

# MONTAGE

NEWS FROM THE CAMPUSES OF MONASH UNIVERSITY

Volume 2 Issue 4

May 1991

## New camera takes in the big picture



Picture: STEVEN MORTON

Monash photographer Mr Steven Morton, the designer of a new panorama camera which has attracted worldwide attention, is pictured repeatedly with the camera's builder, Mr Allan Holland. The camera takes 360 degree images which can be printed easily on a single page (details on page 5). More photographs and the story of the camera's development are in Research Monash.

## Research quality threatened by marginal funding: VC

Rapid expansion in the higher education sector has been at the expense of the quality of teaching and research in universities, according to the Vice-Chancellor of Monash University, Professor Mal Logan.

He said that unless tertiary institutions were funded at realistic levels, the national over-enrolment problem was set to worsen. Professor Logan called on the Commonwealth Government to increase funding in line with the growth in enrolments.

"While student numbers have increased, the proportion of the Commonwealth education budget devoted to higher education has shown a significant decline," Professor Logan said.

"The desirable trend of growth in student numbers has been achieved at marginal funding levels, which has had an inevitable impact on the quality of teaching and research."

"If the Government's goal of a 'clever country' is to be achieved it will need even greater numbers of well-educated people."

Between 1983 and 1990, government actions to expand higher education had increased participation by 39 per cent - from 348,577 students in 1983 to 485,075 in 1990. However, from 1983 to 1991 government funding per student had fallen by 12 per cent.

"The problem is aggravated by much higher retention rates by students once they are inside the system."

The reasons for this are not immediately clear, but it certainly makes it difficult to match the student load for which we are funded to the actual load," Professor Logan said.

He said university commencements would be significantly higher than predicted, despite demographic projections of a short-term decline in the overall number of 17 to 19 year olds between 1990 and 1995.

"The impact of this will be more than offset by the continuing rise in Year 12 enrolments and higher transfer rates. Year 12 enrolments in Australian schools grew by 93 per cent from 88,000 in 1981 to 169,000 in 1990," he said.

"Moreover, the positive community attitude to the importance of lifelong, continuing education will place greater responsibilities on higher education institutions. For example, the number of mature-age undergraduate commencing students has risen by 24 per cent from 1980 to 1990."

Professor Logan said the picture concerning graduate student enrolments was less than satisfactory.

"In 1990 higher degree students accounted for less than eight per cent of total student enrolments, with post-

graduate students accounting for about 16 per cent," he said.

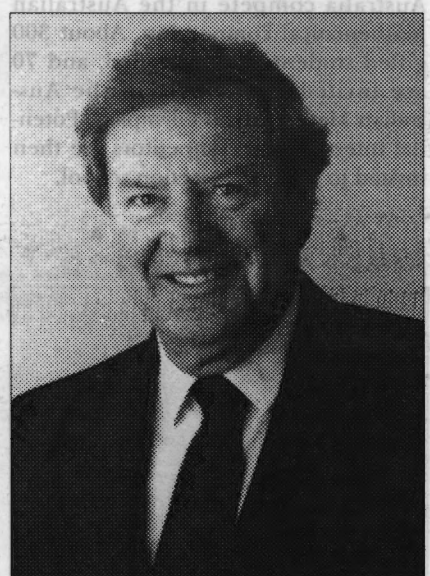
"The expansion in undergraduate enrolments, combined with high rates of retirement of academic staff over the next decade point to a severe future shortage of adequately qualified staff for universities."

"The National Institute of Labor Studies (NILS) report estimates that by the year 2000 the shortfall between the numbers of staff required and the available academic staff will have reached 20,000. It would be erroneous to assume this shortfall can be met from overseas because other countries are facing a similar problem."

Professor Logan said the shortfall was a labour market problem that could only be tackled on a system-wide basis.

However, the suggestion by the Minister for Higher Education and Employment Services, Mr Baldwin, that the possession of a higher degree (especially a PhD) was not necessarily a qualification for all university teachers, ran counter to a fundamental principle in all universities.

"While there are always important exceptions, research training (indicated usually by the possession of a PhD) is an important qualification for appointment to a tenured position," he said.



Professor Mal Logan.

"Staff recruitment is adversely affected by the deplorably low level of salaries, which in terms of international comparisons and national norms have fallen by at least 30 per cent in recent years."

