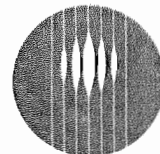


CoResearch



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CSIRO's staff newspaper

CSIRO
AUSTRALIA

STOP PRESS MARCH 25

Keating raises Science to Cabinet

Just as this issue was going to press the news came over the air that Science had a new Minister, Senator Peter Cook, and that, under him, Science was again to be a Cabinet portfolio for the first time since Clyde Cameron was made Minister for Science and Consumer Affairs in 1975, under the Whitlam administration.

In the list released by the Prime Minister today (Friday March 25), Science ranks seventh out of the 18 Senior Ministries, just below Finance, and just above Immigration and Ethnic Affairs.

The new Ministry is called Industry, Science and Technology (formerly Industry, Technology and Regional Development, or DITARD), and retains Senator Chris Schacht as its Junior Minister.

Senator Schacht is now Minister for Small Business, Customs and Construction (formerly Science and Small Business). Though he has lost Science, and therefore CSIRO, to the Senior Minister, Senator Schacht has acquired responsibility for the Co-operative Research Centres. So there will be a continuing relationship between CSIRO and its former Minister.

The Organisation's Chief Executive, Dr John Stocker, said 'CSIRO welcomes and applauds the elevation of Science to Cabinet level. We are looking forward to working effectively with Senator Cook.'

'I am delighted,' he said, 'to see Industry now officially and directly linked with Science and Technology. It is the perfect partnership for Australian prosperity.'

'Minister Cook,' Dr Stocker added, 'has already stressed to me his concern that Australia maintain strength in basic and strategic research.'

The Ministerial changes come amid intense media speculation about CSIRO's Budget, decisions on which have been delayed, partly because of controversy over structural changes to the Organisation proposed by Senator Schacht, and inquiries into those proposals.

CSIRO has been arguing that as a minimum we should maintain our Budget allocation over the next triennium in real terms at the level of that of the previous triennium.

CSIRO's expressed concern is that government forward estimates have the Organisation about \$50 million worse off each year over the next triennium. The shortfall, CSIRO financial gurus say, comes from several factors: the ending of funds allocated in the May 1989 Science Statement; the continuing need for catch-up capital infrastructure funding provided in the last triennium; and the cumulative effects of the Efficiency Dividend.

However, the government has said frequently that triennium funding for CSIRO was not yet finalised, and that it would be reviewing the future of the May Statement funds and the Capital Program.

The present fiscal climate in Canberra is a tough one. Ironically, this is because of the economic recovery. The government is under pressure to end the budget deficit to prevent the economy from overheating and going back into a boom-bust cycle. It has two main tools for doing this — lowering government expenditure and raising interest rates.

It is very shy of interest rate hikes because of the experience of the late '80s and '90s.

CSIRO has been arguing strongly that it delivers an excellent return to the nation on its funding outlay, as documented in many cost-benefit studies, and is therefore not one of the logical choices for expenditure cuts.

♦♦♦

Mexican fungus brought in to fight American weeds

A fungus from Mexico has been released in the Northern Territory to help control a weed that scientists from CSIRO's Division of Entomology call 'one of the most alarming threats to conservation in northern Australia' — *Mimosa pigra*.

Mimosa pigra is a prickly shrub from tropical America which the Division says has invaded Australian wetlands at a terrifying rate, gaining a stranglehold over 800 square kilometres of the 'Top End' and posing a serious threat to Kakadu National Park.

CSIRO's CLIMEX pest-mapping computer package predicts a potential distribution of *Mimosa pigra* covering most of the coastal areas of the Northern Territory, Queensland and northern NSW. As yet, it is limited to the Northern Territory.

The weed out-competes other plants and restricts access to floodplains for native animals. Waterbirds have suffered the most as they find the weed's

dense stands uninhabitable.

Fire, herbicides and machines have been tried against *mimosa*, but lacking expensive follow-up, this has only made matters worse by clearing the way for new growth.

Mimosa pigra is the subject of a biological control program in northern Australia involving CSIRO and the Northern Territory Department of Primary Industry and Fisheries. Dr Wendy Forno, the Division of Entomology scientist in charge of the program, says the newly released fungus attacks the leaves of the plant, sometimes with dramatic results.

'In the Gulf Coast of Mexico this fungus devastates *Mimosa pigra*, particularly during the

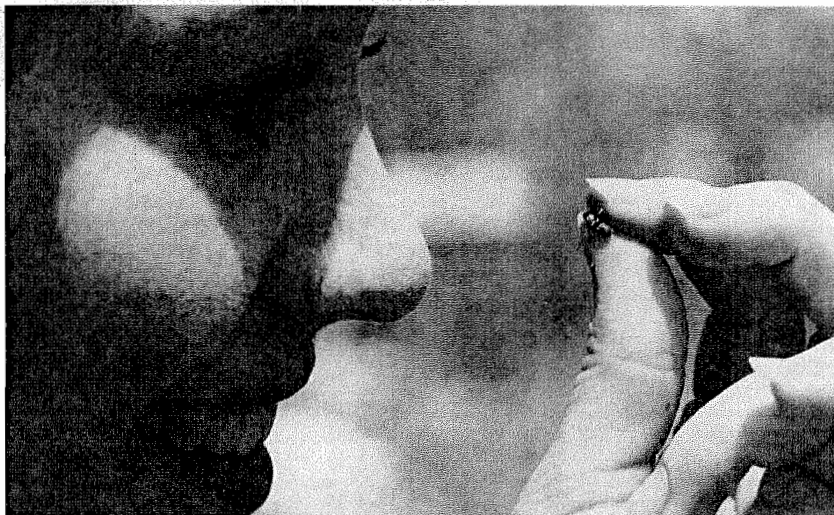
wet summer months,' said Dr Forno. 'We hope it will do the same here.'

Initially the fungus is being released on the Adelaide River floodplains near Darwin. It has been extensively tested over five years to ensure that it is safe to release. The tests show that it attacks only *Mimosa pigra*.

Six biological control agents have already been released — two seed-feeding beetles, a stem-feeding beetle, two stem-boring moths and a flower-feeding weevil. Although some of these insects have had an impact on the pest, herbicides are still having to be applied regularly to slow the rate of spread.

CSIRO ecologist Dr Mark Lonsdale says the need for effective control is urgent. He says scientists and conservationists are concerned because infestations can double in area in a single year. ♦

Kids collect fruit flies for science



Results are flooding (or is that swarming?) in from the Double Helix Science Club's national fruit fly experiment, launched on February 10 this year. Two thousand members of the club, school children from all around Australia, have been out trapping the flies in fly traps made from recycled plastic bottles, and it could end up saving the taxpayer a small fortune. According to experiment organiser Linda Meisel of CSIRO's Education Programs, controlling the Queensland Fruit Fly costs Australia more than \$18 million a year. 'Scientists at CSIRO and the University of Sydney need to compile a genetic family tree of fruit flies in Australia. The first step is to collect flies from all over the country,' said Ms Meisel, 'and 2,000 young members of the Double Helix Science Club volunteered to help.' As of now (the end of March) 1,247 members of the 2,000 have returned their results, and according to scientist Dr Marianne Frommer, those results are 'very good'. She is surprised and delighted at the standard of care and accuracy the young people have shown, which she says will make the data much more useful than might have been expected. Dr Frommer is so keen to keep up with what the flies are doing in some of the remote areas, results from which are extremely interesting, that she has written to the members in those areas to ask if they would like to continue trapping for a little longer. Queensland members, as expected, are returning the most flies.

(The photograph shows Double Helix member Kathryn Barker examining a fruit fly.)

Workshops



Life has been running fast and full enough these past few weeks, but what stands out most vividly in my recent memory is a number of workshops where I've been part of a fascinating dialogue among CSIRO staff — of all levels — on the subject of the Organisation's future. What has made these so vivid is not just the combined gravity and excitement of that topic, but a strong sense that we have really been getting somewhere with it.

The genesis of this present family of meetings can be traced back to a Board workshop convened and presided over by Adrienne Clarke in mid-1993. The main item on the agenda was to look back at the last five years and see how the Organisation had performed since its restructuring — against the objectives set out in our Act.

Our conclusion was that CSIRO had done a creditable job in many areas of its business, but now needed to look forward into the next century, to work out our role in Australian society. As one of the key centres of technology, how could we make that technology available to an Australia whose success depended on emerging as a technologically competent nation in a highly competitive world?

Taking on that challenge, we have held several Committee workshops looking at a new enunciation of our Vision, and particularly our commitment as an organisation to delivery of useful results to people who need them.

For my part, I've also decided to take some different and rather more unconventional slice groups through the

Organisation to help think about these big issues. One of the most recent of these was a workshop held in Melbourne for younger CSIRO staff members, under the masterly supervision of Martin Smith of the Human Resources Branch. The term 'young' included anyone under 35. All of them had been nominated by Divisions and Institutes as being people with something to contribute, people who had thought deeply about the Organisation and people who were at an age where they would perhaps be expected to have views slightly different from those that are current among the most senior levels of management, who tend to be older. (I leap forward, as youthfully as possible, at this point, to say that I am aware that the readers of this column scrutinise it for any signs of latent sexism, heightism, widthism, regionalism and, possibly, Satanism. I therefore know in this instance that I am squarely risking a legitimate charge of ageism. My head is blushing but unbowed.)

Anyway, the young people who came to the Melbourne workshop showed a stimulating group vitality. They quickly set up working groups, each with

the task of identifying issues that they saw as crucial to the future of CSIRO. They gathered the evening before the meeting to prepare some topics, which they tested against each other the next day. I joined them through the morning, afternoon and evening of the second day to discuss the issues they wanted to raise, and then we had a pleasant group dinner where we doused, in good Victorian red wine, those differences that were still thrashing about.

The biggest issue for this group was how to make sure that we have enough flexibility in both our management structures and our attitudes to be able to make a real contribution to improving delivery of our results. They were particularly concerned about the Organisation's reward system, with some in the group feeling that the terms and conditions of employment for CSIRO personnel were too rigid to encourage the kind of career step that CSIRO might increasingly represent in the future — a future in which more people might move in and out of the Organisation rather than regarding an appointment to CSIRO at the age of 23 as a life sentence.

There was also a feeling that in terms of the Divisional and Institute structures we needed to keep breaking down barriers, because these had a nasty tendency to grow if left unchecked, reaching heights such that lower staff couldn't see over them. Another issue that many people raised was the question of the integrity of CSIRO's strategic research base and how we would maintain and build on this vital store of intellectual capital in an age where we would be increasingly subject to scrutiny about external earnings and about winning contract research. In particular there was concern that the time and effort involved in generating external earnings might threaten and even maim the Organisation's ability to do strategic research in the future.

Several people within the group thought that one vital response to this challenge was to manage the costing and pricing of our research better, making sure we demand full, realistic funding for short-term projects. This, they felt, would help to keep the right financial balance between those and the long-term, strategic research that was otherwise so easily pushed into subsidising its more urgent and imperative rival, to the eventual cost of both.

Another issue that many people identified was the danger of increasing bureaucratisation, with its ever-

increasing flow of demands that so often, in the perception of the group, demanded busy work rather than useful work towards specific objectives. I agreed that this definitely is a danger, and in my observation even a trend, in the Organisation, and that we will have to be vigilant about resisting it. No doubt some of it is internal, but much of it is the consequence of the new growth industry of reviewmania.

I pointed out to the group that we are now involved in, or have recently emerged gasping from, 67 different government-imposed reviews of bits of, or aspects of, or all of, CSIRO's structure or function. And that diverts the course of our effort and energy massively from the purpose for which we exist. The preparation of submissions for these endless reviews, and sometimes the lack of any discernible outcomes from their reports and recommendations, must make one question their benefit for cost. It all points up our need to have a set of indicators against which we measure and report our effectiveness.

Another of these future-oriented workshops that I found profoundly exciting was with the CSIRO Executive Committee. We worked together on a Vision for the Organisation — looking into the next century — and a strategy for its realisation. We invited a number of CSIRO people to prepare papers on future scenarios for particular areas of technology, and their presentations were superb. Graeme Pearman spoke on the environmental issues of the 21st Century; Bob Marshall on socio-economic trends to the Year 2020; Gerry Haddad on trends in physical technologies, Phil Jennings on biotechnology and the biological industries in the 21st Century, and Bob Frater on technology in industry.

It was such a stimulating set of presentations that I think we could make a really important public statement as an organisation about these issues by collecting and refining the papers for a major publication. In any case, once the principles from our workshop have had a chance to be discussed within the Organisation, and with the Board, I intend to convene a national workshop in which CSIRO will take the opportunity to demonstrate our Organisation's central role in Australia's future.

Letters to the Editor

Perking up our managers?

Dear Editor,

Times are tough for scientific research funding in CSIRO!

'We must use our existing resources efficiently and effectively.'

What better way to do this than to train project leaders at the R&D Project Leaders Course! For a mere \$1,000 per participant the Executive and Research Management Development — Human Resources Branch (that can't be their real name) will put on a four-day course in each state. I think I'll start at the Hyatt Regency (Sanctuary Cove, QLD) and focus on the tropical aspects of leadership and team-building on the back nine. No, I go there all the time. Perhaps I'll join my southern colleagues in the Barossa Valley or better still at The Vines Resort (WA) to sort out management styles in the wine industry.

After that I'm going to need a break, though I think I'll avoid the NSW Rum Corps Resort at Windsor. Sounds really tough. (I thought we made those people redundant last century.) Lincoln Downs at Bateman's Bay sounds like just the place to write up my 'Learning Contract'. Hold on, there's no course in Victoria (or Tasmania and the Northern Territory). So I ask the question — why is this so? Surely these states must have appropriate venues — even Victoria.

Now where's the brochure on the Stress in Management Course?

In Sincerity Yours

Ross Tellam

Division of Tropical Animal Production

Dear Editor,
I believe Art Raiche's letter in the December '93 issue of *CoResearch* went too far in its sarcastic comments about management. While management is an easy target for the barbs of disgruntled cynics, we should not forget the important, difficult and thankless tasks they are asked to perform, such as: re-organising, restructuring, relocation, visions, missions, redundancy, PPE, Flight Deck support, filibustering, budget

letters continued on page 6

CSIRO SHORT SHOTS

Clean-air cars

Australia now has an agency whose aim is to have 10,000 electric vehicles on our roads by the year 2000 — just in time to make Olympic athletes breathe easier, and to help repair Australia's recently dented green image. CSIRO's Dr David Rand is Chairman of the Australasian Electric Vehicle Development Task Force, which plans to build awareness of electric vehicles in niche markets, such as urban bus services, hospitals, inner city courier services, the food industry and company fleets. The Task Force, which brings together private businesses, industry bodies, Sydney University, CSIRO and other government agencies here and in New Zealand, believes there is export potential for the design and supply of components to world electric vehicle manufacturers who must soon meet zero-emission standards.

Soil monitor for sugar cane

Soil in sugar cane costs the Australian sugar cane industry more than \$30 million every year. It damages milling machines, disrupts process streams, lowers sugar quality and increases transport costs. Dr Bill Mathew and his team at the CSIRO Division of Mineral and Process Engineering have now developed and successfully field-tested a soil monitor for the quality control of sugar cane. The monitor accurately measures the soil content of sugar cane on a conveyor belt moving hundreds of tonnes per hour. It works by measuring traces of natural radioactivity in the soil and using this to compute soil content. The monitor was produced by a collaborative project involving CSIRO, the Bureau of Sugar Experiment Stations (Qld) and the Tully Sugar Mill.

Good news for greenhouse

New observations by a team of scientists from Australia, the US and the UK suggest that levels of atmospheric methane are rapidly approaching stabilisation. Dr Paul Steele, a Principal Research Scientist of CSIRO's Division of Atmospheric Research, said the observations had great significance to scientists studying the greenhouse effect, as atmospheric methane is responsible for about twenty per cent of the human-caused warming effect. The team's recent observations suggest that atmospheric methane may stabilise much sooner than scientists had expected, but Dr Steele pointed out that there is no guarantee that this will happen.

Assault on John's disease

CSIRO has begun a major research collaboration with the state agricultural departments of New South Wales and Victoria. The research is aimed at controlling John's disease, or paratuberculosis, which affects cattle, sheep and goats, and was identified as an urgent animal health problem last November by Australian meat producers. Sydney's Royal Easter Show is banning entries from any property that has had the disease in the last five years. Cattle suffering from John's disease waste away from severe diarrhoea. Even when they recover there are production losses, and the surviving animals can be lifelong carriers of the bacterium, making the disease difficult to wipe out. CSIRO scientists of the Division of Animal Health believe their expertise in the detection of bacterial infections in cattle may get the project off to a flying start.

Windfall for fisheries

New discoveries about the effects of wind patterns on fish in south-east Australian waters could offer better predictions and profits, and so better chances of survival, for some Australian fisheries. In the late 1980s the scallop catch plummeted from 30,000 tonnes to 5,000, and gemfish from 5,500 tonnes to 132, and now both show signs of recovery. It seems over-fishing is only one factor in the size of fish stocks. Research by Dr Ron Thresher of the CSIRO Division of Fisheries shows a close link between strong westerly winds and peak production of these and other marine stocks, including redfish and rock lobsters.

Honour for Environmental Mechanics

Trinity College, Cambridge, has given a Visiting Fellow Commonership (VFC) to Dr John Philip, CSIRO Fellow Emeritus at the Centre for Environmental Mechanics in Canberra. During the six-month tenure of the VFC, Dr Philip will enjoy the rights and privileges of a resident Fellow of Trinity, where he will pursue his researches on the mathematics and physics of flow and transport with special reference to the natural environment. Trinity has been Cambridge's, and the United Kingdom's, leading college in mathematics and fluid dynamics since the 17th Century. Isaac Newton was one of its Fellows. Dr Philip was the first Chief of CSIRO's (then) Division of Environmental Mechanics, from 1971 to 1992, and the first CSIRO Fellow. He is also a Fellow of the Australian Academy of Science and London's Royal Society.

Re-using our refuse

A survey by CSIRO's Division of Building, Construction and Engineering has revealed a surprising level of recycling of Australian building materials. In the Melbourne central business district, for example, 69 per cent of materials from demolished office buildings are recycled, 11 per cent for re-use and 58 per cent for re-processing. Up to 95 per cent of steel products are used again, 80 per cent of concrete rubble, and 70 per cent of roofing. The findings of the survey will be delivered at the First International Conference on Buildings and the Environment in the United Kingdom in May.

Corporate Planning restructure

CSIRO's Corporate Planning Office in Canberra, headed by Dr Don MacRae, has been dismantled. It will be replaced with a group to be called Strategic Planning and Evaluation, which will be part of the Directorate of Corporate Business under Peter Bradfield at Head Office in Melbourne, though some members may remain in Canberra. Mr Tim Healy, formerly Planner for the Institute of Plant Production and Processing, is now Executive Chairman of the committee set up to give management direction and determine the structure of the new group.

Commercialisation gets serious

Last year the Organisation had some legal problems with business deals, but the commercialisation task force set up during that year has now produced its commercialisation manual and distributed it to high-level staff who will be involved in business negotiations. While some of the information in the manual is 'commercial in confidence', and therefore not to be released publicly, CSIRO staff themselves will be able to get hold of the manuals through their Business and Program managers, and are being encouraged to do so. The Organisation has begun a series of workshops training staff in the commercial practices and procedures that will constitute its new policy, which it hopes will make it more effective in its business dealings. Workshops will also soon be organised by Institutes and Divisions.

UNIDO-CSIRO 'Clean Production' Conference

by Nick Goldie

Clean industrial production, according to CSIRO Chief Executive Dr John Stocker, leads not just to less pollution, but also to more profit. At the end of the UNIDO-CSIRO conference, he called on the international community to recognise the 'Melbourne Principles of Clean Industrial Production.'

The Melbourne Principles came out of three days of conferencing, debate, and workshop, held at the World Congress Centre in Melbourne in February. During 1993, CSIRO had been asked by the United Nations Industrial Development Organisation to organise the 1994 conference in Australia.

