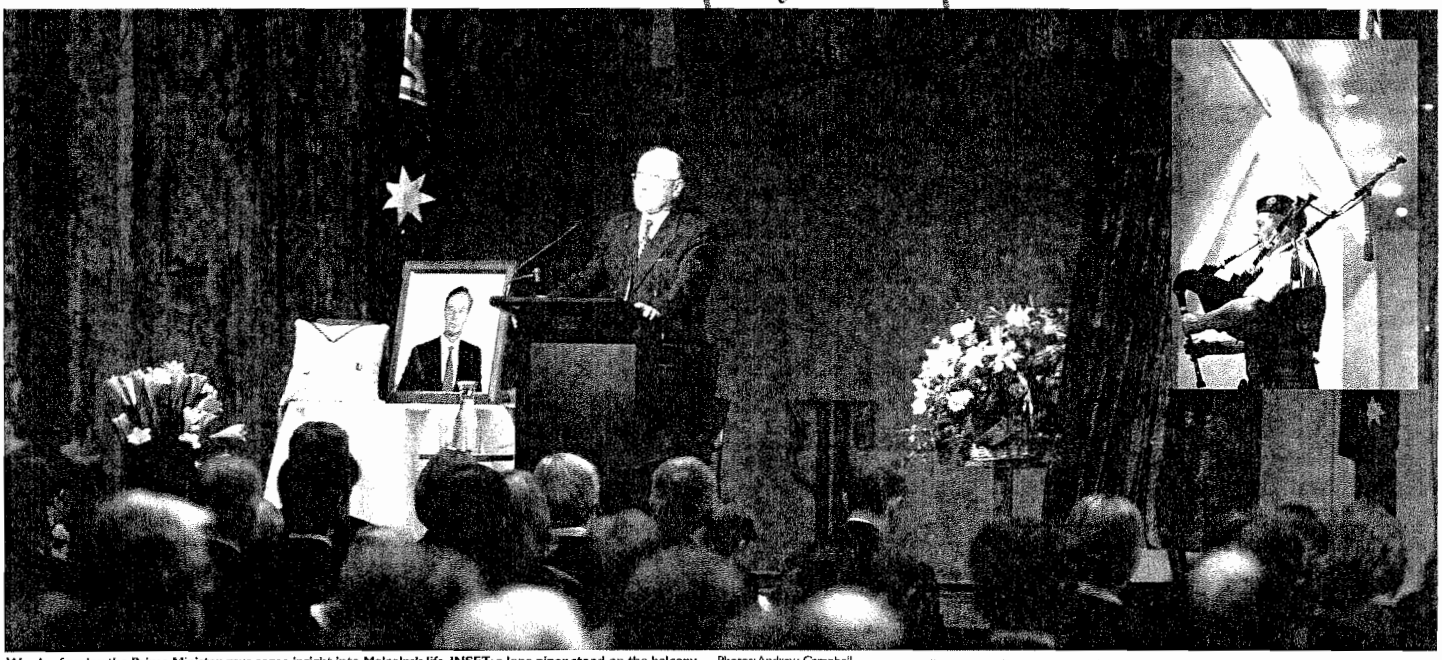
CSIRO

CoResearch

CSIRO's staff newspaper

No.381 Autumn 2000



Words of praise: the Prime Minister gave some insight into Malcolm's life. INSET: a lone piper stood on the balcony. Photos: Andrew Campbell

Moving service for Malcolm

NEARLY 1000 people in Canberra and several hundred at CSIRO sites around Australia celebrated the life of Dr Malcolm McIntosh, at a service held in the Great Hall, Parliament House.

The ceremony on March 8 was direct-telecast to Perth, Adelaide, Melbourne, Hobart, Sydney and Brisbane.

Dr Jim Peacock was MC.

Speakers in praise of Malcolm were Prime Minister John Howard, Opposition Leader Kim Beazley, Malcolm's younger brother Ian McIntosh, Allen Hawke, Defence Secretary and friend Bob Wylie, colleague and friend Darren Cundy and Jim Peacock, CSIRO.

Young Charles McIntosh made a speech never to be forgotten by anyone in the audience.

Amanda Hyatt's striking portrait of Malcolm was unveiled, a chapel choir sang a traditional Welsh melody, a pianist gave us Grainger's Handel in the Strand – one of Malcolm's favourites to which he had been known to dance – and finally, a lone piper, standing on the balcony above the hall, carried us to conclusion upon the strains of the McIntosh Lament.

It was an event undoubtedly unique in CSIRO history.

– **WENDY PARSONS**, CNA

● Legacy of adaptability – Page 2

Scientist a courageous and brilliant leader Tributes flow for CSIRO chief

Cancer claims CSIRO chief

Architect of science loses long illness fight

Scientist straddled two worlds, leading with vision and commitment

Nation's scientific master builder dies at 54

Tributes for CSIRO scientist

Indomitable scientist fought adversity and left a lasting national legacy

Electrifying Australian car

By MEGAN BIRD

A REVOLUTIONARY $30 million hybrid-electric car will be unveiled at Parliament House in Canberra on May 31.

It will show how vehicle fuel consumption can be halved and pollution cut by 90 per cent.

It is the second aXcessaustralia concept car.

The first, a low-emission car, was unveiled to the world in 1998 at the Detroit Exposition of the Society of Automotive Engineers. And it helped Australian component manufacturers achieve more than $730 million in new export business.

It toured the world for a year and was seen by more than a million people.

The new car uses hybrid-electric technology and has been put together with innovative technology from more than

Drive time: an artist has captured the innovative exterior of the car.

80 Australian component manufacturers.

The drive train incorporates features such as a bank of five special lead-acid batteries, rather than one in a conventional car.

The CSIRO battery design contains several innovations, is the subject of a patent with the world's largest industrial battery manufacturer and includes a new lead material that has been developed with Pasminco and that is now sold commercially.

The surge-power unit or supercapacitors have not been used successfully in electric vehicles before and were developed by CSIRO to work with the battery pack and electric traction motor.

The car can be charged overnight on low-tariff electricity to reduce running costs even further.

Director of CSIRO's Australian Automotive Technology Centre Mr David Lamb said: "It's packed with CSIRO technology and the best that Australian industry can provide.

"Australia is one of only 10 countries in the world that can style, design, engineer and manufacture almost every component of the modern car."

The car will travel from Canberra to Fisita 2000, a major international automotive-technology symposium in Seoul, then to Japan, China and Europe.

Australians trust us on biotech

AUSTRALIANS trust CSIRO the most to provide truthful information about biotechnology, an independent survey has found.

The recent study found that 30 per cent of people would have the most confidence in CSIRO to tell them the truth about biotechnology.

The next most trusted groups were scientists, 14 per cent, schools and universities, 11 per cent, and consumer organisations, 11 per cent.

In other results, about half of the 75 per cent of people aware of biotechnology expected it to provide benefits.

Only 20 per cent expected it to make things worse. The majority, 81 per cent, would wear clothes made from genetically engineered fibre; use genetically modified medicines, 64 per cent; or buy genetically modified fruits or vegetables if they tasted better, 51 per cent.

And perceptions of a lack of information on gene technology were "compounded by sensationalist media coverage", the report stated.

The telephone and focus-group study, by Yann Hoare Wheeler, commissioned by Biotechnology Australia, surveyed almost 2,000 people throughout Australia.

It is available at www.isr.gov.au/ba

– MEGAN BIRD

Lucerne to mop up salinity

EFFECTIVE pasture management may halt rising water tables and could prevent dryland salinity, soil acidification and water logging.

Plant Industry's Dr Mark Peoples says excess water costs Australia more than $600 million a year in lost agricultural production and is a serious problem across agricultural land in Western Australia, NSW and Victoria.

CSIRO research has shown the vigorous deep roots of perennial pastures like lucerne are highly effective at removing water from deep in the soil and controlling this problem.

Dam pure water

CSIRO is pioneering a new way to make polluted water safe, by storing it underground.

Microbiologist Dr Simon Toze from Land and Water has shown that disease-causing micro-organisms can be killed by storing water in underground aquifiers for several months.

Harmless microbes purify the water that has been polluted by sewage discharges, leaky septic systems and animals, the research indicates.

These bugs reduced the polio virus to undetectable levels in less than 40 days during laboratory studies.

The geopurification technique is part of a project to store water below ground.

Underground dams would be cheaper, can be located closer to users and the environmental impact is far lower.

Research roundup

Solution to water hoggers

SMART meters that monitor thoughtless teenagers taking extravagant showers is a possible future water-use solution, according to a CSIRO investigation.

Off-peak water delivered to homes during the night and stored until it's time to use it is another option emerging from the first national urban-water-use investigation. Director of the Urban Water Program Mr Andrew Speers said: "We now have evidence to suggest that by better managing water peaks and better matching pipe size to demand, the potential exists to save the nation tens of millions of dollars as we renew our $50 billion urban water infrastructure."

Bugs hold mining key

EXTRAORDINARY lifeforms that can survive at the temperature of boiling water and dine on a chemical soup containing copper, gold and nickel will be sought out in active volcanic vents in the depths of the Pacific Ocean.

The pioneering search will be mounted in April in the seabed of the Manus Basin, north of Papua New Guinea, to help discover new processes that will help Australia's $37 billion mining-export industry.

The deep-sea bugs, known as extremophiles, will help Australian miners exploit lower-grade ore deposits, extract metals more cheaply, clean up waste streams and possibly improve mine safety. The volcanic systems to be explored for these lifeforms are of the same type that formed Australia's mightiest ore bodies, like those at Broken Hill and Mt Isa.

Gargle for health

RINSING your mouth out could be the best way to gauge your chances of developing hypertension.

A world-first diagnostic test uses cheek cells to predict whether young adults and teenagers are at risk from the potentially fatal condition.

The CSIRO-developed test uses mouthwash to extract human cheek epithelial cells that then have their sodium ion transport activity monitored. This activity is about half as likely in adults with high blood pressure compared to those with normal blood pressure.

Fighting toxic algae

POISONOUS blue-green algae in Perth's Canning River could be starved by reducing one of its major food sources, phosphorus.

In a world-first experiment scientists will attempt to trap phosphorus in the water and river sediments by placing a thin layer of absorbent clay called Phoslock, less than a millimetre deep, on the river bottom. Phoslock absorbs and locks up large amounts of phosphorus.

If this and other trials are successful they will provide managers of freshwater bodies around Australia with a new weapon against the toxic plague.

Sydney water audit

SYDNEY'S water catchment is "moderately good", according to a recent audit.

The research, conducted by CSIRO under the leadership of Dr John Williams, Deputy Chief, Land and Water, provides a snapshot of the catchment environment, land-uses and the human activities that put pressure on water quality and catchment health.

Test helps woolly exports

WOOLGROWERS will save money with a new test for pesticide residues that will keep Australian wool at the forefront of global markets.

CSIRO's Dr Ian Russell said: "The new test will reduce residue testing costs to woolgrowers by at least two-thirds."

The test has been developed by CSIRO Textile and Fibre Technology to meet International Wool Textile Organisation specifications.

Australia exports most of its wool unprocessed, and this can be sold into sensitive environments subject to stringent environmental legislation.

- MEGAN BIRD and KAREN ROBINSON, CNA

The last word

"Life must be confusing for the citizens of Melbourne. Earlier this week the CSIRO released some figures on the analysis of rainfall in the southern capital since 1910. The Herald-Sun and The Age both ran the story but the former's headline read, 'Summer gets warmer, wetter' while the latter said, 'After a century of rain on the rise, the future is looking dry. It probably means Melbourne's weather is normal - best to carry a raincoat and a parasol.'

- Melba, The Australian, January 13, page 9

"Why don't scientists get the same recognition as sportspersons? ... It's because scientists from the CSIRO conducting experiments proving genetic engineering can increase the yield of sorghum crops by 13.15 per cent can't draw crowds of 15,000-plus at Bruce Stadium on a regular basis."

- Bruce Stuart, Letters to the Editor, The Canberra Times, December 16, page 10

"It must have been a slow news day for The Age newspaper, which yesterday ran a short piece on the bug, four days after the embargo date. Could it be that the Millennium Bug was thus named because of its important role as an indicator of the health of inland freshwater bodies, a precious resource that must be protected for future generations? Or did the taxonomists merely have good PR in mind."

- Melba, on the CSIRO spin-doctors, The Australian, January 6, page 9

"Richard Austin is determined to kill the myth that science is boring."

- Bundaberg News Mail, December 4, page 1, story about a local high-school student travelling to the CSIRO-sponsored National Youth Science Forum in Canberra

"The Federal Government must review its R&D policies and provide greater opportunities for scientific discoveries; not only within universities but also through CSIRO and private enterprise."

- Professor Roy Jackson, Letters to the Editor, The Age, December 2, page A18

"The relevant question is not how many immigrants to Australia have qualifications in science and engineering, but how many of them are employed in scientific research in our universities, CSIRO and industry."

- Dr David Wiltshire, Letters to the Editor, prompted by Senator Nick Minchin's claim there was a net gain of scientists and engineers between 1990 and 1996 of 20,000, The Australian, page 3

Malcolm's legacy of adaptability

By Dr COLIN ADAM,
Acting Chief Executive

STUDIES on organisations that have continued to flourish for more than 100 years have revealed one dominant characteristic. It is their ability to adapt quickly to changing external events, over many decades, and to respond with relevance and integrity that sets them apart.

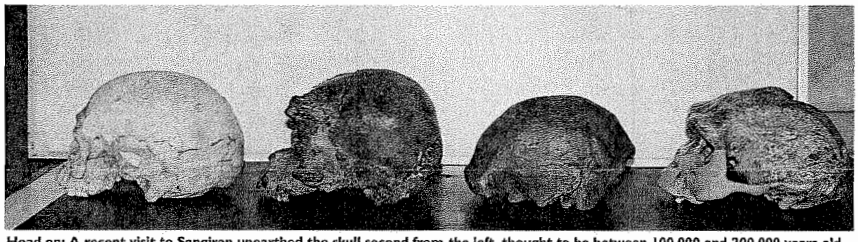
The CSIRO Executive has recently conducted a workshop with Government departments, our most important stakeholders, to gain insight into those issues that are most important to them. These included the growth of the services' economy globally, rural development and a broad range of environmental concerns; all issues that have a requirement for scientific insight and technological solutions.

These issues, which are important to all Australians, were never far from Dr Malcolm McIntosh's consciousness, and his great legacy has been to explain to our political leaders and bureaucrats just how important scientific discovery and technological progress will be in addressing them.

The next decade

The CSIRO Executive – Chiefs, DCEs and Sector Coordinators – met to discuss how CSIRO will plan for the next decade in response to these and other challenges. This was a meeting Malcolm planned, and was vitally interested in. It will generate a series of recommendations that refine our views of the scientific and technological challenges facing Australia. We are committed to moving forward, and to reinforcing the initiatives Malcolm put in place.

I am convinced the organisation should use these challenges as a trigger to develop the innate capabilities of all our staff, particularly our young scientific leaders. In this way our collective input will serve to strengthen the organisation's ability to respond to the changing demands from a variety of sectors in the years ahead. We face both scientific and commercial challenges, and the executive is well-placed to continue with the journey Malcolm began.



Head on: A recent visit to Sangiran unearthed the skull second from the left, thought to be between 100,000 and 200,000 years old. The skull on the far left is a cast of an ice-age Australian aboriginal skull, 10,000 years old. Second from the right is Homo erectus of Sangiran, between 300,000 and 400,000 years old, then early H. Erectus, between 900,000 and 1.1 million years old.

Skullduggery unearths surprise

A PAIR of fossil human skulls found by a CSIRO-LIPI team in Central Java may throw new light on the common ancestry of the Javanese and Australasian peoples.

The skulls also tell an extraordinary story about a 60-year-old black-market trade in forged and genuine human relics, and the importance of protecting Indonesia's early human heritage.

The skulls come from Sangiran, Central Java, a region famous for more than a century for its fossil humans. They were located by Ibu Tjempaka Sari of Indonesia's LIPI and CSIRO's Mr Julian Cribb during a visit to the Solo river area in mid-1999.

Both skulls are archaic Homo sapiens. One is estimated to be between 100,000 and 200,000 years old and the other possibly 30,000 to 40,000 years.

The skulls are at the Bandung Institute of Quaternary Geology in the care of Dr Fahroel Aziz, where they await full scientific study.

The first is thought by experts to have features in common with the earlier Homo erectus of Sangiran, as well as with more recent Australian aboriginal specimens. It may date from when prehistorians believe humans first sailed from Indonesia to settle in Australasia.

They came to light during a visit to Sangiran by Ibu Sari and Mr Cribb when they were inspecting sites.

Mr Cribb recalls: "I'd been making some enquiries about the availability of casts of the Sangiran erectus skulls. Next thing we know, this gentleman pulls up on a motorbike with a plastic shopping bag swinging from the handlebars. A few seconds later, I'm staring into the face of this incredibly old, incredibly ugly skull."

Of course, it was for sale. The region's villagers have a history of unearthing fossils and selling them to collectors, dating back to the 1920s' trade with German anthropologist GHR von Koenigswald.

Von Koenigswald was duped by the locals, who began offering him pieces of fossil human cranium. It was only after a couple of weeks that he realised they had found a whole skull, smashed it, and were selling it to him piece by piece.

Just weeks before the MSS-LIPI team visited Sangiran, a fossil erectus skull was bought on the black market, smuggled out of Indonesia, and sold in New York for a reported $US450,000.

Ibu Sari said: "We knew our skull was potentially valuable, and we didn't want it to be lost to Indonesia. So we asked LIPI officially to acquire the specimen."

This was agreed to and she returned to Sangiran to retrieve it. Here she met the skull's discoverer and questioned him closely.

When he realised he was dealing with the authorities the truth came tumbling out. Yes, the skull was a forgery, but possibly a unique forgery in the long and murky history of archaeological skullduggery.

That remarkably ugly face was cleverly constructed from million-year-old fragments of bone from cattle and other local fossil animals. But the cranium was genuine. It was an almost perfect specimen of archaic H. sapiens, probably a female.

"We laughed a lot," Mr Cribb said. "It recalled the famous Piltdown forgery of a modern skull with an ape's jaw, that was perpetrated in England in the 1920s.

"The big difference was that, in this case, the cranium was a genuine fossil, from someone close to the borderline between erectus and sapiens. And fossils of that vintage are pretty rare."

To try to establish if there was any connection with Australian aborigines, Mr Cribb called on the Australian National University's Professor Alan Thorne, a world authority on human evolution in the Asia-Pacific region.

The next difficulty was to get pictures.

By the time Ibu Sari got back to Jogyakarta the shops were closing. A desperate hunt turned up a Chinese photographer. But when he saw the subject he turned pale and, muttering about spirits, rushed out the door. He returned minutes later, bearing flowers, which he laid in a circle around the skull, out the door and down the street.

But his pictures turned out fine.

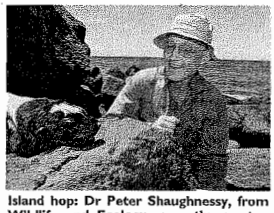
Based on these, Professor Thorne believes there may be similarities between the skull and early Australian specimens. Dr Aziz says it is undoubtedly archaic, based on the degree of mineralisation and the position of the foramen magnum, the hole in the base where the spinal cord enters. This suggests its original owner may have carried her head further forward on her shoulders than is common in modern humans.

While interviewing the local fossil entrepreneur Ibu Sari discovered another skull had come to light. This, too, proved to be Homo sapiens. It was stained dark from chemicals in the soil, and its weight suggested it was partially fossilised. It could be 30,000 to 40,000 years old, comparable in age to some of the best-known early Australian specimens. This, too, she acquired on behalf of LIPI.

A sponsor is urgently being sought to help meet the cost of dating and analysing the two skulls. Dr Aziz and Professor Thorne have agreed to assemble an expert Indonesian-Australian scientific team to do this.