The NILS report concluded that relative to the UK, US, Canada and New Zealand, academic salaries in Australia had fallen over the 1980s so that overseas recruitment was becoming increasingly confined to 'refugee sources'.

"The funding of internationally competitive academic salaries is of critical importance to the entire education system. Simply maintaining the existing quality requires significant resources," Professor Logan said.

"Governments can no longer afford to adopt a head in the sand attitude to the problems confronting higher education."

### INSIDE

- |                           |                           |
|---------------------------|---------------------------|
| 3 Hope for Chernobyl kids | 6 Campuses connected      |
| 4 Research overhaul       | 7 Drafting for high winds |
| 5 Paper makes money       | 12 Savant: Greta Bird     |

### RESEARCH LIFTOUT

- Discovering a different perspective
- Divining aluminium's secrets
- Revealing the heart through heat



# AROUND THE CAMPI

## CLAYTON

Monash mathematics staff will accompany a team of secondary students, competing in this year's International Mathematical Olympiad (IMO) in Sweden from 8 to 23 July.

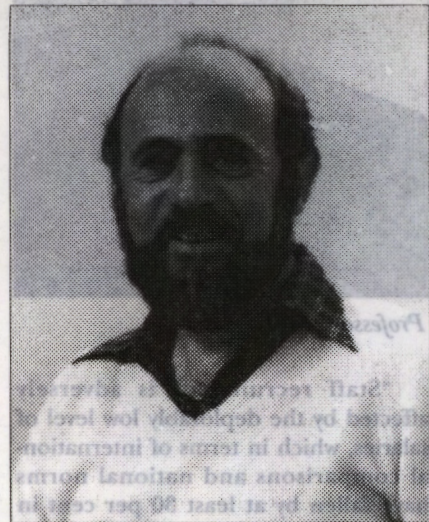
For the past eight years staff from the Department of Mathematics have been involved in the olympiads, which promote the study of mathematics.

Reader in Pure Mathematics, Dr Hans Lausch, said staff and students have trained and selected teams, set problems and marked exam papers. Emeritus Professor Gordon Preston is Chairman of the Australian Mathematical Olympiad Committee.

Dr Lausch, Chairman of the IMO's Problems Committee, said the IMO was the pinnacle of excellence and achievement for secondary school students of mathematics throughout the world. The first IMO was held in Romania in 1959. Australia has entered teams since 1981, and last year finished 15th out of 54 teams.

The olympiad fosters friendly international relations between teachers and students and allows them to share information on educational syllabuses and practice throughout the world.

About 400,000 students throughout Australia compete in the Australian Mathematical competition. About 300 gifted students are identified, and 70 are invited to compete in the Australian Mathematical Olympiad. Potential international competitors are then invited to attend a selection school.



Mr Graham Briscoe (above) has been appointed the inaugural Director of Community Services for Caulfield, Clayton and Frankston campuses.

Under the merger agreement, three years were allocated to bring about a full merger of the department's various services. The appointment of a director is the first step.

## MONTAGE

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Professor Bill Bonwick (above) of the Department of Electrical and Computer Systems, has been appointed to the first Sir John Monash Chair of Electrical Power Engineering.

The chair is part of a \$3 million agreement between Monash and the State Electricity Commission of Victoria to establish a new Centre for Electrical Power Engineering at the university.

Under the agreement, the number of academic staff at the centre will be increased, and teaching and research in electrical power will be expanded. The centre also will assume a leading role in electrical power education in Victoria.

"The centre is being formed at a time when electrical power engineering is facing an interesting and challenging future. My new role will be both stimulating and exciting," Professor Bonwick said.

"We will be continuing our work in superconductivity and power electronics, and will be embarking on new research in important areas such as dealing with problems of ageing power systems, electrical energy conservation, and alternative power generation."

Professor Bonwick, an expert on electrical machinery and rectifier systems, is leading a research project on applications of superconductivity to power systems.

Community Services includes counselling, health, chaplaincy, housing, and student financial advice. On the Caulfield and Frankston campuses it also covers child care and legal aid.

## GIPPSLAND

Professor Norman Creighton, Head of the School of Visual Arts at Gippsland campus, has been appointed to membership of the Victorian Council of the Arts.

The council advises the State Government on the development of the arts in Victoria. Professor Creighton has had a long association with arts promotion and was first chairman of Gippsland's Latrobe Regional Arts Board.

## FRANKSTON

Ms Julie Edwards, lecturer in the School of Early Childhood and Primary Education, has been awarded the Keizai Koho Fellowship.

