by the existing fragmentation.

Michael Barber chairs the recently appointed Steering Group of Fellows, namely Phil McFadden, David Doddrell, Steve Redman, John White and Peter Colman.

### ***Strategic Plan for Earth Sciences in Australia.***

The National Committee for Solid Earth Sciences is in the process of developing a strategic plan for earth sciences in Australia. The reason for developing the plan is to provide a framework within which the discipline can develop over the coming decade. The goal is to define priorities in earth sciences for the ARC and will contribute to the ongoing national debate about setting priorities in Australian research and development.

### ***Priority setting***

The Academy is involved in an exercise to examine the process of setting national research priorities. Planning has progressed in that a scoping meeting was held at the end of May with the four learned Academies and other invited participants; a forum will be held on 26 and 27 June 2002, and Michael Barber,

Secretary, Science Policy, will be giving an address on priority setting at the National Press Club on 26 June.

### ***Future science at the Shine Dome Symposia***

Preparations are already underway for next year's symposium on nanoscience, to be convened by the Secretary, Science Policy, Michael Barber. During the course of the following year, 2004, the Academy's 50th anniversary will be celebrated, and the President has offered an invitation to members to email him with their suggestions for an anniversary symposium topic. (<mailto:president@science.org.au>).

### ***Awards for Scientific Excellence***

The Academy is also calling for nominations for its Awards for Scientific Excellence for junior and senior researchers. The disciplines cover Earth sciences, biology, medicine, mathematics/statistics, physics, mineral exploration and applied research.

The closing date for nominations is 30 August. Further information, including the conditions of each award and nomination forms, is available on the Academy's web site.

### ***Human Cloning***

John White, the Academy's Spokesperson on Human Cloning and Stem Cell Research, has responded to the draft legislation on Human Cloning and Research Involving Embryos Bill 2002. The submission is available on the website.

The Newsletters and other information about the Australian Academy of Science are available on the web:

<http://www.science.org.au/academy/newslett/newslett.htm>

### ***Professional Standards for Highly Accomplished Teachers of Science***

The launch of the document *Professional Standards for Highly Accomplished Teachers of Science* by the Australian Science Teachers' Association (ASTA) in late March was an historic moment in the field of to date have been generated by education systems and imposed on teachers through their Education Departments. Instead, ASTA adopted a collaborative approach, where dedicated volunteers, ASTA resources, an Australian Research Council grant, as well as support from Monash University and the Australian Council for Educational Research (ACER), enabled this decade long vision to be realised.

Central to the process of developing and writing the standards was the National Science Standards Committee (NSSC), a group of 15 expert teachers, representing all levels of schooling, all systems and all states and territories and chaired by Dr. Jane Wright, (AIB Deputy Vice-President) and Science Coordinator at Loreto College, in South Australia. Other members of the Project Team were Jan Althorp, Executive Director of ASTA and Dr Lawrence Ingvarson, of ACER. The group met both face-to-face and electronically throughout 2000 and 2001, each time moving closer to their goal of describing the knowledge, skills and attitudes

education, because of the pivotal role that classroom teachers have played in the defining the standards. Other teaching standards published

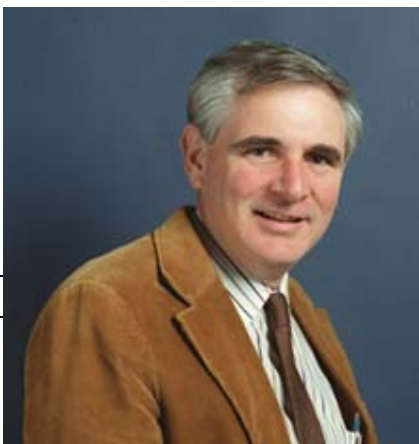
they would expect to find in an outstanding science teacher.

Speakers at the launch included Mr Tony Greer, representing the Hon Brendan Nelson, Federal Minister for Education Science and Training. He described the importance of professional standards in rewarding excellent teachers, improving career paths, guiding professional development and improving the status of teachers. In her remarks, Jane recognised the importance of professional standards in raising student learning outcomes, while Lawrence Ingvarson noted that research in the United States has shown a strong correlation between the quality of a state's teaching force and average student achievement levels.

ASTA is currently looking for funding to enable it to develop authentic assessment tasks that would allow a teacher's performance to be assessed against the standards. This would move the Association closer to its ultimate goal of developing a national voluntary system of certification for highly accomplished teachers of science.