Mr Cribb said: "We hope this fortuitous discovery, which hints at possible ancestral links between the two countries, will come to have symbolic as well as scientific significance and help to promote understanding and cooperation."

- JULIAN CRIBB, CNA



Island hop: Dr Peter Shaughnessy, from Wildlife and Ecology, recently spent a week on Lady Julia Percy Island.
Photo: Warrnambool Standard

Seal of approval

LADY Julia Percy Island is believed to house one of the country's biggest Australian fur seal populations.

Preliminary counts indicate 16,000 seals live there and 4,100 pups were there this summer. The colony could have doubled since the last count in the 1970s, according to the recent survey.

CSIRO wildlife ecologist Dr Peter Shaughnessy from Wildlife and Ecology recently spent nearly a week on the south-west Victorian island marking seal pups to calculate numbers as part of the Parks Victoria island-habitat rescue project. He said the only other comparable seal colony was Seal Rocks in Western Port Bay where researchers had estimated 4,800 seal pups in the 1997-to-1998 summer.

Media releases add vital value, survey finds

SCIENTISTS have reported that media releases are a valuable tool that can help build awareness, new contacts and even increase funding rather than a nuisance at the end of projects.

Most scientists found releases helpful to their work, according to a recent survey of sources of media releases issued last year by CSIRO National Awareness.

Of the 128 respondents to 182 questionnaires, 29 recorded making useful scientific contacts, and 40 reported making new contacts with industry, government and other key stakeholders. Two respondents even reported a definite "yes" to help with funding, with a further 10 "highly likely".

The email questionnaire was sent to the scientist listed as the contact on the media release two weeks after it was issued. The respondent who reported generating the most media coverage was Dr Kevin Hennessy of Atmospheric Research for his media release "Don't forget your umbrella", which reported on Australia becoming wetter, with more rainy days and more heavy rainfall.

He said the coverage he received was almost too good. "I was prepared for two to three days of media demands, but the response was sustained for three weeks and I'm still receiving a dribble of requests now four months later.

"It's not really a negative result but it significantly reduced my research and management productivity for one month."

But it was worth it. Dr Hennessy made many new scientific, industry and media contacts. He had wide media coverage, which enhanced the public profile of himself, his division and the organisation. And he experienced similar saturation coverage with another media release.

Many of the comments made in the survey indicate that issuing a media release at key points in a project is now part of the whole project-planning process. **– KAREN ROBINSON,** CNA

Ex-staffer on world power list

A FORMER CSIRO scientist has been rated more important than Viagra by Britain's Sunday Times newspaper.

Dr Peter Colman, along with the ANU's Dr Graeme Laver, was ranked the 56th most powerful person in the world.

He was rated ahead of the Pope, ranked 81, and Posh Spice, at 91, who just pipped Professor Stephen Hawking in the Power List 1999. The pair came third in the list of Powerbrokers in Medicine. Viagra came in at number 20.

Dr Colman and his colleagues at CSIRO's then division of Biomolecular Engineering pioneered development of the drug Relenza™, The Sunday Times reported: "There are few overnight scientific discoveries.

"The development of the drug to combat flu – which kills 4,000 people in Britain every year – is a case in point.

"In 1983 Colman, an Australian physicist, was working for the Commonwealth Scientific and Industrial Research Organisation on initial research by Laver when he was professor of biochemistry and molecular biology at the Australian National University.

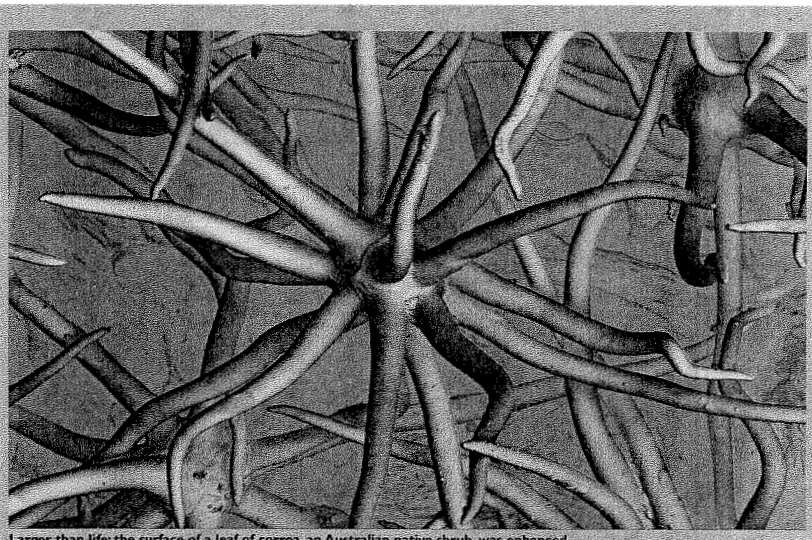
"It was the virus's ability to mutate that enabled it to escape our immune system. Development followed, but slowly, and in August Relenza™, the drug made by Glaxo Wellcome, was licensed for sale in America.

"Relenza™ works by 'jamming' the non-mutating part of the virus and preventing the bug from spreading to healthy throat cells; scientists claim it can act as a preventative, ease congestion and reduce the duration of flu for those already suffering from an average eight to six days.

"Colman is now director of the Biomolecular Research Institute in Melbourne, joint winner of the Australia Prize in 1996 for his efforts, and Laver, 70, is still at the ANU."

The most powerful people in the 500-strong list were, respectively, Tony Blair, Bill Gates, Alan Greenspan, Rupert Murdoch and Gordon Brown.

– DOUG GALE and WARRICK GLYNN, CHSN



Larger than life: the surface of a leaf of correa, an Australian native shrub, was enhanced.

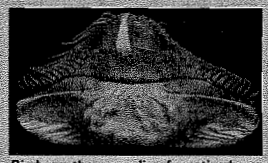
Microscopic marvels on show

THESE bizarre images show life forms lurking and living in our homes and gardens.

If this publication were in colour you would be struck by the lurid, enhanced colours in this rogues' gallery.

A Victorian art gallery has approached Mr John Ward from Forestry and Forest Products to mount an exhibition of some of them.

Physicist Mr Ward and his late colleague, Mr Bob McNamee, developed the analogue colourisation process in 1988, and Australian company Dindima helped develop the digital colour package a decade later.



Big buzz: the upper lip of a native bee gets the digital treatment.

The images are captured by a digital-scanning electron microscope and saved to a computer disc where they can be manipulated.

Mr Ward said: "The miniature world is brilliant. Once you enter it you just don't want to get out.

"We would like to produce a calendar of images."

Scores of insects are in the Melbourne-based digital library and thousands in the analogue library.

The technique has been used to capture the close-up allure of hair, blood, bacteria, native plants and even salt and pepper. **– MEGAN BIRD**

Multi-skilled: Bella Robinson stepped into a computer career. Photo: Andrew Campbell

From ballet shoes to computing career

A QUEENSLAND dancer traded in her ballet shoes for a computing career a decade ago.

Ms Bella Robinson was recently rewarded in her career choice when she and a colleague beat the world's best to develop a viewer for high-quality graphics on the Internet.

Bella, 29, graduated from the Australian Ballet School 10 years ago. "I couldn't get a job," she said.

"When I couldn't get work as a dancer my mum said: 'There are lots of jobs in computers'.

"I did some computing subjects at uni and liked them so followed them through and, four years later, found a job at CSIRO."

Bella, from Mathematical and Information Sciences in Canberra, is working on the scalable vector graphics (SVG) viewer. SVG is an alternative to GIF, JPEG and other Internet-graphics' formats. **– MEGAN BIRD**

Leak in the non-drip hose story

LAST issue's story about a non-drip hose system invented in Australia, tested by CSIRO scientists and refined accordingly didn't mention the holes, a reader has advised CoResearch.

Dr Jonathan Hodgkin from Molecular Science said: "It tickled me to read the story. We have been working with a small manufacturer for years to help make leakier hoses for garden irrigation."

DSC Management also makes mouse mats, mats or horse floats and boats and scores of other niche products from combinations of waste plastic and recycled paper or crumbed rubber.

The leaky hose, made from polyethylene and rubber crumb from tyres, is purposely not very compatible so it ends up full of holes.

And the Ian Wark Laboratories Social Club, at Clayton, is benefiting from low-cost samples.

The enterprising manufacturer's ideas for products from his recycled material are a drop in the ocean, Jonathan tells us. – MEGAN BIRD

Grounds to drink more coffee

FILTERED coffee can remove up to 90 per cent of heavy metals from tap water, according to an international team of scientists from the universities of Delaware and Santiago, and CSIRO Land and Water.

CSIRO's Dr Mike McLaughlin wondered how Chileans drank tap water after hearing a Chilean scientist talk about heavy-metal contamination of Santiago's water supply.

"If, as I thought, they drank a lot of coffee, chances were it would absorb a lot of the heavy metals," Dr McLaughlin said.

The researchers found filtered coffee removed between 78 and 90 per cent of copper and lead from the water using three commercial coffee brands.

Positively charged heavy-metal ions bind strongly to uncharged or negatively charged coffee grounds. It was likely the process also removed other heavy metals such as mercury, cadmium and zinc, although this has not been tested, Dr McLaughlin said. **– MEGAN BIRD**

CSIRO around the nation

O caption, my caption

LAST issue's photograph drew an eyeful of responses. The photograph of punters looking at the 3D image of molecular models at Biotechnica in Hannover in October last year produced a mixed bag of captions.

Frankie Chan from CSIRO Building, Construction & Engineering: The (scientific) future's so bright, I gotta wear shades, a la the song.

Owen Farrell from CSIRO Division of Energy Technology: Anti-smile glasses.

Barrie Hunt from Atmospheric Research: I'm conducting a scientific experiment to prove that men don't make passes at girls who wear glasses.

David Hawking from Mathematical and Information Sciences: Why are all these fools wearin' dark glasses when it's obviously RAININ'?

Sylvia Usher from Health Sciences & Nutrition: Ah. That's better. This show is so intense that I can see it with my eyes closed!

Helen Wright from Land & Water: Wow man. This 3D imaging is just way too moleCOOLar!

Lyn Pulford from Education Programs: Then Mary sneezed and spoiled the whole thing.

And the winner is...
Graeme Carrad from Australia Telescope National Facility: CSIRO tests of a new contraceptive have progressed from primates in a controlled lab environment to human subjects. A spokesperson from Pharmaceuticals and Human Health explained: "Wearing these birth-control sunglasses will guarantee you never get a date let alone have someone stand near enough to you for any intimacy."

Graeme wins an alien-gyroscope toy.

Emma Booth from Minerals and Judith Maunder from Animal Health dress up this issue's photo. The pair were demonstrating a bio-containment suit that is worn when dealing with animal viruses and bacteria. The action took place at last year's Great Australian Science Show in Melbourne as part of National Science Week. The nation-wide celebration runs from May 3 to 10 this year.

Send captions and photos to CoResearch Competition, PO Box 225, Dickson, ACT, 2602 or email Karen.Robinson@cc.csiro.au

Indigenous science network

CSIRO is helping to set up an indigenous science organisation.

The Centre for Appropriate Technology is facilitating the establishment of the Australian Indigenous Science, Engineering and Architecture Network.

Dr Fiona Soloman, from Minerals, said: "It's all about providing appropriate technology.

"I suppose the best way to do that is by the people who grew up in those communities rather than have technology imposed by Western scientific values.

Membership is open to indigenous people studying or working in these fields. It provides a network, encouragement and will develop employer links.

For more information contact Margaret on 1800 500 954.

Chief retires

THE CHIEF of CSIRO Telecommunications and Industrial Physics, Dr Dennis Cooper, will retire on March 31 after 32 years of service, 12 as chief.

Dr Cooper joined the then Division of Radiophysics in 1968 as a research scientist. He played a pivotal role in the 1970s in developing the aviation microwave landing system, Interscan. His technical input and championing of Interscan internationally contributed to the eventual selection of this system by the International Civil Aviation Organisation.

He became the project leader for the antenna design for the Australia Telescope in the 1980s. Many earth-station antennas in Australia and overseas owe a debt to his early design work and faith in the ability of Australian companies to produce first-rate systems.

He was also responsible for the development of microchip-fabrication facilities in the division. The division, under Dr Cooper's guidance, has established itself as a world leader in telecommunications research and development.

Rewarding search

CSIRO Education is trying to locate the success stories of the BHP Science Awards, which are turning 20 this year.

The awards are Australia's most prestigious science research competition for young people. Entrants must demonstrate both innovative approaches and thorough scientific procedure in their projects. CSIRO initiated the awards, invited BHP's participation and has been continuously involved since.

Mr Ross Kingsland, Manager, CSIRO Education said: "We are looking for past participants and finalists who are working for CSIRO or other science organisations. We are also keen to hear from past Double Helix Club members to see if these associations encouraged them in their science career choices."

If you know anyone in these categories please contact Lynn Pulford on (02) 6276 6643 or at education-programs@helix.csiro.au

Entomology farewells

ONE of Entomology's longest-serving employees retired late last year.

Ms Hilda Abbey joined the division in 1951 to work in the insecticidal group and rapidly gained a reputation for her conscientiousness.

When Hilda married eight years later, she fell victim to the staff policy that did not allow women to continue in indefinite positions once married. A bureaucratic loophole tied her over until the policy was finally lifted in 1967. She transferred to the termite groups in 1977 where she worked until her retirement.

Another employee, Dr John Lawrence's recent departure after 22 years from the division was made more notable by two events. The first was the launch of John's CD-ROM, Beetles Of The World, an interactive identification guide to about 350,000 described species.

The CD is the product of the world's largest database of its kind, built using DELTA (DEscription Language for TAxonomy) software designed by CSIRO – **KATE SMITH, CE**

Student plant

NATIVE acacias, bush peas and rare plant species were on the minds of three scholarship recipients at the Centre for Plant Biodiversity Research this summer. University students Catherine Gallagher, Rose Andrew and Daniel Falster worked with CSIRO scientists at the Black Mountain site in Canberra for 10 weeks.

Kid's stuff

TEXTILE and Fibre Technology has donated 70 surplus computers, 13 monitors and four printers to a children's charity.

The six-month-old Geelong-based charity has presented more than 200 computers to children.

PCs for Kids build reliable low-end computers from unwanted computer components. The computers are loaded with educational software and donated to primary schools that pass them on to children for use at home.

The charity is also beginning a work-for-the-dole scheme to get unemployed people to help in the sorting and rebuilding stages. IT manager Gerry Mutsaerts said: "The charity was overjoyed to get our first batch of 48 computers.

Livestock review

CSIRO is reviewing the use of its infrastructure for its livestock research, with particular emphasis on the role of CSIRO Animal Production.

More than 70 submissions have been received and facilities have been inspected at sites ranging from Prospect to Perth. Victorian and ACT locations will be visited in March.

The goal is to optimise CSIRO's ability to support its livestock research, development and technology transfer in the light of major changes in R&D methodology.

Major changes in the livestock industries, particularly wool, have influenced the decision to conduct the review.

The committee has been drawn from CSIRO's Sector Advisory Committees for the textile, clothing and fibre industry as well as the meat, dairy and aquaculture industry. It is chaired by Mr John Blood, a leading textile and garment consultant, and includes Professor Andrew Vizard from the University of Melbourne, Mr Colin Sleep from National Mutual Rural Enterprises, Mr Gordon French, a dairy farmer from Queensland, and Dr Oliver Mayo of CSIRO Animal Production.

Engineering success

DR ROBERT Leicester from Building, Construction and Engineering has won The Marcus Wallenberg Prize, an internationally prestigious award.

It will be conferred on Dr Leicester by the King of Sweden in October.

Chief of the division Mr Larry Little said: "Attached to the prestige of winning an award that is compared to a Nobel Prize in its field, is a significant monetary reward of about US$250,000."

The award is for Dr Leicester's pioneering work in structural engineering and original research.

Climate of praise

DR BARRIE Pittock from the Division of Atmospheric Research won the Public Service Medal late last year for his leadership and visionary approach to identifying, researching and communicating a range of global climate science issues. The medal is awarded twice a year by the Governor-General.

OBITUARY Dr Barry Wagland, 1937-2000

Gentleman and a mentor

DR BARRY Wagland was a pioneer and a repository of information that he was always ready to share.

He carried out pioneering work on the immunology of worms in sheep and ticks in cattle, parasites that cost Australia hundreds of millions of dollars a year.

Long-term Animal Production colleague Dr John Steel said: "He was a gentleman and a great mentor, particularly to younger members of staff.

"He was very modest, had a warm and generous personality and was always willing to spend time sharing skills and knowledge and teaching techniques."

Dr Wagland had an outstanding CSIRO career that ended when he retired, two months short of 40 years' service, in 1993. He was diagnosed with prostate cancer three years later.

Dr Wagland was born in Warwick, Queensland, to Darling Downs' farmers. He joined CSIRO as a technical assistant at the McMaster Laboratory at Sydney University in 1954.

He attained, part-time, a diploma of applied biology and bachelor and masters degrees in science from NSW University. He was awarded a CSIRO overseas' studentship in 1967 to study under Professor Robin Coombs at the Department of Pathology, Cambridge University, where he gained his PhD.

Dr Wagland returned to CSIRO in 1978 where he continued his research into parasites until his retirement.

He published 77 research papers between 1961 and 1996 in the field of immunology to parasitic diseases.

He continued, in retirement, to study farm and land practices, graduated from the Australian Securities Institute and, in the process, won the Queensland state prize for managed funds, markets and products.

A comedy of Eros

A CONDOM filled with litres of water will be likened to sperm counts across the animal kingdom in a CSIRO event during National Science Week.

Pre-Coital - The Science Of Dating is described by its presenter as "adult educational cabaret".

"Events leading up to sex will be explored and incorporated into songs, stand-up comedy and on-stage antics," Mr Chris Krishna-Pillay, from CSIRO Education, said.

The statistical chances of meeting your perfect partner will be discussed.

"It may be a lot more likely than you would think," Mr Krishna-Pillay said.

"Mathematically, in a room of 40 people, for instance, you have a better than 90 per cent chance of meeting someone with the same birthday as you."

The event, from May 3 to 6, at 8pm, at the National Convention Centre in Canberra, is one of dozens organised by CSIRO for the national celebration of science from May 3 to 10.

Enquiries can be made by phoning (02) 6207 5901. Other CSIRO events include a Forensic Frenzy workshop in South Australia, a Science-a-thon in Queensland and a public-speaking competition in Victoria.

Direct hit: Mr Chris Krishna-Pillay will toy with the science of dating during National Science Week.

Pre-coital is one of 44 events given funding under the Department of Industry, Science and Resource's Science and Technology Awareness Program. – **MEGAN BIRD**

CoResearch

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CSIRO

CoResearch

CSIRO's staff newspaper

No.382 Winter 2000

Science showcase launched

By Larissa Mullot, CPI

CSIRO's interactive Discovery exhibition centre was opened on May 1 as part of National Science Week celebrations.

About 200 guests and local media watched ACT Chief Minister Kate Carnell switch on the exhibition for the first time.

Light and music flooded over the exhibits as she set off with 30 students from two Canberra schools to explore exhibits for the first time.

The Haptic Workbench, developed for remote surgery and technical operations, was a highlight.