The fellowship is made possible by funds from the Keizai Koho Centre and the Japanese Internal Affairs Department. Its aim is to make Australian teachers and primary students more aware of Asia, particularly Japan.

Ms Edwards will tour Japan for three weeks later this year as part of her research.

## CAULFIELD

Monash University's Department of Information Systems through its EIS research group is organising an Executive Information Systems Fair.

The fair, to be held at the World Congress Centre on Friday 21 June aims to bring together leading EIS vendors, consultants and interested companies. The fair also intends to raise Monash's EIS profile within industry.

Dr Robin T. Underwood (below), a senior lecturer at the Caulfield division of the Department of Civil Engineering, has been admitted to the degree of Doctor of Engineering at the University of Melbourne.

Dr Underwood already holds the degrees of Bachelor of Civil Engineering and Master of Engineering and the Diploma of Town and Regional Planning from Melbourne University.

His interests are in municipal, highway and traffic engineering. He has written extensively on various aspects of road planning, road design and traffic operations and management.



Students of French at four universities took part in an overseas study program in New Caledonia late last year.

The program, organised by staff from the French departments of Monash, Melbourne and La Trobe universities was attended by 17 students, including some from the University of Tasmania.

Two groups of students - beginners and advanced - took intensive language and civilisation courses, organised by the French cultural exchange centre (CREIPAC). Students were lodged with local families, providing an

opportunity to speak French and learn about daily life in Noumea.

Pictured (below, from top left) are Mr Matthew Carey, Melbourne; Ms Virginia Clarke, La Trobe; Ms Karen Atkins, Tasmania; Ms Catherine Roberts, Melbourne; Ms Charlotte Ostor, Monash; Ms Susan Ackroyd, Monash; (from front left) Mr Sam Wainwright, Tasmania; Ms Lorenne Wilks, Melbourne; and Ms Kristen Reid, Monash.

Planning already is under way for this year's program. For further information, contact Dr Jack Burston on extn 75 2222.





## The solar-powered bamboo music machine



Although most of Ernie Althoff's musical instruments are "in the low-budget realm", the new composer-in-residence in the Music Department still can turn sunlight into percussion.

The solar-powered slit drums and 12 pitch electric machine (left) are just some of his more modest forays into experimental music.

Apart from conducting research into the construction of instruments while at Monash, Ernie will give talks on his other sound sculptures, including the one made from two six-metre bamboo poles – complete with paper sails and wind chimes – exhibited at the 1990 Australian Sculpture Triennial.

The talks will be held on Wednesday 15 and Tuesday 28 May in the Music Auditorium, beginning at 1.10 pm. Ernie, whose residency is funded by the Australia Council, will be at Monash until August.

## Chernobyl survivors find health and hope

A brief respite from the radiation-contaminated area surrounding Chernobyl may have significantly improved the long-term health prospects of a group of Soviet children.

The 42 Soviet children, many of them orphaned or abandoned since the 1986 Chernobyl nuclear reactor explosion, spent last month in Victoria as part of a world-wide UNESCO pilot program to help victims fight the effects of radiation illnesses.

Dr Michael Kidd, of the Department of Community Medicine, medical adviser to the Australian Chernobyl project, said after only one month away from Kiev, the children had shown signs of improvement in their physical and psychological health.

He said when the children arrived in Australia they suffered from headaches, fatigue, anaemia, pallor, recurrent chest infections, nose bleeds, bruising, skin infections and chronic tiredness.

"Several suffer from very serious illnesses believed to be associated with radiation exposure," Dr Kidd said. "While at home they continue to be exposed to radiation through food or the environment.

"Physically, the children became a lot healthier during their stay. They had a lot of energy, a reduction in the level of anaemia, they gained weight (between three to five kilograms each), their skin cleared and they had no significant infections.

"Psychologically, they were a lot happier and brighter and expressed motivation and hope for their own futures. Many of them were living in a family

environment for the first time in many years, and they benefited from the love and friendship in their surroundings."

The program is a joint venture between UNESCO, the World Scout Bureau and the Soviet Children's Fund. In December last year Dr Kidd was among scouting representatives from around the world who attended a Moscow conference to evaluate the pilot program.

Dr Kidd is chair of a health promotion project in association with the Scout Association and the Vic Health Foundation, teaching young people about health and then getting them to educate their peers.