## **Special Honours for AIBiol Members**

### **Professor John Irwin FAIBiol**



On Thursday March 7<sup>th</sup>, 2002, Professor John Irwin of the CRC for Tropical Plant Protection in Queensland was presented with a Clunies Ross National Science and Technology Award at a presentation dinner in Melbourne, at which the Hon Dr David Kemp, Minister for the Environment and Heritage was the guest speaker.

Over the past 30 years John Irwin has worked to protect the beef industry from diseases in pasture crops. The result is a better understanding of the causes of disease and

the Executive Committee. ([evkayd@picknowl.com.au](mailto:evkayd@picknowl.com.au))

improved strains of lucerne, stylo, oats and cowpea that have led to millions of dollars of increased production for Australian farmers, and new export markets for seed producers.

His research has resulted in disease resistant tropical crops, and in a 30-year career in plant protection, Irwin has significantly increased farm productivity through substantially reducing crop losses.

Australia's northern beef industry depends on the pasture crops – lucerne and stylo. Working with small research teams in the 1970s and 1980s, John Irwin identified the fungi that were killing off millions of hectares of pasture. He collaborated with plant breeders to develop new breeds of lucerne and stylo that would resist these fungi. His crop varieties now dominate the industry.

Plant fungi are capable of changing the course of history. They have caused disease outbreaks which have resulted in the death of millions—the one which led to the Irish potato famine, for instance. Today in northern Australia, fungi are responsible for the loss of at least 10% of the \$6 billion plant harvest.

From a position as the sole plant pathologist at the University of Queensland, building on his early successes, John Irwin has established

a Plant Protection Centre with an \$8 million budget. He has led two cooperative research centres dedicated to reducing crop losses through DNA-based tests for disease identification and molecular breeding techniques.

John Irwin's pioneering work and scientific leadership will benefit sugar, banana, mango, wheat, and beef farmers for decades to come.

The Executive of the Australian Institute of Biology extends congratulations to John.

## Obituary - Professor William (Bill) Williams

### VALE BILL WILLIAMS 1936—2002



Emeritus Professor WD (Bill) Williams died on Australia Day 2002, after a long battle with acute myeloid leukaemia.

Bill was a *Fellow* of the *Australian Institute of Biology* and Chair of the Institute's Publication

Board.. He had a long and distinguished career in service to limnology. Although he influenced many facets of limnological science, his greatest passion was for the saline lakes that dominate the Australian landscape. "Salt lakes", he would say, "are a marvellous resource for scientists, but very few of us recognise their intrinsic values".

Bill grew up in Liverpool, during the harsh years of the Second World War and its aftermath. With a deep affection for the English Lakes District, encouraged by Macan and Worthington's *Life in Lakes and Rivers* (Collins, 1951), and driven by a fierce inner determination, Bill graduated as a limnologist from the University of Liverpool in 1961. There he was a protégé of Professor HBN (Noel) Hynes, a pioneer in river ecology who later went to Canada and, through his association with Bill, developed a great affection for Australia. Bill's PhD was devoted to the ecology, taxonomy and biogeography of an aquatic isopod, *Asellus*. He completed his thesis in record time by sleeping during the day and working at night.

In 1961, with his bride Anne, and still with a very English demeanour, Bill arrived in Australia to join the new Department of Zoology & Comparative Physiology at Monash University, chaired by Professor AJ (Jock) Marshall. Encouraged by the good-natured chivvy of colleagues at Monash, Bill soon adapted to his new environment and was evermore an Australian.

He remained at Monash for 14 years. From the outset he developed a close working relationship with Ian Bayly, a recent arrival from New Zealand, and together they became pioneers in Australian limnology. The pair explored the farthest corners of the continent and forged links with other pioneers like Peter Tyler in Hobart, Hilary Jolly in Sydney, John Lake in Narrandera and Alan Weatherley in Canberra. One of their early initiatives was to help found the *Australian Society for Limnology*, an association of scientists and managers with a common interest in water resources. Today, the ASL has a membership of more than 600.

The many saline lakes of western Victoria held a particular fascination for Bill and Ian, and their beloved lakes soon became a magnet for students. Part of the reason was that, in a time when ecology had an 'ecosystem' focus, saline lakes were attractive because they contained relatively few species,

notwithstanding their high productivity, and so appeared to be less complex and more easily investigated than other ecosystems. Sadly, many of those lakes eventually fell to unsympathetic development, particularly irrigated agriculture, and they are now a shadow of what they were.