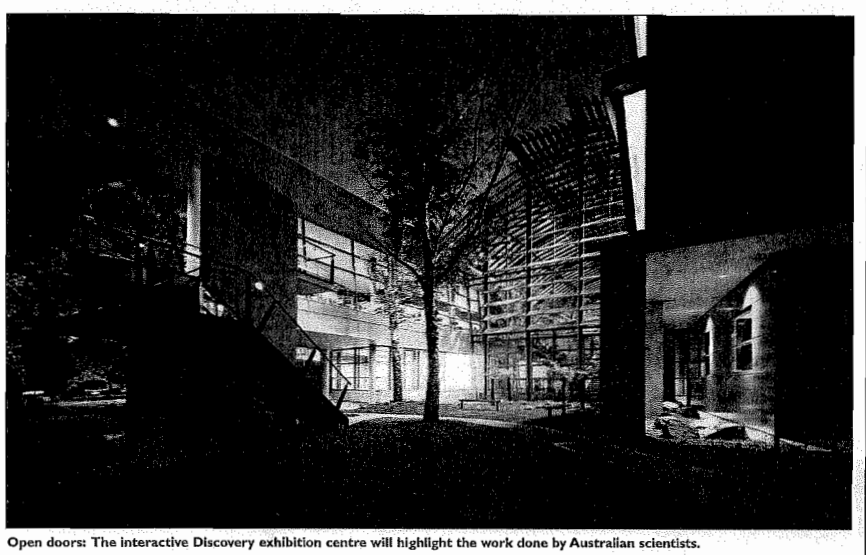
One primary-school student said: "It's really cool. It's great, but it feels weird."

The wrap-around 3D virtual-reality theatre featuring virtual plants, radio astronomy and mining, and the Face In The Crowd exhibit that showcases facial-recognition technology, also received high praise from the students.

Mrs Carnell said: "We haven't been very good at letting Australians know about the wonderful work being done by Australian scientists.

"Discovery will change that, because now people can see a bit of that work, and some of the things that have made a difference about the way we live."

The permanent interactive exhibition, sponsored by Cable & Wireless Optus and the ACT Government, highlights some of CSIRO's scientific discoveries and research activities that have changed the lives of many Australians.



Open doors: The interactive Discovery exhibition centre will highlight the work done by Australian scientists.

CSIRO Deputy Chief Executive Chris Mallett said at the opening: "Discovery is about putting science into context, it is a living exhibition, not a museum of past achievements."

The use of glass throughout the venue allows visitors to watch the nation's top researchers working in laboratories above the exhibits.

Discovery also incorporates meeting rooms, a 184-seat lecture theatre, café and catering facilities, and an exhibition area.

Entry to the exhibition is free to all CSIRO staff. Entry for others is $6 for adults, $3 for school students and concessions, and $15 for family passes. It is open seven days a week, from 9am, to 5pm.

For more information call Terese, John or Kelly on (02) 6246 4646.

Olympic experiences flicker in memories

THE Olympic flame has already been lit – and in one case extinguished - for various CSIRO staff around the country who have been sharing their past Olympic glories.

Leanne Stinton, from Food Science Australia, has been compiling Olympic memories of staff in her division and here is what she has uncovered.

Barry Johnson was involved in managing the Olympic flame at the 1956 Melbourne Games.

He was studying at the University of Melbourne at the time, when he and a select few were given the honours.

But not everything went to plan.

In the wee hours of the morning, in a deserted MCG, the flame guarders decided to test how long it took for the flame to die, as a closing-ceremony test.

In his defence, Barry was not present.

The officials kept a separate pilot light fully open to maintain continuity of the flame. It slowly got smaller and, with one last gasp, went out. The final rush of air back up the piping blew out the main flame and the pilot light.

Chaos ensued with frantic cries of "Match! Match!"

A box was found and the main burner reignited.

Zeus would not have been pleased.

Sharon Kennedy-Miles' father, Grahame Kennedy, carried the Olympic torch for a mile in the build-up to the 1956 games.

Unfortunately, due to the fumes caused by the burning Hexamine, solid fuel in the torch, many of the runners carrying the torch, including Sharon's dad, were made ill.

Today CSIRO staff are being asked once again to contribute to the Olympic Games.

Between 8,000 and 10,000 foreign media looking for colour during the Sydney Olympics are expected to brush past CSIRO developments at Darling Harbour's Sydney Media Centre.

Briefings, displays and presentations are being planned for the international non-accredited journalists to cover.

CSIRO has been invited to participate in the scientific research and development and environment themes of the centre. A solar car, the birdwing butterfly and new wine varieties are possible areas of focus.

If you have suggestions or would like more information contact Rosie Schmedding on (02) 6276 6520 or rosie.schmedding@nap.csiro.au

- MEGAN BIRD

Property sales head Budget news

THE major Budget news for CSIRO is that six properties will be offered for sale and lease back over the next three years.

Half the properties are in the ACT, at Limestone Avenue, Gungahlin and Yarralumla, one in NSW at Riverside, North Ryde, one in Queensland, at Cleveland, and one in Western Australia at Marmion.

A sub-committee of the CSIRO Board will make sure appropriate packages are developed so CSIRO retains management and operational control to cover the special needs and risks of research.

The Budget papers make clear that CSIRO's research will suffer no adverse financial impact. "CSIRO will receive funding for additional sale and rental costs," it states.

The announcement comes after an independent review of property holding in 1999 and early 2000.

It also confirmed funding for other exisiting government science programs, but there are a few other items of potential interest. These include an announcement of funding of $30.5 million over four years for a National Biotechnology Strategy. This includes $20 million for commercialisation assistance to Australian biotechnology research.

Other examples include $22.3 million over four years to strengthen animal and plant health status. And there will be $18.2 million over two years for farm innovation, a pilot program to help farmers identify market directions and diversify; and support for the development of gas-to-liquids technology.

CSIRO's funding will be maintained, as announced for the triennium last year.

CSIRO moves mountains for Queen

By Janelle Kennard, CMIS

THE QUEEN felt the valleys and mountains of a virtual earth recently when she tested the CSIRO-developed Haptic Workbench.

"Remarkable," she commented after the event.

She experienced CSIRO's virtual-reality technology which could allow trainee surgeons to learn procedures on virtual patients. It was on display at ctec - a medical training centre at the University of Western Australia in Perth – when the Queen opened the centre on April 1.

She watched as a virtual cannular was inserted into the vein of a virtual hand.

CSIRO's Duncan Stevenson said: "The system creates a very realistic experience. You can really feel the needle pop through the skin of the hand, and then watch it fill with blood.

"This realism is crucial for practising the precise and complex dexterous skills which surgeons need."

Royal visit: Queen Elizabeth II toured ctec at the University of Western Australia.

The Haptic Workbench was developed by CSIRO, Swedish company ReachIn Technologies and the Advanced Computational Systems CRC.

The technologies could revolutionise surgical training by allowing life-saving techniques to be introduced sooner as experienced surgeons update skills more easily, according to medical director of ctec Dr Richard Vaughan.

Strengthened livestock research involves staff changes

CSIRO is to strengthen its research on behalf of Australia's $12 billion livestock sector on the recommendation of an industry review group headed by Mr John Blood.

There will be a major new commitment to biotechnology at the Institute of Molecular Bioscience in Brisbane Acting Chief Executive Dr Colin Adam announced in May. "There will also be a revitalisation of rural and regional laboratories at Armidale, Rockhampton, and Geelong, and integrated leadership of all livestock research through the formation of a new division," he said.

The new division will comprise the existing divisions of Animal Health, Animal Production and livestock-related research within the Division of Tropical Agriculture. "Our review group took a strategic perspective for the next 20 years of the facilities CSIRO would need for its research plans to meet future industry needs. We wanted to avoid any narrow short-term focus", Mr Blood said.

The review group identified biotechnology of crucial importance to the future of Australian livestock sector, and found the Institute for Molecular Biosciences was an ideal location for all CSIRO's research in this field.

This facility, which is being developed by CSIRO and the University of Queensland at its St Lucia campus in Brisbane, will represent a significant proportion of the national biotechnology effort. It will be the largest facility of its kind in the Southern Hemisphere.

The shifting focus will mean the Prospect laboratory will close and staff relocated to other sites.

CSIRO will move its biotechnology group from the Division of Animal Production's Prospect (Western Sydney) facility to Brisbane.

Dr Adam said: "CSIRO has reluctantly accepted this proposal, despite the quality of the science conducted at Prospect.

"All staff at Prospect will be offered positions at other locations of the new division and attractive relocation packages will be developed to encourage staff to relocate."

The McMaster parasitology laboratory will be relocated from Prospect to CSIRO's Chiswick facility near Armidale. Other staff will move to strengthen CSIRO's livestock nutrition research group in Perth. In Geelong, animal welfare research and pig research will be reinforced with the move of staff from Prospect.

The review group recommends augmenting CSIRO's Rendel laboratory in Rockhampton to meet the needs of the beef industry and the Belmont field station nearby.

An executive summary of the review group's recommendations is available at http://www.csiro.au/csiro/livestockreview/index.html

Bush cuisine on the menu

BUSH tucker is heading for restaurants and dinner tables around the world, according to CSIRO Land and Water.

The division is undertaking a four-year trial in the global race to find out how to increase production of Australia's native plants.

Dr Maarten Ryder said: "Countries like Israel or the US would love to get their hands on these native plants so we owe it to ourselves to learn how to better cultivate and grow them on a commercial basis."

The research will focus on quandongs, mountain pepper, bush tomatoes, muntries, riberries, two native citrus and acacias.

More milk for India

INDIA is likely to produce millions of more tonnes of milk, thanks to a system developed by Animal Production.

CSIRO and India's National Dairy Development Board have teamed up for the $1.5 million project to improve the productivity of grazing animals in both countries on poor-quality feeds.

Spreading low cholesterol

MARGARINE containing naturally occurring plant sterols has been shown by Health Sciences and Nutrition to lower cholesterol levels.

Results of a trial found that cholesterol can be reduced by up to 10 per cent in three weeks in men and women with elevated blood cholesterol. It used subjects aged between 35 and 73 years of age. All had cholesterol levels greater than the standard desirable limit.

Research roundup

Roadworthy shoes needed

STATISTICS showing that 10,000 people died in the last decade from slips and falls indicate that Australians need more roadworthy shoes.

Mr Richard Bowman, from Sustainable Materials Engineering, said: "Of all the causes of injury, slips and falls is the largest and it is the one Australia has done the most about."

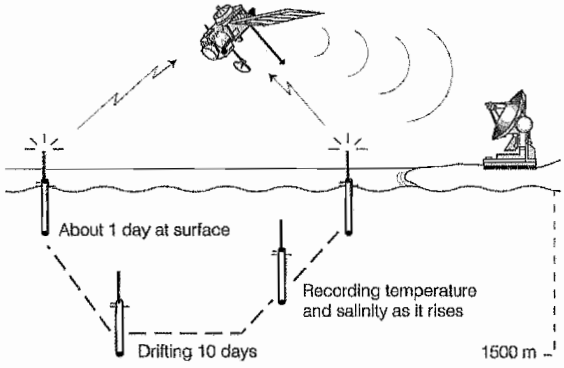
The cost to the community of slips and falls is $3.17 billion, more than the costs of motor accidents ($2.7 billion) and all other causes of accidental injury.

CSIRO has called for a new standard to benchmark slip-resistant footwear sold in Australia.

Grape expectations

PLANT Industry has developed four new high-quality red-wine grape varieties for Australian conditions.

CSIRO has been granted Plant Breeder's Rights for the new grapes, Cienna, Vermillion, Rubienne and Tyrian. The breeding team crossed Sumoll, a grape from Barcelona in Spain, with Cabernet Sauvignon, to produce the new varieties.



Eyes on climate

A PROJECT on the drawing board at Marine Research involves an armada of robots that can roam up to 2,000m under water and surface every 10 days to send data to a satellite.

The floating eyes (see diagram above) will observe changes in Southern Ocean and Indian Ocean conditions, regions that have direct influence on Australian rainfall. The project will help long-range forecasting.

Rammed earth

LATEST tests by CSIRO have confirmed that rammed-earth walls have poor thermal resistance.

Mr Robin Clarke, of CSIRO Thermal & Fluids Engineering, said: "Our findings were based on testing of two commercially-produced rammed earth products, both of which turned out to have poor thermal resistance.

"The overall thermal resistance (R-value) of a typical rammed-earth wall is less than R 0.4.

"This is low compared to everyday insulating materials such as glass fibre batts which typically come with ratings of R 2 or R 3."

The last word

"You'll find information packs on the seats. Don't eat them by mistake."
- CSIRO's Charles Allen at the National Innovation Summit breakfast, The Australian, February 14

"It is a tragic situation when one sees such an outstanding institution as CSIRO Entomology ... being decimated by economic rationalism."
- Murray S. Upton, Honorary Fellow, CSIRO Entomology, Letter to the Editor, The Canberra Times, April 1

"The sum of McIntosh's life has defied that sarcastic piece of Balzacian wisdom that cemeteries are full of irreplaceable people."
- The Age, February 14

"How much longer can CSIRO and the universities continue to provide essential research and education in the face of the subtle erosion of their core funding...? How many efficiency dividends, how much inadequate compensations for inflation, and how many cost-increasing 'efficient business practices' ... must these organisations suffer?"
- The Canberra Times, April 27

ANU announces McIntosh Medal

THE Annual Youth Prize for Physical Science has been renamed the Malcolm McIntosh Prize.

This was announced at the end of the recent National Innovation Summit in Melbourne.

The ANU has also recognised the work of the late Dr McIntosh. The top graduate-scholarship winner in the physical sciences will be known from next year onwards as the Malcolm McIntosh Scholar.

OBITUARIES

Forging stronger links

Michael George Pitman, 1933-2000

MICHAEL Pitman was the Director of the CSIRO Institute of Biological Resources from 1983 to 1987, before he was seconded to DITAC and took on the role of Chief Scientist.

He became the Foreign Secretary of the Australian Academy of Science and was instrumental in developing stronger scientific links with French scientific activities.

Michael was born in the UK, excelled in science and gained an open scholarship to Cambridge University and Sidney Sussex. He received Class 1 Honours in all subjects.

At the beginning of his time as a post-graduate student Michael and Maureen were married. Brigit and Adrian were born at Cambridge. Michael obtained a PhD under the supervision of eminent plant physiologist Professor G.E. Briggs and was awarded a Junior Fellowship at St John's College Cambridge.

At Cambridge Michael met a strong Australian contingent of future scientific leaders in Australia, people like Alex Hope, Alan Walker, Martin Canny, Carrick Chambers, Arthur McComb. The interaction with them no doubt influenced his decision to apply successfully for a lectureship at Adelaide University where Bob Robertson was Professor of Botany. After four years at Adelaide, and at the age of 33, Michael was appointed Professor of Biology at the University of Sydney.

Michael became one of the founders of modern mineral-nutrition physiology. He inspired a generation of research students through his simple, elegant experiments and clear formal analysis.

Michael's outstanding research achievements were recognised by election to Fellowship of the Australian Academy of Science in 1981 and the award of a Doctor of Science by Cambridge University.

Michael was an editor of The Web Of Life textbook that elevated the teaching of biology.

He was also heavily involved in the wider community as a member and then President of the Trust of the Australian Museum and a member and Chairman of the Royal Botanic Gardens and Domain. Michael was honoured with the award of an OBE in 1978.

In 1983 Michael was appointed Director of the CSIRO Institute of Biological Sciences.

I appointed Michael as my deputy in 1986. He had responsibility for a range of activities that included human resources policies. I relied on his wise counsel and valued his courtesy and, above all, his loyalty. It was indeed a pleasure to work with him.

In 1988, Michael was appointed a member of the newly formed Australian Research Council. The then Minister of Science, Barry Jones, thought highly of Michael's qualities and requested that CSIRO second Michael to the Department of Industry, Technology and Commerce as Chief Science Advisor and as his personal advisor.

In 1992 Michael was appointed Chief Scientist in the Department of the Prime Minister and Cabinet.

The French Government honoured Michael with the award of the Chevalier de l'ordre national du Merite for his work in strengthening French-Australian relationships. - **KEITH BOARDMAN**

Plant Industry division pioneer

William Hartley, OBE, 1906-2000

ONE of the earliest members of this division, William Hartley, died in March aged 93. A vertically challenged but irrepressibly humorous Yorkshireman, he was appointed in 1929, soon after graduating from Cambridge, as Junior Plant Introduction Officer in the Division of Plant Industry at Canberra.

He made more than 30,000 plant introductions to Australia, mostly of pasture grasses and clover, and conducted the first plant-collecting mission to South America in 1947. He published widely on grass phytogeography.

After a year at Kew Garden (1938-1939) William recognised the need to help Australian plant scientists use the Latin binomial names for the species they investigated and produced periodic editions of Standardised Plant Names.

He was chosen as the Advocate for the CSIRO Officers' Association in the 1954 Work Value Case. William's final role, on leave from the division from 1961 to 1969, was as CSIRO's Chief Scientific Liaison Officer.

He had four children and eight grandchildren. His first wife, Alison Taylor, died in 1965. His second wife, Alice Smith, also died before him.

- LLOYD EVANS, CPI

Fair business in Hannover

By Rosie Schmedding

NEW contacts, business opportunities, and checking out what the competition was doing were highlights of CSIRO's presence at Hannover Fair 2000.

CSIRO hosted the stand featuring over 30 Australian technologies at the world's biggest industry and innovation fair in Hannover in March.

This was the third year running that CSIRO and its industry partners have exhibited Australian technology at the fair.

CSIRO Deputy Chief Executive Dr Ron Sandland said: "We are very pleased with the results. Our stand generated a lot of interest, particularly for our commercial partners.

"We have had over 200 serious enquiries, some of which led to follow-up visits immediately after the fair.

"We must let the world know what we are capable of so that we can get Australian technology into the international market place. This will mean we can build up vibrant new industries in Australia, leading to Australian jobs"

Show time: Chris Freund discussed CSIRO business with the Minister for Industry, Science and Resources, Senator Nick Minchin. Photo: Deutsche Messe AG, Seewald-Hagen, Hannover

Hannover Fair was attended by about 270,000 visitors. More than 2,000 people visited the CSIRO Australian stand during the six-day show, including the Australian science minister, Senator Nick Minchin, and German Minister for Economics and Technology in Lower Saxony, Dr Peter Fischer.

For more information visit http://www.hannover.csiro.au/

Dog-gone meteorite trivia

By Megan Bird

THE only documented death from a meteorite fall was of a dog in Egypt in 1911, according to Meteorites.

There is the celebrated theory of the giant rock that killed off the dinosaurs 65 million years ago, but here the authors are cautious saying the undoubted impact might have assisted a process that was already well under way.

This book is for the converted meteorite-spotter. It provides information, and some interesting anecdotes.

Meteorites (CSIRO Publishing, 60pp, $19.95, by Robert Hutchison and Andrew Graham) is being distributed by CSIRO Publishing on behalf of the Natural History Museum in London and can be ordered on 1800 645 051.

Secret history of radar

The almost-forgotten hushed history of the Radar at the University of Sydney, a secret weapon for the war in the Pacific, has been resurrected.

The idea for 'Boffins' Of Botany Bay (Australian Academy of Science, 82pp, $15 including postage, edited by Roy MacLeod) came during a workshop at the university's history department.

Book reviews

Harry Minnett, a former boffin and Chief of the Division of Radiophysics, wrote the chapter on Radar And The Bombing Of Darwin.

"For five years we were all sworn to secrecy under the Crimes Act," he said. "I couldn't even tell my parents what I was working on."

To order send a cheque made out to Radar Air Defence Branch No. 2A/C to Walter Fielder-Gill, 18 Parkside Avenue, Bateau Bay NSW 2261.

Snapshot of success

CSIRO dominates much of the research and development in Australian civilian science.

As one of the world's largest research bodies, it has assisted primary producers in a plethora of ways. Industry and commerce, too, have benefited from CSIRO prowess.

Wizards of Oz (Allen & Unwin, 237pp, $19-95, Peter Spinks), which relates many of Australia's scientific achievements, has remained on the New Scientist Top 10 list for more than 10 months.