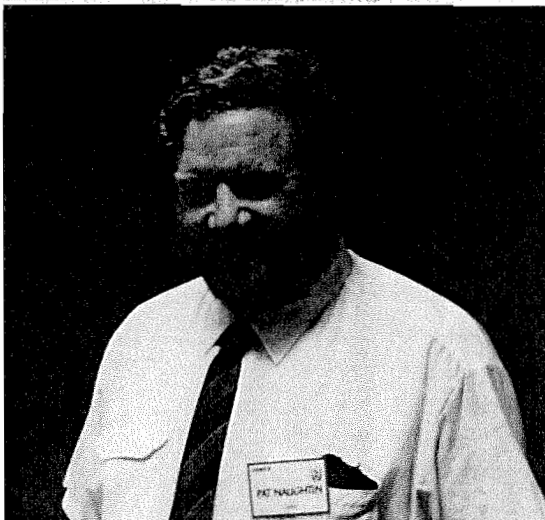
Among the many delegates — there were some 120 speakers in all — were Ministers for the Environment from Indonesia, Kusumaatmadja Sarwono; and Germany, Dr Klaus Töpfer; President Bill Clinton's Environment Chief of Staff Ms Cathy Zoi; Dr Bong-Suh Lee, Vice-President of the Asian Development Bank, and Toyota's Project General Manager Mr Masazumi Tanazawa.

Notable Australians included CSIRO Chairman Professor Adrienne Clarke, John Ralph of CRA, (then) Environment Minister Ros Kelly, Science Minister Chris Schacht, and Ms Patricia Caswell, Executive Director of the Australian Conservation Foundation.

After a subdued start — at one point there was even talk of cancelling the conference due to lack of interest — there was both a late rush of delegate registrations, and a surge of media interest. The commercial firm Conference Australia, who were running the event, actually ran out of conference 'kits', and the Media Room was constantly and intensely busy during the run of the conference.

Unfortunately but characteristically, the commercial electronic media were not interested in the conference or the delegates to it: they did participate in a ritual feeding frenzy around Ros Kelly, and they did film some demonstrators heckling the Indonesian Minister about rain-forests, but serious media attention came from print and the ABC in its many manifestations (Radio National, Radio Australia in various languages, The Law Report, Regionals, Country Hour, Science File, and most notably environment specialist Alan Tate of ABC TV News).

The Conference included a small exhibition, mounted by commercial firms such as CRA, DEC, and Kellogg (Aust); and government agencies including Melbourne Water, the CRC for Waste Management and Pollution Control, CEPA, and of course CSIRO.



On the first day of the Melbourne UNIDO-CSIRO Clean Production Conference, Science Minister Senator Chris Schacht announced a major agreement between CSIRO, the Australia Wool Research Promotion Organisation, and ICI Valchem, to develop and market two new innovative and environmentally friendly wool-processing technologies.

According to CSIRO's Pat Naughtin, who represented CSIRO at the Exhibition, Sirolan-LTD is a method of dyeing wool at a low temperature, and Sirolan-CF is a method of recovering valuable by-products from the washing of wool.

'These are terrific technologies,' said Pat. 'They've proved themselves in Australia and New Zealand. Now we'll be marketing them in Asia, and we're gearing up for a huge European demand. We're offering softer wool, brighter colours, longer-lasting garments — and an immense benefit to the environment.'

The photo of Pat Naughtin, above, was taken by Nick Goldie.

The Melbourne Principles of Clean Production are available in full from CSIRO Corporate Public Affairs, 06-2766478

CSIRO tells the world about sharks, seals and weevils ...

Sharks and Rays of Australia

The title is a slight understatement — the work includes entries on three Families of chimaeras, sometimes called ghost sharks, which are related to sharks and rays but cannot be classified with them.

The monograph is, as far as is known, an exhaustive catalogue of representatives of the Class Chondrichthyes — cartilaginous finned fishes — found in Australian waters. The list comprises 296 species — 166 sharks, 117 rays and 13 chimaeras — including 97 species not identifiable from the current literature, many of which appear to be new to science.

The introduction establishes cartilaginous fish as 'one of the two major groups of contemporary [finned] fishes' worldwide, and offers notes on their evolution (earliest known forms late Silurian, 400 million B.C.), their variety (950 species), anatomy, physiology and habitat, among other categories. It divides the Class into two sub-groups: Elasmobranchii (sharks and rays) and Holocephali (chimaeras). Elasmobranchii are then divided into three superorders of 'true sharks' and one of rays.

The main text comprises 45 short chapters, each devoted to a separate family, and describing all the known species in that family. All species are depicted in highly detailed half-tone drawings, with line drawings showing distinctive features.

Text sub-headings are 'alternative names', 'field characters', 'distinctive features', 'colour', 'size', 'distribution', 'remarks', 'local synonymy' and 'references'. For each species, a map showing world-wide distribution is included. Each species also appears in the colour plates at the back.

Departments include 'how to use this book', a glossary, a key to families, a checklist, and indexes of scientific and common names. Attention to fidelity and accuracy is meticulous: uncertainties and inconsistencies are carefully noted.

The text covers 513 pages, 31x23cm, and there are 84 colour plates. All is attractively presented on coated paper, with hard cover. The book is very well made, and, at 3kg, it takes a good man to lift it.

As a reference work, this will be a sine qua non for specialists, but the text is so easy to read

and so well explained that the book will be very attractive to lay enthusiasts.

As a catalogue, the only thing it lacks is 'best buy' advice. From my reading of the text I would recommend the Port Jackson shark and the skate for the table, and the mako for sport; but I would advise punters to leave the white pointer severely alone. It is known that pointers subscribe to their own consumers' guide, in which people are classed as a Good Buy.

...

Sharks and Rays of Australia was written by Dr Peter Last and Dr John Stevens of the CSIRO Division of Fisheries, with colour illustrations by Roger Swainston and line illustrations by Georgina Davis. The project was funded by a research grant from the Australian Fisheries Research and Development Corporation. The book is retailing for \$59.95, but the CSIRO staff discount of 25 per cent brings that down to around \$45.

Copies are available from CSIRO Publications, PO Box 89, East Melbourne, Vic 3002.



In the Autumn issue of *Ecos*, CSIRO's magazine on the environment, science writer, Wayne Decker, describes the life of the New Zealand fur seal in Australian waters.

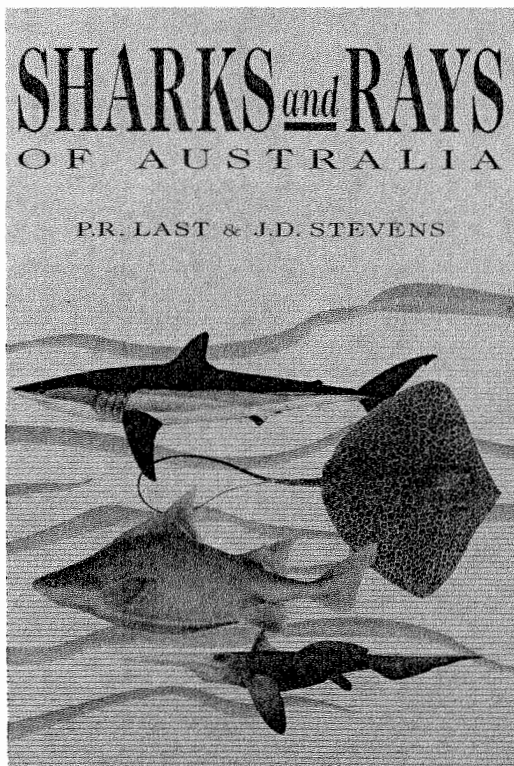
According to Wayne, these animals were once hunted to near extinction, but a five-year study of the seals, led by Dr Peter Shaughnessy, of CSIRO's Division of Wildlife & Ecology in Canberra, has found that their population is about 35,000 and rising.

Dr Shaughnessy and his team have identified all the breeding sites and the seal numbers at each site. (They monitored populations around Kangaroo Island in South Australia during five summers since 1988.) The seal numbers have shown a sharp increase in the Southern Hemisphere.

Assessing fur seal numbers is no easy task, as Wayne Decker describes in his article. He says, 'pups are chosen for the survey because they are the only age class ashore all at once, and are easily recognised by their small size and black fur'.

The photo above, taken by Liz Poon, shows Chris Bald, of the South Australian National Parks and Wildlife Service placing a New Zealand fur seal in a bag for weighing by Mr John Libke of the CSIRO Division of Wildlife & Ecology.

If you are interested in reading more about Dr Shaughnessy's work and the New Zealand fur seal, *Ecos* will be available on 25 March, and copies can be obtained from Tracey Lockwood at CSIRO, 314 Albert St, East Melbourne, Tel: (03) 418 7265 or Fax: (03) 419 0459.



New monographs on Australian insect diversity

The CSIRO Division of Entomology has launched two new monographs — *Australian Weevils*, by Elwood C. Zimmerman, and *Oecophorine Genera of Australia*, by Ian F.B. Common. The two family groups dealt with, weevils and mallee moths, are the most species-rich in Australia, and thus a large component of our biodiversity. The monographs are the first modern studies of the groups.

Who's Who in travel funding

CSIRO's International Affairs group has just produced a book, for the use of CSIRO staff only, called *Funds for International Scientific Activities: a directory of funding sources for use by CSIRO staff and their prospective visitors*.

As the title suggests, the book offers a detailed inventory of the various bodies providing funding for overseas visits, along with such information as the size and duration of the grant offered and your chances of getting it (for example, 'intense competition', or 'probably quite good for CSIRO staff with convincing proposals').

Of course the basic information is also given for each grant, including closing dates and other restrictions, contact points, collaborating countries or institutions, and subject areas. The directory is well-organised and easy to use.

For more information contact John Burdett on phone 06 276 6299 or fax 06 276 6292.

Parkville's 'Medical Mile' gets \$6 million milestone

by Christian Peterson

CSIRO reached another biochemistry milestone when Dr John Stocker, CSIRO's Chief Executive, opened the Division of Biomolecular Engineering's new wing in Parkville, Melbourne, last month.

Dr Stocker said the opening of the \$6-million wing highlighted CSIRO's commitment to helping Australia build an internationally competitive pharmaceutical industry.

'CSIRO is committed to a strong and vigorous research effort in support of the emerging Australian pharmaceutical industry,' he said. 'The investment in the Parkville site of the Division of Biomolecular Engineering is a signal to the industry and to governments that we are prepared to back this industry development.'

In the late 1980s CSIRO recognised the potential benefits to Australia of the Organisation's supporting a research-based pharmaceutical industry.

They saw an immense global market for manufactured health-care products in the pharmaceutical, medical-device and diagnostic industries. (In 1990 the total world market for pharmaceuticals was more than \$175 billion, with an annual growth rate of 12 per cent, faster than the growth rate of the world economy.)

There was also an opportunity to reduce Australia's trade deficit, as the pharmaceuticals component of the deficit had increased by five times from 1976 to 1989 (though the Federal Government's Factor F program is changing this trend).

In addition, CSIRO had significant expertise from agricultural research to add to the diverse skills in the medical research institutions that already existed in Parkville.

So, in 1989, the Division of Biomolecular Engineering changed its research emphasis from the biochemistry of wool and hides to that of human medicines.

Dr Stocker also acknowledged CSIRO biochemistry greats such as L.G. Lennox, Gordon Crewther, Lyndsay Sparrow and Bruce Fraser, whose work had led to the Division's present strength in structural biology.

The opening of the new wing marks the half-way point in the \$13-million re-development of the site, which is to be completed in 1995.

New test for safety of lupin seed in food

Dr John Edgar, a Principal Research Scientist with CSIRO's Division of Animal Health, has announced the development of a simple test for toxins in lupin seeds.

'Lupin flour is being increasingly used to raise protein and fibre levels in bread and other human foods,' said Dr Edgar. 'The new test will help ensure the safety of these foods.'

Dr Edgar said that CSIRO manufactures the test ingredients and provides them to the Academy of Grain Technology at Werribee, where all testing is carried out.

Lupins are worth more than \$200 million to Australia each year, he said, but the benefits of lupin grazing can be greatly reduced by a toxic disease, lupinosis, which causes heavy animal loss. The toxin is produced by a fungus growing on the grain.

The new lupin test means that grain authorities and food manufacturers now can quickly and accurately monitor the level of the toxin phomopsin in grain lupins. The Director of the Academy of Grain Technology, Dr Ron Wills, said that the Academy can provide test results within 48 hours.

The new test benefits both the human and the animal nutrition field. For example, bakeries using lupin bran as a fibre component can now be assured that their bread is completely safe, said Dr Edgar.

The test also allows animal products to be monitored for contamination where animals are potentially exposed to the lupin toxin in their feed. 'This may include milk and meat products,' said Dr Edgar.

The development of the test has been helped by grain producers through the Grain Research and Development Corporation (GRDC). The test is being used for this year's harvest. ♦

Rust-proofing plants

Scientists at CSIRO's Division of Plant Industry have uncovered the first clue towards solving the mystery of how plants resist rust diseases.

Rust diseases are a major concern to Australian agriculture, causing great damage to cereal crops such as wheat, barley, rye and oats, as well as crops like soybeans, sunflowers, and peanuts. In 1988 the Australian wheat industry suffered a loss of \$390 million from various rust diseases.

Drs Jeff Ellis, Jean Finnegan and Greg Lawrence have achieved a world-first breakthrough in isolating a rust-resistance gene from a flax plant.

According to Dr Ellis, growers

currently invest \$1.4 million annually, through the Grains Research and Development Corporation, on breeding programs to protect crops against rust infection. 'At present Australian cereal-growers protect their crops by investing in breeding programs to produce rust-resistant varieties containing natural resistance genes,' Dr Ellis said.

'This research is vital because the protection is economical and environmentally friendly - no chemicals are used,' Dr Ellis said. 'If the breeding effort was relaxed the rust would

overcome the resistance and we would stand to lose a billion-dollar crop.'

The team of researchers tested 200,000 flax plants before they successfully isolated the rust-resistance gene.

'Now that we have isolated the rust-resistance gene from a flax plant we can understand how these genes work. We now aim to create more efficient and effective means of breeding for rust resistance and extend control of rusts to crops like the sunflower, soybean and peanut, where control has been inadequate,' Dr Ellis said. ♦

Research Vessel Albedo — bless her and both who sail in her

CSIRO has launched its littlest research vessel, the 3.5 metre long *RV Albedo*.

Albedo is an aluminium punt, with a crew of two, which travels between bodies of water on the roof of a 4WD vehicle.

On January 20 this year, Director of CSIRO's Office of Space Science, Dr Brian Embleton, formally appointed *RV Albedo*'s bow with Australian champagne and wished good fortune to the crew and equipment that would sail in her.

Though small, the *RV Albedo* will provide a critical connection from Australia's inland lakes through space to the rest of the world with unique benefits to Australia on the way.

RV Albedo will carry instruments to measure the reflectance (or albedo) characteristics of inland lakes, both salt and fresh, that are scattered across the continent. According to Dr Dean Graetz of CSIRO's Division of Wildlife and

Ecology, knowing how reflective these lakes are makes it possible to use them to calibrate the daily images of Australia acquired by orbiting satellites.

'This research vessel is a small part of a very much larger and comprehensive CSIRO program designed to provide Australians with the best possible data on global change. What we find will drive our research as well as support decision-making by a very wide range of public and private authorities,' said Dr Graetz, the scientist responsible for *RV Albedo*.

'It is a small but very significant step in the long haul of describing how our continent responds to climates as well as land use. I have no doubt it will contribute to untangling the complex story of Greenhouse climatic change.'

'All our data will be archived in CSIRO's Australian Land

Research Data Centre at Gungahlin and from there be freely available to all interested parties,' said Dr Graetz. 'We are going to work damned hard to ensure that these data outlive us and are around to inform future generations about the state of the nation in 1994 and onwards.'

The methodology is expected to cause worldwide interest and to be used by other countries involved in climate change research. *RV Albedo*'s first trip will be on Lake Menindee in Kinchega National Park followed by repeated expeditions to Lake Frome and Lake Argyle.

The equipping of *RV Albedo* was made possible by collaboration between the Division of Wildlife and Ecology and the Office of Space Science, as part of the Climate Change program in CSIRO's Institute of Natural Resources and Environment. ♦

What is a CASAC, anyway?

No, it's not a secret society. It's the CSIRO Agricultural Sector Advisory Committee. CASAC is one of several advisory committees that help CSIRO set up links with potential users of its research. Its 12 members give advice on research priorities to the Directors of the three CSIRO Institutes that have research programs in the agricultural sector.

Advice isn't all they give, however; they also act as apostles for CSIRO, letting agricultural industries know what CSIRO can do for them.

Given that these 12 apostles have been meeting two or three times a year since 1989, what have they achieved?

Well, they came up with the

basis of the current CSIRO policy on extension of agricultural research results, and they have been an important part of two workshops that have set priorities for the whole agricultural sector in CSIRO.

They have twice put forward their views about CSIRO's role in biotechnology and genetic

engineering — suggesting that the Organisation should perhaps be an advocate, though not a strident advocate.

Their most recent meeting, at Geelong on February 21, again dealt with big issues. They recommended that CSIRO should apply a 'business system' analysis to priority-setting for its agricultural research. On the question of tropical agriculture they urged CSIRO to do more research in the north, instead of less as in recent years. They also advocated improved alliances and co-location with State agencies and universities. ♦

Letters to the Editor

continued from page 2

miscalculations, fingers-in-pies, car industry support, bungee jumping, memo-shuffling and de-afforestation ... to name just a few.

Rob Dobson
Division of Animal Health
McMaster Laboratory

Confusing moves

Dear Editor,
Under the heading 'Animal Health and Animal Production join forces' (*CoResearch* December '93) you stated that 'Staff numbers will rise to 230.' How was the 'rise to 230' determined? Currently numbers are 49-52 at McMaster Lab, 12-15 at the Poultry Centre and approximately 165 at Prospect to give a combined pool of 226-232. The uncertainty in the figures depends on whether you count people employed under the Australian Traineeship scheme. By my rough calculation staff numbers will remain static?

Rob Dobson
Division of Animal Health
McMaster Laboratory

A spokesperson from the Division of Animal Production confirms that staff numbers at the Prospect site will indeed rise to 230, as stated in the article. Following the completion of the new buildings, the staff from the McMaster Laboratory at Sydney University, and the staff from the Poultry Laboratory at Ryde, will move to Prospect to swell the numbers from the present 167 to 230. The combined CSIRO staff numbers will however remain static. Sorry for any ambiguity. —Ed.

♦♦♦

CMSS workshop

CSIRO's Division of Water Resources will hold a hands-on training workshop in Canberra on May 4-6 to demonstrate the Catchment Management Support System (CMSS) software.

CMSS spokesperson Trevor Farley says that the workshop will be of great interest to anyone involved in land and water management.

'Over the past few years, catchment management authorities have been set up in a number of Australian states, but they have been expected to operate with little data, no calibrated water models, and little in the way of scientific or computer resources,' said Mr Farley. 'However, there is often a great deal of local knowledge and local expertise.'

'CMSS is a simple computer program which can make use of this local knowledge and can produce an analysis of the likely impact of land and water management policies.'

Sir Ian McLennan Achievement for Industry Award

It's time to send in your nominations for the Sir Ian McLennan Achievement for Industry Award. Please do: it's an award well worth applying for, but nominations seem to be getting fewer every year.

The Award goes to CSIRO scientists and engineers whose achievements have helped Australian industry.

Winners are given a grant of up to \$15,000 for an overseas study tour related to their achievement. They are also presented with the Sir Ian McLennan Medal at a lunch-time ceremony, which this year will take place in Melbourne.

In these cost-cutting times the Award should be quite a help to those trying to catch up with overseas developments, or to increase even further the returns on their development in this country.

The winner for 1993 was Dr Jonathan Banks and his CSIRO Stored Grain Research Laboratory team, Division of Entomology, for their contributions to the grain export industry. A Certificate of Commendation was awarded to Dr Robin Bedding, also of the Division of Entomology, for his work on the use of nematodes to prevent insect attack on crops.