During his years at Monash, Bill and his colleagues all exercised a strong sense of social responsibility, seen in their contributions to public debates. For Bill especially, the flooding of Lake Pedder in Tasmania was a grievous loss that he strongly contested and never forgot.

At the time he left Monash in 1974, Bill had been promoted to Reader. With an already prodigious record of publications, including the seminal first edition of *Australian Freshwater Life* (1968) and *Inland Waters and their Ecology* (1973, with IAE Bayly), and as father-figure to a generation of new limnologists, Bill left Monash, with regrets, to join the University of Adelaide, where the Chair in Zoology lay vacant following the retirement of Professor HG Andrewartha. He took up that post in January 1975.

At the helm of the new department, Bill's good humoured, avuncular nature extended well-beyond colleagues in limnology. Students in all areas of zoology will remember his encouragement, perhaps as kindly words over a sherry in the chairman's office, a letter of support or names dropped at those critical times when people's career paths are set and within the limnological realm, Bill's prowess as an editor assumed legendary status. We may never know how many of today's present generation of water resource professionals have benefited from Bill's reworking of a once-shabby manuscript! And many more received the same benefit through papers submitted to the journals, conference proceedings and books



that issued from his influence.

Throughout his tenure at Adelaide, Bill continued his extraordinary output of literature, eventually accruing more than 250 articles, book chapters and books. Amidst the pressures of chairmanship, he could always find time to write, as he loved to do, but it usually was after dinner at home, when he could retreat to his den and work on into the early morning.

At Adelaide, Bill became more involved in matters related to the management of water resources, seen in edited books like: *An Ecological Basis for Water Resources Management* (1986) and *Limnology in Australia* (1986, with P De Deckker), and his contributions to government committees.

He was proud to receive a *Doctor of Science* degree from his *alma mater*. At this time too, he extended his global influence, spending time in the UK, USA, Canada, Germany, South Africa, Japan, Indonesia, India and Hong Kong. In journeys to Kazakhstan and Uzbekistan, discussions over the fate of the Aral Sea left no less an impression on him than did the saga of Lake Pedder. Bill's global outreach was such that, if limnologists in other countries were asked to name a colleague in Australia, he surely would be the popular choice. As an advocate for the Australian environment, he insisted that we should look at our lakes and rivers afresh, and not through the eyes of scientists from the Northern Hemisphere, as some textbooks encourage us to do. Thus, 'Limnological imbalances: an antipodean perspective' (*Freshwater Biology* 20: 407-420, 1988).

Bill never much enjoyed University administration because it diverted him from science. He did appreciate the value of his role as Chairman, however, as a means to expedite action and overcome inertia. Eventually, the increasing demands of administration and the changing nature of Universities, under external political pressures, were among reasons that lead Bill to retire in 1994. The change was a release for pent-up energy that led him into important new roles with the South Australian Fisheries

Research Advisory Board and the National Wetlands R&D Program. He donated his priceless library of reprints, spanning many shelves, to the South Australian R&D Corporation (SARDI). He retained an academic role as Emeritus Professor, but preferred to keep a low profile in a department with new paths to explore.

Fourteen months ago, Bill learned that he had leukaemia. In the months that followed he continued to read and write, and many associates received from him drafts, manuscripts or proofs needing their attention. "I've had a good life", he said in November 2001, "and if I have one professional regret it is that I did not speak out more strongly about the destruction of 'Spaceship Earth'". Although Bill enjoyed a brief period in apparent remission, it was not to last. He died in Brisbane on 26 January, and so, unfortunately, was not able to personally receive public acknowledgement when the Queen's Birthday Honours list was published.

On Monday 10<sup>th</sup> June, 2002, Bill Williams was made an Officer of Australia (AO) in the General Division in the Queen's Birthday Honours list.

His citation read:

***"A pioneer in and contributor to world knowledge of limnology, and advocate for conservation of species and habitats and the environment."***

Bill Williams made a major contribution to science, and no less a contribution to the welfare of other scientists. Academics sometimes represent the lifetime achievements of a colleague as a tree, and in that regard Bill's lineage is well-grown. The spreading branches and branchlets represent connections to many hundreds of water resource professionals in Australia and around the world. With roots in the past, branches in the present and seeds for the future, long may that tree flourish.

Bill is survived by his wife Anne, sons Simon and Richard and brother John.

4 February 2002

## Science Meets Parliament, 2002.

### "SCIENCE MEETS PARLIAMENT" DAY 2002

Minister Nelson has been contacted recommending that the event be held on Tuesday-Wednesday November 12-13 this year.