LETTER TO THE EDITOR

Malcolm's ideal

IT IS with much sadness that we mourn the loss of our former CEO, who truly was a man of vision and integrity. I trust the legacy of Malcolm's influence and style will live on in the future of science management in this country. I believe we are all privileged to have had the years we had with him.

As those of us who have been in the organisation for some years are all too painfully aware, the Playing Field of Scientific Research in this country has changed forever.

No longer can we expect to be A-funded to pursue the greater goal of furthering the understanding of the world we are a part of, but are all driven to obtain funding targets that encompass upwards of 35 per cent external earnings to achieve our ends.

I was reminded recently of a meeting I attended some years ago where project leaders and divisional industrial participation committee members had the pleasure of firing questions from the floor to our new CEO Elect, Malcolm Macintosh.

I will never forget one of his statements that day which, roughly remembered, was: "I will look at all levels of management in CSIRO and those which are seen to add no value to the process of doing good scientific research in this country, I will get rid of."

With Malcolm's ideal in mind, I recently had the thought, why don't all CSIRO corporate employees on the Hill do one year in every five of their careers at a divisional site to keep in touch with the business end of CSIRO, viz. Doing scientific research?

This may not be a world-shattering revelation, but I do believe it would refocus the understanding and commitment of research-support (i.e. admin.) staff to what we are here for, doing world-class science.

Could I also be facetious enough to suggest that some of our colleagues in the Ivory Tower may have lost some touch with the primary function of CSIRO by being resident on the Hill too long?

PETER LEPPERT, FFP,
Yarralumla

Big six talk up best news coverage

By Megan Bird

LAND and Water scientists made large contributions to a dramatic 48 per cent increase in the number of press articles about CSIRO last year, the best CSIRO has ever achieved.

The most widely quoted CSIRO identities in the Australian press were Dr Malcolm McIntosh, Dr Tom Hatton, Dr Graham Harris, Dr John Williams, Dr Oliver Mayo and Dr Katrine Baghurst.

These six leaders contributed directly to positive coverage in 341 articles, according to a report for 1999 by CARMA International.

CSIRO National Awareness director Julian Cribb said the willingness of CSIRO scientists to freely discuss their discoveries and advances in the media was the key factor in what is believed to be the most extensive coverage of the organisation in its history.

"It asks a lot of scientists to be constantly and patiently available to media, and people like Dr Hatton are doing a fantastic job not only for their science but for CSIRO as a whole."

CSIRO received a total of 6223 print-media mentions during the year, 85 per cent of which were favourable, 13 per cent neutral and 2 per cent unfavourable.

Dr Hatton was widely quoted in the media on the issue of salinity. Land and Water's Dr Harris and Dr Williams were so well-quoted that their division received the most coverage of any - a total of 1,904 articles.

The next most extensive coverage was achieved by the Biodiversity Sector (1377 stories) then Meat Dairy and Aquaculture (1233) and Field Crops (1093).

Dr Mayo contributed to positive coverage of wool and livestock issues and Dr Baghurst commented on issues such as food and nutrition, including genetically modified foods.

Mr Cribb said: "Dr McIntosh was also convinced that the positive character of CSIRO's media treatment was a key factor in his campaign to secure sound triennial funding for the organisation. He often received feedback from elsewhere in government about the favourable nature of reports on the work of CSIRO."

CSIRO received its greatest coverage in The Australian, then The Canberra Times and The Age newspapers. The main focus of media attention was on CSIRO's role in education and training, wool and salinity.

And 91 per cent of education-and-training coverage was positive. It included CSIRO's involvement in programs for students, particularly the Double Helix Club and the National Youth Science Forum, the report said.

Letters to the editor generated the least-favourable coverage but 54 per cent of these were nevertheless favourable to CSIRO.

In two critical areas there was some good news. For the first time in four years media coverage of rabbit calicivirus was predominantly favourable to CSIRO. And, despite largely negative national coverage of gene technology issues, 82 per cent of media stories about CSIRO on this issue were favourable and 14 per cent neutral.

The sectors receiving the most favourable media treatment were Mineral Exploration, Mineral Processing and Energy.

Their stories included mine safety, mineral-mapping technologies, exploration, energy use and electric motors.

Among the states, Victorian press -- which also rated the most-favourable - gave us the biggest coverage, Queensland and NSW tied for second place, and Western Australia rated third.

There were 6,223 press articles about CSIRO last year compared with 4,117 the year before, according to CARMA.

Science film festival for Australia

JUST over a century after the fathers of cinematography, Auguste and Louis Lumière, astonished the patrons of Le Grande Café in Paris, Australia is preparing Scinema, our first international festival of science film.

Australians spend about $600 million a year on movie tickets.

The festival will be held in Canberra later this year and CSIRO Education's Rebecca Scott is one of two festival directors. "It is open to both amateur and professional film-makers," she said.

Categories include science and technology, natural history, education and medicine and health.

"We are particularly keen to encourage cross-disciplinary collaboration between the sciences and the arts and to use film to highlight the contribution that scientific research makes to all of our lives.

Last year Rebecca was invited to represent Australia as a jury member at Téléscience. This is one of the world's largest science film festivals and is held each year in Montreal.

Rebecca said: "The gala award night was exciting because the ABC's Silent Sentinels was a winner. There were only two Australian films in the 100 entries. Silent Sentinels is a documentary about the massive death of coral reefs in 1998. It was a proud moment being on the other side of the world ... seeing CSIRO scientists flash on to the screen, talking about global warming and rising carbon-dioxide levels. "

For more information, visit www.csiro.au/scinema

- NICK GOLDIE, CNA

Back to front: John Bentley, Lance Macaulay, Warrick Glynn, Glenn Tarran, team captain Deborah Shapira, Tracy Tebb, Lynne Lawrence, Lesley Pearce and Phil Strike competed on the proceeds of cakes. BELOW: The team shows its true colours.

Corporate cossies unveiled at triathlon

THERE were no drownings or broken bones. And there were no serious challenges to any records at a recent triathlon at Melbourne's Elwood Beach.

Nine competitors from Health Sciences and Nutrition at Parkville wore sleek new costumes at the recent Powertel/BRW triathlon.

The cossies were funded by selling cakes to staff at morning teas. There's some irony there.

But the team that competed in this year's event plans to turn those calories into prizes by recruiting an even larger CSIRO team for the 2001 corporate-challenge triathlon.

- WARRICK GLYNN, CHSN

Staff survey triggers some change

By Megan Bird

STAFF told senior managers what they thought of them two years ago.

The results of the poll were scathing for some divisions, but appear to have catalysed some change.

Animal Health has been addressing issues since then and conducted its own follow-up poll in March to see how things have changed.

Pollster Kelly Samson said the division has improved markedly in the senior and local-leadership categories.

"In fact, it has moved from being amongst the lowest-performing organisations in February, 1998, to being above the Australian norm, in Falls Corporate Research's database."

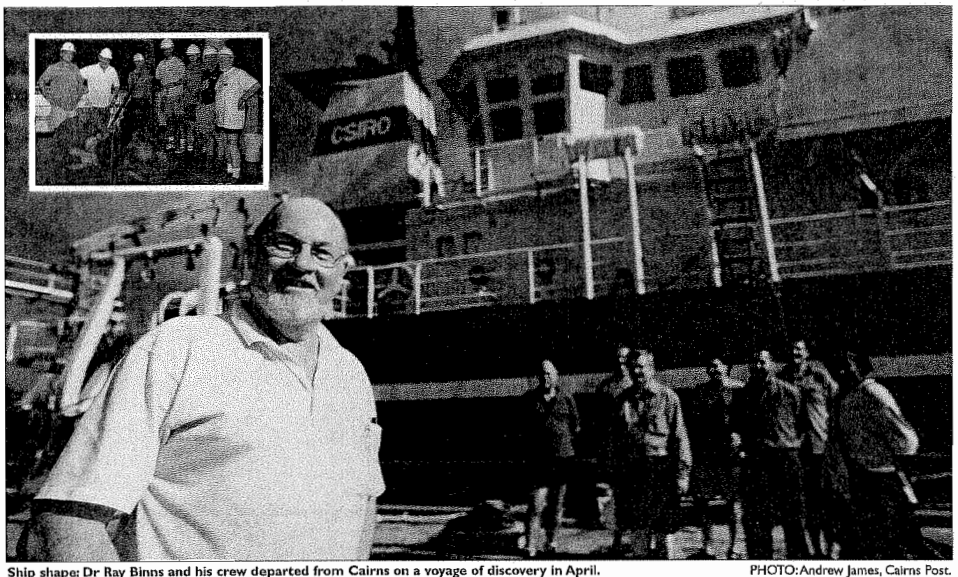
Animal Health Chief Dr Mike Rickard said the 1998 poll rated the division very poor in leadership and management in the division and within CSIRO. "It was quite devastating at the time to understand how deep the feelings went.

"But, while it was bad then, it was a blessing."

Dr Rickard said: "An advantage of holding a division-specific poll was that it showed major differences between programs, functional groups and employment levels. Areas of specific concern to programs can be identified and acted on."

The division's Human Resource Manager Mr Ken Barker said the new poll shows morale has improved. "We have still got a way to go, but we're working on it," he said.

Th poll committee is chaired by the Chief of Land and Water, Dr Graham Harris.



Ship shape: Dr Ray Binns and his crew departed from Cairns on a voyage of discovery in April. INSET: A black smoker was accidentally snagged about a week later.

PHOTO: Andrew James, Cairns Post.

Undersea sweep hits golden snag

CSIRO researchers have accidentally found a huge undersea chimney laced with gold and other minerals and swarming with remarkable life forms in the Bismark Sea.

The smoker was recovered by research vessel Franklin north of Papua New Guinea on a voyage of discovery to probe mysteries of vast hydrothermal system on the ocean floor.

The search, to help make Australia's $37 billion mineral-export industry cleaner, greener, safer and more competitive, is being conducted in an eerie landscape nearly two kilometres below the ocean's surface.

The hydrothermals spew out plumes of superheated mineral-rich fluids like those that formed giant ore bodies like Mt Isa and Broken Hill more than a billion years ago.

Researchers are studying ore-forming processes and hunting for extremophile microbes endowed with the natural ability to process minerals at high temperature.

The snagged black smoker is a tubular encrustation of mineral that would make a prized museum display, according to expedition leader Dr Ray Binns of Exploration and Mining.

"Our dredge must have fallen right over its top," he said.

"This anchored the ship for over an hour but it finally broke off at the base."

- MEGAN BIRD

CSIRO around the nation

O caption, my caption

LAST issue's candid photo of Emma Booth and Judith Maunders demonstrating a bio-containment suit drew a full-house.

Lynn Pulford, CSIRO Education: Although Judith had been assured the alien had the same anatomy as a human some bits were found in different places on his body.

Julie Penn, Atmospheric Research: This is Super Ken. With his Super Science Suit he can withstand catastrophes of biblical proportions, save mankind from evil biological terrors, leap buildings in a single bound, but he can't dress himself!

Greg Doran, Manufacturing Science and Technology: You put the right implant in, you put the right implant out, you put the right implant in and shake it all about...
That's right girls. No more annoying plastic surgeons. Get a friend to do it for you with the Do-It-Yourself Breast Augmentation Device.

Cedric Griffiths, Petroleum: Wildlife and Ecology test the new Feral-Containment Suit.

Damian Scown, Forestry and Forest Products: Once the unsuspecting male is entombed in a web of love, lust and desire – depicted here by this suit – we simply remove the heart like so.

Alan Pierce, Ex-Chief Animal Health and Ex-Member of the Executive: If you want to find a way to a man's heart, try the other side.

Richard Sakurovs, Energy Technology: CSIRO joins with a famous publishing company to launch a new book, Window-Dressing For Dummies.

Dr Jeff Hammond, Animal Health: What do you mean the batteries have run out?
Where do you blow him up?
CSIRO scientists grapple with virtual-man technology.

Graeme Carrad, Australia Telescope National Facility: The birth-control sunglasses' idea was developed after trials of the full-body condom (seen here being tested by crass test mummies) showed that a simple arm-lock rendered the prophylactic useless against full-frontal attack.

Rowland Cobbold, Food Science Australia: Mir cosmonaut, Boris Itzdroptov finds himself lewdly assaulted by crazed fans during a visit to CSIRO Office of Space Science and Applications.
Members of joint project involving the CRC for Packaging Science and CRC for Lonely Single Women embark on radical new trials.

And the winner is...

Greg Doran from Manufacturing Science and Technology: Okay, Emma. I said you can't keep your ferret in the biohazard suit. It looks like you'll have to send the python in after it.
Greg wins a fluorescent Helirang returning boomerang.

And hats off to Louise Lawrence from Entomology who sent in this photo of colleague Simon Duffield, from Griffith, NSW, sampling in soybean.
Send captions and photos to CoResearch Competition, PO Box 225, Dickson, ACT, 2602 or email Karen.Robinson@cc.csiro.au

Digital libraries on desktops

AUSTRALIAN Library Week from May 15 to 21 at Manufacturing Science & Technology was out of this world.

Cyberians promoted the range of electronic-information resources available to staff from within the library and from their desktops.

The recently launched Directory of Information Tools is accessible to all staff. Visit http://www.csiro.au/applications/infoTools/

- STEPHANIE LAVAU

Alien delights: Cyberians helped celebrate Australian Library Week.

Eureka Prize

DR BRIAN Cooke of CSIRO Wildlife and Ecology has won the Australian Museum POL Eureka Prize for Environmental Research for 2000, for his research into controlling wild rabbits.

Dr Colin Adam said: "Brian Cooke has spent more than three decades grappling with this greatest scourge of Australia's environment.

"He is being rewarded for brilliant, painstaking research applied to a grave national problem, culminating in a practical and ecologically sound solution. It is the epitome of the value of CSIRO to Australia."

Brian worked in South Australia in the Animal and Plant Control Commission before coming to Wildlife and Ecology in 1995.

New Chief

CSIRO Wildlife and Ecology has a new Chief.

Dr Steve Morton has been appointed to replace Dr Brian Walker who stood down as Chief at the end of December last year.

Dr Morton has had a distinguished career at Wildlife and Ecology as a researcher and research manager, working in tropical Australia, the central arid zone and in south-eastern temperate Australia. He is strongly committed to the application of ecological knowledge to natural-resource management.

He said: "A healthy future for Australia's landscapes is dependent on the persistence of our unique biodiversity, healthy regional societies and economies and, ultimately, on clever, innovative research and development."

Super possibilities

THE CSIRO/Bureau of Meteorology High Performance Computing and Communications Centre is undergoing a major upgrade with the recent installation of one NEC SX-5 supercomputer and approval for a second one to be installed later this year.

The centre's Deputy Manager, Robert Bell, says this upgrade provides an opportunity for CSIRO researchers to take greater advantage of the facility.

"The Bureau of Meteorology uses it to produce forecast and weather-modelling information. Some of the CSIRO projects we have been involved in are the understanding of proteins related to drug design and work on understanding climate variations in order to assess future change.

"We're sure there are other CSIRO projects out there that could benefit from using our resources and we're always happy to discuss possibilities."

For more information contact Dr Bell on (03) 9669 8102

- TOM McGINNESS

Technique of a winner

CSIRO Minerals' Dr Bill Mathew has won a 2000 Clunies Ross National Science and Technology Award for research that led to on-line analysis techniques worth millions of dollars to the Australian minerals' industry.

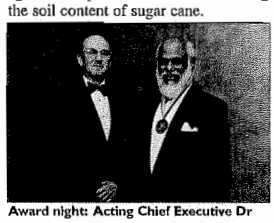
Dr Mathew, a nuclear physicist, recognised that natural gamma radiation could be used to perform instantaneous analysis of coal and ore while it was transported on conveyor belts.

His research led to the development of several on-line analysis instruments, which bring millions of dollars worth of benefits to the industry and opportunities for their Australian manufacturers.

Dr Mathew said: "The technology is a very simple one. It is based on the fact that all geological materials, like coal, have minor traces of radioactive elements such as potassium, uranium and thorium."

Dr Mathew realised this natural radiation could be used to measure the composition of coal and ores.

His research team has developed analysers and sensors for the iron ore, alumina, gold, mineral sands and uranium industries. The natural gamma radiation technique has also been applied to agricultural products such as monitoring the soil content of sugar cane.



Award night: Acting Chief Executive Dr Colin Adam and Dr Bill Mathew celebrate.

Back to work

TEXTILE and Fibre Technology staff pedal for charity in their spare time with their work on their backs.

The division's Sportwool development gave the team an edge in this year's recent 24-hour Murray to Moyne Charity Ride from Swan Hill to Port Fairy.

Comments from the team included: "We were warm when we needed to be and cool and dry when we needed to be."

"We cycled so fast this year we even reached the pub in time for a beer."

"But there were too many punctures. Perhaps someone in CSIRO can improve the performance of tyres?"

The team has raised more than $15,000 for Geelong charities over five years.

The Sportwool garments, made from a unique double-layered fabric, with wool on the inside and polyester on the outside proved to be an invaluable team member.

- JULIA MARSH

Magazine wins award

ECOS has won this year's Banksia Environmental Foundation Award for Communication.

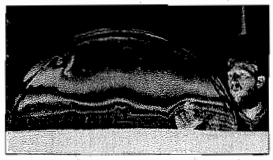
The 36-page magazine about the latest research relating to Australia's environmental problems is published quarterly by CSIRO Publishing.

Ecos won the award for "covering a wide range of issues in a rational, in-depth and accurate manner", according to judges.

It has been widely read by students, teachers, community groups, policy-makers and others for more than 25 years.

National Science Week highlights

On air: Dr Geoff Clarke, right, listens in.



Hot air: Chris Krishna-Pillay, right, expands on a topic. PHOTOS: Giulio Saggin

DR GEOFF Clarke from Entomology was one of many CSIRO staff to hit the airwaves during National Science Week in May.

Dr Clarke, right, and other event-presenters naturalist Harry Butler and wildlife photographer Steve Parish were interviewed, at a Canberra fair, by ABC radio about working for the environment.

Melbourne's Chris Krishna-Pillay, from CSIRO Education, received many favourable press mentions for his cabaret on the science of dating, was interviewed on Triple J radio during the week, and performed in a play about Howard Florey.

More than 1,000 science-week events, run in venues ranging from workplaces and museums to pubs and shopping centres, delved into topics ranging from bubbles to frogs.

CoResearch

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Please recycle

CSIRO

CoResearch

CSIRO's staff newspaper

No.383 Spring 2000

Trust us, we're from CSIRO

AUSTRALIANS regard CSIRO as trustworthy, especially in making statements about controversial areas of science like gene technology and the environment.

Recent focus-group research exploring CSIRO's public image concludes that: "Almost universally the opinions expressed about CSIRO were positive."

This was despite the fact that many Australians can't describe very well what the organisation actually does.

The study was intended to explore levels of public understanding and trust and the reasons behind them, as well as expectations of science and CSIRO.

Thirteen focus groups representing a cross section of the public were held around Australia.

Many people admitted they had difficulty understanding what gene technology was, often saying that not enough information was available to help them to decide who they could really trust on this issue. CSIRO, university and medical researchers generally emerged as the most trusted groups by the public in making statements on the issue. The business sector and its corporate scientists were not trusted.

About half the participants admitted they were scared by gene technology.

Many believed it was important for scientists to present both positive and negative information on gene technology because of an evident concern that corporate profit-seeking drove the issue.

How much the public trusted scientists depended on whether or not they were closely associated with companies that gain commercially from gene technology.

The main expectations that Australians hold about CSIRO are:

- CSIRO should be honest with its findings and ethical in how S&T research is undertaken and applied;
- CSIRO should keep the public informed about the outcomes of our work;
- CSIRO should continue to aspire to be a renowned science institution of international standing; and
- CSIRO should continue to work with business and industry to create value-added goods and services to achieve more exports.

The study was conducted for CSIRO by Market Attitude Research Services among representative Australians aged 18 and over in various cities during May and June.