Brochures explaining the conditions of the Award and how to apply have been sent to all sites. The closing date for nominations is 30 June 1994 and the winner is expected to be announced in September or October.

More details can be had from Ms Karen Robinson, CSIRO Corporate Communication, PO Box 225, Dickson, ACT 2602; or phone 06 276 6108 or fax 06 276 6641.

Caption Competition



Surprisingly, the photograph of Robyn Williams didn't spark much creative enthusiasm among you; there were disappointingly few entries. The best one came from Lynn Pulford of Education Programs (again!), who did, however, complain that it was a difficult photograph. Her entry was — 'In New Zealand, areas contaminated by the disease are marked with signs as in the picture. The disease is so widespread that it has caused a drop in the standard of New Zealand cricket.'

Nick Goldie of Public Affairs was a close runner-up, with '... and as our guest on the Science Show this week, we welcome the CSIRO scientist whose cleverly disguised ball trap has almost wiped out Australian Rules. Dr Myers, do you expect the same welcome success with Rugby League?'

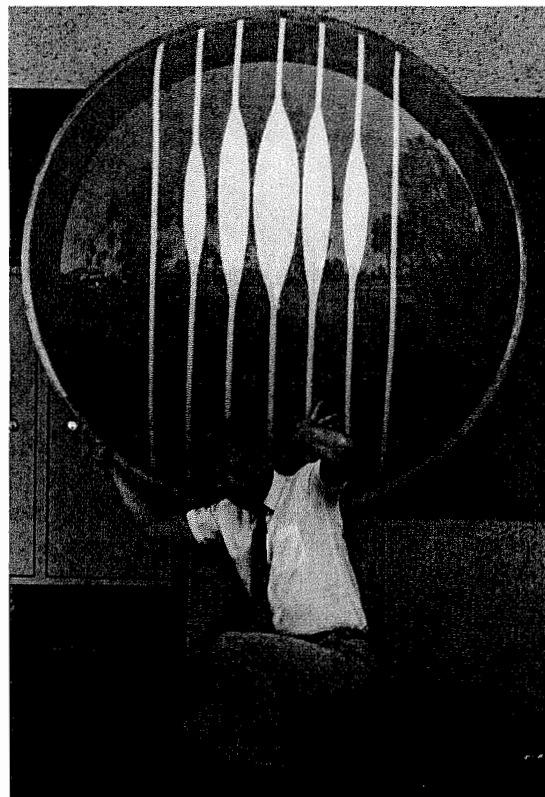
Nick also submitted '... and this week the Science Show visits Wagga. Dr Myers, will you explain how the effluent is used, not only to fuel the municipal barbecue, but also to provide lighting for the football field, power heat lamps for tanning legs, and cure the common cold?'

Barrie Hunt of Atmospheric Research offered a little gem, as always — 'What are you like at tiddly winks?'

David Harris of Education Programs sent in 'Watch this Bob, quickly, while nobody's looking ... I'll cannon the pink ball onto the red and then, hopefully, with a bit of luck, it'll go down in the bottom right pocket!'

Barbara Haslam, Division of Horticulture, offered 'After staff consultation, we decided it wasn't working — playing squash during the Divisional barbecue'.

I haven't worked out what the secret is for choosing a photograph that will inspire lots of entries, but whether it's a good choice or not I couldn't resist the one below. It certainly inspires memories in me, if not creativity. Fire away! (By the way, can anyone pick who it is?)



World energy information

You've got just under four months to fossick through, and take away whatever you fancy from, the world's main bibliographic data base on energy-related scientific and technical information.

It's called the International Energy Agency's Energy Technology Data Exchange, or ETDE, and use of it is normally restricted to those countries that are signatories to it and contribute data. At the moment these countries are the USA, the UK, Japan, France, Germany, the Netherlands, Canada, Finland, Norway, Sweden, Denmark, Spain, Italy and Switzerland. But now Australia is to be allowed a trial access period of seven months, from January 1 to July 31, 1994.

During this period any person or organisation in Australia can use the data base through either of the on-line hosts, STN (file Energy) and Dialog (file 103 Energy Science and Technology).

CSIRO's Information Services will help the ERDC, during the seven months, to assess the data base's value to Australian energy industry and R&D sectors. The purpose of the assessment is to find out whether the data base is useful enough to warrant Australia's joining the ETDE and thereby having constant ready access to the data base and the other services available through membership.

So, if you have a specific information need, or a general interest in the accessibility of such information, take the chance to try the data base now.

If you are interested in helping with the evaluation, or in the broader issue of making energy information more readily available in Australia, we would like to hear from you. The person to contact is Joy Sutton at CSIRO information Services at PO Box 89, East Melbourne, Vic 3002, or by phone (03) 418 7333, or fax (03) 419 0459, or AARNet jcs@isb.csiro.au.

♦♦♦

Tuna News

The CSIRO Division of Fisheries in Hobart has produced a colourful and very readable one-off newsletter highlighting both the potential and the problems of Southern Bluefin Tuna fishing. The illustrations are striking and the information fascinating.

The newsletter, *Tuna News*, deals with the role of science in helping the tuna-fishing industry achieve its goals, but offers items of interest to the casual reader too. For example, it seems that tuna flesh may get 'burnt' if the fish struggle during capture, because of the acid they produce when they are made to shift from using the muscles adapted for calm, continuous swimming to those adapted for fight or flight. So if you're catching a tuna for dinner, kill it softly; no rough stuff, or it might get back at you.

Dr Peter Young, Chief of the Division, said the newsletter was the result of a Science-Industry-Management workshop on Southern Bluefin Tuna (SBT) that was held in Tasmania at the end of 1993.

'The Southern Bluefin Tuna is a precious resource,' he said, 'both in terms of its economic value and as a unique member of our marine environment.'

'Currently, the Australian SBT industry is worth about \$94 million a year. With careful management and the further development of value-adding processes, it could be worth double that amount in years to come.'

'But to achieve these figures, there must be enough parent stock to ensure a sustainable fishery for the longer term.'

'Scientists are very concerned about the existing low level of SBT parent stock. The number of fish reaching breeding age is still falling, despite cuts to

fishing quotas throughout the mid to late 1980s.

'It is in the interests of all parties — the industry, managers and the community — that this issue is addressed.'

Dr Young said the CSIRO had been leading research into the Southern Bluefin Tuna since the early 1960s. This effort had been stepped up in response to the crisis in the 1980s. More, and better, research had been conducted on the SBT than on any other tuna species in the world. It was now the most comprehensively researched fin fish in Australia.

In the pursuit of knowledge about the SBT, scientists from the Division of Fisheries have developed some ground-breaking (or is that wave-breaking?) techniques. These include an archival tag, a miniature electronic device that is inserted into the body cavity of the tuna where it collects data at regular intervals for up to nine years, and an innovative method of studying the SBT's earbone, providing critical information on its growth patterns.

Dr Young said the newsletter had been produced with the support of the Tuna Boat Owners' Association of Australia and the Australian Fisheries Management Authority. It reflected, he said, the united approach that was now being taken to ensure the fishery was managed on a long-term, sustainable basis. ♦

Genetic mapping

CSIRO scientists led an international research team that has developed a 'genetic linkage map'. It should help produce better quality beef at lower cost.

The map is a world first for the livestock industry, and may enable cattle breeders to design cattle for specific requirements.

'Parents pass on traits to their offspring through genetic information or genes. A genetic map is an important tool we can use to locate the genes for important production traits,' said project leader Dr Jay Hetzel.

The CSIRO group has embarked on several ambitious projects which will use the map to pinpoint genes for disease resistance, parasite resistance and meat quality traits.

'Although the research using the linkage map will not reach the market place for some time, the work has already resulted in some useful spinoffs for producers, such as a test for Pompe's Disease and DNA fingerprinting,' Dr Hetzel said.

The CSIRO Division of Tropical Animal Production took the lead in developing the genetic linkage map in 1991 and established an international network of 23 scientists from six countries. CSIRO co-ordinated the project through an International Bovine Reference Family Panel, similar to a strategy used in human gene mapping.

♦♦♦

Barry Jones congratulates Student Research Scheme



Former Science Minister Barry Jones presents a certificate of participation in CSIRO's Student Research Scheme to Dieter Gebauer of Aquinas College, Perth, Western Australia. His project, supervised by Mr David Boldy of CRA Advanced Technical Development, was on the use of an artificial neural network to analyse vibration data from faulty wheel bearings on iron ore trains. Mr Jones spoke of the importance of the program as a way of stretching the imaginations of students with real-world problems. The Scheme is co-ordinated by CSIRO's Education Programs group, and operates around Australia. In Western Australia last year it involved 44 students and 41 scientists and engineers from 14 research institutions. Shown at left in the photograph is Ms Lesley Bremner, former Manager of the Western Australian CSIROSEC (CSIRO Science Education Centre), who organised the presentation.

Divers help CSIRO map the meadows

Divers will play an important role in mapping Australia's seagrass meadows, in a project designed to help protect the coastal environment.

Work on a detailed map of seagrass around Australia will begin off Esperance, Western Australia, early next month, according to Dr Hugh Kirkman of the CSIRO's Division of Fisheries.

'We'll use the latest satellite and navigational technology to pinpoint the expected location of seagrass meadows,' said Dr Kirkman. 'But we'll need field work by divers to see whether shaded areas shown in satellite images are in fact seagrass, and to collect samples of the plants.'

Seagrasses live and flower under

water. According to Dr Kirkman, the waters off Western Australia contain the most diverse seagrasses and the most extensive meadows found anywhere in the world.

Information gained would be invaluable in the event of an oil spill or similar environmental disaster, said Dr Kirkman. In February 1991 when the *Sanko Harvest* ran aground near Esperance, disgorging tonnes of fertiliser and oil into the sea, the potential for environmental damage from the spill was not known, because there had been no

detailed studies on the area's underwater vegetation.

Dr Kirkman said the deep-water expedition would be followed by similar in-shore studies and a series of surveys that would see all of the nation's seagrass beds mapped.

Data from the project will form an important part of the national inventory of natural resources which is being put together by the CSIRO's Division of Wildlife and Ecology. The West Australian segment of the research is being done in collaboration with the West Australian Departments of Land Administration, Environmental Protection, Transport, Fisheries and Planning and Urban Development. ♦

Australia-Philippines climate monitoring program

The CSIRO Office of Space Science and Applications (COSSA) and the National Mapping and Resource Information Authority of the Republic of the Philippines (NAMRIA) have announced the renewal of their major international agreement on climate monitoring.

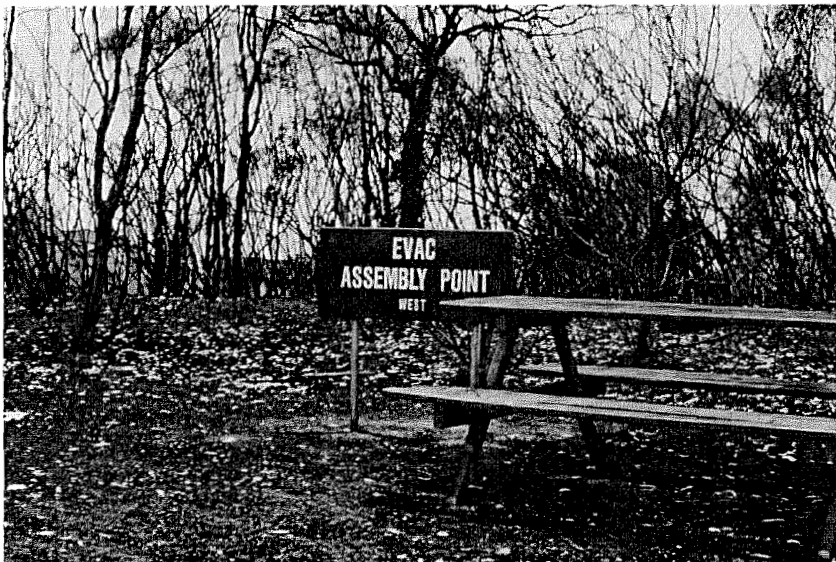
Under the agreement, the Australian-built station in Manila will obtain daily environmental satellite data until 30 September 1994, over an

area covering the Philippines, Kalimantan, Irian Jaya, east China and south Japan. The data will be sent to the Australian Land Research Data Centre

operated by CSIRO's Division of Wildlife & Ecology in Canberra, where data from Australian ground stations in Casey (Antarctica), Darwin, Hobart, Townsville and Perth are also kept as part of a world-wide program to study the effects of human activities and climate change on vegetation and land cover.

♦♦♦

There's putting out the fires, and then there's answering the questions ...



The fires that hit CSIRO's Sydney sites at Lindfield and North Ryde in January this year did little harm to buildings, though a lot of greenery was lost. Part of this was luck, part of it the efforts and expertise of the professional fire-fighters, and part of it the commitment of CSIRO staff and other volunteers who pitched in to protect the CSIRO property. At the time it was a lot of hard work, but the work didn't stop with the quenching of the last embers.

For one group in particular, CSIRO's Information Network, the work was just beginning. According to Frances Mercer, a trainee Information Officer with the Network, they were responding to 'hordes of enquirers' throughout January and February.

Ms Mercer said the bushfire enquiries had started on the first work day after the New Year, as people prepared for the fire, though the fireball didn't hit the area until 5.30 p.m. on Friday January 7.

'The phones were hot, literally, with bushfire enquiries,' said Ms Mercer. 'They remained constant for about three weeks and are slowing down now as the regrowth begins.'

She said information staff 'quickly became quite knowledgeable about bushfires' as they were briefed by Divisions whose key staff were away in the thick of the fires.

'We noticed that enquiries changed from 'how to protect' to 'we want you to collect information on our experiences'

to concerns about equipment and materials that didn't perform to specification.

'Many hopeful inventors wrote and rang in with their ideas.'

Ms Mercer said that all staff have now been given compulsory fire-fighting training, prompted by the close call at their site.

The photograph above, of the burnt Lindfield site, is by Tony Sadler. The one below is by Rob Jung, and shows flames and clouds of black smoke near the Lindfield site at around 5 p.m. on the 7th. ♦

Wilf Crane Crescent, CSIRO, Canberra

As a tribute to the late Dr Wilf Crane, the CSIRO Division of Forestry has given the name Wilf Crane Crescent to the main road through its Yarralumla site in Canberra.

There was a ceremony on March 7, at which Dr Crane's widow, Colleen Crane, unveiled the new road sign.

Chief of the Division, Dr Glen Kile, told of how Wilf Crane had championed the cause of rejuvenating Australia's degraded landscape with trees.

'Wilf was a great and unforgettable Australian, a lateral thinker, an enthusiast, a man of conviction, action, humility and simplicity,' said Dr Kile.

The Yarralumla site has a history long connected with tree-planting and forestry. It is part of Westbourne Woods — the area of Canberra where Weston and others planted and tested trees suitable for the bush Capital. It was, until 1968, the place where nearly all foresters in Australia were trained, and Wilf Crane himself graduated from the Australian Forestry School on the site in 1962 ♦

Chief Executive's Study Awards

This year's Chief Executive's Study Awards have been announced, and appear below.

Mr Bruce Blunden, Division of Soils

— to investigate the distribution of stresses imposed by a full-scale tractor tyre using the Advanced Soil Bin facility at Silsoe College, Cranefield College, England.

Mr Andrew Bryce, Division of Petroleum Resources

— to visit the Geological Survey of Canada in Ottawa to gain insights and experience into an operational laser ablation system and apply this knowledge to aid the determination of the chronology of petroleum migration and entrapment in the sedimentary basins of offshore Australia.

Mr Douglas Burgess, Division of Applied Physics

— to study techniques used to calibrate precision high-voltage and high-current measuring equipment at the National Research Council, Institute for National Measurement Standards, Ottawa.

Ms Heather Burrow, Division of Tropical Animal Production

— to enhance her knowledge of research in Genetics theory by visiting various research groups at the University of Nebraska, and the US Meat Animal Research Centre. Ms Burrow will also attend the 5th World Congress on Genetics applied to Livestock Production and complete a graduate course in Quantitative Genetics Theory.

Ms Lesley Clementson, Division of Fisheries

— to learn bio-optic techniques at the Laboratoire de Physique et Chimie Marines, Université Pierre et Marie Curie, France, for studying the absorption spectra of particulate matter in seawater.

Mr Roger Digby, Apprentice Co-ordinator

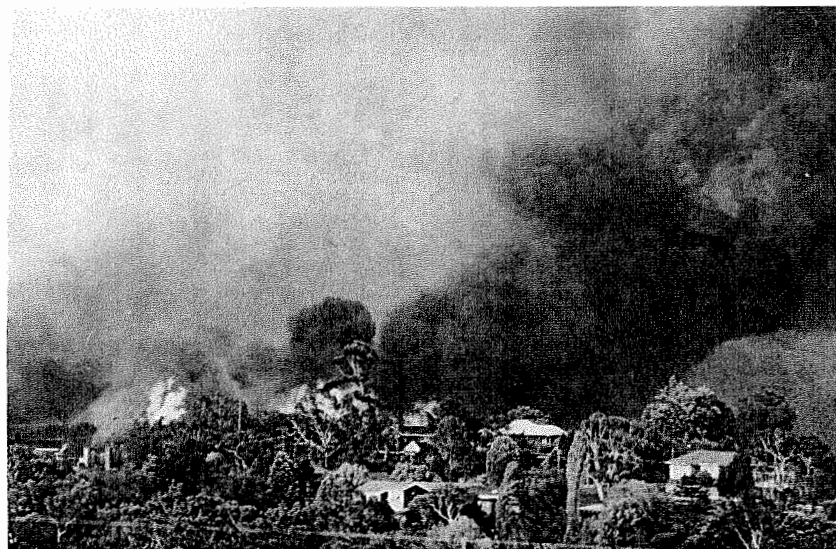
— to gain first-hand knowledge on the implementation of competency-based training, work-place assessment, training of work-place assessors and recognition of prior learning/current competencies practices in the recruitment of apprentices.

Mr Toss Gascoigne, Centre for Environmental Mechanics

— to establish key links with other communicators in south-east Asia and examine the effectiveness of national associations of science communicators.

Ms Jacinta White, Division of Biomolecular Engineering

— to develop advanced microscopy techniques for studying biological tissues and molecules, including scanning tunnelling and atomic force microscopy, among other topics.. ♦



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CoResearch

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CSIRO's staff newspaper



Working out the Budget consequences, and working in against them

8 JUL 1994

LIBRARY

CSIRO staff have been staging all-night work-ins around Australia to draw attention to what they see as dangerously inadequate support for rural research.

The work-ins followed the release of proposals by Dr Alan Donald, the Director of the Institute of Animal Production and Processing, to consolidate the Institute's research from 27 sites to 17, reducing staff by 138 over three years.

The proposals come as the first management response to CSIRO's new triennium funding announced in last May's Budget statement, which is about \$20 million per annum less than the previous triennium.

Following the Government's Budget announcement in May, Dr John Stocker, Chief Executive of CSIRO, made a statement to staff in which he outlined the areas in which savings would be made.

'We will have to manage this new level of funding carefully to protect our research delivery and infrastructure,' he said. 'We will need to continue to focus our research programs, to improve the efficiency of our administration and to rationalise our property assets.'

The Institute of Animal Production and Processing faces an even more difficult time than most in CSIRO because of the dramatic fall-off in funding from the wool industry in the current rural recession.

In a statement to IAPP staff on May 25 Dr Donald released details of options he was considering 'to meet changing industry and CSIRO priorities and the downturn in industry funding of research'. 'The options,' he said, 'are for discussion with staff and consultation with our stakeholders in industry and Government, before final proposals are placed before the CSIRO Board.'

He said that industry funding of IAPP had fallen from about \$34 million in 1992-93 to a projected \$22.5 million in 1994-95, in large part due to a decline in wool research funding.

To maintain and maximise its research effort, he said, the Institute proposed to consolidate its effort from a current 27 sites to 17, thereby cutting its overhead and administrative costs.