This unique event offers a special opportunity for working scientists from across Australia to make the case for science and technology directly to their representatives in Parliament. While the funding initiatives announced in "Backing Australia's Ability" in January last year were a welcome step, Australia is still out of step with other comparable countries in terms of our national investment in S&T.

This year there is a new Ministerial team, new Members of Parliament, and new Shadow Ministers, and it is important to continue to build links with Parliamentarians.

FASTS Executive Director Toss Gascoigne

has had meetings with Science Minister Peter McGauran; and met Education, Science and Training Minister Brendan Nelson in February to complement phone discussions and correspondence.

In addition there have been meetings with Shadow Science and Research Ministers Senator Kim Carr, and with Senator Natasha Stott Despoja as Science spokesperson for the Democrats. These formal meetings are being complemented by more frequent informal contacts between offices, and by phone conversations. Both Ministers and Shadow Ministers are in no doubt about the FASTS' positions on science and technology issues!

## The Biologist – “Sniffing for diseases”

Sol Saini, Head of the Cranfield Centre for Analytical Science, at Cranfield University, Silsoe, UK, Hugh Barr, Consultant Surgeon at the Cranfield Post-Graduate Medical School, Gloucestershire Royal Hospital, and Conrad Bessant, a scientific computing lecturer at the Cranfield Centre, have been investigating the odours that humans emit and circulate around us. They suggest that the early diagnosis of human diseases may be enhanced by using the smart sniffing systems of machines which emulate the human nose and pick up the scent of these diseases. Medical practitioners presently depend largely on vision and hearing to detect diseases. Compared to other mammals, our

smell and taste (chemosensory) apparatus is quite

deficient. Analysis of the genome of lower order terrestrial mammals points to the

importance of smell as the brain's main window to their outside environment. The mouse odorant receptor mechanisms, so complex and important to the animal, is coded for by over 1000 genes (about 1% of its genome). Humans only have a rudimentary vomeronasal organ, so prominent in reptiles and in non-primate mammals, and essential for reproductive and sexual behaviour because of its sensitivity to pheromones.

For example, the release of bombykol by a female moth causes male moths to travel immense distances, and locust aggregation is

controlled by the release of a volatile pheromone, guaiacol, from a symbiotic intestinal bacterium present in faecal pellets. If the detection of human pheromones could be enhanced, it may well be of medical and behavioural value; patients with schizophrenia, example, release a distinct trans-3-methylhexanoic based odour in their sweat.

Many lower animals, such as the blind and deaf nematode *Caenorhabditis elegans*, depend on chemosensation as a primary external sensory detection system. *C. elegans* has receptors sensitive to both volatile and soluble molecules and exhibits a positive chemotaxis towards appropriate chemical stimuli.

Such chemosensory receptors are similar to the 1000 or so odorant receptors found in the human olfactory bulb, allowing us to cope with a diverse range of odour molecules.

Although we are not constantly aware of all odours that surround us, there are some specific chemicals that we can identify by our olfactory senses, varying from flower fragrance and rotting compost to the sweetish smell of a diabetic's breath and the mustiness of a patient entering renal or hepatic failure. Such smells probably contain molecules in a specific ratio which we detect and recognise.

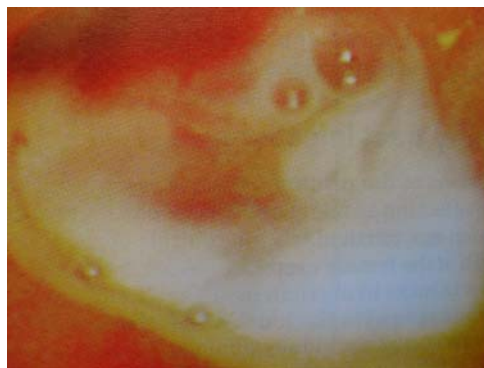
Many bacteria associated with infection and putrefaction emit specific and often foul odours, notably anaerobic *Bacteroides* and *Clostridium*. Even a mild infection in the urine of a child with *Escherichia coli* produces a distinct fishy odour which is often detected by a mother who is familiar with the normal smell. A sweet smell on the breath of an unconscious child was a first clue to acidotic diabetic coma, prior to modern molecular and biochemical medicine.

Halitosis, or bad breath, which may have a number of causes, may be related to bacterial overgrowth in the stomach associated with gastric cancer, or to bronchiectasis and secondary infection in the lungs.