Extreme events overshadow extremophiles

By Megan Bird

THOUSANDS of documentary-makers would have loved a berth on CSIRO's research vessel when the crew watched the explosive birth of an island and accidentally hooked a record-sized metal-rich black-smoker chimney.

The two surprising events overshadowed the RV Franklin's mission to probe the mysteries of vast hydrothermal systems on the seafloor off Papua New Guinea and the Solomon Islands.

But, along with the undersea chimney laced with zinc and silver and the footage of the volcanic island that erupted into life in the Pacific Ocean, researchers did return with an esky full of 80 extremophile samples.

Microbiologists at Land and Water at Floreat will revive the frozen microbes to understand how they survive the hellish conditions around the black-smoker active chimney vents.

The extremophiles live in extreme temperatures and pressure around the toxic smokers, and will be grown in laboratory temperatures of between 85 and 95 degrees.

They hold the clues to how life emerged on the planet, and their ability to process metals at high temperatures will be studied to boost Australia's $37 billion mineral-export industry.

The first leg of the cruise dragged up the 2.7m-high smoker that will be studied in Sydney.

The expedition's Chief Scientist from Exploration and Mining, Brent McInnes, said: "It's the world's largest chimney ever recorded, which I hope will be put on show in a museum for all of Australia to see."

On the second leg of the voyage, to study submarine volcanoes, scientists were overwhelmed when they arrived at the Kavachi seamount to see violent eruptions taking place every five minutes.

Molten lava was ejected up to 70m above sea level and sulphurous steam plumes mushroomed to 500m. At night the red glow of the explosive eruptions produced a spectacular display.

Master of the Franklin Neil Cheshire said: "We were able to approach to within 750m of the erupting centre."

The rare event was a new phase of island-building activity after nine years of apparent dormancy.

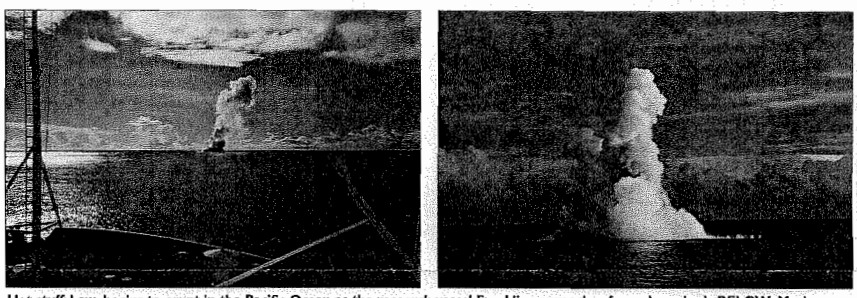
Dr McInnes, who led this part of the cruise, said: "It was totally unexpected, the chance of a lifetime really."

Ms Pamela Brodie, a programmer with the data centre at Marine Research took these photographs with a Pentax she had bought on the way to New Guinea.

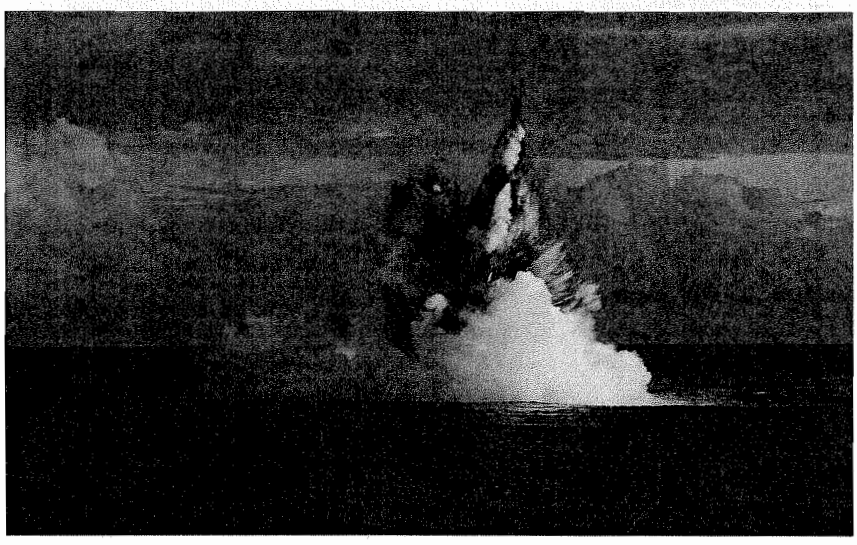
"I didn't really know what the camera would do," she said.

Ms Brodie first saw the volcanic activity at dawn, 10 nautical miles out from the seamount. These photos were taken at about 5pm.

"I've spent a lot of time at sea and this was definitely out of the box, an extraordinary thing," she said.



Hot stuff: Lava begins to erupt in the Pacific Ocean as the research vessel Franklin approaches for a closer look. BELOW: Marine Research programmer Pamela Brodie captured the birth of an island with her new Pentax.



New focus for regional sustainability

A NEW division is being formed to strengthen CSIRO's effort in sustainable regional development and natural-resource management.

The as-yet-unnamed division will be formed by a merger of the integrated agricultural systems work of Tropical Agriculture with the ecological and biodiversity capabilities of Wildlife and Ecology.

Chief of CSIRO Wildlife and Ecology Dr Steve Morton said: "This new division will bring together Wildlife and Ecology's expertise in ecology and ecosystem management with the farming systems' skills developed by Tropical Agriculture.

"Through partnerships with landholders, industry and communities we will apply the combined skills to develop solutions for using the landscape sustainably."

Dr Morton will head the new division which will have a national perspective and capabilities in the ACT, Queensland, the Northern Territory and Western Australia.

The division will work closely with other CSIRO groups, particularly Plant Industry, Livestock Industries and Land and Water. It will also work closely with community and farming groups, government at federal and state level, and with other researchers.

Dr Elizabeth Heij, Chief of CSIRO Tropical Agriculture, will move to a new position assisting co-ordination of rural sustainability research across division and sectors.

The work of Tropical Agriculture will continue under different divisional affiliations at its existing Queensland locations.

The new division will have about 330 staff.

Livestock Industries, a new division featured in the last issue of CoResearch, will have about 500 staff. Mr Shaun Coffey is the acting Chief. Before this he was CSIRO Sector Coordinator for the Meat, Dairy and Aquaculture sector.

PM says organisation needs protection and support

PRIME Minister John Howard has described CSIRO's contribution to Australia as "truly legendary" and said the organisation deserves protection and support.

Mr Howard was opening Discovery, the first science centre dedicated to Australian research and innovation, in Canberra on August 30.

He spoke of his "great admiration" for CSIRO and the work it has done for the people of Australia over decades. "It is one of those really great and enduring Australian institutions," he said.

"It is a very precious part of our national life and one that needs protection and support," he said.

Mr Howard said the work of CSIRO had had far-reaching effects on the lives of Australians. "CSIRO is one of those great Australian institutions which one first heard of, if you were my generation, as a young child and then at various stages through life.

"CSIRO has made enormous contributions, not only to the science and technological life of Australia, but through it to the economic strengths of the nation and also to the betterment of the human condition and the social conditions in which our community lives."

Mr Howard said CSIRO was an organisation Australians could be proud of.

"CSIRO has made a truly legendary contribution so far as discovery and achievement and the examples of it are numerous and indeed too numerous to list on occasions such as this.

"Australia has a very rich tradition and one that demonstrates very clearly that we have always performed above our size and our population when it comes to discovery and when it comes to the development of ideas."

Premier screening: The Prime Minister wears 3D glasses to watch a special Discovery launch show.

House demolition for safety's sake

SIMULATED cyclones and earthquakes are about to destroy the world's first disaster house of its kind.

The destruction of the house, at CSIRO Infrastructure Systems Engineering at Highett, Melbourne, will make future homes safer and more affordable.

The complete load distribution in a light-frame building will be measured for the first time.

The data collected from the test and computer modelling will help scientists design new products for disaster-proof homes and locate them where they will be most effective.

Methane study

BURPING cattle and sheep are responsible for about 90 per cent of Australia's methane emissions in the agricultural sector, according to CSIRO researchers.

Mr Simon Bentley, from CSIRO Atmospheric Research said: "Most of the livestock methane comes from cattle and sheep burps, with a small additional source being animal wastes."

A typical cow burps 280 litres of methane each day, the result of microbial digestion of fodder in its stomach. Sheep produce about 25 litres of methane a day.

The researchers have mapped latest estimates of methane emissions from livestock.

Research roundup

Stop the row

NOISE from some Australian roads is so bad it's like trying to sleep three metres from a running vacuum cleaner.

This is what life near major Marrickville truck routes that register more than 70 decibels at night is like, according to a Roads and Traffic Authority study in 1995.

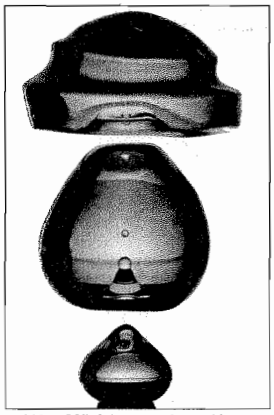
Noise pollution is so bad, according to CSIRO, it's time regulations were changed. Poor insulation, a trend towards hard floor surfaces and higher density living are contributing factors to record noise complaints, according to CSIRO Acoustics Services Manager Dr John Davy from Building, Construction and Engineering.

Bubbles no trouble

CSIRO has burst the bubble on a problem that has been plaguing industry.

Bubble trouble has been solved thanks to the CSIRO-developed software StreamTone.

Dr Richard Manasseh of CSIRO Thermal and Fluids Engineering said: "In baked foods the right bubbles can mean the difference between a satisfying crunch and a tooth-breaking experience.



Bubbles: CSIRO has solved a problem that has plagued industry.

"In industry bubbles are often too big, too few, starving industrial chemical reactions of essential oxygen or other gases and wasting millions in the process."

StreamTone can identify different bubbles by their sound and a feedback signal can be generated to automate many bubbly processes.

The meaning of life

ONE-QUARTER of all plant, animal, fungi and micro-organism species may be extinct by 2025, and three-quarters may be lost or nearing extinction by the end of next century.

Chief of Entomology Dr Jim Cullen says the inclusion of the Australian National Insect Collection in a new Federal Government list of "major Australian research facilities" is welcome recognition of the key role played by biological collections of objective sources of information about life and earth.

It also provides baseline data essential for understanding the implications of what seems increasingly an unsustainable way of life.

On the road to success

CSIRO has received its first royalty payment from Roads and Traffic Authority of NSW (RTA) for the commercialisation of world-leading RoadCrack technology.

RoadCrack, a collaboration between CSIRO and RTA, is an automated machine vision system that detects and classifies road cracks in real time at vehicle speeds of up to 105km/h.

This multi-Divisional project, led by CSIRO Manufacturing Science & Technology's Ian Macintyre, united CSIRO expertise in imaging, optics, electronics and mathematics.

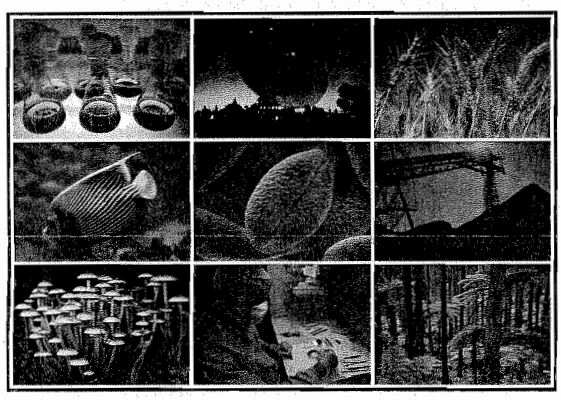
The team's efforts were rewarded with a 1999 Engineering Excellence Award (Institution of Engineers, Australia) and a CSIRO Medal last year.

Safer new landscape

FARMERS can reduce their risks before they plant a crop, thanks to a Tropical Agriculture initiative.

The FARMSCAPE Training & Accreditation program helps farmers predict likely world farming outcomes and results on their own land.

It works by giving producers the ability to make improved crop-management decisions by generating simulations and scenarios that estimate yields based on the farmer's own paddock conditions.



Picture this: A promotional montage shows a small sample of the images available from Science Image Online.

Science image library for online browsers

CSIRO Publishing has a dynamic new online picture library, Science Image Online.

The web site specialises in science and nature images and offers school students, CSIRO staff and the media free use of images. There are charges for commercial uses.

And for each commercial transaction completed half of the royalties go to the division that supplied the image.

CSIRO Publishing is asking staff to explore filing cabinets, bottom drawers and storage areas for photos, negatives and slides to add to the collection.

Images should be owned by CSIRO, in good condition and related to scientific research.

Manager of the site Kate Parsons said: "Unfortunately, while the site's collection has quality, it lacks quantity, with just over 600 images in its banks." Most commercial sites offer more than 5000 images, she said.

"Lab and field photos, black and white prints and historical images are all welcome," she said.

"With CSIRO help Science Image Online will become Australia's premiere science image bank.

"CSIRO does have a unique collection of images that will be of interest around the world," she said.

Science Image Online, which will be officially launched in October, is at www.scienceimage.csiro.au

For more information contact Kate Parsons on (03) 9662 7591 or at kate.parsons@publish.csiro.au

Mystery flight marks milestone

THE 10,000th CSIRO Staff Association member to join up has been presented with a mystery flight to celebrate the milestone.

Dr David Lovell, from Mathematical and Information Sciences, North Ryde, said it was "the icing on the cake of association membership".

Past president of the association Dr Michelle Smyth was awarded life membership at the same function at Food Science Australia.

There are about 3,400 Staff Association members.

The organisation began in May, 1943, when a small group of scientists based in Canberra, Melbourne and Sydney founded the CSIR Officers Association.

The OA banded together with the CSIRO Technical Association and the Public Sector Union in the early 1990s, to form what is now the CSIRO Staff Association.

As the OA was the largest and longest standing of these predecessor bodies in CSIRO, the Staff Association continued with its membership-numbering system.

- SANDY ROSS, CPSU

BOSS to cut health and safety risks

THE FIRST national occupational health and safety improvement program to be developed for CSIRO is being implemented.

BOSS (Backs, Overuse Injury, Strains and Sprains) involves a one-day training program.

The program, which was developed with the help of pilots at three CSIRO sites, will be implemented across 13 divisions by June 2001 and, eventually, across the whole organisation. It includes awareness of the personal and financial costs of manual-handling incidents, the use of the BOSS risk-assessment guide and video, and cooperative identification and assessments of hazards within project groups.

Staff and supervisors will conduct risk assessments at their work places during training.

- CAROLINE LANGLEY, CHR

last word

"Aussie women fell heavily upon the CSIRO's beta alistine skincare range when its first three products were released nearly three decades ago. They figured if the crusty CSIRO says it's good, then it must be."
- The Age, June 7

"While ever the CSIRO is receiving funding from the biotechnology industry it's going to be a case of leaving the fox to guard the chickens, so to speak."
- Letter to the Editor, Sydney Morning Herald, May 17

"Privatisation of research leads to governments treating CSIRO and the universities as trading corporations."
- Barry Jones' speech, Financial Review, June 20

"'Most of the livestock methane comes from cattle and sheep burps,' a CSIRO boffin said. See. Bet you thought the methane was animal farts. Aren't you glad you kept reading now?"
- Sydney Morning Herald, July 24

OBITUARIES

Research leader with a broad depth of vision

Dr Dave Dekker, 1951-2000

AT ABOUT midnight on July 16, while he was watching the eclipse of the moon, Dr Dave Dekker, Chief Research Scientist and Mining Science Co-ordinator in Exploration and Mining, died suddenly.

It is some comfort to know that as a physicist and a keen astronomer Dave was doing one of the things he truly loved when he died.

Dave came to Exploration and Mining in 1995 from Mount Isa Mines where he was the Engineering Research Manager. In his regrettably brief career with CSIRO, Dave successfully managed a significant research leadership role in Exploration and Mining and the Mineral, Exploration and Mining Sectors. Because of the broad depth of his vision and his clear logical thinking Dave was asked to be the Coordinator for the sector in March this year.

Dave was also actively involved in a number of research projects in mining automation and the study of farsighted potential to mine or benefit from deep-sea ore bodies. This culminated in him being one of the lead scientists on a multi-divisional research cruise on RV Franklin in April 2000.

Dave's main interest was in hyperthermophilic microbes which reside in submarine hydrothermal vents and which have great potential to assist in the extraction of metals from ores. The cruise received widespread publicity in both the print and electronic media in Australia and overseas and is featured on the front page of this CoResearch.

Dave was a warm and supportive colleague and mentor to staff.

In recognition of his exceptional leadership skills and active research role, Dave was reclassified to Chief Research Scientist the week before he died.

- DR BRUCE HOBBS, DCE, CME

Merbein lab veteran

Ron Woodham, 1921-2000

MR RON Woodham died recently in Mildura where he had retired after a 46-year association with the Merbein Laboratory.

Ron began as a Laboratory Assistant in 1937 and rejoined the division in 1948 after a period away for study and in the Royal Australian Air Force during WWII.

Ron was recognised for his work on grapevine viruses and virus-like diseases. These diseases were of increasing importance during the expansion of vine improvement in Australian viticulture of the 1960s and still an important factor in the establishment of successful vineyards.

- NIGEL SCOTT, CPI

Renowned biochemist

Dr Colin Brady 1930-2000

DR COLIN Brady, who retired from CSIRO in 1993, died aged 71 at his home in Nelson Bay on July 4.

Colin's career with CSIRO began in 1951 when he joined the Flax Research Unit. He completed his MSc Agr in Sydney and obtained his PhD from the Rowett Research Institute in Aberdeen.

He was renowned as a protein biochemist and worked on a diverse range of plants, from bananas to wheat. His pioneering work, with colleagues, on the fruit-softening enzyme, polygalacturonase, led to the development of the first commercially released genetically modified tomatoes in the US and later in Britain.

He was appointed Visiting Professor to a number of Institutions including MIT, Massachusetts, University of Malaya, UC Davis, and was a frequent invited speaker at international conferences.

He became very active in his local environment as a member of the Fingal Bay Parks and Reserves Committee.

- ANGELA GACKLE, CPI

CSIRO a key to HIV vaccine effort

A $US16 million contract to fund a trial vaccine to fight HIV and AIDS has been given to an Australian research group that includes CSIRO.

The contract is one of four made by the National Institutes of Health (NIH), the US government's leading medical-research-funding body, to accelerate the evaluation of potential HIV vaccines in human clinical trials. The other three contracts went to US consortiums that include pharmaceutical companies.

NIH has committed US$70 million to the contracts over the next five years.

The Australian consortium, headed by the University of New South Wales through the National Centre for HIV Epidemiology and Clinical Research, will trial an Australian-developed vaccine strategy that involves a prime-and-boost approach.

The vaccine involves two injections. The first primes the immune system with DNA that expresses HIV proteins.

Dr David Boyle from CSIRO's Australian Animal Health Laboratory co-developed technology for the booster in which a fowl pox virus will be used as a vector, or transport system, to carry active parts of the HIV vaccine. The booster prompts the development of large numbers of T-cells to hunt down and kill the HIV-infected cells.

To increase the levels of T-cells the booster will also carry natural-immune booster or cytokines using patented Co-X-Gene™ technology that was developed by CSIRO and the Australian National University. Co-X-Gene™ technology is licensed to Australia company Virax Holdings.

Another Australian company, the Institute of Drug Technology, will manufacture the trial fowl-pox-virus vaccines for Virax in Melbourne.

Dr Boyle said tests have shown the prime-and-boost vaccine to be effective in preventing HIV infections in pre-clinical animal trials.

"Although we don't know exactly what type of immune responses are required to protect people against HIV, there is a growing body of opinion that the induction of high levels of T-cells will be crucial to an effective HIV vaccine," he said.