'The proposed changes will involve some reductions in jobs,' Dr Donald said, but he added that of the 138 over three years only three would be scientists' jobs.

The major site changes under consideration are:

- relocation of the Division of Animal Health's Parkville laboratory into the Australian Animal Health Laboratory at Geelong;
- disposal of the Ryde (Sydney) site of Wool Technology, consolidating wool textile research at Geelong;
- disposal of some of the Glenthorne (Adelaide) site of the Division of Human Nutrition;
- disposal of the Division of Tropical Animal Production's Long Pocket site in Brisbane with relocation of activities to St Lucia (the Division of Tropical Crops and Pastures site on the University of Queensland campus) and Rockhampton;
- reduced investment in poultry production facilities in the Division of Animal Production;
- more collaborative use of field stations allowing reduction of CSIRO field stations.

Dr Donald said he believed these changes would 'put CSIRO in a strong position to support the animal food and fibre industries in the future on a sustainable basis'.

The pigeons now perceived this to be a bigger cat than the first, and there was a wilder flurry of wings. The press responded enthusiastically with reports of massive job cuts, there were calls in the Senate for Peter Cook to explain his treatment of CSIRO, and Democrat Senator John Coulter put out a press release accusing the Government of destroying the Organisation.

The farmers lobby expressed outrage against the cutbacks in rural spending, and the CSIRO Division of the Public Service Union put out press releases from the threatened Division of Wool Technology and from their head office expressing anger and rejection of the proposals.

Senator Robert Hill, newly appointed Shadow Minister for Science, also put out a press release, in which he accused

Science Minister Peter Cook of putting pressure on CSIRO's Institutes, via the budget, 'to cut overheads and administrative costs and slash staffing levels.'

Inquiries were called for, by the Democrats into the Government's handling of CSIRO, and by the Coalition into CSIRO's handling of rural research.

Eleven 24-hour work-ins at CSIRO sites throughout Australia were organised and publicised by the CSIRO's union for Thursday June 2. They were well attended, with from 50 to 80 staff taking part at each site, and attracted good media coverage.

Peter O'Donoghue, Secretary of the CSIRO Division of the PSU, said 'Members are angry at the loss of jobs that has occurred in this research area. Already, 243 jobs have disappeared in less than three years in agricultural research in CSIRO. It will be impossible to replace the knowledge and expertise lost to Australia from these retrenchments.'

'Members believe that CSIRO management have handled the situation badly,' Mr O'Donoghue said. 'However, the Government must ultimately take responsibility for the future of agricultural research in Australia.'

CoResearch approached the Union, the Chief Executive, and Dr Donald for additional comments just before going to press.

Dr Donald said, 'Unfortunately, given our funding setbacks, we don't have the luxury of doing nothing'.

'We believe that the proposals we have put forward are much better for our long-term future than simply cutting activities across the board. They will make us more efficient and competitive, will meet our long-term need to be flexible and responsive to our customers, will minimise job losses and will protect our capacity to start new research.'

'We are very conscious of the disruption our proposed changes would cause to the

lives of some of our staff and to their work. We are also genuinely open to alternative ideas which achieve the same basic objectives, as we go through the current consultative process before final decisions are taken.

'We cannot put off those decisions for too long, but their implementation will necessarily

occur over several years making it easier for staff to plan their own futures, with all the help that we can provide.'

(Comment from Dr Stocker appears on page 3, and extracts from a June 8 CoResearch interview on this topic with new Science Minister, Peter Cook, appear on page 4.)

Science Festival

by Karen Robinson

The second Australian Science Festival was held in Canberra from April 23 to May 1 this year, with organisers claiming it to be a great success.

An estimated 80,000 people visited the Festival's 50 venues during its nine days — 10,000 more than last year's crowd estimate, according to Science Festival Manager Mary-Anne Waldren.

The Science Festival, Ms Waldren said, is a celebration of scientific and technological achievements, with more than 100 events, exhibitions, debates, lectures and seminars.

Visitors to the Festival's centrepiece — the 'Amazing World of Science' exhibition at the National Convention Centre, were offered hands-on science, engineering and technology. Experiments, competitions, displays, workshops, a circus, and eminent speakers were supplied to entertain and inform.

At the National Botanical Gardens, one of the many venues, there was a display of products (not for sale!) made from crocodiles, whales and elephants,

showing how the pressure of international trade is threatening wildlife with extinction. For the more adventurous, there was a demonstration of snake-handling and venom-milking in the 'Snakes Alive' series of talks.

The 'CSIRO Green Machine' at the Australian National University had hands-on research science activities, including structured experiments and activities with worksheets. There was another CSIRO exhibit at the National Science & Technology Centre, with a number of computer interactive units showing how Australia's mineral resources are transformed into valuable products.

Ms Waldren said she had been delighted with the attendance for the 1994 Science Festival. 'There was something for everyone,' she said, 'from school children to senior citizens'. She said she hoped there would be more industry involvement next year. ♦



Children discovering a Megalosaurus at the 'Amazing World of Science' exhibition during the Australian Science Festival



In recent months I've been launching our new Commercial Practice Manual in a series of meetings with staff in five capital cities around Australia.

The launches were day-long, workshop-style meetings in which I was joined by the Directors. We explained the thinking behind the new manual, answered questions and made a point of stressing at each meeting how crucial it is for the Organisation to have, and stick to, a clear set of policies and guidelines for our commercial practice.

We've had a lot of very enthusiastic feedback from participants.

It seems that one of the most important effects of the meetings, for many, was the bringing together of CSIRO staff members across Divisional and Institute boundaries.

Another result, more delightfully tangible if no more important, is that my office is already starting to see great improvements to our business dealings, in particular in contract approvals, from the application of the practices prescribed in the manual.

The exercise itself, apart from its results, has also been a good discipline for us, I think, both in

the working out of the policies and in the marketing of them through the Organisation.

The next phase is going to be a tricky one: we now have to sort out the complexities of exactly where CSIRO fits in the process of converting ideas to wealth. We certainly have a rich and varied experience of the creation and transfer of intellectual property, and no dearth of critics ready to point out our deficiencies in this regard. A recent example is the submission by the Australian Industrial Research Group to the Industry Commission, which is enlivened by an enthusiastic abundance of unsubstantiated negative assertions about CSIRO.

This, I'm pleased to say, is balanced by a similar abundance of positive statements made to the same enquiry by companies of all sizes.

None of this changes the fact that one of the tasks we're going to have to come to grips with to move forward as an organisation is to continue to

refine our commercial practice. As a first step training workshops are being held in Divisions and Institutes as all of us adapt to the new procedures.

Two imperatives require us to nurture our interface with the commercial world. The first is that to justify its existence CSIRO needs to be seen to be relevant and competent in supporting Australian industry and the public interest. But there's also the issue of our formal obligation to meet an external earnings target. It's clear that this, as a sole performance indicator for CSIRO, is woefully inadequate, a fact that the recent ASTEC Report has strongly supported.

So, coupled with this consideration of our place in the whole commercial arena must be the consideration of what might be appropriate performance indicators against which the Organisation could report.

We are being helped with this by John Finnigan, Head of Environmental Mechanics in Canberra, who's working with the new Strategic Planning and Evaluation team to develop a set of such indicators.

The process will of course include looking at what's been done by overseas organisations.

More importantly, whatever list we come up with will have to take into account more than just commercial returns from help we've given industry or the catch from our hunt for research dollars. Fashionable as such financial indicators are, and easy as they make it for outsiders to come up with a plausible and quick assessment of our performance, they leave out CSIRO's vital public interest work in areas like environmental research. This can produce a false picture, and worse, a picture made more convincing by the very thing that falsifies it, its restriction to the fashionable 'good number'.

Tropical Savanna Symposium

CSIRO has organised a symposium for July 19-22 this year at James Cook University in Townsville. Called 'The Future of Tropical Savannas — Managing Resources and Resolving Conflicts', it is being organised mainly by the Division of Tropical Crops and Pastures, with help from the Divisions of Soils, and Wildlife and Ecology. Scientists from around the world and from a variety of disciplines will be there, and speakers will include Malcolm Hadley from UNESCO and John Stocker from CSIRO. For further information on the symposium, call Dr John Melvor on 07 377 0205. Or, for media or communication information, call Jenni Metcalfe or David Goeldner on 07 377 0305.

Dear Editor,
I was enjoying a pleasant working week when a caller poured out a tale of painful eyes caused by ultra-violet light exposure from a laminar flow cabinet. 'Trust me, I know about these things,' says I. 'It happened to me 25 years ago. Take him to the doctor. Oh yes, the pain does diminish in a couple of days.'

Before the ink had dried on Safety and Productivity Mail No. 15 (to warn the rest of the CSIRO world that this type of exposure was, sadly, not extinct) I had another call about eye problems from a woman who had used a transilluminator with a UV lamp. 'You get a taxi to the doctor; don't drive if you are ill. I'll report it to Comcare. Oh yes, the pain diminishes in a couple of days.'

The helpful man at Comcare listened to my tale about the unusual coincidence for a whole two seconds and said, 'I know all about that. It happened to me 18 years ago in CSIRO. My eyes are OK, I think, but it hurt like hell for a couple of days'.

A call to the less sunny states revealed, 'Yes, we have had a couple of those in recent years. I'm not aware of long-term damage, but it's very painful for two or three days.'

A remarkably similar story has also evolved over twenty years with finger tips (eight at last count) being removed in the outlet chute of older style 'Jeffco Cutter Grinders'. The equipment is so solid that it lasts for 30 years, but if the safety standards are not updated the machine has plenty of time to repeat its surgical tricks.

In the past, the one with sore eyes or missing finger tips had a lecture on 'common sense' and everybody was 'careful' for a while. The same process was left to happen in other states, or even in the same place a few years on, when a new batch of people without the hard-won 'common knowledge' arrived.

To counter the tendency of 'don't just do something, stand there!' we now have computerised reporting, and arrangements to exterminate repeats of the above types. We also have an alert system. However, we still appear to have a problem about admitting and reporting our near-misses or accidents. These incidents should not happen in the first place, but if we can pluck up the courage for more open reporting, managers and

OH&S staff can prevent REPEATS.

Mac Story
Health and Safety Officer
Tropical Animal Production

Dear Editor,
I became a proud CSIRO employee several months ago, but I still have not been able to figure out the meanings behind CSIRO's logo. Can you help?

Jason Li
Division of Atmospheric Research

CSIRO got its logo in late 1987, following an extensive and controversial restructuring of the Organisation into its present six industry-oriented Institutes. The new corporate symbol was designed for the Organisation by the Melbourne consultants Cunningham and Cummings.

The rationale offered by the company for the logo was as follows:

'CSIRO conducts research in an extraordinarily wide range of diverse fields. So wide are these areas of research that there is virtually no tangible and recognisable symbolism that encompasses them all.

'The symbolism that does link them is the basic element of matter — the atom — something which to our understanding and that of the public at large is recognised as a common element of all scientific research, whether it be industrial, electronic or agriculturally based.

'The symbol has therefore been designed to represent the basis of all matter in its three-dimensional form. The third dimension is enhanced by the use of the vertical lines that expand and converge to form a highlight — or 'hot spot' — thus illustrating the effect of light reflecting off a spherical form.

'The use of lines, rather than graduated tone, or 'stipples', enables this highlight to appear with greater clarity, even when the logo is reduced considerably in size.

'A dual function of these lines, which dissect the sphere, is to add emphasis to the process of research, analysis and probing the elements, in the world of science.

'The word 'Australia' has been incorporated as an integral part of the logo to form a consistent and continuing link with research within, and for the benefit of, this country.'

*So there you have it—Ed.
continued on page 7*

CSIRO SHORT SHOTS

Sheep parasite reduction without increased cost

CSIRO scientists have come up with a simple way of reducing parasite infestation among sheep in high-rainfall areas that should save farmers up to \$44 million a year. The trick is to keep parasite drenches in the sheep's stomachs for longer. Drenches move through the animal's digestive system with its food, so they are slowed down if the stomach is partly empty, and this makes them more effective. Dr Des Hennessy, of the Division of Animal Health, said, 'We're advising farmers to keep their sheep off feed for the day before drenching. Pen them up and make sure they have plenty of water, but as far as possible keep them away from feed.'

National Engineering Award for CSIRO invention

The Institution of Engineers, Australia, has given its National Engineering Award for Excellence in Research and Development to a device developed initially by CSIRO's Division of Applied Physics for the Royal Australian Mint. The Award went jointly to the Mint, CSIRO and Dynavac Pty Ltd for the development and manufacture of FADS 3000, an Australian breakthrough in super-smooth and hard surface coatings. The two qualities had formerly proved extremely difficult to combine. The Royal Australian Mint in Canberra is now starting to use the equipment to deposit a film of titanium nitride on coin dies, the working life of which will thus be increased more than ten-fold. Applied Physics and The Australian Gaslight Company were also 'Highly Commended' by the Institution for the development of an ultrasonic gas flow meter for domestic use.

Optical surface profiling technology exported to US and China

In another coup for the Division of Applied Physics, CSIRO will supply award-winning optical technology to the US and Chinese Mints that will improve the quality of their coins as well as cutting costs and improving efficiency. OSP130, originally developed by the Division for the Royal Australian Mint, uses optical surface profiling to measure the master tools that mint coins in a fraction of the time taken by other measuring devices. The Australian Mint said that OSP130 paid for itself in 18 months.

New CSIROSEC for Queensland

The first CSIRO Science Education Centre not in a capital city has opened in Townsville. It is a joint initiative of CSIRO, James Cook University and the Queensland Department of Education, and will provide hands-on experiments for primary and secondary students outside the normal classroom setting. The experiments at the Centre reflect the work being done in the scientific community in North Queensland, including work on energy consumption, marine research, sugar, nickel and copper refining. The North Queensland Centre is part of the national network of CSIRO Science Education Centres (CSIROSECs) administered by the Organisation's Education Programs group.

Second sale of Boran and Tuli embryos

A second limited release of genes from the African cattle breeds Boran and Tuli were auctioned as *in utero* embryos in Rockhampton on May 20. This second sale of 50 pure-bred embryos is in response to industry demand for the new genes. The world's first Boran and Tuli embryo sale was held last year and aroused considerable interest among cattle breeders: 38 embryos were sold at record prices of up to \$7,000. Adapted to the harsh conditions of eastern and southern Africa, the cattle combine high fertility with high levels of resistance to heat, ticks, internal parasites and poor nutrition.

Genetic changes to wheat

Wheat has been one of the most difficult plants to transform genetically, but the CSIRO Division of Plant Industry has now managed it. The breakthrough is a major advance towards improving disease resistance and grain quality, and will make it possible to introduce new methods of crop protection and marketing features. It will also help growers by reducing the lead time for new varieties. Tungsten or gold coated micro-particles containing the genes are shot at high speed into young wheat embryos with a helium-propelled gas gun. A gene for herbicide resistance has already been inserted into the leaves of some first-generation transformed wheat plants, and the plants are green, healthy, and setting seed.

Australians eating better, but still not well enough

A recently released joint CSIRO-Deakin University survey of Victorian eating habits shows that young women eat too little of all foods, and young men eat the wrong things. According to report author Dr Katrine Baghurst from the CSIRO Division of Human Nutrition the message is still not getting through about the importance of eating more complex carbohydrates. Apparently young men are still consuming high-fat, low-carbohydrate diets, confirming them in habits that will make them fat in later life, when they exercise less, and young women have lowered their fat intake without increasing their carbohydrates (out of fear of weight gain), leaving them lacking in adequate nutrients. (Iron deficiency, for example, is a danger in this group, with potentially serious consequences for the women themselves and for any children they may bear.) 'What we really want,' said Dr Baghurst, 'is for the fat to go down and the complex carbohydrates to go up.'

New multi-discipline team to tackle climate research

CSIRO has formed a new research program, the Multi-Divisional Program on Climate Variability. Climate variability costs Australia billions of dollars in lost agricultural production and structural damage. The program will include scientists from many CSIRO Divisions, including Atmospheric Research, Animal Production, Tropical Crops and Pastures, Oceanography, Forestry, Fisheries, Water Resources, Wildlife and Ecology, Plant Industry, Soils, Entomology, and Building, Construction and Engineering, as well as the Organisation's Centre for Environmental Mechanics and Biometrics Unit.

Research on woody weed control

CSIRO's Division of Wildlife and Ecology has begun experiments into the lowest levels of chemical defoliant necessary to control woody weeds in areas where they are a pest. The Division's Dr Jim Noble conducted a trial at Bourke in western NSW in mid-May, but stresses that the work is still at a relatively early stage and no firm recommendations will be available until the results of this and other trials have been fully evaluated. He also pointed out that even if results are promising further time will be required to have any chemicals registered for use against woody weeds. The Bourke trial used glyphosate, the active ingredient of Roundup, sprayed from the air over comparison patches of woody weeds.

Honours to CSIRO Board

Professor Adrienne Clarke, Chairman of the CSIRO Board, has been made a Foreign Associate of the National Academy of Sciences, USA, for her work in the genetics of plant incompatibility. Meanwhile, back at the farm, Member of the Board Professor Sir Gustav Nossal has been elected President of the Australian Academy of Science.

New research access deal for CSIRO and ICI

by Christian Peterson

CSIRO and ICI have formed a strategic alliance that may offer research and development opportunities for up to 15 CSIRO Divisions.

The Memorandum of Understanding is the first of its kind with ICI. It is a broad-access agreement and will identify research opportunities in both organisations.

'ICI was attracted to CSIRO because of our ability to assemble world-class multi-disciplinary research teams,' said Dr Colin Adam, Director of the CSIRO Institute of Industrial Technologies.

Over the next five years, he said, the two organisations

expect to spend several million dollars on specific projects that will ultimately deliver strong commercial returns to ICI, after further development by that company.

Existing collaborations between the two will not be affected by the new agreement. Peter Cable, of the CSIRO Institute of Industrial Technologies, will be in charge of the co-ordination of CSIRO's activities under the Memorandum. ♦

Comment from the Chief Executive on IAPP restructure

Colleagues,

You will be aware, from press coverage and other information now circulating, that Dr Donald, Director of IAPP, in consultation with his Divisional Chiefs has proposed a three-year plan to address overall reduced funding in the rural research sector. Whilst none of us like the stress inevitably associated with funding cuts, it would be irresponsible for CSIRO not to be developing alternatives aimed at minimising longer term disruption whilst maintaining core research capability.

I want to reassure you that the CSIRO Board will take any decisions on those proposals only after they have been fully considered by stakeholders, staff, and unions, and feedback has been obtained and considered.

Dr Donald and I are keen to ensure that the proposals are examined and debated in the context of CSIRO's overall priority and funding considerations. Several aspects need to be kept in mind:

- the current projections of annual funding levels for IAPP are affected mainly by reductions from 1992-93 to 1995-96 of \$8.5 million from the wool industry, \$9.3 million from other external income and \$2.2 million from parliamentary appropriations (including priority shifts within CSIRO), totalling \$20 million;
- CSIRO still directs over 40 per cent of its funding to rural research and it is appropriate that this level be assessed regularly in the light of the contributions to Australia's overall wealth of this and other industry sectors;
- the proposal to reduce the number of CSIRO sites is a continuation of a process commenced in 1989 to consolidate CSIRO activities at a smaller number of well maintained facilities — since 1989 we have consolidated from 110 to 70 sites;
- the IAPP proposals are designed to strengthen capability and synergy in all of the core rural research disciplines, albeit within a more streamlined and cost-effective support structure.

CSIRO staff potentially affected are being given every opportunity to comment on the proposals and to submit any viable alternatives.

Unions have been kept fully informed. Both Dr Donald and I have met with key union officials to outline the proposals and obtain comment several times in the last two weeks.

The consultation period will continue until the end of July 1994. After this we will need to implement changes to address the estimated reduction of \$20 million to the Institute of Animal Production and Processing.

Other Institutes will be presenting me with their plans for managing their budgetary projections by the end of August.

John W. Stocker, June 6

New books ...