Thus there is a clear relationship between odour, infection and disease, and concomitant emotive and behavioural changes. Can this be used to detect diseases at an early stage? An advanced cancer has a distinctive smell

associated with bleeding, infected ulceration and putrefaction, whereas in a smaller early cancer these odours may not be detected.

However, specific volatile agents have been detected from cancers. Of the several hundred volatile organic compounds in human breath, a combination of 22 breath volatiles (mainly alkanes and their derivatives, and benzenes) have been found to differ in the breaths of



patients with and without lung cancer.

Thus it is not unreasonable to suggest that a future rapid diagnostic and screening tool could be a lung cancer "breathalyzer"- this could be a type of endoscope which "sniffs" in the bronchial trees to pinpoint the cancer.

In a similar manner, early detection of an infecting *E. coli* organism and correct antibiotic treatment may well reduce the onset of harmful effects which often occur because identification relies on time-consuming culture techniques.

Machine olfaction, electric analogues of the mammalian nose that recognize odours, date back to the 1980's. The original devices were associated with detecting quality and flavour of food products, but over the past 8 years or so, researchers have turned their attention to biological and medical applications.

Machine olfaction has reduced the complexity of odour recognition to a few simple operations.

There are three main stages in odour analysis, all of which are very similar to the human process of smell. Firstly, an odour sample is passed over the odour sensing part of the instrument – analogous to “sniffing” in human olfaction. In the second stage, chemical information in the odour molecules is converted into electronic signals. This involves an array of sensors, each of which contains an odour-sensitive material which reacts with molecules. An underlying transducer measures the interaction, and converts it into an electronic signal. Working together, the sensors are able to provide sufficient information to identify the odour of interest. Whereas a gas sensor can recognize a specific type of molecule, the artificial nose “tunes in” to particular types of odours whilst ignoring others.

The third stage in the process is the analysis of the data from all these sensors simultaneously – a complex process known as building a Classification model, and involving four steps: collecting training data, data exploration, building the classification model, and validating the model.

In their laboratory, the authors have designed machine olfactory systems capable of detecting *Helicobacter pylori* (stomach ulcers and possibly stomach cancer), the infecting agent in tuberculosis, and a rapid screen for urinary tract infections.

UTI's tend to result in unusual odours in the urine, caused by the volatile products of the infecting microbes' metabolism. Normal UTI diagnosis requires the identification of causative bacteria (eg *E.coli* and *P. mirabilis*) by culturing urine samples on selective media, a process which can take from 24 to 48 hours, because of the large number of samples which have to be processed. On top of the time required to culture the samples, there is additional time involved in getting the samples from the doctor's surgery, and then sending the results back. Furthermore, a doctor may require an antibiotic sensitivity test for recurrent urinary infections, (eg cystitis), which may also add another 2 – 3 days before results are known and treatment can occur. Thus the use of artificial nose technology for UTI diagnosis has the

potential for markedly reducing the time needed to identify the responsible organisms, and hence speed up treatment protocols. Ideally, an olfactory device would provide instant identification.

There is one complicating factor that must be considered, however. There is a variability inherent to urine odours from different people due to diet and health – in fact, the strong odour of urine itself may well mask microbial odours, especially in a mild infection.

To overcome this, an odour amplification stage must be part of the process. Specific growth factors are added to the patient's infected urine, so that the microbes multiply and the odours build up in a container with a small headspace. These are then sampled after four hours by an array of metal oxide semi-conductors.

Now envisage this future scenario postulated by the authors!

Every person has an odour analyzer in their bathroom – capable of analysis of gases voided from both upper and (sometimes embarrassingly) lower gastrointestinal tracts. It is connected via Internet to a central olfactory “brain”, which contains data on the person's normal odours and can detect variations which indicate the onset of early infection or cancer.

Why not take this concept further by linking such medical diagnostics with IT through sophisticated mobile 'phones which monitor abnormal odours on the breath of the user. A new service provider industry rises from the ashes!!!!

For now, however, present technology could provide a personal, continuous and non-invasive health check for diabetic, renal and hepatic patients who are likely to produce measurable characteristic odours in breath or urine. Early diagnosis and early medical intervention is likely to lead to happier patients!



## Welcome to new AIBiol Members, 2002

Dr. Leone M. Bielig  
School of Tropical Biology  
James Cook University  
TOWNSVILLE QLD 4811

Ms Lainie Berry  
School of Biological Sciences  
Monash University

Dr. David C. Cunningham  
GPO Box 840  
CANBERRA ACT 2601

Professor Harvey J. Marchant  
Australian Antarctic Division  
Channel Highway  
KINGSTON TAS 7050

## From AIB Members

We have received a request from a member for assistance in collecting data relating to the topic below.