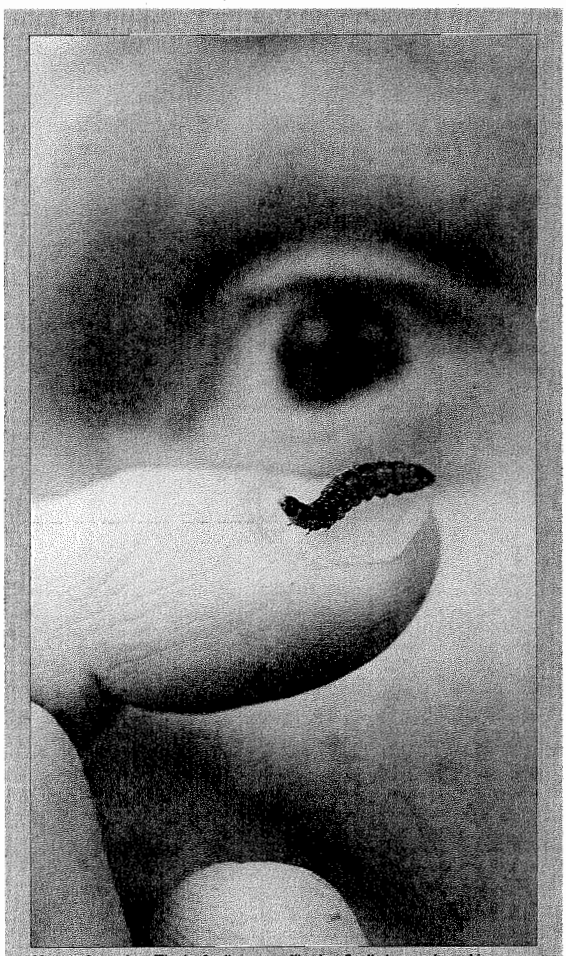
"The prime-and-boost vaccination strategy is particularly effective in inducing high levels of T-cells."

The first phase of human clinical trials will be funded through the NIH, and will determine if the vaccine is safe and able to generate good T-cell responses in humans.

Dr Boyle cautioned: "An effective protective vaccine is a long way off."

It would take at least another five years and several hundred million dollars after this work has been completed to determine if any of the vaccine candidates can protect humans.

"In the meantime, it's important that strategies of safe sex and needle-exchange programs are maintained," he said.



Hungry for action: The leaf roller caterpillar has finally been released in Australia. Photo: Darren Seiler, The Advertiser

Pest weeds set for a rolling

THE leaf roller caterpillar, the agent with the greatest potential to wreak havoc on the devastating bitou bush and boneseed weeds, has been released after years of testing.

The first release was in Victoria in April. Other releases have been made along coastal New South Wales and in the Adelaide Hills.

The environmental weeds are two different forms of the same species.

Seven insect species have been released on these weeds, but only two – the tip moth released in 1989 and the seed fly released in 1996 – have established and are creating major damage.

CSIRO and the Weeds CRC studied the boneseed leaf roller in South Africa where the plants are native. The caterpillar is one of the few species to have been tested under natural field conditions in South Africa.

Bitou bush is rated as the worst pest plant in the Australian coastal environment and boneseed one of the top four environmental weeds in South Australia.

Bitou bush infests coastal areas of southern Queensland, NSW and Lord Howe Island.

Boneseed infests coastal areas of southern NSW, Victoria, south-eastern South Australia and Tasmania.

Spanking-bad times for women

By Karen Robinson, CNA

A WOMAN was spanked for helping herself to stationery, women employees were not allowed to wear slacks or stiletto heels and had to resign upon marriage or pregnancy.

These are some of the indignities CSIRO women have had to endure, according to back issues of CoResearch.

These incidents seem to have been particularly well-reported during the 1970s.

CoResearch (July 1975) tells the story "of a storeman, formerly a very proper World War II Royal Navy Officer, who guarded his premises jealously. He let it be known – politely at first – that people did not enter the precincts and help themselves. Repeated offenders met with certain verbal abuse and dire threats.

"When one steno-secretary refused to heed the warnings she found he meant what he said – she was summarily dealt with. The ex-RN officer put her across his knee and soundly spanked her."

The Maternity Leave Act of 1973 freed women from official discrimination of having to resign from Australian governmental employment. The Act stated that "the possible or actual pregnancy of a woman shall not be grounds for discrimination against her", but this was difficult to enforce, and employers had to seriously consider the consequences of appointing women who were "pregnancy risks".

The late Dr Helen Newton Turner, a world authority on sheep genetics, and a key female role model in CSIRO, told CoResearch in 1973 about her experiences as a young secretary to Sir Ian Clunies Ross. "When I first joined as secretary to Sir Ian at the McMaster Laboratory, I had to be vetted by the Chairman. When I made my first overseas visit I had to be inspected by the Minister, no less. During the war years women received equal pay, but this right was taken from us after the men came back. It was only fully restored a year ago [1972]."

Up until 1974, there had never been a woman Chief, only an Acting Chief, Dr Rachel Makinson of the then Division of Textile Physics. Today there are three.

International Women's Year was in 1975 and a CoResearch article (July 1975) reported that "equality had been a gentle victory" for CSIRO's women.

"For the most part women in CSIRO are reasonably content with their working conditions, especially those in the professional areas, but that doesn't mean that there isn't room for improvement."

Women were, in fact, "denied the right to work in the field, and women in technical areas were not so sure they were on an equal footing with their male counterparts. While some felt they had achieved the equality their qualifications merited, others found that promotion was slow."

The article said that "women were conditioned by society to believe they should fill only the lower positions".

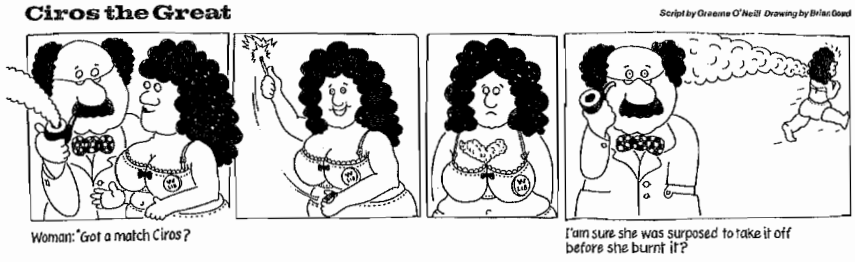
People had different ideas about what being a woman in CSIRO meant.

"I find that being a woman is an advantage," said one of today's senior women in the organisation, "and admit freely to using certain feminine wiles to convince some of the more dour gentlemen of science that they really can afford to accept readable versions of their weighty statements." The woman in question had to regularly transform scientific jargon into simple English.

Another felt that "the job does require a woman's touch, an understanding approach which might be absent if a male occupied the position. The men I work for are gentlemen of the old school, brought up to be polite to women. They're far less prone to blow up when a woman is present and I suppose in this way I have the traditional view of a woman's role operating very much in my favour." (CoResearch, July 1975).

Issues of CoResearch in the 1970s expressed the changing attitudes of women, and if the masthead of the July 1975 issue is anything to go by, it was the introduction of some radical changes for CSIRO and its women.

Looking back: The masthead from CoResearch No 194, July, 1975, was printed during International Women's Year. BELOW: This cartoon appeared in the same issue.



Suicide caterpillars march on

By Sharon Kennedy-Miles, FSA

THE MARCH of the Processionary Caterpillars sounds like the title of a Hollywood film.

But the story unfolded in Cannon Hill, Brisbane, in March, as staff were introduced to one of our native insects in a most unusual manner.

Bowling up to the gates, staff were greeted by strings of silvery grey hair stretching across the bitumen roadway.

Squeamish drivers had no alternative but to drive over the 7m strings of fluff.

This mysterious exodus of Processionary Caterpillars, or Hairy or Itchy caterpillars, was a suicidal search for food. The larvae of a native lepidoptera (moth) lays its eggs on a certain wattle tree.

They hatch and climb up the tree to reach the leaves, and stay on the tree until they are mature enough to pupate, or until they eat every leaf and have to find a new tree.

When this happens, the caterpillars all march back down the tree trunk, and follow each other in an endless procession in the search for food.

If this happens in an area with few trees, the caterpillars are doomed to walk until exhausted and, if they cannot find a food tree, they will die.

This is the second time I have noticed the larvae on the march. The last time was about four years ago when the caterpillars were marching across the back road that leads to our storage building.

Recently, the bushland behind our site was sold and is being developed into residential and light-industry properties.

Nearly all the trees have been felled and perhaps the caterpillars hiked from the bushland area to the nearest wattle tree next to our fenceline, before their hair-raising expedition across our gateway.

CSIRO around the nation

my caption

STAFF came out of hiding to write captions for last issue's photograph of Simon Duffield sampling in Soybean.

Darrell Wells, Molecular Science: Are you sure Simon is still working out there? His hat has not moved for 15 minutes and I have doubts about how much work is getting done.

Ron Johnson, Material Science and Technology: Small, heavily disguised aliens start work on the latest crop circle.

Cedric Griffiths, Petroleum Resources: Genetically modified soybeans begin to mutate to cope with increased UV levels in Australia.

David Courage, Health Sciences and Nutrition: Bemused CSIRO researchers were astonished to discover that a new breed of Super Snail (pictured here) was devouring their bumper crop of genetically modified pest-resistant soya bean plants.

Greg Doran, Manufacturing Science and Technology: Sensory Deprivation: new techniques for the training of potential CSIRO Executives. Candidates are placed in the middle of the field, and asked to make decisions without any input from external sources.

Robert Miotti, Land and Water: Bugger. I've had enough of this "rescue Sleeping Beauty" lark. I'm going to the pub.

Maggie Goodwin, Telecommunications and Industrial Physics: CSIRO scientist sinks in soybean swamp, survives submersion after sunhat spotted by searchers. Simon says, "Sampling soybean sux."

Barrie Hunt, Atmospheric Research: I know it's supposed to be good for the plants but I still think that CSIRO should supply portable field lavatories.

Adam Liedloff, Wildlife & Ecology: The young soybean plant wasn't to know that the need for sunlight outweighs the consequences of getting leaf cancer.

Dr Alan Andersen, Wildlife & Ecology: "Thing" at work in the vegie garden.

Magen Geyer, Tropical Ecosystems Research Centre: Um ... Are you sure these moths are our SOYBEAN biological control agents? They seem to have taken a liking to my COTTON undies.....aaggghhhh!

Stephanie Lavau, Manufacturing Science & Technology: CSIRO successfully breeds genetically modified crops with inbuilt protection from the harsh midday sun.

Oscar Larroque, Plant Industries: GM soybean crop expressing some funny genes from unknown sources

Lynn Pulford, Education: "The fruit of this plant is protected by the slip, slop, slap gene."

And the winner is...

Rowland Cobbold, from Food Science Australia: The deep, dense marsh-forest of Brunei is the traditional home to the Hellarwe tribe, so named because they wander about all day saying "we're the Hellarwe, we're the Hellarwe..."
Rowland wins a snazzy Sonic Flash Ball.

Send your captions for these two photos that were – strangely enough – sent in around the same time by two independent sources. You can write a caption for one or both of the photographs. But, be warned. Only captions in good taste will be printed. Send captions and photos to CoResearch Competition, PO Box 225, Dickson, ACT, 2602 or email Karen.Robinson@cc.csiro.au

O'Keefe's maths medal a first

DR Christine O'Keefe, from Mathematical and Information Sciences, has become the first woman to win the Medal of the Australian Mathematical Society.

"Information security is a major issue in today's digital telecommunication environment," says Dr O'Keefe.

"As businesses gather information on the marketplace and use new techniques to infer valuable understanding from it, they need to protect this information."

Dr O'Keefe's research has provided efficient techniques to control access to important documents and information.

The techniques provide high levels of security. Immense computing power, far beyond that currently available, would be required to overcome the security schemes.

Dr O'Keefe carried out the basic research that earned her the medal while at the University of Adelaide. She joined CSIRO's Business Intelligence Group earlier this year to use the research to add information security systems to the group's technologies for integrating information. "Having the chance to apply my research in pure mathematics to real world problems in this way is very exciting," she said.

"Being awarded the Medal is a great honour. I'm thrilled."

She was one of two Australian researchers to receive the medal this year.

Doctor wins recognition

DR Shirley Jeffrey, from Marine Research, has won an international award and selection to the United States National Academy of Sciences.

Dr Jeffrey becomes the third Australian woman in the 2000-member organisation.

She won the Gilbert Morgan Smith Medal, which recognises excellence in marine or freshwater research, for her research on microscopic algae.

Hot property

STAFF at North Ryde have celebrated two awards made to Riverside Corporate Park.

The Ryder Hunt, Property Council of Australia National Award 2000 was awarded to CSIRO for Riverside Corporate Park, North Ryde. Riverside Corporate Park Development was also named the Ryder Hunt, Property Council of Australia Recognising Building Excellence – 2000 NSW Winner.

General Manager Corporate Property George Harley (pictured left), and Director of APP Property Brian Tasker had a lot to do with the success.

Genetic prize

AN ANU postgraduate student at CSIRO Entomology has won this year's Genetic Society of Australia's $1000 grant to attend an international conference.

Jeremy Brownlie was awarded the Smith-White student award for his presentation at the Genetics Society of Australia conference in Canberra from July 3 to 7.

Jeremy will use the money to travel to the Keystone Conference on Genetic Manipulation of Insects in February 2001. He won the $150 Biorad Student Prize at the same conference last year.

King-sized fellow

CSIRO corrosion scientist George King has been admitted to the exclusive club of Fellows of America's National Association of Corrosion Engineers.

NACE has only 106 Fellows from a worldwide membership of 15,000.

Mr King was admitted for recognition of his "sustained professional activity in applied research on atmospheric corrosivity that led to mapping procedures and new insights into cold climate effects" of corrosion.

Mr King, a Principal Research Scientist with CSIRO Sustainable Materials Engineering at Highett, Melbourne, gained international recognition for developing the world first Accelerated Testing Shelter system (ATS). Mr King's ATS enables accelerated testing of products to be conducted in the marine environment two to 10 times faster than usual.

CSIRO ATS can, for instance, evaluate new and existing roof-fastener products for corrosion performance in six to 12 months instead of years.

Mr King is also well known for his corrosion mapping throughout Australia and his work in atmospheric corrosion, corrosion monitoring, conservation and heritage preservation and development of Australian corrosion test standards.

Focus on measurement

CSIRO's National Measurement Laboratory hosted the prestigious Conference on Precision Electromagnetic Measurements (CPEM) in Sydney from May 14 to 19.

It was CPEM's 21st anniversary and, as only the second one outside North America or Europe, reflects recognition of the growing importance of the Asia Pacific region to world metrology.

Professor Ron Ekers from CSIRO's Australia Telescope National Facility, was one of seven plenary speakers.

The conference attracted 430 delegates from 43 countries, including 67 delegates from Australia.

The Department of Industry, Science and Resources was a principal conference sponsor.

- ANGELA SAMUEL, CTIP

Champion's farewell

THE Gabba scoreboard was recently lit up with a farewell message for Mr Barry Johnson who has retired from Food Science Australia.

Barry provided information to the meat industry for 31 years.

The industry organised one of the retirement functions for him at the Gabba in Brisbane.

Speakers included an ex-chief, two group managers and a number of captains of industry, including a board member.

Mr Lawrie Stewart, of Cryovac Australia, announced an annual Young Achiever's Award to be named in Barry's honour.

- BEVERLEY GEORGE,
Food Science Australia

Business manager retires

AFTER a career spanning 34 years with CSIRO, Mr David Slater is retiring from CSIRO Atmospheric Research in Aspendale, where he has led the business team for more than 20 years.

David has experienced at first hand virtually all the tasks associated with supporting a world-class research laboratory.

"The biggest change I've seen over the years would have to be technology and the increase in our contract work. Computing power underpins everything we do and there is now so much more pressure on CSIRO to commercialise its research," he said.

Mr Slater had a large role in the major site developments that CSIRO undertook at Aspendale in the late '80s and early '90s.

"The building work gave us sorely needed laboratory and office facilities in a stunning building that won major architectural awards," he says.

He has been on the CSIRO Benevolent fund management committee since 1977, chair for the past six years and was recently made a life member. **- PAUL HOLPER,** CAR

Measure of recognition

DR Barry Inglis, the Director of the National Measurement Laboratory at Lindfield NSW, has been elected to the International Committee for Weights and Measures (CIPM).

CIPM is a committee of eminent scientist and metrologists elected under the Convention of the Metre to oversee the activities of the International Bureau for Weights and Measures It plays a central role in setting the directions of international metrology.

In the 125-year history of the convention, only about 135 people have served on the CIPM. Dr Inglis is the fourth Australian to be appointed.

- JACQUI DE BATTISTA, CTIP

Chief Executive's awards

CSIRO Chief Executive's Study Awards are made once a year so staff can gain career-related training and experience. Here is a list of the eight awards for this financial year.

Ms Kathryn Boxsell, Corporate Human Resources, to attend the Strategic Human Resource Management Conference and review human-resource practices in the USA; Ms Laura Castelli, Health Sciences & Nutrition, to attend the Cold Spring Harbor yeast-genetics course and visit collaborators at the University of Michigan; Mr Harry Higgins, Marine Research, to attend the ASLO Aquatic Sciences Conference, USA, and visit laboratories in the US, Canada, Belgium and France; Mr Arthur Langston, Wildlife & Ecology, to attend a Summer School on Complex Systems Behaviour at the Santa Fe Institute; Mr Russell McCulloch, Tropical Agriculture, to attend a shrimp-pathology short course at the University of Arizona; Dr Jonian Nikolov, Minerals, to visit the Mintek laboratory in South Africa and present a paper in Italy; Mr Gregory Roberts, Australian Cotton Research Institute, to conduct research at the Frank Wise Institute, Kununurra, WA, to allow the adaptation of the NutriLOGIC program for Northern Australian Cotton crops; Mr Stephen Speer, CSIRO Discovery, to visit a range of teacher/scientist network programs in the USA and Britain.

CoResearch

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CSIRO

CoResearch

CSIRO's staff newspaper | *Season's greetings to all our readers.* | No.384 Summer 2000

My job is to listen: new Chief

ONE of Dr Geoff Garrett's first acts on arriving in Australia as Chief Executive designate was to take a straw poll of ordinary Aussies to find out what they thought of CSIRO. The results delighted him and confirmed his own view that CSIRO is "a seriously classy act".

Talking to taxi drivers and hotel doormen about their views on science and CSIRO is one of the ways Dr Garrett, very much a people-person, keeps his finger on the pulse. It's likely to become a hallmark of the Garrett style of leading the organisation.

"CSIRO's got a brilliant brand and Joe Public holds the organisation in such high esteem. CSIRO's reputation in the global scientific community is also outstanding," he says.

"This needs to be reinforced and demonstrated with some of the decision-making players, but it's a wonderful foundation."

Dr Garret takes up his post on January 15. Once on deck, he will embark on a tour of the divisions and the main sites, starting in February, to find out what people really think. He will also be meeting many of CSIRO's key clients and stakeholders at the earliest opportunity.

In the Garrett approach, leadership is about making people feel good about themselves as well as about getting results. "I try to listen hard. It's very important to understand what turns people on and how you can help people be the best they can be," he says.

> CSIRO is a treasure chest of amazing people and amazing innovations that need to be unleashed.

"My job is to listen and reflect back, and then help set mutually agreed, stretching goals. We all need to stretch"

British-born Dr Garrett, 52, has lived in South Africa for 28 years, and headed up our sister agency, CSIR, for the last five of these.

He strongly believes in the importance of communicating about science and its role and impact with the people who, ultimately, will make use of it.

"Sometimes, as scientists, we need to take a rap on the knuckles for our inability to adequately communicate with passion and energy the excitement of our disciplines.