'Portraits in Science' by Ann Moyal

review by Robin Wynn-Johnson

OF COURSE, it was a lay-down misere from the moment they taught computers to talk. Now it's official: C21 will be The Oral Century. (C22? Don't ask ...)

For a while there it looked like telly was about to bury the printed word six feet (sorry — 1.83m) under. But now the people who let their fingers do the talking are counter-attacking from the rear: now we're getting oral history in print!

Of late, the National Library has been mining its already impressive collection of oral history recordings for printable (don't misunderstand me) copy. So far it has produced three publications compiled around interviews with, respectively, writers, artists and now scientists.

This last, 'Portraits in Science', has been compiled and introduced by Ann Moyal, AM, historian of Australian science and technology, one-time director of the Science Policy Research centre at Griffith University. Moyal interviewed twelve people who made distinguished careers in Australian science (most of them are still alive) and recorded their life stories, their reminiscences of the spheres in which they worked, and their views on many aspects of science, pure and applied, and its interaction with other aspects of life.

The interviewees comprise nine men and three women. Their ages range from 47 to 91, and their careers span the decades from the thirties to the nineties. Seven were born in Australia, three in Great Britain, one in Canada and one in Austria. Two worked in physics, three in medicine, one in ecology and biology, one in animal genetics, two in earth science, and two in science education and communication.

Of the dozen Moyal chose, three are CSIRO people. Dr Paul Wild, English-born, is a former CSIRO researcher who developed the world's first 'pictorial' radio-heliograph, and later InterScan, and was subsequently chairman of CSIRO. Sir Gustav Nossal served with distinction as Sir



Dr Helen Newton Turner, AO, FTS, Animal Health and Production, CSIRO

Macfarlane Burnet's successor in immunology at the Walter and Eliza Hall Institute, and sits on the CSIRO Board. Dr Helen Newton Turner is a former CSIRO researcher into merino sheep breeding and wool improvement; she is internationally acclaimed for her work with the UN Food and Agriculture Organisation and the Australian International Development Assistance Bureau.

Moyal's approach to the interviews was to ask broad, general questions and leave the respondents to answer as they saw fit. They responded nobly. The results are a wealth of fact, personal confidences and informed opinion on research and many related subjects — the technology of research itself, the 'pure vs applied' debate, the economic, social and political issues, the rewards of science as a career ... The answers were sometimes surprising, always interesting.

In all, the work is a highly successful excursion into this relatively new genre, and augurs well for more such ventures in the future.

♦♦♦

Portraits in Science, compiled and introduced by Ann Moyal, published by the National Library of Australia, available from Commonwealth Government bookshops, price \$23.95.

♦♦♦

Lake Mere Open Day



In spite of a venue that was literally back of Bourke, an event held on May 11 by the Semi-arid Zone Rangelands Program of CSIRO's Division of Wildlife and Ecology attracted nearly 90 people from around NSW and Queensland.

It was called 'The Lake Mere Research Facility Open Day', and its themes were 'Seven Years in Hard Country', and 'What has CSIRO been Doing All These Years in the Mulga Woodlands?' (Lake Mere is in north-western NSW, north of the Darling River.)

People attending included local graziers, representatives from National Landcare, NSW Agriculture, NSW Conservation and Land Management, the NSW Parks and Wildlife Service,

the Queensland Department of Primary Industry and the Commonwealth Department of Primary Industries and Energy.

The sunny, breezy weather made for a comfortable day. There was a walk through the grazing trial, now eight years old, a side trip to see Jim Noble's bettong warrens, and a look at some gates, traps and a Finlayson trough. Speakers covered a range of topics from woody weeds to soil run-on, run-off processes, and from biodiversity to total

grazing pressure. There was plenty of discussion, both formal and informal, and local grazier Peter Bryant wrapped up proceedings with an appeal to CSIRO to continue its presence in the semi-arid zone.

Altogether it was a successful exercise. It attracted plenty of local people as well as media, with ABC television even flying in by helicopter to record a news item on the total grazing pressure trial.

♦♦♦

Peter Cook comments

As a result of proposals from the Federal Opposition and the Democrats, it was decided on June 7 that there should be a Senate Inquiry into 'the adequacy and appropriateness of the operation, funding and resourcing of research relating to rural industries by the CSIRO'.

CoResearch interviewed Science Minister Peter Cook the following day, on —

The Inquiry

'I think the Inquiry is unnecessary,' he said. 'I have confidence in the CSIRO's Board and senior management.'

'While everyone will agree that from time to time reviews are necessary, there is an excessive load being carried [by CSIRO] at the present time.'

'I think this inquiry can only make restructuring, and the internal resolution of restructuring ... even harder.'

Senator Cook also said he doubted whether the Senate could field a panel of inquirers competent to analyse, report and add value to the internal work of CSIRO.

'If the inquiry performs the role of [releasing] pent-up dissent within the CSIRO, well, it may have a good side,' he said, 'but I doubt whether there's any wide-spread or serious body of dissent. So I'm opposed to it.'

Freedom of speech

'I've been concerned that professional officers of the CSIRO have been named in Parliament; their professional judgement has been called into question ... because they don't suit the views of members of Parliament.'

'I've been concerned, as well, that there appears to be, in the pursuit of open and free access to the Organisation — which in itself is a commendable thing — none the less an abuse of that access. My view is that the professional officers of CSIRO need to be protected from such an abuse.'

'There are in the Westminster system forms of access to government agencies and departments. ... [Abiding by these rules] doesn't prevent people speaking out when they feel they want to ... in their private life but not on CSIRO time, about the operation of the Organisation, and within the CSIRO about their professional concerns.'

'There's a great virtue in constructive tension,' he said, '... it's out of

the contention of ideas and argument that come the best ideas, and I would be very disappointed if we didn't see that in the CSIRO.'

Science funding

'[In] the OECD table Australia is near the top in government-funded R&D, and we should never seek to be anywhere other than near or at the top, in my view, and no diminution of effort on that front should occur; we should only try to improve our position.'

Senator Cook said he believed there were particular features of the Australian economy that put us near the bottom of the same table for private funding, but he would be seeking to do something to improve our standing there. 'In the end, though,' he said, 'we will succeed as an economy by the sum total of our research, irrespective of the source ... but there is a limit, of course, to what governments can do.'

The Budget

'In the Budget we've increased base-line funding for CSIRO, but because we've not continued with the funding for capital grants, the outcome is not as good as previous years, overall, for the Organisation. But [that] funding was specific-purpose funding. ♦

Science communication — how does CSIRO compare on the world scene?

CSIRO
DIVISION OF MINERAL
PRODUCTS

8 JUL 1994

LIBRARY

WENDY PARSONS, Communication Manager for the CSIRO Institute of Natural Resources and Environment, has just returned from a two-week trip to the United Kingdom and Canada.

Ms Parsons has been working on CSIRO's public communication for more than 20 years now. She began as Press Information Officer to the Organisation's only Press Officer in 1971.

When she heard of the International Symposium on the public communication of science and technology to be held in Montreal in April this year, she decided it was time to check out how science communication here in Australia compares on the world scene, and to remind that world of our existence. Her conclusion is that we're now forging ahead—much closer to the front than we have been in the past.

Ms Parsons had been on a similar mission to the USA, Canada and the UK, in 1979, by courtesy of a CSIRO study award on the communication of science and technology. At the 1994 symposium, she ran into a woman she had spoken with during that period of study — Carol Rogers, who is now a professor at Maryland University — and they swapped notes on how things had changed.

'It seemed to her, as it seemed to me, that there was a striking contrast between then and now,' said Ms Parsons.

'When I was there in 1979 Australia had been behind the eight-ball, not moving fast on public communication of science and technology. This time, we both had the impression that Australia is well up there.

'The States haven't necessarily moved very far, or Canada, but it seems Australia has progressed quite steadily.

'I think that's due to the efforts of quite a small group of professional science communicators, not just in CSIRO, but in a couple of other places too.

'We are very well off for science journalists. We have the Julian Cribbs and others in Australia to offer scientists the chance to put forward their views and their science. Canada doesn't seem to have that, though the science issues are just as big there, especially the

environment.

'There is no group like CSIRO anywhere in the world any more. In Britain, New Zealand and Canada they have splintered, and lost much of the ability they might have had to speak with a strong, concerted voice on national science policy.

'One of my interests in the trip was to see how much influence science agencies had in formulating policy, and first of all I found their nature quite different. They're splintered across various government departments. The government scientists are not in one group.

'We are, and that gives us terrific strength.

'Bear in mind that my view is only a snapshot. Nevertheless, I talked to some key people. I talked to the science advisors to environment departments on both sides of the Atlantic. I talked to business council people and conservation groups.

'We have an interesting situation here in Australia. CSIRO is not supposed to be involved with national policy, and yet we are, by virtue of the fact that we have this incredible multi-disciplinary strength.

'It seems to me extremely important that we maintain ourselves as one organisation, if overseas experience is any guide.

'The other very important difference here is that we are a statutory body, that is, a semi-independent group rather than a government department.

'That also gives us greater strength because it gives us greater freedom of speech and action.

'The scientific culture here insists on that freedom; it has a need to have — and will have — its independence, its ability to release information that it believes is correct and that the community needs to know.

'The issues are just as big, and just as pressing, in the other countries as they are here. The difference between the other countries and here is that we have a CSIRO and they don't.

'In Canada, for example, environment issues are handled,



as here, with a to-ing and fro-ing between business/industry, government and environment groups. But there is no single body of scientists; the scientists are sprinkled amongst the government departments and perhaps a few private institutes.'

Ms Parsons said Britain was the same as Canada in this respect, but there was a new factor in Britain that made their situation even more interestingly different from ours — the power of the European Commission.

She said that participating countries in the European Parliament are obliged to obey the directives of the European Commission. This has come to the point, she said, where, for instance, the European Commissioner for the Environment, if alerted to a member country's failure to obey orders on an environment issue, can actually send an inspector into that country and create quite a bit of havoc for the government.

'For example,' said Ms Parsons, 'the British wanted to put a series of flood barriers around the coast line, but the Commission wasn't convinced that these were being constructed in such a way as to

protect certain endangered bird species, and was able to delay work until it had been satisfied.

'So it comes right into the heart of trade, and foreign affairs — right into the top levels of government policy.'

Powerful as the reputation and influence of a unified CSIRO may be within the national and international scientific community, however, Ms Parsons said she had the impression that outside of that scientific community the Organisation was virtually unknown.

'This was the case in 1979,' she said, 'and I don't think it's changed.'

'Maybe I spoke to the wrong people,' she said, 'but, for instance, two conservation groups I spoke to hadn't heard of us, and the industry people I spoke to hadn't heard of us. I don't know whether that matters or not.

'You can take a specific example in climate change, because that's a global thing. You can't restrict it to particular countries. Yes, we're well known in the international scientific community on climate change but I'm not sure how well known we are outside that community.

'And that does matter,

actually.'

Two other CSIRO Communication Managers were at the International Symposium in Montreal — Jenny Metcalfe of the Division of Tropical Crops and Pastures and Toss Gascoigne of the Centre for Environmental Mechanics. They had been invited to the conference to present the national report for Australia, and Ms Parsons said their paper 'came up bright as a button', with 'beautiful slides, great visuals, and some really very interesting stuff' in an otherwise 'fairly heavily academic symposium'.

'But we weren't there only for the symposium,' she said. 'There was a proposal developed jointly between CSIRO, the Institute of Public Affairs in Melbourne, and the Melbourne University's History and Philosophy of Science Department, to jointly host the next of these international symposia in Melbourne in 1996. Toss and Jenny led the charge there, and the proposal has been accepted.'

...
The 1996 symposium will be strongly linked to an Australian Science and Technology Fair already being planned for that year. ♦



CSIRO's Information Technology Services Branch has just released a souped-up version of its recently developed EIS computer package, and it's available free to all staff, complete with instruction booklet.

The new version is much faster, works on both PCs and Macs (with some exceptions), and offers a few useful extras.

Before you make any rash assumptions, EIS stands for Executive Information System, and it's a research and planning tool. It has nothing to do with any environment except the Organisation's computer environment.

According to one of its developers, David Sunderland, the name of the package is a bit misleading even when it is spelled out, as its usefulness extends well down into regions of the hierarchy where most

would not describe themselves as 'executives'.

'It's true that it's being used by some Chiefs,' said Mr Sunderland, 'but also by about 200 other staff members, spread across nearly all the CSIRO Divisions.'

'I would say it's probably of greatest use to Business or Finance Managers, Project Managers and Program Leaders, Assistant Chiefs, and Chiefs.'

'But it would also have something to offer Communicators and Librarians, and the on-line Directory of all staff is useful to anyone who

needs to use a phone or send e-mail.

'Basically, the package offers access to a lot of current information, with graphing, and the ability to transfer any data to your own PC or Mac spreadsheets or word processors.'

The major components are — **Finance**

Offering detail by Division, Program, Project or Location, and graphing of trends and relationships.

Reuters

Access to all Reuters stories, including those published in the Melbourne Age, Financial Review, Business Weekly and Sydney Morning Herald, as well as a huge number of international sources.

Staff

A listing of all CSIRO staff, with location, phone, fax and e-mail address (though the accuracy of this depends on updating by Divisions of their own details) as well as a simple analysis of staff structures and statistical breakdowns by age, type of work, and funding source.

SEO

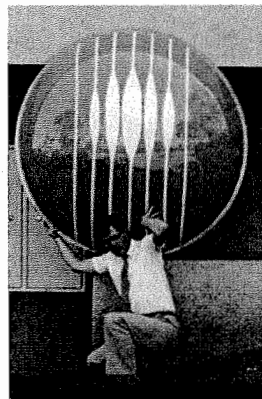
How much CSIRO spends in different research areas ('socio-economic objectives').

...

The program was developed, using some existing software, by David Sunderland, Reuben Bettel, Trisha Burton and Tony Maud, with Mark Whiting providing the instruction booklet and online help. ♦



Caption Competition



Thank you folks! A bigger crop of entries this time.

First prize goes to Richard Upton of Information Technology: 'The victim of a misconceived genetic engineering experiment to mark CSIRO employees with the corporate logo, Mr X is now on the Medicare elective surgery list. He expects to have the unwanted growth on his fourth vertebra removed by cosmetic surgeons within six months. In the meantime Mr X is looking for an exceptionally skilled shirt-maker'.

Richard wasn't the only one to see the picture in terms of genetic engineering; Barrie Hunt of Atmospheric Research sent, 'It started out as a little pimple on my back about five years ago when I worked in the CSIRO Genetic Modification Lab'.

I'm not sure whether the entry from Karl Armstrong of the Division of Building, Construction and Engineering also refers to genetic engineering or not, but it's beaut — 'STOP PRESS...GIANT WHEAT GRAINS GROWN OUT OF RESEARCHER'S BACK'. Another from Barrie was, 'Some days, I feel like I'm carrying the whole of CSIRO', to be sung to the tune of 'Motherless Child' (?). Barrie also nearly guessed who it was in the picture, in correctly suggesting it was someone from the ACT Corporate Centre, but the only correct answer to that question was from Lynn Pulford, contained in 'Michael Dack puts the logo back'. Unfortunately Lynn works in Education Programs, the source of the photograph, and is therefore ineligible for the prize. Lynn also sent a 'Recession Song' — 'Roll out the logo/Let's have a song of good cheer/Roll out the logo/Cause CSIRO is still here', which maybe should have got first prize in the Political Section for its appropriety (or is that approposity?). (Hang on, I don't have a Political Section. Who's running this contest anyway? Me, or the contestants? They'll be wanting a democracy next ...)

Anyhow, runners-up in the newly created Political Section include this one from Neill Jonker of Tropical Crops and Pastures — 'Short-listed candidate for the post of CSIRO Chief Executive Officer being tested for his ability to carry the full weight of CSIRO's problems on his shoulders', and (I think) 'And you thought Atlas had problems! He only had the weight of the world on his shoulders' from Jeff Lutton at the Division of Animal Production in Armidale.

Ken Atkinson from Wool Technology sent 'Don't just stand there! Help me roll this Minolta logo back into place before they notice it's been moved'. A similar entry, but more complex, and weird, comes from Mittur N. Jagadish at the Division of Biomolecular Engineering — 'CSIRO's vision into working towards creating a pleasant environment for future captured by a gigantic Minolta camera lens is happily carried by a CSIRO employee'. I think that's probably very good; but I'm certainly very tired.

Then, from right out in left field, 'Oh no! I knew I should've ordered the SMALL hatpin!' from Jeremy Fitzpatrick, whose Division (apart from its location) I do not know.

'Have you received your new name tag yet?' from Kerry Berger of Tropical Animal Production finished me off, though there were plenty left in the basket. Here's another. Enjoy!



Microsoft and Oracle

— an even better deal —

CSIRO's Information Technology Services wants to alert CoResearch readers to a couple of deals they have recently organised for the benefit of computer users in the Organisation.

The first is a research licence for the use of Oracle products, and the second is for academic pricing on many Microsoft products whether for academic or administrative use.

The Microsoft agreement does not cover all Microsoft products, but on average prices will be only 30 per cent of those charged to government departments under the PE54 pricing structure. The PE54 is a special arrangement made by the Department of Administrative Services with the Microsoft company, under which government buyers pay less than non-government buyers, and CSIRO will now pay much less again. For example, if a program costs the general public around \$500, and the public service gets it for \$340, we will pay around \$100 for it under the new deal.

The licence fees on Oracle products will also be significantly lower, and for research activities these fees will be paid corporately with no charge back to the Division.

The Branch has sent out instructions to Divisions and Institutes on how to order the products, but if you need more information ask your systems manager or contact Lani Cavanagh in Canberra: telephone 06 276 6235; fax 06 276 6536; or e-mail lani.cavanagh@its.csiro.au.

♦♦♦

Letters to the Editor

continued from page 2

Dear Editor,

The April edition of *CoResearch* has a Community Aid Abroad fund raising appeal pamphlet inserted. What are the criteria for having an insert in a CSIRO newsletter? Do we get paid for it or is it someone's pet charity?

Enough junk mail is circulated without our internal publications being contaminated as well.

Neil Jonker

Finance Manager
Division of Tropical Crops and Pastures

I charge only costs for the insertion of the Community Aid Abroad pamphlets in CoResearch, a practice I inherited from former editors. Thus it costs the Organisation nothing but also brings in no profit. My policy is the same for both CSIRO groups and recognised charities; others pay a fee for advertising. This letter is the first I have had in criticism of the practice, but I would be happy to hear from any readers with similar objections, as I am often approached to include inserts or advertisements. There is in fact another insert in this edition, I'm afraid, for CSIRO's 'Simply Black' collection of gifts sporting our logo. Irritation or desirable extra? E-mail me!

—Ed. ♦



Computer-generated maps of electrical activity in the brain, from the Division of Information Technology's recent symposium in Melbourne 'Computational Challenges in Life Sciences'.

Double Helix Double Header Up and away ...

by Nick Goldie

Mephistophelian vapours wafted across the lawns of Old Parliament House: airs of kerosene, methylated spirits, smouldering newspaper, the chilly miasma that comes from inside fire extinguishers, all mingling with the cheerful reek of burning balloon.

An autumn dawn in Canberra.

Many excited school-children had come to the annual Hot Air Balloon competition. Twenty-five schools from the ACT and surrounding districts had sent teams. There was a variety of balloons: some as small as party balloons, some as big as mattress-covers and as airworthy.

A green construction with the dimensions of a giant's condom seemed to contain — only their feet were visible — several hulking schoolboys as well as a wire basket of flaming Little Lucifers. The air inside the balloon must have been frightful. Outside, more boys held delicate lengths of nylon line to keep the phallomorphic thing from collapsing. Eventually, lift-off was achieved! The Great Green Sheath staggered into the air, lay on its side so as to empty itself of foul fumes, and (exhausted) came back to earth.

Success went to the bold Buckyball, an almost perfect sphere with some strategically

placed baffles of kitchen foil. This balloon, the creation of Telopea Park School, soared confidently over the crowd, up and away over the white tower of Questacon, and won the prize with a new record time of nine minutes and thirty-eight seconds in flight.