*Teaching the Ethical Issues related to Biotechnology to Students of Senior Biological Science.*

Dear fellow members of the Australian Institute of Biology,

I am conducting PhD research involving the effective teaching of ethical issues related to biotechnology to students of senior biological science.

In pursuing this, part of my research involves seeking the opinions of professional biologists. I understand that many members are not involved in the educational sector, but nevertheless as professional biologists, are in a position to offer their views and ideas regarding the teaching of biotechnology and its related ethical issues. For the purpose of these discussions, biotechnology is defined as *those procedures that have been only possible since the mid 1970s or so through advances in genetic engineering and other novel techniques, such as embryo transfer,*

*molecular biology and tissue culture* (Reiss and Straughan, 2001,2).

There is a growing awareness of the importance of teaching the ethical issues related to biotechnology. Schibeci (2000,27) believes that *biotechnology provides a powerful vehicle for analysing the impact of science and technology on the community in the context of an important scientific development.* Dawson and Taylor (1999,59) state that: *Students need the opportunity to appreciate the social and bioethical implications of biotechnology so they can become informed decision makers in the future.* My study seeks to take these issues further by researching effective strategies for the teaching of ethical issues related to biotechnology.

The following short survey page seeks your opinions and advice as to what you think is important in the teaching of ethical issues related to biotechnology to students of senior biological science. I would be appreciative if you could address the following questions, and either forward your responses to me by e-mail or surface mail.

Thank you in anticipation of your assistance.

**Mr.G.J.Curran.MAIBiol.**  
**124 Sparkes Road, Bray Park, Qld.,**  
**4500.**  
[gcurran@oznetcom.com.au](mailto:gcurran@oznetcom.com.au)

References:

Dawson, V. (1999), *Bioethics education in the science curriculum: evaluation of strategies for effective and meaningful implementation*. Curtin University of Technology, Perth.

Dawson, V. and Taylor, P. (1999), *Teaching bioethics in science: Does it make a difference?* Australian Science Teachers' Journal, 45(1), March.

Reiss,M.J. and Straughan,R. (2001), *Improving Nature? The science and ethics of genetic engineering*. Cambridge University Press, Cambridge.

Schibeci,R. (2000), *Students, teachers and the impact of biotechnology on the community*. Australian Science Teachers' Journal, 46(4), December

**Introduction:**

For statistical purposes, could you please state your name (optional), current employment, years of scientific experience, area of expertise in biological science and any previous professional activities you have been involved in? (All responses to these and other questions will remain anonymous, responses will be simply be recorded and identified as Dr X, CSIRO biochemist, Professor Y, University Academic etc.)

Name: (optional) -----

-Current Employment : -----

-Years of scientific experience :-----

--Area of expertise in biological science: -----

--

-----

---Professional activities:-----

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I would appreciate your permission to contact you further, should I need to clarify some of your responses. If you object to this, please indicate below.

I am / am not willing to be contacted further for the purposes of this study. I also understand that participation in this survey is on a voluntary and anonymous basis.

**Questions:**

- 1. What general topics are suitable for inclusion in a biotechnology course for students of senior biology?
- 2. What ethical issues are most suitable for inclusion into a biotechnology course for senior biology students?
- 3. What do you regard as desirable outcomes for students learning about the ethical issues related to biotechnology?
- 4. Are there any other issues you would like to discuss regarding the teaching of

biotechnology to students of senior biology? If so, please comment.

### An interaction with Australian sea lions.

The Australian Sea Lion, (*Neophoca cinerea*), is one of the rarest of the seal species today, numbering about 12,000 worldwide, two thirds of which live in South Australian waters. Their range extends from the east of Kangaroo Island to the Abrolhos Islands, off the coast of Geraldton, Western Australia. Sea Lions differ from the main seal species because they have external ears and are able to swim with, and walk on, their four flippers, unlike their close seal relatives.



Late last year, Kady and I journeyed to Baird Bay, to observe these delightful mammals on Jones Island, home to a colony of Sea lions.

Sea lions, unlike other seal species, do not breed annually. In fact, there is not a breeding synchrony between colonies. There is a 17-18 month interval between breeding seasons, and females, which come ashore to give birth, come in to season for about 24 hours, 7-10 days after giving birth.