"Our psyche often tends more towards under-promising and over-delivering. I believe we should be about promising and delivering and sharing with more people the exciting things that go on in our work."

International alliances are especially important for countries with relatively small populations and economies like South Africa and Australia, Dr Garrett is convinced.

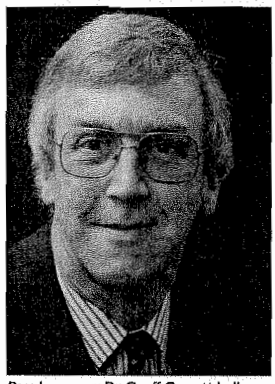
"We need to build networks and bridges and cooperate to build critical mass," he said. "Many of these are overseas, as well as within our own country.

"Too often science institutions tend to compete among themselves like we do on the sports field. That's pretty stupid because the world is a very competitive place and, unless you're holding hands across boundaries, you can really struggle."

Not surprisingly, for a sports fan that grew up playing cricket and football and boxed for his Blue at Cambridge University, the Sydney Olympics played a part in his decision to join CSIRO.

"It was a confluence of things, but that was a tie-breaker," he said.

"I thought: this is a nation that can do anything and really make it happen, and have great fun in the process."



People-person: Dr Geoff Garrett believes in the importance of communication.

The high profile of science and innovation in the public arena was another vital factor.

"Debate is robust and there's a general acknowledgement that science and technology will underpin an innovation-driven economy critical to competing effectively in the global marketplace," he says.

But the most important reason for accepting the job was CSIRO's record of excellence in research and development.

"I'm hugely impressed with the people," he said. "CSIRO is a treasure chest of amazing people and amazing innovations that need to be unleashed."

Dr Garrett acknowledges the learning curve ahead is steep.

"Not having a network inside or outside the organisation, and not knowing the political system are disadvantages.

"Fortunately Dr Colin Adam has agreed to help me by sharing his wisdom and huge experience during the early stages."

"But, I also come without baggage or a history, and that can be an advantage in some situations," he says.

"It's up to me to build my credibility and bring a different and value-adding perspective.

"In the five days I was with CSIRO in November, I had many special conversations and feel like I've made some pals already. You quickly make those connections and they lead to others.

"One of the challenges ahead for all of us will be to educate the political environment around the great and exciting things that are happening in Australian science," he says.

Dishing up Parkes' inside story

By Megan Bird

THE smash hit Australian film, The Dish, tells a story of the role played by CSIRO's Parkes radiotelescope in the 1969 moon landing.

Some of the CSIRO people involved in Parkes' big moment in history have given some new angles on the movie's story and offered their comments on what it was like to be there.

In the film, a diesel generator fails to kick in after a power failure. In reality, the blackout did not happen and Parkes staff would have coped if it had, thanks to the meticulous attention to detail the telescope's then director, John Bolton, was renowned for.

Visitors' centre manager Rick Twardy said: "John Bolton had calculated how fast to turn the gears by hand in the event of a power failure. But it never happened."

John Bolton, called Cliff Buxton and played by Sam Neill in the film, was known as the "Dish Master", but that's where any likeness between the two end.

Former senior operator Dave Cooke said: "There was no comparison at all between Cliff Buxton and John Bolton. There was not a shred of indecision in John Bolton."

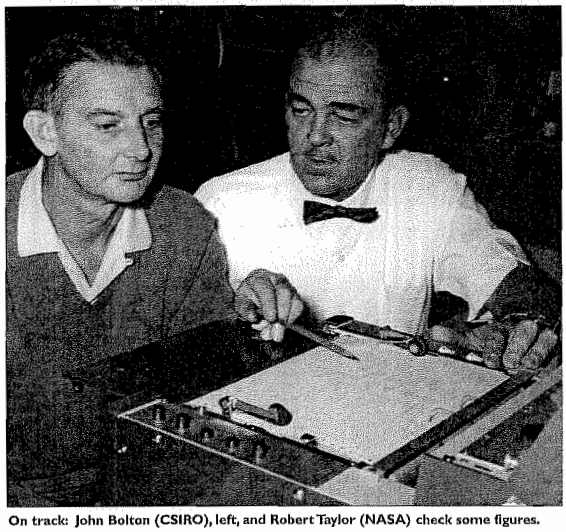
In the movie, Cliff's wife had died a year ago. But John's wife, Letty, 82, has outlived her husband so far by eight years.

She said: "My husband was a very hands-on person. He wasn't sitting there smoking a pipe during the moonwalk. I was there. Everyone was flat to the boards. It was quite emotional and traumatic in the control room."

John was a chain smoker, according to Letty, but never a pipe-smoker. He rolled his own, and was known to break his own rule of smoking in the control room.

Operations scientist at Parkes John Sarkissian said: "He wouldn't have asked for advice. He was a pioneer in his field and he knew exactly what he was doing. He would have just done it."

A rumour does persist that cricket was played on the dish, but golf was the game of choice among those we interviewed.



On track: John Bolton (CSIRO), left, and Robert Taylor (NASA) check some figures.

John Bolton would never have permitted cricket on his dish, said those who were there.

Operations manager John Sarkissian has further evidence. "You couldn't play cricket there if you wanted to," he said.

"The surface was like chicken-wire mesh and wasn't replaced until 1973 with perforated aluminium panels."

Some individuals did hit golf balls in front of them as they walked from the telescope to the observer's quarters for lunch.

There are no known incidents of golf balls finding their way into the dish, although former dish-driver Cliff Smith did say mischievously: "The balls always came back to you."

The flamboyant movie mayor of Parkes was part fact, part fiction.

The real mayor of Parkes at the time of the landing, Jack Scoble, was a quiet, non-drinking lay preacher.

The movie mayor was based on the previous mayor, Cec Moon, who lobbied CSIRO to have the telescope built at Parkes.

The high winds did happen. They gusted up to 100km/h during the moonwalk and continued for at least 20 minutes.

The control desk was reconstructed accurately, thanks to former staff who were consulted.

One of them, Dave Cooke, said: "I was amazed how accurately they built the set of the control room. That was extraordinary."

NASA did provide incorrect Southern Hemisphere coordinates some time before the moon landing and once when Apollo 11 was on its way back to earth.

Stars above: Characters from The Dish gaze into the heavens.

PHOTO: Lisa Tomasetti

But there was never any animosity that anyone would admit to between the Parkes' staff and the American NASA staff, both of whom were more numerous than cast.

The Prime Minister went to Honeysuckle Creek for the landing, not Parkes.

Which images were televised first to the world continues to be a source of contention. But it is widely agreed that Parkes provided the best images and the majority of them. These were seen by the world eight or nine minutes after the start of the broadcast.

When John Sarkissian spoke to the Working Dog team about this the explanation was simple and reasonable.

"The story was complicated enough as it was," he was told. "We didn't want to confuse the public."

For more details about the mission and to view original photographs visit www.parkes.atnf.csiro.au/apollo11/

Working up some business

MOST Parkes' staff have seen The Dish twice, thoroughly enjoyed it and commented that it was good for the business of science, astronomy and the visitors' centre.

Operations scientist John Sarkissian said: "The Working Dog team were understanding and minimised the impact on observing."

Visitors to the telescope have tripled since the film was released.

Visitors' centre manager Rick Twardy said: "The movie has been better than 100 open days."

The visitors' centre was closed for the two weeks of filming in May 1999, staff were forbidden from taking photographs and directed not to talk about the film. Extras were sourced from Parkes, but most of the town filming was done in Forbes.

Widow of the telescope director in 1969, Letty Bolton, said: "It put Parkes on the map."

And the men who were in the control room for the landing have been besieged by media. Fox Mason said: "It's been using up a fair bit of my time, answering phone calls and posing for pictures.

"I just wonder when it's going to die down."

Fox, Cliff Smith and Dave Cooke were recently cajoled into playing cricket on the dish for the Today television show. It is probably the only game, other than the one staged for the movie, that has ever been played there.

Cliff said: "Only a dozen people know what really went on and we weren't expecting anything like the truth.

"Science is hard work and fairly boring except for that last five per cent."

Dave added! "Working Dog is good at picking what's going to be a hit movie."

The Dish has grossed more than $15m.

- MEGAN BIRD

Picture this: A Division of Plant Industry project ploughs on in Cowra in 1940. Old photographs are being sought for inclusion in an anniversary book.

Wanted: old photographs

CSIRO National Awareness is calling on all staff to become a part of history by joining our search-and-rescue mission for old photographs.

Start rummaging through old filing cabinets, bottom drawers and albums.

Author and historian Brad Collis will produce a narrative history of our scientific achievements next year in CSIRO's 75th anniversary.

The book will be published mid-next year. It will be about 300 pages long, include 16 chapters and up to 70 photos.

We are looking for private and divisional photographs that cover all major areas of CSIRO research.

In particular, photos of people in action in the general fields of biological control, entomology, wildlife, animal production, textiles, crops and pastures, forestry, northern development, fisheries and oceanography, atmospheric research, radio astronomy, food, minerals, manufacturing and general instrumental wizardry are sought.

We also plan to produce a separate pictorial history of CSIRO, so photographs will be considered for both projects.

Please send your pics along with information on what they are of to Ms Karen Robinson, CSIRO National Awareness, PO Box 225, Dickson, ACT 2602. For more information phone (02) 6276 6108, or e-mail Karen.Robinson@cc.csiro.au. All photographs will be returned.

Wine drinkers queue up

SCORES of healthy men have volunteered to drink red wine every day in the name of research.

The wine study could shed light on cardiovascular disease, a disease and its related conditions that killed more than 40,000 Australians in 1997.

"In some other research projects we do, it's hard to get enough people," PhD student Will Greenrod said.

"But this time we are over-subscribed by a factor of 10."

A newspaper advertisement for non-smoking male volunteers aged between 40 and 60 prompted the over-supply.

The three-month trial requires participants to spend a month alcohol-free, drink two glasses of red wine a day for a month and exercise controlled drinking for the next month. The study is funded by CSIRO Health Sciences and Nutrition and the Grape and Wine Research and Development Corporation.

In the mood for food

CHEERFUL men and miserable women are likely to fight over junk food.

Men are more likely to eat snack foods when they are happy and women are more likely to eat sweet foods when they are sad, according to a speaker at the recent CSIRO Food Industry Conference.

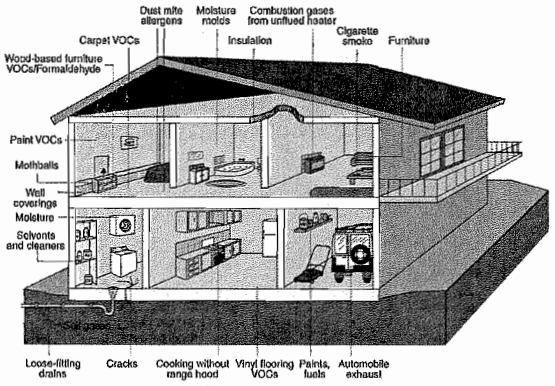
Professor Larry Christensen said: "Both men and women are more likely to eat vegetarian foods after a happy event than after a sad event."

His research showed that emotional distress creates a craving for carbohydrate and fat-rich snack food, which temporarily relieve some of the symptoms.

"When the symptoms return, the cycle begins again," Professor Christensen, the chair of psychology at the University of South Alabama, said.

Milk down as cows heat up

COWS that are pampered by their farmers with shade sheds and sprinklers produce between 190 and 220 litres more milk a year than cows left exposed in paddocks.



Research roundup

Cows left to fend for themselves in open paddocks are likely to lose between 250 and 310 litres of milk a year by the year 2030 because of climate change, according to the CSIRO Atmospheric Research study.

Toxic new homes

NEW-HOME owners could be exposed to up to 20 times the allowable limit for indoor air toxins for up to 10 weeks after their dream homes have been built.

Up to half a million Australians moving into about 120,000 new homes each year could be exposed to the airborne pollutants, research by CSIRO Thermal and Fluids Engineering has found. The most potent sources of toxins were paints, adhesives and some wood-based panels.

Rust revolution

PAUL Hogan could have been made redundant in his early job as a harbour-bridge painter if a new hi-tech probe had been around then.

The Sydney Harbour Bridge may need a new coat of paint once every 33 years instead of every decade, thanks to a CSIRO instrument to identify the initial stages of corrosion.

The instrument, developed by Sustainable Materials Engineering promises to slash the cost of fixing rusty cars and could save the aircraft industry $3 million an aircraft. The Scanning Kelvin Probe has been likened to the discovery of the first electron microscope.

Sex sells

THE sexual scent of insects is cutting down on pesticides in commercial orchards.

Insects that plague orchards lose the urge to mate if they are bombarded with the overpowering scent of their opposite sex, according to CSIRO entomologist Dr Richard Vickers.

Pheromone-based control systems are not suitable for domestic fruit producers because of the small areas involved.

Green-tea party

CSIRO research is the first to identify why green tea can lower cholesterol.

It increases the amount of a liver protein that works to clear cholesterol from the blood, according to Health Sciences and Nutrition.

The last word

"Investment in science and technology was the most likely cause of the powerhouse economy in the US, John Howard said yesterday in his strongest hint yet that he plans to increase science funding."

- The Australian, August 31, Mr Howard was speaking at the opening of CSIRO's Discovery centre.

"CSIRO is proving through its agribusiness research that becoming a clever country can still mean riding on a sheep's back."

- The Age, September 30.

"While the CSIRO stressed that swallowing one was not dangerous, opera diva Yvonne Kenny was lucky her furry little friend chose her dress and not a warmer place to view the closing ceremony."

- The Australian, October 3, on bogong moths.

"The CSIRO has been the most prolific organisation in obtaining US patents from Australian science. And the race for funding has meant the crusty institution has emerged into the business world."

- Australian Financial Review, August 12.

"The CSIRO is an adult day-care centre. You have to split it up. How can you have four or five people working on the human genome? What is that going to do? You have to target areas. They are working on every area known to man. It's nuts."

- Business Review Weekly, August 18, quoting Peter Farrell, the chief executive of ResMed, the largest medical-devices' group in Australia.

CORRECTION

The RV Franklin's undersea-chimney expedition, referred to in the last issue, was led by Dr Ray Binns, not Dr Brent McInnes, as stated. Dr McInnes led the second team, which encountered the Kavachi eruption, as reported.

Gold-medal honours for CSIRO staff

SPORTING medals were not the only accolades this spring as CSIRO staff won dozens of prestigious scientific awards.

● DR Jim Peacock and Dr Liz Dennis, from Plant Industry, shared the inaugural $300,000 Prime Minister's Prize for Science, for work that could help boost the world grain harvest. The pair were awarded the prize for their work in plant molecular biology, primarily for discovering a key gene in plants that controls flowering.

● THREE international commercial initiatives expected to earn more than $700m from exports won CSIRO's inaugural Commercial Excellence Awards.

The award-winners are CSIRO's Food Into Asia program, expected to deliver more than $670m in new earnings for Australian exporters; new relationship-management strategies leading to contracts with the Boeing Company totalling $37m; and a new biomedical spin-off company, Elastomedic, earning CSIRO $6.8m.

The Marketing & Business Development Award was won by Russel Rankin, Stephan Wellink and Judy Marcure. The Technology-Transfer Award was given to Dr Gordon Meijs, Dr Simon Carroll, Dr Pathiraja Gunatillake, Mr Bryan Loft, Dr Mike Skalsky, Dr Greg Simpson, Dr Tom Spurling Dr Jack Steele and Dr Donald Brown. Mr Trevor Thacker won the Customer-Relationship Management Award.

Visionary: Mathematician Dr Tony Miller

● THE Sir Ian McLennan Achievement for Industry Award was presented to Dr Tony Miller, from Mathematical and Information Sciences, for his pioneering research on spectacle lens design. Clearer vision for millions of people who wear progressive lenses is the result of Dr Miller's research. It contributed to nearly $1 billion worth of lens sales a year for SOLA International, a world-leading spectacle lens company.

A Certificate of Commendation was awarded to Dr Pathiraja Gunatillake for his research innovations and commercialisation of biostable polymers for medical implants.

● THE Low-Emissions Vehicle Team won the 2000 Chairman's Medal for producing the complete powertrains for the ECOmmodore and the aXcessaustralia car. There were four 2000 CSIRO Medal winners: the Amphibian Disease Research Team, High-Performance Wireless LANS Team, Magmetal Project Team and BHP's Team Falcon, the external medal winner.

● DR ROBERT Leicester, from Building Construction and Engineering, won the A$373,718 Marcus Wallenberg Prize. The King of Sweden presented Dr Leicester with the prize for his work into aspects of building-performance engineering for wood structures.

● AT the 10th Australian Cotton Growers Research Association Cotton Conference, Dr Joanne Daly, from Entomology, was presented with the 1999 Researcher of Year Award for her work over 18 years on insect genetics and resistance. Dr Ian Rochester, from Plant Industry, won the 2000 Researcher of the Year Award for his work over 17 years on cotton rotation crops and nutrition.

OBITUARIES — Dr Doug Waterhouse 1916-2000

Entomology mourns former chief

DR Doug Waterhouse, a past Chief of CSIRO Entomology and the inventor of the active ingredient in the insect repellant Aerogard, died in Canberra on December 1 at the age of 84.

Affectionately known as "Father" during his time as Chief, Dr Waterhouse devoted his life to applying the science of entomology to solving practical problems faced by people in Australia and in the developing nations.

He will be remembered for much more than his invention of the active ingredient in Aerogard, but this one contribution epitomises his whole approach to science, the need to apply results so that we all benefit.

As Chief of Entomology for 21 years from 1960 to 1981 Dr Waterhouse championed a number of research programs that continue to have lasting benefits to Australian agriculture, to our unique biodiversity, and to all Australians.

He was the driving force behind the establishment of the Australian National Insect Collection in 1962, part of CSIRO Entomology, as a permanent entity to develop an understanding of Australia's insect biodiversity.

His visionary approach to biological control has seen huge pay-offs, not only to Australia in terms of pest and weed management, but also to many of our neighbouring countries, especially the Pacific island nations, where projects have restored local economies. His latest book, jointly authored with Entomology's Dr Don Sands, is on this subject and will be published next year.

Dr Waterhouse was recognised globally for his leadership in science by his election as a Fellow of the Royal Society, Fellow of the Australian Academy of Science and Fellow of the Australian Academy of Technological Sciences and Engineering.

He was made an Officer of the Order of Australia (AO) in 1980 and published more than 100 scientific papers and several books.

He was instrumental in the establishment of the Canberra College of Advanced Education, now the University of Canberra.

He is survived by his wife Dawn, their daughter Jill, and sons Douglas, Jonathon and Gowrie, and their families.

- MALCOLM ROBERTSON, CE

Deputy chief executive warns of energy crisis

A CENTURY of global wealth based on easy oil and metal is over and Australia must find alternative technologies for energy or go nuclear.

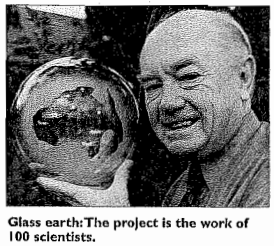
The ideal would be to develop a hydrogen-based economy.

These were some of Dr Bruce Hobbs' comments during the recent annual Brodie Hall Address in Perth. Deputy Chief Executive of Minerals and Energy Dr Hobbs said: "The minerals' industry is referred to as part of the old economy."

For the next decade the future of mining and energy in Australia depended on technological advances through the new economy, he said. To do this mining had to target a zero emissions, zero waste policy.

Dr Hobbs outlined the Glass Earth Project, a strategy to get Australia to 2025, based on his projections of Australia's population being 25 million. The project is the work of 100 scientists.

"The time has come to stop talking about green power and start acting," Dr Hobbs said.



Glass earth: The project is the work of 100 scientists.