Other prizes were awarded for the most colourful designs, the most innovative, and the best 'special shape' with a scientific theme.

'The Paper Balloon Competition is a colourful, fun event,' said Ross Kingsland of CSIRO Education Programs, 'but it also serves to introduce students and teachers to the scientific principles of ballooning.'

It is hoped that the competition, which was run by CSIRO's Double Helix Science Club and the commercial firm Balloon Aloft, with sponsorship from the ANU Research School of Physical Sciences, will be held nationally in 1995. ♦



Hobart turns it on for Double Helix

by Christian Peterson

More than 2,000 people invaded the Double Helix Science Club's second Double Helix Day held at CSIRO's Marine Laboratories in Hobart last month. The first Double Helix Day was held in Adelaide at the Investigator Science and Technology Centre late last year, with over 1,400 people attending.

Well-known science communicator, Deanne Hutton, presented the Magic of Science with the students from St Michaels's Collegiate premiering the world's first starfish soapie 'Currents of Our Lives'.

'The fun and success of the day highlights how CSIRO's Double Helix Science Club and science are valued by the people of Hobart,' said Pam Elliott, co-ordinator of the Day.

At the Double Helix Day, Tasmania's 1,000th member, Conrad Rainer, aged 13, was welcomed by the Honourable Michael Hodgman, QC, who also became a member of the Club.

As a federal member of Parliament, Mr Hodgman was instrumental in bringing the CSIRO's Marine Labs and the Australian Antarctic Division to Tasmania. ♦



People...People...People...People...People...People...

and, particularly ... Librarians ... Librarians ... Librarians ...

Megan makes it



Bernadette Waugh — Special Librarian of the Year



Megan McKay, pictured above right, is about to finish her traineeship in the CSIRO Corporate Library in Canberra. When she started, in 1993, she was nearing the end of a Library Technician course at the Canberra Institute of Technology. She has now graduated with an Associate Diploma of Arts in Library Studies, and is about to start a new job in the National Library. Margie Enfield, pictured above left, Librarian for the CSIRO Corporate Library, said that the benefits on both sides had been great. Ms McKay said she had enjoyed working at CSIRO. 'The traineeship allowed me to continue my studies, gain experience and earn a living all at the same time,' she said, 'and I'm sure the experience I gained has been an important factor in my getting the National Library job. I hope the trainee scheme can continue, so that it can help other young people in the same way it has helped me'. Photo by David Salt.

Skiing, anyone?

The CSIR Ski Club, one of Victoria's earliest, was formed in 1945 and now has over 500 members. The club caters for skiers, walkers and alpine visitors. The 'club spirit' is fostered by, amongst other things, maintenance-work parties at the lodges, meetings and social events.

Lodges

The Club has lodges at Victoria's three major ski resorts.

The Club's first lodge was completed in 1947 at Mt Buller on a site that is now part of the enlarged 'CSIR Car Park'. The Club was given a new site within the village area and the current 30-bed lodge was built there in 1984.

Falls Creek has two lodges, one built in 1962 with 13 beds and an adjacent 16-bed lodge built in 1978. Both were largely constructed by the labour of Club members.

At Mt Hotham the Club occupies 'The Drift Lodge', built in 1946 as a commercial chalet. It was purchased by the Club in 1973 following the death of its owner, Mt Hotham identity, Lindsay Salmon. After numerous minor refurbishments it was extensively renovated in 1991 and enlarged to 34 beds.

The lodges have various 2, 3 or 4-bunk configurations for the bedrooms and all have shared facilities. Fully equipped kitchens are provided, including basic provisions.

Who can join?

All CSIRO and AMRL employees are eligible to join the CSIR Ski Club and at present spouses and children are also eligible after the employee has joined. (AMRL is Aeronautical and Maritime Research Laboratory, parts of which belonged to CSIR before it became CSIRO.)

Current membership charges are as follows: annual subscriptions and administration levy \$100; compulsory loan \$990 payable over two years (refundable on resignation).

Attendance at a number of lodge work parties is also a condition of membership.

How much?

Winter rates at the moment are members \$15 and guests \$40, with reduced rates for children.

Summer rates are usually set in the September preceding the following summer. As a guide, 1993 rates were \$8 a head with exclusive-use rates also available.

Enquiries

The Secretary, CSIR Ski Club, PO Box 15, Carnegie 3163; or Divisional Representatives in Victoria; or phone 03 560 4983; or internet johnp@mel.dbce.csiro.au.

Above, Bernadette Waugh receives her Special Librarian of the Year award in recognition of her outstanding contribution to the library profession. Jinette de Gooijer, General Manager of CSIRO's Information Services and Chair of CSIRO's Library Network Committee, said the network was 'extremely proud of Bernadette's award'. The award was conferred by the Western Australian Special Libraries Group of the Australian Library and Information Association (ALIA). Ms Waugh is the Site Librarian at CSIRO's Western Australian Laboratories. Criteria for the award include a willingness to share professional expertise; evidence of good management practices, and demonstration of successful promotion of the library or information service within the parent organisation.

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CoResearch

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LIBRARY

CSIRO's staff newspaper



Escape from Rwanda

CSIRO staff help rescue Rwandan colleague

All of the relatives of Antoine Kalinganire — his parents, brothers and sisters — have been killed in the fighting in Rwanda. He and his wife and daughters, however, have now escaped to the safety of Nairobi, thanks to the intervention of some of his scientific colleagues.

For some years Kalinganire has been working closely with Chris Harwood, CSIRO Division of Forestry, on genetic diversity in *Grevillea robusta*, one of the most important agroforestry trees in the east African highlands.

In 1991 Kalinganire spent three months at the Division's Yarralumla site in Canberra, under the professional attachment program of the Seeds of Australian Trees Project. He then returned to his job as Officer-in-Charge of the Rwanda Tree Seed Centre.

Recently Harwood and other staff at the Australian Tree Seed Centre, alarmed by reports of the increasing bloodshed in Rwanda, contacted colleagues at the International Centre for Research in Agroforestry in Nairobi. Was there some way, they wondered, for Kalinganire to be sent on a training course that would get him and his family out of Rwanda?

Yes, as long as Australia could find \$10,000 towards the cost of the training.

The funds were provided by the Australian Centre for International Agricultural Research, and Kalinganire was informed that he had a spot in Nairobi, if he could get there.

The following letter, recently sent by Kalinganire from Nairobi, tells the story.

Dear Colleagues
Uuf! Imana ishimwe nitugip-fuye i.e. Be pleased the Lord, we are saved from death. Those are the words pronounced by my daughter in our mother tongue on her arrival in Bujumbaru (Burundi).

We are pleased to inform you that we are alive and safe. Anne Fabienne R. Mwirerwa (8), Egide K. Shimwa (10), Annonciata Kwanariya and I are greeting you all. Dreams became realities when we landed at Jomo Kenyatta International Airport, Nairobi on July 19, far from the hell of the destroyed country, Rwanda. What we believed to be an endless torture came to an end.

We are happy and free!

The whole story of extreme misery started in April 6 when the plane of the late President of Rwanda, Juvenal Uahyarimana, was shot down. We were instructed to remain indoors until further notice. All expatriates left the country from April 7 onwards. Shopping was allowed once a week and special permits were necessary to move by car, especially to move from one district to another. It was almost impossible to move freely around the country, the whole country was dark and noisy due respectively to heavy rains and shooting guns around the country.

Terrifying and horrible events started all over the country including terrible massacres. Intensive fighting between the former Rwandese Patriotic Front rebels and Government army took place. People, including my parents, brothers and sisters, died in thousands and others displaced from their home. Trees, shrubs and grasses were cut down for firewood and construction of temporary dwellings. Harvesting of most of the agricultural crops, normally mature in June, could not take place and were lost for ever. Most of the domestic animals were slaughtered down 'en masse' for human consumption. A heavy genetic loss for most of the crops and animals is felt. About trees and shrubs, most of the samples kept by the National Tree Seed Center, including the famous Petford and Katherine sources are likely to lose viability after a long period without electricity supply. A mixing up of seeds of all sources is likely following the chaos. Fortunately, Ruhande Arboretum with more than one hundred Australian species in collection, was preserved against destruction until we left Butare on July 2.

Concerning our journey to Kenya, it was a real nightmare in the family. The good news from the International Council for Research in Agroforestry

(ICRAF), Nairobi was received through a friend staying in Bujumbaru, Burundi on June 29. That day, in Butare the town we were living, was covered by panic due to heavy fighting which were likely to take place around. It was impossible to run away until July 2, when we were forced to withdraw the town. We had to look for our way out through flying bombs and bullets. The house was left, with all our properties behind, running away to save our life. Thanks to God. It took two days to drive along one hundred and fifty kilometers to reach Cyangugu, at the western part of Rwanda near the Zairean border.

We decided to cross the eastern Zairean border, Bukavu. Time was needed to collect some foreign currency for survival along the estimated 2,500 km from Bukavu to Nairobi, Kenya by road. On July 22, we started our journey through Bukavu. We reached Bujumbaru on July 14 via Uvica (Zaire). In Bujumbaru I was able to contact ICRAF by phone. I was told about my evacuation story. Decision was taken to go to Nairobi by air. The whole family was evacuated on July 19 to Nairobi. Since then, we can sleep far away from fear and tragedy.

Dear friends, There is a saying in our language that 'When someone is saved from lightning, he can talk about it.' Now, as we survived from death by your generous initiative, time will allow us to tell you more in details. The whole family is happy, grateful and sensitive to what you did.

Thanks to all and hope to meet you soon. God bless the Australians.

Antoine Kalinganire

Vale Frederick White



Sir Frederick White, KBE, FAA, FRS, Chairman of CSIRO from 1959 until 1970, died on August 17 this year.

Born in New Zealand in 1905, Sir Frederick became one of Australia's most valued sons.

By 1937 he had become Professor of Physics at Canterbury University College in New Zealand, but shortly after the outbreak of the Second World War he was asked by the Australian Government to help with CSIR's development of radar. He became Chief of the Division of Radiophysics in 1942.

The importance of radar is well known, but the Division's scientific excellence survived the war, playing a pioneering role in the development of radio-astronomy, building the first electronic computer to operate in Australia (and one of the first of its kind in the world), and developing distance-measuring equipment for aircraft that put Australia years ahead of any other country in aircraft navigation.

The first artificially induced rain

ever to hit the ground fell in New South Wales after a cloud-seeding experiment by the Division.

After the war, Sir Frederick was appointed to the Executive of CSIR, becoming Deputy Chairman of CSIRO in 1957 and Chairman in 1959.

He was involved in virtually every major development in CSIRO, but in some areas his involvement was particularly deep and his contribution particularly significant. Examples are the establishment of laboratories to do research on wool and wool textiles, the utilisation of Australian coals, and the construction of the 210-foot radio-telescope at Parkes and the radio-heliograph at Narrabri.

As a former President of ANZAAS and its first Chairman, Sir Frederick worked hard to encourage communication among scientists and between scientists and the public.♦

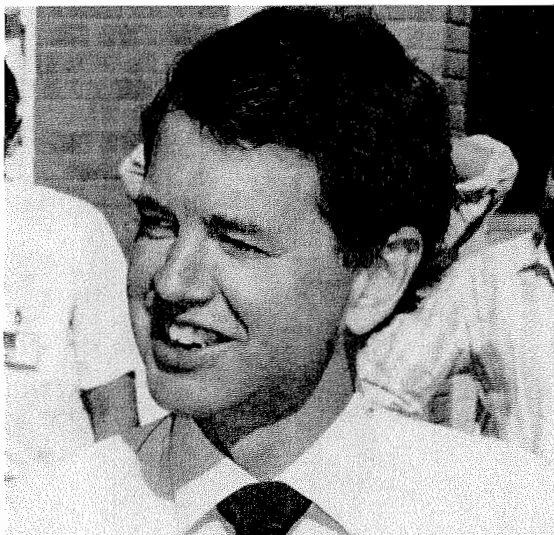
STOP PRESS:

Unexplained lines in Nullarbor desert

At a Sydney forum on remote-sensing on August 23, Dr Ian Barton of CSIRO's Division of Atmospheric Research announced the discovery by satellite heat-sensing of a series of unexplained stripes across the Nullarbor Plain. The stripes, about 400km long and 10km wide, are visible only during the day, unlike most such phenomena, which are often picked up at night by use of infra-red satellite equipment. So far no explanation of the stripes or their mysterious manner of presentation has been offered.

Enterprise bargaining

CSIRO's major union, the CSIRO Division of CPSU, has announced that its members have overwhelmingly rejected management's recent enterprise bargaining proposal and salary offer of an increase of 1.1 per cent. The union's August newsletter reported rejection 'in particular' ... 'of reduction in internal appeal rights for Paragraph 11 promotions and inefficiency processes, change in travel entitlements and removal of location allowances' which were asked for as part of a trade-off for the proposed salary increase. The union will now develop an alternative proposal which, if endorsed by members, will be put to CSIRO.



This year's ANZAAS Congress in Geelong is going to be different from those of recent years, and I think it's going to be one of the most interesting Australia has seen in a long time. It may even become something of a historic event.

You would expect a line like that from me, as Congress President, but what's making it different and interesting this time is the public release of some genuinely new and fascinating material from CSIRO scientists.

You may remember that in my *CoResearch* column a couple of issues back I mentioned an Executive Committee meeting at which we invited several CSIRO scientists to present their future scenarios for particular areas of technology. I was so excited and impressed by the papers they came up with that I determined then to take steps to make them public. The scientists have since been working to develop them for publication.

Those papers are now virtually ready, and will be presented for the first time at the ANZAAS Congress in late September. They will constitute, I believe, a solid contribution to Australia's ability to make sound decisions about the nation's future, and they will certainly offer some vivid, and perhaps inspiring, images of how things might be if we vigorously pursue certain lines of research.

The brief given to the scientists was to prepare their individual visions of the year 2020 — not predictions of what they thought most likely, but 'best possible scenarios' that were within reason and within reach. Desirable futures that we might make real.

The national press has already given enthusiastic and copious coverage to the early abstracts of these scenarios.

The authors were chosen to cover a wide range of science. On the subject of the environment there are 2020 visions from Graeme Pearman

on climate change, Peter Young on coasts and oceans, and both Dean Graetz and John Williams on different aspects of land and water. Richard Head offers his future vision of foods for health, Bob Frater speculates on the future of information technologies and telecommunications, and John Volkman offers a scenario for marine resources. Five different scientists have prepared papers on aspects relating to business — Colin Adam and Peter Robinson on smart manufacturing, Chris Mallett on the food industry, Phil Jennings on biological technology, and Bruce Hobbs on new-age mining.

The papers don't represent an official CSIRO view. They are written by individuals, and haven't been watered down to a lowest common denominator by a committee.

That's what gives them life and makes them great discussion-starters. Indeed we're contemplating a series of workshops with industry and government based on the papers and co-sponsored by the Business Council of Australia. These workshops will tease out what needs to be done to give Australia a more positive future and, at the same time, provide an excellent input to CSIRO's own strategic planning.

John Stocker
Chief Executive

Letters to the Editor

IAPP restructure — lack of consultation with staff

Dear Editor,

In the June edition of

CoResearch several articles discussed the funding shortfalls in CSIRO and IAPP. All of these articles indicated that consultation with staff had been and was taking place. Unfortunately this does not appear to be the case.

The IAPP scheme to dispose of sites and positions had been discussed only at senior management level up until May even though planning had been going on from at least February. It was only when staff learned of the plans through rumours circulating at non-IAPP sites that management was confronted and forced to acknowledge the situation.

To date there has been no apology for this lack of consultation with staff and Industrial Participation Committees but only an indication that management regrets getting caught out.

On the 27th June Dr Stocker indicated to Animal Health representatives that he was not prepared to talk to meetings of all staff concerned until after the final decision had been made. Is this the much vaunted Industrial Participation?

Further, staff submissions regarding IAPP restructuring and possible alternatives must be completed by the end of July and it has been indicated that these must contain accurate calculations for all costings or they run the risk of being rejected. How can staff hope to put together this information in about a month when IAPP management have spent at least four months doing the same thing for their proposals and some of these figures are still being reworked?

The worrying part of the whole plan for restructuring IAPP is that it appears to lack long-term vision and is offering solutions based solely on the short-term expediency of correcting a funding crisis which surely should never have eventuated or should have at least been properly planned for over a period of time. From information provided to staff in IAPP the loss of intellectual capital is poorly addressed. The loss of 138 positions (but only three scientists' jobs) does not indicate the loss of individual scientists who will leave and have to be replaced.

We can only hope that this aspect of any restructuring will

be adequately addressed by those making the decisions.

Bob Campbell
Division of Animal Health
Parkville, Victoria

Dear Editor,

Thank you for the opportunity to respond to Bob Campbell's letter. It contains a number of misunderstandings, and I welcome the chance to correct these and review the consultation process as it has occurred and is occurring within IAPP. Many of these issues have been addressed in briefings and in two documents which were distributed to all IAPP staff and over 1,000 external stakeholders. Copies of these documents are available from IAPP HQ, tel. (02) 887 8222.

The proposals to rationalise some support functions and facilities of IAPP and its Divisions are part of a strategic effort to conserve and optimise critical research capacity across the Institute over the long term. These proposals seek to avoid either short-term solutions which simply postpone the problem or short-sighted solutions which do not promote the Institute's strategic vision. They also avoid solutions which benefit one part of the Institute at the potential expense of another. Finally, they are also consistent with the 1989 Property Management Strategy which advises consolidation of 'major research resources on a limited number of major metropolitan sites.'

With regard to formal presentations of the proposals to staff and other stakeholders, CSIRO's due process has been adhered to, as established by the Chief Executive. Briefings to the Chief Executive are required before those to staff. Obviously, these briefings must be carefully researched and rigorously tested. It must be appreciated also that only the most confidential of discussions can take place on possible implications of the Federal Budget before it is brought down. Immediately after the briefing to Dr Stocker took place (on 23 May), an intensive schedule of briefings by Chiefs, myself and Institute HQ staff, to union representatives, Industrial Participation (IP) committees and Divisional staff was launched. As an example, union representatives were briefed on 24 May, and Divisions — including the Division of Animal Health — were briefed by their Chiefs on 25 May. I, along with John

Baistow and Jeff Lewin of my office, met with the Division of Animal Health IP Committee on 9 June. Follow-up discussions have taken place on several occasions since then, with the most recent being held at the Division of Animal Health last week.

Throughout the process, Industrial Participation has been seen and supported as an appropriate mechanism for organising staff discussion and response to the proposals. The Institute HQ has worked closely with IP committees, including that of the Division of Animal Health, to provide figures and financial projections to assist in their development of counter-proposals. Five proposals have been submitted by Divisional IP committees, again including one from the Division of Animal Health, and these are receiving careful consideration. Compliance with the constraints outlined above is critical to any proposal which is acceptable to IAPP and its stakeholders. The proposals are analysed for their benefits to the rural industries, CSIRO, and the Institute as a whole, and for their sustainability, via a financial model which projects the probable outcome of any proposed changes. Institute staff are continuing to work with IP committees on proposals which promote or extend the Institute's strategic vision to optimise benefits to the Institute as a whole. Responses to each proposal will be given to the IP committees by the relevant Chief on behalf of the IAPP committee.

Although the Board will review a suite of proposals in its 15 August meeting, it should be borne in mind that it will be impossible for decisions to be made in some instances where consultation and negotiation is ongoing. We will however, continue to provide staff with information about developments as these occur through a variety of internal communication mechanisms, including briefings and discussions, newsletter contributions, statements to staff, and email.

Alan D Donald
Director
CSIRO Institute of Animal
Production and Processing

Inserts in *CoResearch*

Dear Editor,
I have no objection at all to
continued on page 7

CSIRO SHORT SHOTS

Overcoming drench resistance

Over the past 30 years parasites in sheep, goats and cattle have become more and more resistant to drenches. Dr Des Hennessy of CSIRO's Division of Animal Health says farmers must either start making smarter use of available drenches or face the prospect of drenches being of limited value in a few years. The key is to drench the animals as seldom as possible, but expose the parasites to the chemical for as long as possible at each drenching. It is length of exposure that matters, not strength of dose, which has little effect on parasite eradication rates. A single dose with follow-up doses after 12 and 24 hours brings drench efficiency to about 95 per cent of resistant worms.