The young pups, which weigh about 7 kilograms at birth, but which reach 250 – 350 kilograms at weaning after 14-18 months, do not have a very good survival

rate. 23% are likely to die in the first 6 months, largely due to bulls trampling them whilst defending territory. In the next two years, another 40-50% are likely to die as a result of shark attack, ineffective mothering, disease, storms, high tide inundation, and becoming jammed in rock crevices. A mature sea lion is likely to live for 17 – 25 years, with mature males showing their white “mane” at about 8 or 9 years of age.

Our hosts, Alan and Trish Payne, who live at Baird Bay, met us and some American visitors, and we proceeded via a flat-bottomed boat to the main vessel anchored out in the middle of the Bay.



*Hosts Alan and Trish Payne and the boat*

Baird Bay is a shallow tidal inlet, approximately 40 kilometres from Streaky Bay, South Australia. It is sheltered by the large limestone cliffs of Cape Radstock to the south west, formed between one and sixty million years ago when marine incursions occurred. The limestone is underlain by granitic intrusions which appeared at the beginning of a post tectonic period (the Kimban Orogeny), about 1,450 million

years ago. The surface of the Cape formed about one million years ago, with surface aeolian deposits shaping into sand dunes, and developing a hard calcareous layer underneath, leaving a resistant calcrete capping in places. A reef at the entrance of the Bay affords protection from the swell and large waves that roll in from the Southern Ocean.

We approached the colony of Sea Lions, many of which were sleeping on the sandy beach, and cut the motor about 50 metres from shore, just drifting gently inwards to about 20 metres.



Heads rose, eyes opened, and at the gentle call from Alan, “come on fellas,” a number of younger animals scrambled down the beach to the water and came out to the boat, where they proceeded to swim under and around, pausing on the surface to apparently look at the humans on board.

Alan suggested that we slipped into the water quietly and slowly, three at a time, and rested on the surface, letting the sea lions come to us. That we did, and it was a most exhilarating and unforgettable experience as the animals dived, waited for us to follow them, rested on the surface until we could come up for air, and then repeated the process until we



were exhausted.

#### *The author immersed in his observations*

It seemed to me that they not only fearlessly tolerated these clumsy (by their standards) humans’ interactions, but actually seemed to enjoy the antics, for they made no attempt to swim off. The key point was that we waited for them to initiate activities, and so they probably did not feel threatened. To see these remarkable mammals lying on the bottom (a mixture of sand and calcareous reef) in a depth of about two and a half metres of clear water, with their large eyes wide open, inviting you to make the next move, was an experience that is almost impossible to put into words.

I am sure of one thing though – I will never really enjoy watching performing sea lions at zoos again. This was the ultimate interaction with humans and the animals - on their own terms, in their own environment and in their own time. In other words, the decision was theirs; this was the Paynes’ doctrine, and it certainly seemed to be effective, for apparently, the sea lions rarely failed to pay a visit to the humans on the boat from the mainland.



*A sea lion pup comes to look at the boat*

**Evan John**

**(Editors note: visit the following web site for more information.)**

[www.bairdbay.com/index.html](http://www.bairdbay.com/index.html)

## Australian Institute of Biology Symposium



### AIBiol Annual Conference EVOLUTION IN THE AUSTRALIAN BIOTA 23<sup>rd</sup> – 25<sup>th</sup> September 2002

The Australian Institute of Biology will be holding its annual symposium at the University of Adelaide on **September 23-25 2002**. The theme of the conference will be:

***Evolution in the Australian Biota -***

- Morphological evidence (including palaeontology)
- Molecular evidence
- Adaptation to the Australian Environment

It is expected that registration will be approximately \$100, with a substantial discount for students and retired members. Daily registrations will also be available at a reduced price. It is our intention to hold at least one half day session directed towards senior secondary school students and teachers, and we encourage feedback from members on the form this should take.

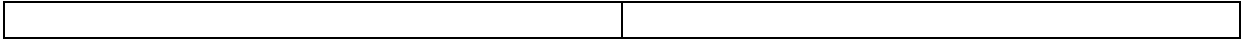
If you would like to register your interest in attending, please fill out the following form. A second and final circular, including a registration form, will appear in early July. For people living outside Adelaide, we can organise accommodation according to your requirements.