Red centre of knowledge

By Brad Collis

SOME of Australia's most eminent wildlife researchers and ecologists gathered in Canberra in October to celebrate the life and work of biologist Alan Newsome, who recently retired from Wildlife & Ecology.

In a career spanning 40 years Alan became one of Australia's leading authorities on the red kangaroo, dingoes and predator-prey relationships.

At the start of his career in the early 1950s Alan was a young biologist drawn to Australia's red centre by its ecological mysteries. He developed a close bond with the Aboriginal communities and, as he gently probed their ancient, sacred stories, he discovered an enormous source of knowledge.

Newsome penned his observations in a controversial 1980 paper, The Eco-Mythology Of The Red Kangaroo In Central Australia, which explored the Ajaii journey. It was to become a groundbreaking treatise in its use of Aboriginal mythology to throw new light on to ecological puzzles.

He became one of the first scientists in Australia to realise that much of the knowledge needed to better manage the land and its ecosystems already existed.

In tracing the red kangaroo's mythology, he was able to establish the first biological profile of this, Australia's largest, native mammal. The totemic sites, and the stories and songs that accompany each site, were components of a bigger picture which, when pieced together, gave a detailed account of red-kangaroo ecology - social habits, breeding patterns, migration, diet and eating habits, and links with other stories that instructed people how to live with this land.

Newsome's introduction to the central Australian desert came after he left university in the mid-1950s and gained a job with the animal-industry branch of the Northern Territory Administration. He was sent into the hot, lonely landscape to learn, and developed an abiding passion for the desert, its people and its creatures.

It was during this period that he entered central-Australian folklore after making one of the most remarkable wildlife discoveries of the century.

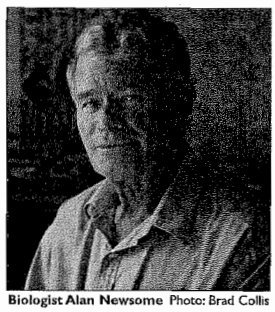
A noted reproductive physiologist from Adelaide University, Geoff Sharman, agreed to be his masters' supervisor. In 1959 the pair went into the Tanami Desert. Sharman also hoped to find a small, rare fat-tailed marsupial called a dasycercus.

Newsome recalled: "It was October, very hot and no trees. The only shade was from these massive termite mounds. So we were alongside one of these trying to grab some shade in which to eat a bit of food and I noticed a sand dune a little way off.

"This was unusual. It wasn't sand-dune country. So we drove over and there were tracks all over it, tracks we didn't recognise, although we could see it was some kind of wallaby."

The two men drove 100km to a cattle station and returned with a tracker named Murray. On being shown the strange tracks he simply said, "Oh, Mala."

The Mala, known by whites as the Rufus Hare Wallaby, was supposed to be extinct.



Biologist Alan Newsome Photo: Brad Collis

"Anyway, Murray jumps and out runs this little animal, a Mala, which tears away across the scrub. I was staggered. We asked what else was around and he said, 'walbagiri', the Aranda name for bilby. This was amazing. He also showed us tracks of the pakuru, a little bandicoot also thought to be extinct."

Regrettably, 30 years later, the pakuru is extinct - as are at least 23 species of vertebrates, mostly small mammals and marsupials unique to the Australian continent and wiped out by the impact of European settlement.

Evidence, much of it gathered over the years by Newsome, pointed to the devastating impact of overstocking a fragile landscape with cattle that destroyed the small marsupials' shelter. Newsome had observed just how defenceless this had made them against the unholy trinity of introduced foxes, feral cats and rabbits. The rabbits were also prey for foxes and cats during dry seasons. When droughts broke, weakened native populations had little chance to rebuild against predators that had survived in great numbers on rabbits.

The Mala population found by Newsome and Sharman was also hit by foxes not long after its discovery and has only been saved from total extinction through a breeding program started by Ken Johnson, a researcher from Northern Territory Parks and Wildlife.

The species' hold on life remains tenuous, but there are hopes a larger breeding program in a predator-free environment on Trimouille Island off the Western Australian coast will eventually build up Mala numbers.

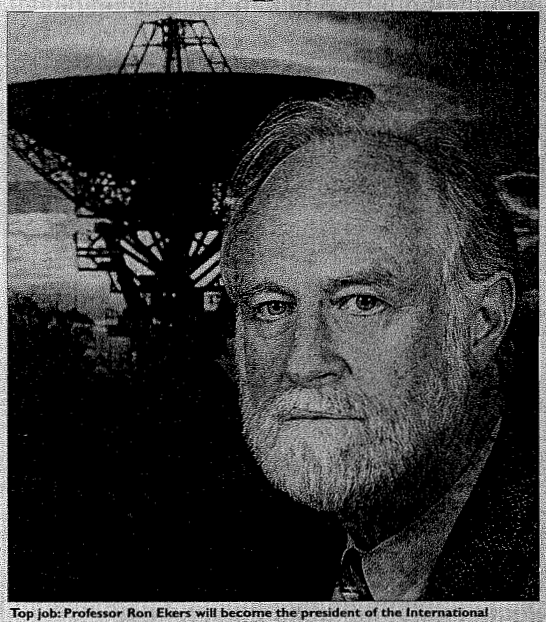
The struggle by Australian wildlife to survive European settlement has become an epic saga and Mala came to represent the perilous state of all small native animals on this continent. However, for Newsome it was just the start of a personal journey of discovery that time and again drew public and scientific attention to the uniqueness of many Australian creatures.

Newsome spent years explaining to pastoralists that the dingo was in fact their ally against foxes, cats, rabbits and excessive kangaroo numbers.

Newsome is now retired and living in Canberra. He went into the desert with a scientist's dispassion, and came out with a philosopher's sorrow.

During his time in central Australia the red desert became his home: "When my time comes, that's where I want to take my last walk," he said, at the start of his retirement.

Telescope chief gets star billing



Top job: Professor Ron Ekers will become the president of the International Astronomical Union.

CSIRO's Professor Ron Ekers has been given astronomy's top job.

Professor Ekers, who heads the Australia Telescope National Facility (ATNF), was recently voted in as the president-elect of the International Astronomical Union (IAU).

He will serve on the IAU's executive committee until he takes up his three-year presidency at the next General Assembly, which will be in Sydney in 2003. The IAU has more than 8,000 members from 66 countries. Members hold at least PhD qualifications and are active in professional research and education in astronomy.

CSIRO Deputy Chief Executive Dr Ron Sandland said: "It really is tremendous news for Australia. That's the bottom line."

The appointment coincides with the news that leading international astronomers have signed a joint agreement to plan the world's largest radio telescope, the Square Kilometre Array (SKA).

Dr Sandland said: "Australia will be battling for a place in the sun in terms of the Square Kilometre Array. It will certainly raise Australia's profile."

Although Professor Ekers has been appointed chairman of the international steering committee on the SKA, he will not directly influence where the $1 billion project is built.

ATNF Assistant Director Mr John Brooks said: "This is one of the great hopes for Australia."

Australia is a potential site because it is largely free from radio interference and the centre of our galaxy is best seen from the Southern Hemisphere.

One proposal is to cluster 200 array stations in a dense central patch covering a 50 square kilometre region of mid-west Western Australia, then to put another 100 stations spaced at increasingly large separations along five to seven open spiral arms stretching across the country.

Professor Ekers said: "Designing, let alone building, such an enormous technologically advanced instrument is beyond the scope of individual nations, or even small groups of nations."

Two dozen leading institutions from a score of countries have already decided to pool their R&D efforts to agree on the location and fundamental design by 2005 and to begin construction in 2010.

The SKA's collecting area will be almost 100 times larger than the world's biggest radio-imaging telescope and will become the world's premier instrument for astronomical imaging.

Staff drive housing project's expansion

AN innovative community retirement village in the heart of Belmont, Geelong, has just opened six new units, thanks to the efforts of CSIRO staff in Geelong.

Sirovilla is home to almost 50 residents who occupy 39 one and two-bedroom units.

Mr Hayden Smith, from Textile & Fibre Technology, said a decade of fashion parades, art shows, fairs, other fundraising activities and government grants had laid the village's foundations.

"CSIRO staff have really been the driving force behind the development of Sirovilla," he said.

"And it really makes all the hard work worthwhile to see our residents gain an improved quality of life in such a low-cost and secure environment."

Half of the units are reserved for financially disadvantaged tenants.

"The project was initially planned for CSIRO retirees," Hayden said.

But only one such tenant has moved in, and she did that last month.

"The philosophy of Sirovilla is to provide active senior citizens with independent accommodation at minimum cost," Hayden said.

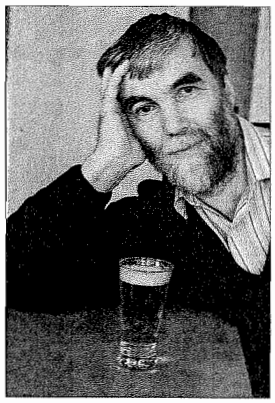
Self-sponsors who occupy the other units donate about one-third of building costs.

When they stay for less than 10 years the donation is refunded, less 10 per cent a year for the period of occupancy.

An independent committee of mostly CSIRO staff and some Geelong-based professionals such as doctors, lawyers and health workers run the non-profit venture. The committee plans to build an activity centre and provide an on-site manager when more funds are available.

This expansion, its fifth, was funded by a loan from Members Australia Credit Union, formerly Sirocredit.

Village life: (left to right) Treasurer Hayden Smith, resident Beryl Robertson and secretary David Evans celebrate the project's extension.



Mixed business: Dr Mark Hibberd grows hops to flavour his award-winning brews.

The art of home brew

DR Mark Hibberd is an atmospheric scientist, with interests in fluid mechanics. In his spare time he is interested in fluids of an amber hue.

Yes, Mark brews his own beer. And cider. And mead. He does it so well that in October he won the Best Brewer Award at the Victorian Amateur Brewing Championships.

"I started brewing about six years ago. It's a nice mixture of art and science," he said. "I like to brew beers with lots of flavour, styles you can't buy."

Colleagues at CSIRO Atmospheric Research believe that Mark is the ideal person to be president of their social club. He generously provides samples of his craft for after-work functions.

- PAUL HOLPER, CAR

CoResearch has undertaken to feature the creative endeavours of CSIRO staff. We know about troupes of jugglers and dancers, a couple of painters, writers and singers. Let us know about others. Contact Megan Bird at hiho@dynamite.com.au or phone (02) 6284 4113.

On show: The lives of Joseph Pawsey, left, and Sir Ian Wark were highlighted.

Tribute to the greats

TWO former CSIRO scientists were part of an exhibition honouring great 20th Century Australian scientists.

Joseph Pawsey and Sir Ian Wark featured in the National Portrait Gallery's Cavalcade Of Scientists' exhibition in Canberra.

Sir Ian's knighthood medal and a letter relating to it, the Pawsey Medal and some old photographs were some of the features of the exhibition.

Sir Douglas Mawson's balaclava, Professor Fiona Stanley's portrait and an early prototype of Graeme Clark's bionic ear were other highlights.

Curator Magda Keaney said: "We have tried to include something that represented each scientist's work as well as their private lives to create a balance between the accolades and the more personal things".

Radiophysicist and radio astronomer Joseph Pawsey (1908-1962) pioneered leadership of the Radiophysics Division of CSIR from 1940.

Chemist and mineralogist Sir Ian Wark (1899-1985) joined CSIR in 1939 to establish chemistry research for the benefit of Australian industry.

The exhibition, part of the Tall Poppies Campaign, was recently at Old Parliament House.

CSIRO around the nation

O caption, my caption

BRAVE, witty and sometimes irreverent staff wrote captions for one or both of last issue's photographs.

Pictured left:
Dr Keith Millington, from Textile and Fibre Technology: Carrying on from where Bruce left off: That's special! Kim and Janet score a perfect 10 in the final round of the synchronised frisbee.

Pictured right:
Dr Guy LeBlanc Smith, from Exploration & Mining: CSIRO has solid evidence that continental drift is not flagging.

Other captions:
Greg Doran, from Manufacturing Science and Technology: How times change. An artistic interpretation of the state of CSIRO 1975 (pictured left) and present day (pictured right).

Ding He, from Plant Industry: Perfect one day, outsourced tomorrow

Noelene McCormack, from Telecommunications & Industrial Physics: Final test for short-listed CEO applicants: Which is clearer? Australia at the forefront or "down under" the funding barriers?

Lynn Pulford, from CSIRO Education: Scenes of devastation at CSIRO as plaques are ripped from the walls and flags torn asunder in protest over the decision to outsource all research.

Nicholas Corbet, from CSIRO Livestock Industries: Despite local and overseas support for CSIRO's research, the Government has again slashed appropriation funding.

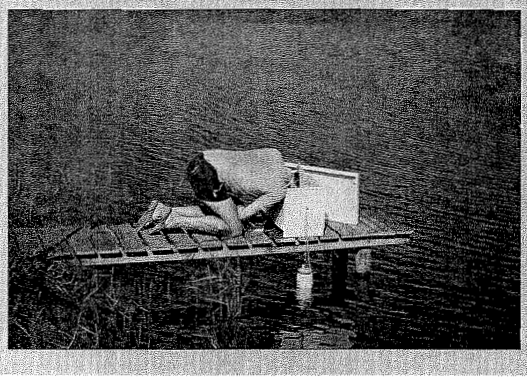
David Lamb, from Manufacturing Science and Technology: Staff support for the nation's premier research agency.

Dr Cedric M. Griffiths, from Petroleum: New staff (pictured left) find CSIRO an uplifting experience.
During a trip to Delphi (pictured right) the Oracle tells the management team where to look for the new CEO.

And the winner is...

Dr Vasanthe Vithanage, from Plant Industry wins some bouncing putty, donated by Education Programs, for his one-liner, "Organisation" (pictured right) is gone and "Research" is hanging by a thread.

The subject of this issue's photograph would like to remain faceless and nameless. We can tell you Michele Burford, from Marine Research, supplied this photograph of a colleague.
Send captions and photos to CoResearch Competition, PO Box 225, Dickson, ACT, 2602 or e-mail Karen.Robinson@cc.csiro.au



Unaccustomed as I am ...

A CSIRO public-speaking club was recently inducted into Rostrum Australia.

The Yarralumla Rostrum Club was formed by Canberra staff at Forestry and Forestry Products.

It meets onsite every fortnight and uses divisional facilities, such as lecterns and visual equipment, to develop and practice a range of presentation skills.

Members are guided by more experienced members and given feedback on how to improve presentation and speech architecture and on the importance of body language and voice control in delivery and emphasis.

Club president Mr Mike Connell said: "The gain in poise and confidence would benefit anyone's career path."

Some staff use meetings to practice and improve delivery of a paper or presentation for a conference, workshop, dinner or field day.

"Many CSIRO people desire to, or are required to, present their research results to their peers, make submissions seeking financial backing, or inform the general public," Mike said.

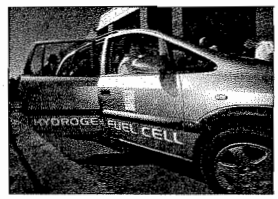
He is happy to advise other staff about setting up similar clubs, and can be contacted at mike.connell@ffp.csiro.au

McIntosh prize winner

THE inaugural winner of the $35,000 Malcolm McIntosh Prize for Achievement in the Physical Science is Dr Brian Schmidt, a Fellow at Mount Stromlo and Siding Spring Observatories.

Dr Schmidt led one of two international teams that concluded the universe is expanding at a continually accelerating rate, a reversal of accepted thinking.

"I hope I'm worthy of a prize bearing the name Malcolm McIntosh," Dr Schmidt said. "He was an amazing guy."



Olympic effort

TELECOMMUNICATIONS & Industrial Physics (TIP) were involved in both the men's and women's Olympic marathons.

TIP staff produced the liquid hydrogen needed to power two concept cars that led the races.

Liquid hydrogen is not normally available in Australia.

Producing it involved a tonne of imported cryogenic equipment, two concept cars and about a dozen Opel engineers from Germany.

This collaboration arose through the division's strong relationship with General Motors Holden to develop the ECOmmodore, a hybrid electric vehicle.

The Olympics Opel engineers treated a few CSIRO staff to rides in the HydroGen1 before shipping both cars to their next destination.

The vehicle was unveiled at the Geneva Motor Show in March. It uses a 55kW electric motor and a hydrogen-air fuel cell. It has a range of about 400km on a "full tank", or 70 litres, of liquid hydrogen.

Researcher retires

WORLD-RENOWNED comminution researcher Dr Keith Weller retired from CSIRO Minerals on September 21 after more than 36 years' service.

Keith graduated from the University of Adelaide in chemical and metallurgical engineering and built his career in comminution practice.

He has left a legacy of fundamental research that has had a significant impact on industrial practice.

Industry open day

MORE than 100 people went to Manufacturing Science & Technology's recent industry open day in Adelaide.

It featured tours, seminars and exhibitions.

Deputy Chief Allan Morton said: "The response from industry visitors was quite positive. In particular, the smooth and expert operation of the various welding and cutting equipment caused favourable comment."

One staff member sent in the above photograph with her own comic caption: "The Kelly Gang witnesses robotic pipe welding."

Take your measure

ANOTHER close contender for our caption competition was this one, sent in by Jan Brett.

Just how long is a piece of elastic? This is the conundrum Mr Ron Cook and Mr Walter Giardini have been setting scores of groups during short measurement-uncertainty courses.

The 50th course was recently run in Hong Kong by the National Measurement Laboratory, part of CSIRO Telecommunications and Industrial Physics.

They have been run throughout Australia and in parts of Asia for the past seven years.

The courses place emphasis on students achieving competence in making uncertainty calculations according to recommendations of the internationally recognised ISO Guide To The Expression Of Uncertainty In Measurement.

Any scientific, technical or engineering staff who are required to make formal estimates of their measurement uncertainties would benefit from attending one of the three-day courses.

The one-day course is suitable for laboratory managers, quality-assurance staff and others requiring a general knowledge. For more information phone (03) 9545 2965, fax (03) 9544 1128 or e-mail jan.brett@mst.csiro.au

New division dominates

CSIRO's newest division, Sustainable Ecosystems, dominated the field recently at CSIROFIT's premier annual event in the fight against flab.

The Black Mountain Cup was won in Canberra by the new division.

A new category for this year's event, the Chiefs' Challenge, was won by the division's chief, Dr Steve Morton.

And the first runner home was Stuart Doyle, from Sustainable Ecosystems, in 19min 50sec.

The first woman home was Carol Harding, from Plant Industry, in 25min 49sec.

The event is open to all divisions throughout Australia, and the best four runners home from each team are counted towards the Cup's tally.

Other events are held for walkers and mountain-bikers and the day is capped off with a barbecue.

- NERIDA GIBB, CE

On the market

FOOD Science Australia's marketing manager Ms Judy Marcure has published a professional marketing resource for R&D organisations.

Marketing Scientific Results And Services: A Toolkit, was co-authored by Judy and Mr Bruce Davies from the Berkeley National Laboratory in the US.

Head of the Berkeley lab Dr Charles Shank said the book demonstrated how commercial expertise could operate alongside scientific excellence in R&D labs.

The collaboration is the result of Judy's secondment to Berkeley in 1996 on a CSIRO Chief Executive's Study Award.

For more information visit http://www.calibrecomm.com/>www.calibrecomm.com

Tactical response

FARMERS and land-managers have been offered a package of tactics, present and future, for combating the threat of rising salinity in the Murray-Darling Basin.

These methods are outlined in the recent CSIRO report, A Revolution in Land Use: Emerging Land Use Systems for Managing Dryland Salinity by Dr Richard Stirzaker, Dr Ted Lefroy, Dr Brian Keating, and Dr John Williams.

Copies are available by phoning Ms Margaret Bryant on (08) 9333 6215.

CoResearch

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