Milky Way not as mild as thought

New radio-astronomy pictures of our galaxy reveal that it is much more extensive and violent than previously thought. The pictures have been produced from data obtained using CSIRO's Parkes radio-telescope and similar telescopes in the Northern Hemisphere and then processed at America's MIT (the Massachusetts Institute of Technology). Dr Alan Wright of CSIRO's Australia Telescope National Facility said that the new pictures showed filaments of hot gas being violently ejected from the galaxy. The survey, a collaboration between CSIRO, MIT, and the US National Radio Astronomy Observatory, with help from Macquarie University, also found about 100,000 cosmic radio sources, five times the number known before. Some of the sources are the gas clouds in which stars are born, apparently, while others are the remains of stars that have exploded recently.

CSIRO program to be used in South Korea

SIROGAS, a computer program developed by CSIRO to simulate and investigate gas flows, is to be installed in South Korea. Bill Turner, the principal developer of SIROGAS, left CSIRO in 1993 to start his own company, William J. Turner Pty Ltd, which holds the exclusive licence for SIROGAS and the related software. Mr Turner says the program is already being used by most of the owners of long-distance pipelines in Australia, and one of these users, Leeds & Northrup Australia, has decided to install it at the Korean Gas Company plant in Seoul. SIROGAS monitors the pressure, flow, temperature and composition of gas as it enters the pipeline network. It then simulates the behaviour of the gas at all points of the network, enabling operators to supply their customers with maximum efficiency. The system predicts the behaviour of the network for up to 16 days at a time.

Climate change may bring problems

At a major international climate workshop organised by CSIRO's Division of Wildlife and Ecology last month (12-15 July), scientists were told that climate patterns in inland Australia were likely to move southwards, with reduced winter rains in the south and increased variability everywhere. There will be heavier rains and longer dry spells for much of the rangelands over the next 50 years. Livestock forage quality is likely to go down, and woody weeds, both native and exotic, will enjoy even more advantage than they do now, according to the Division's Dr Mark Stafford Smith. He also said that increased run-off would stretch the tolerances of existing dams and might increase erosion and cause some flushing of contaminants into river systems.

Ken Myer leaves \$1 million to Plant Industry

In June the CSIRO Division of Plant Industry was formally presented with a gift of \$1 million from the estate of the late Ken Myer. The money will be used to establish a fund known as the Ken and Yasuko Myer Plant Science Research Fund, in memory of Mr Myer and his wife. One immediate benefit of the gift will be its use to develop a recent research breakthrough in the control of flowering in crops, with the potential to increase yields and broaden the scope of market opportunities. The Fund will support basic research in the agrifood sector. Until his death in July 1992 Ken Myer had been a member of the Plant Industry Divisional Advisory Committee and had shown a keen interest in the research of the Division.

CSIRO helps in search for extraterrestrial intelligence

'Project Phoenix', the largest-ever search for extraterrestrial intelligence, will begin in Australia in January 1995. Under a contract now signed with CSIRO, the US-based SETI (Search for Extra Terrestrial Intelligence) Institute will use two CSIRO radio telescopes to search for signals from other civilisations. This contract and associated work will bring CSIRO more than \$A2 million. The CSIRO telescopes, near Parkes and Coonabarabran, will search the skies between January 16 and May 15 next year, looking for specific types of radio signals from the areas of almost 200 nearby stars resembling our sun. Special equipment will scan tens of millions of radio 'channels' simultaneously. Many of the target stars can be observed only from the Southern Hemisphere and Australia has the best telescopes for that job. Recent photographs taken by the Hubble Space Telescope show discs of dust swirling around dozens of stars. The dust is believed to be the material from which planets are formed. This suggests to scientists that stars are more likely to have planets than was previously believed, which could increase the chance that there is life elsewhere in the Universe.

User-friendly CD-ROM on insects

The CSIRO Division of Entomology and CSIRO Information Services have produced a multi-media CD-ROM on the insect world. Called 'Insects: a World of Diversity', it was launched by former Science Minister Barry Jones at the Melbourne Zoo in July, along with an educational classification kit. The CD-ROM interactive offers zoom-in magnification of up to 30,000 at the click of a mouse, as well as information on classification, videos, even the sounds the insects make, with oscillographs to match. (It seems the pyralid moth makes its characteristic sound by rubbing its genitals together.) Barry Jones called the new educational toy 'a very seductive way of learning'. He said it was a clever and inexpensive way of disseminating an extraordinary amount of information about the world of insects, and would help students understand the critical role insects play both environmentally and economically.

Entomology Chief awarded AM

The Chief of the CSIRO Division of Entomology, Dr Max Whitten, has been awarded an Australia Medal in the Queen's Birthday Honours list. Always outspoken and indeed something of a firebrand on issues he feels strongly about, Dr Whitten has been very vocal in the Australian community during his 13 years as Chief, even when he felt he was putting his own career at risk. He has not hesitated to contradict the wisdom of his masters, whether Government or CSIRO, making frequent and vigorous protests against cuts of staff or funds, especially when he felt they would harm the pursuit of basic research, which he regards as 'the life-blood of science'. Characteristically, he has presented and defended a submission to the current Senate Inquiry into CSIRO's handling of rural research, in which he criticises the operation of the Organisation's Board and Institutes and suggests they be re-structured. Dr Whitten's term has just expired, but he has accepted an invitation from CSIRO Chief Executive, Dr John Stocker, to stay on as Chief for another year.

Senate Inquiry into rural research

by Lindsay Bevege

The Senate Inquiry into CSIRO's management of rural research held its first three days of hearings in early August and revealed that the future of CSIRO still excites passions both within and without the Organisation.

A key debate is over returns to the nation from agricultural research as against the manufacturing and information industries, which are receiving priority funding within CSIRO. Structural issues in the Organisation were also raised and, of course, there were the usual complaints about administration and the size of the Limestone Avenue Office.

Several witnesses, including staff such as Max Whitten, Chief of the CSIRO Division of Entomology, Malcolm Robertson, Manager of Planning and Evaluation for CSIRO's Corporate Services Department, and former CSIRO Executive Member David Wright, advocated a restructure of CSIRO, including a separation of line management responsibilities from decisions over the Organisation's priorities.

CSIRO's Institute of Animal Production and Processing Director, Dr Alan Donald, gave a strong counter view to this implied criticism of Institutes.

He argued that only those who have managerial responsibilities can make sensible judgements about priorities. The Executive Committee (EC), he said, was the place where arguments over priorities were fought between the Institutes, but that once decisions on priorities were made Institute Members then collectively carried them out.

The Senate hearings were held for one day each in Canberra, Sydney and Armidale. In Canberra, CSIRO Chief Executive Dr John Stocker appeared with Dr Donald, the CSIRO Institute of Plant Production and Processing Director, Dr John Radcliffe, and the Organisation's Corporate Services Director Mr Arthur Blewitt. Dr Stocker outlined CSIRO's current directions and the return to the nation from CSIRO research.

Other organisations to appear included the National Farmers Federation (NFF), the Wool Council of Australia and the Community and Public Sector Union. In Sydney, witnesses included the NSW Farmers Association, AWA Ltd, Abbott

Laboratories and the Australian Centre for Innovation and International Competitiveness. Armidale witnesses included representatives of the Cattle and Beef Industry CRC, the Armidale and District Chamber of Commerce, the NSW Department of Agriculture and the University of New England.

The NFF submission mainly said that CSIRO cost reductions should be directed at administration and infrastructure, not research.

The NFF also asked for all funds released from the sale of assets to be re-invested in rural research infrastructure or returned to the industry, for all efforts to be made to retain key staff, for minimal disruption to work to occur and for the NFF to be kept better informed of what CSIRO was doing.

The Wool Council recognised that some restructuring in CSIRO was necessary but wanted to be reassured that wool research and development would not be unduly affected by the changes. It expects wool-growers to receive money invested in assets sold off by CSIRO. The Council said that it believed it had received a good return on the money it invested in CSIRO research.

In Armidale, there was a strong local opposition to any cuts to CSIRO's presence because of the effect it would have on the local community.

Some CSIRO scientists lamented that too much money went into administration. Several of the Senators, however, queried whether further cuts to administration would simply shift the burden of these duties onto scientists and be a false economy.

The hearings resume on September 2 in Canberra, when Dr Stocker will appear again, accompanied by Drs Radcliffe and Donald as well as CSIRO's Institute of Natural Resources and Environment Director, Dr Roy Green.

The Inquiry is due to report by the end of November, although Senator Panizza (Liberal, WA) has said he believed that the Inquiry would run till mid-way through next year. ♦

You miss, I miss, we all miss but UMIS?

Alex Bendeli, a scientist at CSIRO's National Measurement Laboratory, got sick of reading stories about good Australian inventions that failed to raise any flicker of interest in their own country. The stories began well, with a useful and exciting product, but always had the same sad ending — rights being sold outright to some overseas interest, or, at best, collecting some miserly royalty that dribbled in as a recurring insult to the importance of the innovation. He thought CoResearch readers might be interested in a story that may well end more happily ...

I want to talk about something called UMIS — the Ultra Micro Indentation System. It began in 1983, as a prototype to meet an immediate need for instrumentation in measuring and characterising Titanium Nitride coatings. Boring to some, but the hottest thing in thin films at the time, believe me. There were such instruments, but they were laughably expensive.

At the start, there were three of us working on the project. We produced a prototype, and that earned us a grant to construct a more 'commercial' one. This involved people in a variety of disciplines such as our drawing office and technical staff.

After a couple of years we were threatened with termination of the project — no hint of manufacturing interest had been aroused in Australia over our 'commercial' model.

Just at that time, luckily, we got a request from overseas for the manufacture of a single UMIS (it had no name at that

time), and that gave us the encouragement we needed to steam ahead with commercialising it ourselves.

Again, we were lucky; we found an agent in the United States who was gifted in the painting of rosy pictures, and he quickly got us three more orders for our nameless instruments. Of course we dived into batch production mode immediately — here were orders flowing in, and no outside company ready to do the manufacturing!

Suddenly we needed a lot more staff in the workshop, and there was some grumbling in

the ranks over the resources that were being dragged from research into manufacturing.

We had to make more use of the drawing office people to prepare drawings for the casting of several parts. Contract technicians were hired and allowed to use our workshop facilities. We bought a new Computer Numerically Controlled (CNC) machine.

Production methods, with time, became more streamlined. The casting drawings were transferred onto computer software. Two more batches of five UMISs were completed, and a third was about to start.

Production time for each UMIS was reduced from one year (for the prototype) to one month (for the most recent unit). During the period we were also interviewing and assessing a large number of sub-contractors. Slowly, we have shifted the emphasis from in-house manufacture to production and project management. As to our initial time investment in programming the CNC

machines, we will hang onto that for producing the complex and precise parts. A large proportion of the simpler parts, however, are being contracted out, especially for the latest batch.

Electronic manufacturing is sub-contracted and the PC boards then fitted to the chassis and tested here.

Cabinets and stands are manufactured and painted by another contractor.

Other items are heat-treated, plated, screen-printed, wire-cut, machined and lapped by close to a dozen different contractors.

It sounds complicated, but in fact the multiple contracting-out leaves us more time to investigate improvements in software, hardware and manufacturing methods, and, not least, to carry out basic research in applications in new fields. Drawing office time has now been reduced to that needed for up-dating established procedures, but more work has gone to the administrative and business areas, inevitably, for the

handling of orders, issuing of invoices, giving of quotes and organising of dealerships overseas.

However, this work-load too is being progressively reduced, and eventually, when the transfer learning curve is completed, the only drain will be whatever time it takes to raise the appropriate invoices.

Obviously there is a great gain for us in the time and effort we don't have to expend in making the parts ourselves. But the greatest gain is the satisfaction of knowing that the product is accepted, sells, is fully manufactured in Australia and keeps the economy rolling by keeping people employed and supporting Australian manufacturing. We now have UMISs operating in Canada, the United States, Europe, Japan and Australia. Our client base has steadily increased and we are now successfully competing with similar instruments available on the international market.

We are currently negotiating for a major dealership in the US, Europe and Japan. The question is — do we hang onto our UMIS, or do we end up as just another Australian innovation story with the same old sad ending, and just a little more suspense in the middle? ♦♦♦

Got a heap of numbers to crunch?

CSIRO's Supercomputing Facility can help you to take on the "Grand Challenges" of science — and it is cheaper and easier to use than you might expect.

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Unlike most other computers, the Cray provides enhanced hardware and software to allow you to carry out the most complex scientific calculations more quickly — and within budget.

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- High capacity links to AARNet allow easy access from all CSIRO sites.
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- Training and programming assistance at your request.

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Len Makin

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Email: len@mel.dit.csiro.au

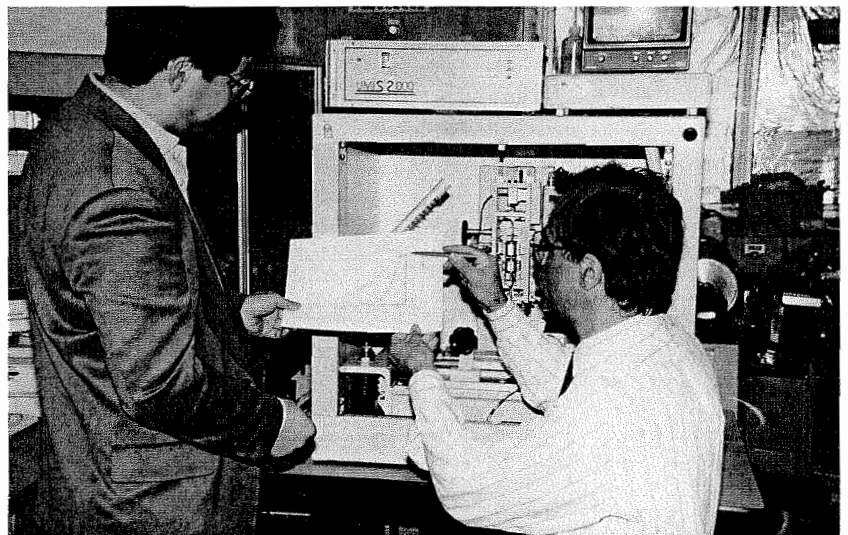
723 Swanston St, Carlton, Vic.3053

Eva Hatzl

Tel: (03) 349 2749

Fax: (03) 347 4803

Email: help@cherax.super.csiro.au



Alex Bendeli with Dr Tokru Sekino of Hihara Laboratory, Osaka University, where the UMIS will be used in assessing composite materials.

Promoting CSIRO

If you're involved in producing material that promotes CSIRO's work, you'll need to be aware of guidelines recently published under the title 'Promoting CSIRO: a guide to planning and production'.

The guidelines give some useful advice on how to make sure that CSIRO's promotional activities meet corporate requirements, are properly targeted, have clear objectives and are co-ordinated with other communication activities.

Your Institute or Divisional Communication Manager has the details.

Industry backs minerals merger

The CSIRO Board at its June meeting approved the merger of the Divisions of Mineral Products and Mineral and Process Engineering. The merger process, beginning in July, will culminate in a new Division on January 1, 1995. Dr Rob La Nauze will be Chief of the new Division with Dr Tom Biegler as Deputy Chief.

In announcing the initiative, Director of the CSIRO Institute of Minerals, Energy and Construction, Dr Alan Reid, said the new Division will for the first time draw together CSIRO's high priority minerals research into a highly focussed and strategically directed business unit.

'CSIRO's Divisions of Mineral and Process Engineering and Mineral Products have been at the

forefront of efforts to deliver tangible benefits to industry customers. The new Division formed from the merger will build on this strong record of performance and create what is in effect a one-stop shop for CSIRO's mineral processing and metal production research.'

Clear support for the merger comes from the mining industry with the Advisory Committees of both Divisions and, independently, industry managers

suggesting that integration will increase the effectiveness of delivery to their industry.

The name of the new Division will be determined as part of the strategic marketing plans for its activities.

Dr Reid encouraged all staff to take an active role in the planning and other activities required to successfully complete the merger and establish the new Division.

♦♦♦

New CSIRO Fellow seeks drugs against Alzheimer's and HIV

Dr George Holan of the CSIRO Division of Chemicals and Polymers has just been made a CSIRO Fellow in recognition of his contribution to chemical discovery.

Dr Holan is in charge of the Division's Pharmaceutical Chemicals Program, testing compounds for use against Hepatitis B and flaviviruses, including Hepatitis C. The group is also following up some promising leads in the search for drugs that may be effective against Alzheimer's disease. He is also Head of Synthetic Chemistry of the Biomolecular Research

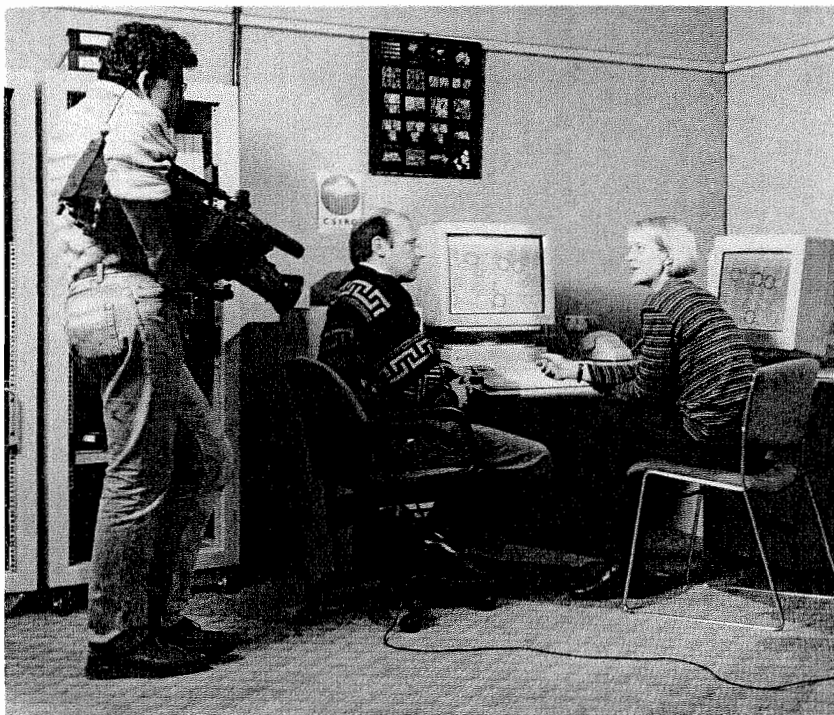
Institute, where he carries out research on new drugs against HIV.

Dr Holan worked for Monsanto Chemicals in Australia and the United States before joining CSIRO in 1966. His early work on DDT led to the development of new insecticidal esters including cycloprothrin, first commercialised by Nippon Kayaku in 1986, which has earned CSIRO

more than \$2 million in royalties.

Dr Holan was instrumental in forming the CSIRO-Dupont company, Dunluna, which is involved in the development, synthesis and testing of biologically active compounds for use in agriculture. His more recent work in the field of medicinal chemistry formed the basis for the Macquarie Bank-AMRAD Syndicate which began in 1992. ♦

CSIRO software to help in emergency rescue work



Tracy Hutchinson, reporter for the new ABC television program 'Great Ideas' briefs Division of Information Technology scientist Dr Peter Milne before filming a computer simulation demonstrating the 'Vehicle Track' project. The software brings together different technologies to track real vehicles on an electronic map, and should be of great help in co-ordinating the movements of emergency help vehicles during a crisis. The item went to air in late July. Photo by Richard Upton.

No sex please; they're from New Zealand . . .

Willow varieties recently imported from New Zealand could choke Australian rivers, according to Kurt Cremer of the CSIRO Division of Forestry.