<p><b>Expression of Interest</b></p> <p>Name  .....</p> <p>Title: .....</p> <p>Address:  .....  .....</p> <p>Email: .....</p> <p>Telephone: .....</p> <p>Fax:.....</p>	<p>If you are interested in giving a presentation at the conference, please fill out the next part of the form.</p> <p>I am interested in presenting a paper (yes/no)  I am interested in presenting a poster (yes/no)  <i>(please cross out the non-applicable choice)</i></p> <p>Preliminary title:  .....  .....  .....  .....</p>
--	---

Please return by August 2nd 2002  
Contact Professor Bob Hill  
Department of Environmental Biology  
University of Adelaide  
South Australia 5005  
Email: bob.hill@adelaide.edu.au

<b>Australian Institute of Biology Inc.: Executive Committee Executive Members 2001/2002</b>	
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**The Annual General Meeting of the Australian Institute of Biology Inc. will be held at the University of Adelaide on Tuesday September 24<sup>th</sup>, 2002, at 5pm.**

## Agenda

1. Apologies
2. Minutes of the Annual General meeting held on Saturday 22<sup>nd</sup> September, 2001  
(see copy distributed with December, 2001 Newsletter)
3. Business arising from the minutes
4. Reports
  - President
  - Treasurer
  - Secretary
  - Business Manager
  - Registrar
5. Amendments to the Constitution (see accompanying document)
6. Election of Office Bearers and Area Representatives

The following positions fall vacant at the AGM. (There is a nomination form elsewhere in this newsletter)

### ***Officer Bearers***

Vice-President  
 Deputy Vice -President  
 Treasurer  
 \*Business Manager  
 Registrar  
 Scientific Editor  
 Public Officer  
 \*Chair of the Publications Board  
 \*Executive Editor

\* Officer positions that will not be filled if changes to Constitution (item 5) are accepted

### **Continuing Appointments**

President – Bob Hill  
 Secretary – Helena Ward  
 Immediate Past President - John Finlay-Jones  
 Area Reps – ACT : Ian Falconer

*Area Representatives*

Tasmania  
Western Australia  
Victoria  
Northern Territory  
Queensland  
New South Wales  
South Australia

7. Appointment of Auditor

8. Subscriptions for 2003

No change to subscriptions for existing membership categories is recommended. If the membership category of Affiliate member proposed under item 5 is accepted, it is recommended that the annual fee be \$50

9. Any other business

Dr Helena Ward  
Honorary Secretary

**Annual General Meeting of the Australian Institute of Biology Inc.  
Nomination Form**

**Nominations are called for the following positions:**

**Office Bearers**

- Vice-President
- Deputy Vice -President
- Treasurer
- Business Manager
- Registrar
- Scientific Editor
- Public Officer
- Chair of the Publications Board
- Executive Editor

**Area Representatives**

- South Australia
- Victoria
- Tasmania
- New South Wales
- Queensland
- Northern Territory
- Western Australia
- South Australia

I hereby nominate the person(s) indicated for the indicated position(s)  
Signed.....

(Please print your name).....

I hereby second the nomination  
Signed.....

(Please print your name).....

I hereby accept the nomination  
Signed.....

(Please print your name).....

Nominations should be lodged with the Secretary,  
**Dr Helena Ward,**  
**School of Pharmaceutical, Molecular and Biomedical Sciences**  
**University of South Australia, GPO Box 2471 Adelaide SA 5001**  
**Phone: 08 8302 2312 Fax: 08 8302 2389**

By **Monday August 12th, 2002**



<b>PROXY FORM</b>
-------------------

**Australian Institute of Biology Inc.  
Appointment of a proxy**

**Annual General Meeting to be held on Tuesday September 24th, 2002 at 5pm at  
the University of Adelaide.**

I, \_\_\_\_\_ being a member of the above-named institute and entitled to  
vote, hereby appoint \_\_\_\_\_ of \_\_\_\_\_ as my  
proxy to vote for me on my behalf at the Annual General Meeting to be held on the  
24<sup>th</sup>  
day of September 2002 and at any adjournment thereof. In respect of the vote on the  
motion(s) dealing with \_\_\_\_\_ I have  
instructed my proxy to cast a vote in \*favour/ \*against the motion.

**Signed: This \_\_\_\_\_ day of \_\_\_\_\_ 2002**

**Signature: \_\_\_\_\_**

Please forward this form to the Honorary Secretary, prior to the  
commencement of the meeting.

**Dr Helena Ward  
School of Pharmaceutical, Molecular and Biomedical Sciences  
University of South Australia  
GPO Box 2471  
Adelaide SA 5001  
Phone: 08 8302 2312  
Fax: 08 8302 2389**