The new varieties are hybrids of *Salix matsudana x alba*, and the problem is that both male and female trees have been introduced. Mr Cremer said that the females should not be planted as their seed could float for great distances on even the slightest breeze.

'If seeds spread as they have done in New Zealand many of our waterways could be blocked by thickets of willows,' he said.

All willows in Australia have been introduced from overseas, usually as cuttings, and they can be very useful, especially in cleared areas where natives will not thrive. They can be propagated simply by pushing a twig into moist soil, and the trees form dense mats of rootlets, at and below water level, that can stabilise banks and reduce erosion. There are a number of varieties, but until recently each variety was either all male or all female.

Mr Cremer said that in New Zealand, two willows, present as both sexes, have spread aggressively as seedlings in river channels in the Canterbury region and in swamps throughout the country.

'If we wait until we have that problem it could be too late to deal with it effectively,' he said. 'A thorough investigation is needed to determine which new willows, if any, should be allowed into Australia.' ♦



British water research scientists made redundant through privatisation

According to a recent edition of *Techwatch*, a weekly digest of technology policies and developments put out by Price Waterhouse in Canberra, a fifth of the scientists at Britain's leading water research laboratory have lost their jobs because the privatised water companies are cutting their spending on research. About 80 scientists and 40 support staff at WRC (the private company that became heir to the state-owned Water Research Centre when the water industry was privatised in 1989) in Marlow, Buckinghamshire, were made redundant in April. ♦

New tank system to study water pollution

by Jane Hammond

Australian scientists will soon be able to undertake detailed tests on the impact of environmental pollutants on marine life, thanks to a revolutionary new tank system being established at the CSIRO Division of Fisheries' Marmion marine laboratories.

The first phase of the multi-million research facility has just been completed with the installation of a \$500,000 waterline, pumping station and reservoir system at the site, north of Perth.

Director of the CSIRO Institute of Natural Resources and Environment, Dr Roy Green, inspected Phase One of the facility recently and said he was amazed that it had been constructed so cheaply.

The waterline will carry raw sea-water to the research station where it will be used to conduct a series of experiments on the

tolerance of marine organisms to environmental stress. The water will be pumped at a rate of 30,000 litres per hour.

A farm consisting of 24 tanks (mesocosms) will be housed at the site and will provide experimental and research scientists with a window to the environment. The scientists will be able to observe first-hand the long-term impact on the ecosystem of low levels of stress from environmental toxins such as heavy metals.

Head of the Division of Fisheries' Marine Environment Research Program, Dr Trevor

Ward, said the mesocosms would, when complete, be a world-class facility and would give scientists the ability to study in the most detailed way the effects of pollutants on marine life and communities.

For the first time Australian scientists will be able to observe over time the impact of pollution on marine organisms, their populations and their communities,' Dr Ward said.

This work will be an important component of CSIRO's Coastal Zone Program and will permit scientists to test models developed to predict pollution impact.

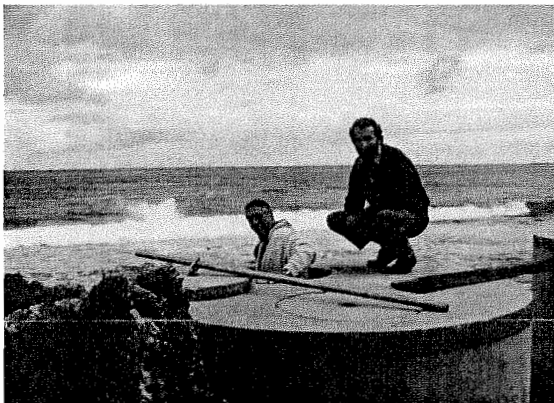
'It will also allow us to study the relevance of standards such as the Australian Water Quality Guidelines for the protection of marine fauna and flora.'

He said the waterline had been constructed using the undersea engineering skills of a number of Perth-based companies and had proved to be both reliable and efficient.

'Two weeks after the line was installed we had a one-in-100-years storm and it managed to survive the impact very well,' he said.

Dr Ward said Phase One had been completed on budget and construction of Phase Two of the facility was expected to start early next year.

♦♦♦



Director of the Institute of Natural Resources and Environment, Dr Roy Green, left, and Marine Environment Research Program leader, Dr Trevor Ward, inspect part of the new Marmion marine laboratories waterline.

Caption Competition



This was a hard one to judge. I rather liked 'Place your bets please — the new CSIRO funding roulette wheel prepares for its first spin. Does it mean anything that the wheel is blank?', sent in by Richard Merry of Soils in Adelaide, but in the end I had to award first prize, for the second time in a row, to mere raw recruit Richard Upton of Information Technology in Canberra, for 'Overwhelmed with the high tech of it all, the Minister tries to persuade a passing ice-cream salesman to become a collaborative partner in CSIRO's new nanotechnology ski-jump project'.

In the category of Egg Jokes, the two winners were 'Yes, but where does the chook sit?', from Kylie Waring of Wool Technology, and 'It's quite easy, you just balance the egg on here and the innovative CSIRO invention flings it into the nearest bystander's face'.

In the Gallows category the winner was (as it so often is) B.G. Hunt of Atmospheric Research, with 'If I fail for the third time to balance this ball on the Participation In Scientific Studies Or Foreshortened Future Employment test device of the Minister for Science, you, young man, will be made redundant'.

From Lynn Pulford of Education Programs a lovely whimsy — 'In a galaxy far, far away, Mr Shoemaker fires off Shoemaker-Levy 126. Due to its size this comet will not cause many problems to the earth'. Now see what you can come up with for the one below.



CSIRO postdoc wins German research prize

A post-doctoral fellow with CSIRO's Australia Telescope Facility has just been awarded an Otto Hahn medals for her PhD thesis.

Her name is Dr Bärbel Koribalski, and she works at the Sydney headquarters of the Telescope.

Each year Germany's Max Planck Society gives a small number of medals for the best PhD theses written by students attached to the Max Planck Institutes, Germany's elite research institutions.

They are given to recognise excellent achievement in the first phase of a young scientist's working life.

Dr Koribalski's thesis was on the 'peculiar' Southern Hemisphere galaxy NCC1808. Since arriving in Australia she has worked mainly on other galaxies visible from the

Southern Hemisphere.

Dr Koribalski came to Australia because she specifically wanted to work with the CSIRO's Australia Telescope.

'I had already worked in Chile on galaxies in the southern sky,' she said. 'There were only two places I wanted to go to, the VLA (Very Large Array radio telescope in the USA) and the Australia Telescope.'

'I came here because the Australia Telescope is a new, promising, 'hands-on' instrument.'

As well, there was already a strong connection between the CSIRO group and the German radio astronomy research group. In recent years there have been

many staff exchanges and visits between the two, and in 1992 the Australia Telescope's Deputy Director, Dr John Whiteoak, won a \$140,000

German research prize in association with a Director from one of the Max Planck Institutes.

Dr Koribalski would like to stay in Australia, if circumstances allow. 'There are lots of new things you can do with the Australia Telescope,' she said.

'I'd like to diversify a bit more, but at the moment I'm mainly interested in the kinematics of gas in the nuclear regions of galaxies, and how they are related to the larger scale structure of galaxies.' ♦

Ideas need protection!

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Letters to the editor, from page 2

advertisements for worthy causes, such as Community Aid Abroad, appearing in *CoResearch* on a cost-recovery basis.

What I do find hard to stomach are brochures advertising CSIRO's 'products' such as T-shirts, golf balls, coffee mugs and the like, each branded with the corporate logo, for which the hard-working employees of the Organisation are expected to pay their hard-earned after-tax dollars. This seems to me to be the epitome of exploitation of the workers! Let them do your advertising for you at THEIR expense!

My policy regarding clothing or accessories whose sole purpose is to advertise a product or a corporation is quite simple — I will only consider wearing or using them if I am paid an appropriate fee. For something really attractive, desirable and useful, I would seriously consider accepting the item as a gift! Nothing in the current catalogue, however, falls into the latter category. Best regards,

Ian Barger
CSIRO Animal Health
Armidale

Dear Editor,
I have just read edition 358 of *CoResearch* and Neill Jonker's letter to Ed re junk mail within the publication. I am not often stirred to respond to these issues but felt this was one I feel strongly about.

Could not agree more with Neill. Regardless of the income or costs issue I am of the opinion that including advertisements for charitable groups (or any commercial venture for that matter) does NOT have a place in *CoResearch*.

There are plenty of avenues available for all of these promotional activities through other outlets - but NOT our staff newspaper. We probably all have our pet charities we support and some we would not care to support for one reason or another. The support is usually initiated from a personal experience that provides the motivation to do something 'good' - and NOT from being bombarded with junk mail within the internal staff publication that I thought was meant to provide news about who, what and where within CSIRO.

I must admit I was not nearly so offended with 'the simply black collection' insert from one of our own groups but perhaps there are other avenues for this too - for example through social clubs that can get to the same audience.

On a positive note while I'm in the writing mood, after reading *CoResearch* for nearly

30 years I still take time out to read from cover to cover - there is always something of interest. It's a pity that there is not so much of the comings and goings of staff as there used to be.

Well done, but no more commercials.

Ian McTaggart
Institute Training Co-ordinator
(IAPP, IMEC & IISE)

That logo again ...

Dear Editor,
Your reply to Jason Li asking about our CSIRO logo left out the most important phrase — 'the light of science shining through the bars of bureaucracy'.

Judy Sprent
Division of Forestry
Hobart

Senate Inquiry

Dear Editor,
In the first three days of hearings at the Senate Inquiry a claim was aired that CSIRO employs 100 journalists.

The 100 journalists is a confusion of the findings of an internal audit of CSIRO's communication, which estimated that there were 'fewer than 100' communicators in CSIRO. Our estimate is that there are around 70 professional communicators, the vast majority of whom work in Divisions.

Judging by some comments before the Senate Inquiry it seems that there is some confusion even in CSIRO about what communicators do. So, I thought I might share a note sent to me by a former CSIRO communicator who regrettably left us soon after penning this remarkable description of his duties.

...

Welcome to my office.

Big, isn't it?

Yet from this broom cupboard do miracles flow.

After all, I am a COMMUNICATOR.

This means that I am a journalist, am friends with every newspaper editor in the country, can get TV attention in a trice, always have a press release handy, can make any subject or scientists sound interesting on radio, can write knowledgeably on any subject for any publication or occasion, relate well to all people at all times and never lose my temper, can type at 200 words per minute, understand the intricacies of desktop publishing, graphic design, photography, work well with publishers and can

tell the difference between Gills 11 point reversed and Frutiger 11.5 on a 35 millimetre slide, and I have a PhD in physical and biological sciences, am thoroughly up-to-date on all relevant government policy including what next year's budget will hold, can advise on forthcoming industry moves and motivations, as well as be able to lobby bureaucrats and business leaders, while answering questions from schoolchildren and housewives and farmers and shopkeepers and be thoroughly interested in all that they and their Uncle Bert have to say, and write and distribute newsletters, edit scientific papers, discuss in-depth the details of research with scientists who view my job as a waste of research funds, and prepare briefing notes and speeches and displays and brochures and seminars and conferences and VIPs to launch books and provide interesting conversation at morning tea, and be able to explain the idiosyncracies of the Chief Director or Chief Executive and why they didn't approve this and they did approve that, while keeping the rest of the organisation up-to-date on research in this Program, and keeping in constant touch with researchers scattered across the continent, and be able to name the science writer for the Nambucca Heads Bugle at the drop of a hat, and be able to unerringly spell the scientific name of the garden earthworm.

And how do I do all of this?

Easy!

I'm a Communicator.

Mr Lindsay R. Bevege
General Manager
Corporate Public Affairs

David Rand electrifies America



At left, Dr David Rand of the currently nameless Division that was once called Mineral Products (see story page 5) helps out under the bonnet at the latest World Solar Challenge. It was the job of Dr Rand and his CSIRO colleagues John Hamilton and David Vella to make sure all was above board when it came to the batteries used in the solar-powered vehicles, which race from Darwin to Adelaide every three years. The Honda team won on the day, but some competitors questioned the admissibility of its battery and the CSIRO experts had to settle the argument. The Honda battery passed the test.

At the moment Dr Rand is on secondment to the International Lead Zinc Research Organisation (ILZRO) in North Carolina, USA, where he will stay until mid-November. As their Acting Manager — Electrochemistry, he will be responsible for ILZRO's battery technology research, including planning for future activities in the field.

He will be working on a \$30 million research program that involves 50 members internationally. Their goal is to produce an advanced lead-acid battery for use in electric vehicles, which would provide an important new market for the lead industry.

Equal pay for equal work?

Not necessarily. A recent in-house survey weighs up CSIRO pay packets and finds some heavier — and some much lighter — than those of our public and private counterparts.

CSIRO's Human Resources Branch has just completed its annual survey of how well our salaries and other rewards compare with those on offer in the Australian Public Service and the private sector.

According to Noel Tarbotton, who conducted the survey, such comparisons are much more complex than they seem. 'With such a diverse range of jobs and disciplines in our organisation,' he says, 'it is impossible to provide a one-line comparative statement'. Nevertheless he has come up with some interesting findings.

Scientific staff

For the first six pay points after joining, CSIRO rates are \$4,000 to \$6,000 above those of the public service, but from there on they fall progressively behind. For scientists at CSOF levels 5 and 6 we are offering below-market rates, and from other research done by the Human Resources staff it seems a number of staff at this level are leaving the Organisation to go to higher-paid positions elsewhere.

The report says, 'We would suggest that we are not competitive enough [at these levels] to attract the better Research Scientist/Engineers, especially at CSOF6, where one third of the surveyed private sector group provide a motor vehicle towards their total remuneration package'.

The report says 'Research Scientist/Engineer rates require attention particularly at the CSOF5 and CSOF6 levels. This is a critical area'.

Para-professionals

When it comes to the packages for para-professionals — people who enter the Organisation with a Higher School Certificate or Associate Diploma — CSIRO is paying below the market rate for all levels except the upper range of Level 5, Senior Technical Officers.

Para-professional staff (most of whom are at CSOF3 or CSOF4 level) are running between \$4,000 and \$6,000 behind their public service counterparts.

However, competition for these jobs is still fierce, and the report does not recommend raising the remuneration to make it equal to the employment community average. 'Due to the large labour force numbers available in both new degree graduates and para-professionals,' the report says, 'there is no urgency to fix the differences.'

Support staff

In finance positions, CSIRO is paying 'well below market rates' for levels 4 and 5, though 'base salary rates for level 6 and 7 positions appear to be appropriate'.

In the field of Communication and Information CSIRO's rates are 'competitive', says the report, though lower than average at all but the maximum pay points, and in Human Resources 'the pay profile is generally lower than the market rates'. ♦

Nathan Smith — Apprentice of the Year

by Christian Peterson



Nathan Smith, from the CSIRO Marine Laboratories in Hobart, is CSIRO Apprentice of the Year, having won the Organisation's Arthur Frost Award. This is the first time an apprentice from the Marine Divisions has received the award, which was inaugurated in 1974.

During his four-year apprenticeship Mr Smith developed and built specialist equipment for fisheries and oceanographic research; went to sea on board the CSIRO oceanographic research vessel Franklin; and developed skills in plastic welding and glueing to a very high standard.

Mr Smith pioneered the manufacture and development of CSIRO Niskin-style bottles of various sizes and shapes. Niskin Bottles, often made from plastic, sample ocean waters to depths of more than six kilometres. CSIRO's two research ships, the ORV Franklin and the FRV Southern Surveyor, carry his bottles, and so does Australia's Antarctic vessel,

Aurora Australis. The New Zealand Oceanographic Research Division is another client.

One of Mr Smith's career ambitions is to try out his skills in the development of scientific instruments and equipment in Antarctica.

Mr Smith will be presented with a plaque and a cheque for \$500 at this year's Arthur Frost Award ceremony.

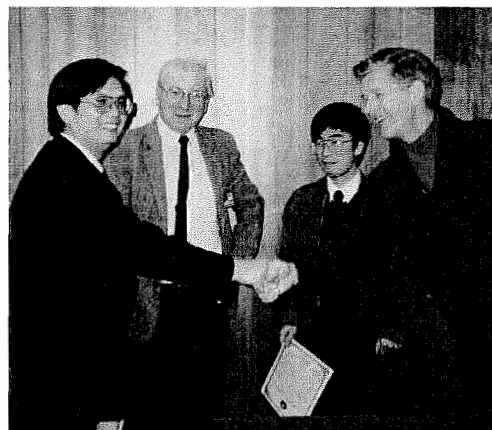
The award is named after the late Arthur Frost, a workshop supervisor from CSIRO's former Division of Textile Physics at Ryde in NSW. Frost was remarkable for his interest in all his subordinates, and especially for his dedication to the welfare of apprentices. ♦

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Chinese trainees return home

Opposite, Dr Geoffrey Gartside, right, Program Manager of the Pulp and Paper Products group of CSIRO's Division of Forest Products at Clayton in Melbourne, presents Mr Qin Tefu with a certificate for successful completion of an FOA Training Fellowship. Looking on are Dr Warren Hewertson, left, Chief of the Division, and Dr Jiang Zeping. Dr Jiang is from the Research Institute of Forestry, and Mr Qin from the Research Institute of Wood Industry, both in Beijing. The men spent April and May this year at the Division working on their FAO project, 'Development of high-yield pulping of Chinese fast-growing wood and forest wood residues'.

Photo by Max Williams.



CSIRO's longest serving staffer retires

CSIRO's longest serving staff member, Brian Gleeson, Divisional Secretary of the Division of Manufacturing Technology, retires in October.

Peter Robinson, Chief of the Division, says the staff will all miss 'Uncle Brian's' guidance and quiet counsel on a wide variety of issues.

'He is our corporate memory and conscience, epitomising the strength of this organisation,' Robinson said.

'Brian has been a major contributor to the building of the ethos of this Division since Day One.'

Brian Gleeson joined the CSIRO staff straight out of school, at the age of 16, in February 1947. He has seen out a span of years 'from Rivett to Stocker', experiencing the changes to the organisation from the period when the second Chairman, Sir David Rivett, worked with an Executive Committee, to the present time in which the Chief Executive, Dr John Stocker, reports to a Board.

For the most part Brian has welcomed the changes he's seen, which have tended towards decentralisation.

'Change is inevitable and I believe the way in which the organisation operates has been streamlined over the years, resulting in greater autonomy to Divisions,' he said.

'Previously, staff were hidebound by regional offices and head office. The devolving of responsibility has brought about much more efficient processing of accounts and financial planning.'

'I say this even though sometimes I think about how some of my former bosses would turn in their graves to see how the place operates now,' he

said.

Brian started in the correspondence records section at head office in Albert Street, Melbourne, then moved to Canberra in 1951, which he described as 'a bit rustic in those days'. How times change!

He spent some time with the Division of Soils in Adelaide and the Division of Atmospheric Physics in Aspendale, before returning to Melbourne to the Regional Administrative Office, in charge of the finance group.

On the formation of the new Division of Manufacturing Technology in 1980, Brian managed the administration for the Melbourne and Adelaide laboratories, then oversaw the move by the Melbourne laboratories to Johnson Street, Fitzroy in 1981, and to Preston in 1986.

Brian and his wife, Shelagh, will be on leave, globe-trotting for two months, before he returns in mid-September for a brief stint before officially retiring in October.

Shelagh says the trip will be a litmus test for her husband's

retirement.

'This will be the first trip we've had, spending all day together, since our honeymoon,' she said.

'I expect it will take about six months for us to fit into a pattern of retirement living. We don't have many differences of opinion, except over football — Brian supports Richmond and I'm an Essendon supporter.'

Shelagh says Brian always seemed happy to go off to work at CSIRO every day. He would have to have been on his death bed to take a sick day and was always on time.

When he retires, Brian claims his travelling high jinks will end and he'll lead a quiet life 'pottering' and indulging in those pleasures he's had to deny himself as the breadwinner all these years.

The indulgences will include gardening, watching the odd Sheffield Shield match and enjoying a family life when his four grown children visit.

After 47 years of commitment to CSIRO we'd say he deserves a break. ♦

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