While in Victoria the children, aged from 10 to 14, stayed with host families whose children are involved in scouting and took part in social activities, including a camp.

More than 800,000 Soviet children are living in areas of Russia, the Ukraine and Byelorussia where the radioactive count is significantly above normal. About 40,000 are exposed to very high levels of radioactivity.

"All are at increased risk of developing leukaemia, lymphoma or cancer as a consequence of past and continuing exposure to external and internal radiation," Dr Kidd said.



Dr Michael Kidd.

"Other effects of indirect radiation exposure can include malnutrition, anaemia, carcinoma of the thyroid, hypothyroidism and an increased incidence of tuberculosis."

He said children attending experimental camps in Cuba and the Crimea during 1988 had shown improvements in haemoglobin levels and thyroid function. Significant psychological improvement also had been seen in the 1200 children who took part in the European holiday program last year.

Continued on page 8



The mezzanine level of the Victorian Amateur Turf Club's new grandstand.

## They're racing ... to exams

The new \$40 million grandstand at Caulfield Racecourse will be a major examination centre for Monash University this year.

Mid-semester and final exams will be held at the racecourse, adjacent to the Caulfield campus, on a trial basis.

To familiarise staff and students with the location, the Victorian Amateur Turf Club is holding a *Monash Day at the Races* on Wednesday 5 June.

Holders of Monash identity cards will be admitted to the course free of charge. On the ground floor of the grandstand, displays and entertainment from the university will be presented.

When set up for exams, the three-level grandstand will be able to seat up to 1500 students.

Monash's Comptroller, Mr Peter Wade, said Robert Blackwood Hall and sport and recreation facilities were no longer practical or appropriate as long-term exam venues.

The Caulfield grandstand was suitable for the biggest exams, as well as providing more flexibility for smaller groups due to its separate levels.

It also offered a greater level of student comfort with full carpeting, air conditioning, lifts, escalators and access for disabled students.

He said parking would be made available at the racecourse during exams. Caulfield also was well served by public transport, making it a convenient exam location for students from all campuses.



## Research strategy and funding overhauled

### Integrated plan

Developing an integrated, university-wide research plan is one of the aims of a new advisory committee.

The Committee of Associate Deans – Research has been set up by the Vice-Chancellor to advise deans and faculties about faculty-based and interfaculty research activities. “It follows extensive discussions with all deans and various senior research academics,” Professor Logan said.

“Like the new arrangements for promotions up to and including senior lecturer, the committee is part of a process of devolving to the faculties the prime responsibility for key areas.”

The committee’s faculty representatives are Professors Bellamy, Clark, Freebairn, Ross, Dunstan and Hicks, Associate Professors Rowley and Cherry, Mr M. Davies and Dr Francis.

### Changes strengthen performance: VC

A major overhaul of Monash’s research strategy should place the university in a strong position to attract more funding, according to the Vice-Chancellor, Professor Mal Logan.

Professor Logan recently announced major changes to the administration of research within the university. He said the changes, which were already under way across the university, could only strengthen Monash’s performance.

“It is a fact that we have been nett losers in the clawback exer-

cise – to the tune of \$5.38 million, expressed in December 1989 dollars,” he said.

This was despite Monash’s improvement in Australian Research Council grants, and maintenance of its strong position in National Health and Medical Research Council grants and Grants for Industry, Research and Development.

“The changes I have initiated are aimed at putting Monash near the top of Australian universities in research achievement,” he said.

### Advice from deans

Discussing major research is the role of the Vice-Chancellor’s Advisory Committee on Research.

This committee will receive advice from the Committee of Deans, the Committee of Associate Deans – Research, and other relevant groups.

Its members are Professors Hay, Vaughan, Porter, Rossiter, Crossley and the Vice-Chancellor.

“I have designated research management as the major responsibility of Deputy Vice-Chancellor, Professor Vaughan. As well, Dr Paul Rodan has been seconded to join Mrs Norma Gilbert on research matters,” Professor Logan said.

Significant additional staffing, space and equipment has been allocated to the Office of Research.

## ARC research grants distribution explained

The university has been allocated \$1.37 million of Australian Research Council grants, in proportion to the amount of Commonwealth competitive research grants won over the past two years.

Under ARC Infrastructure (Mechanism A), \$250,000 has been allocated to the library and \$250,000 set aside for large items of equipment.

The remaining \$870,000 has been allocated to faculties according to the funds they received in 1989 and 1990.

The Faculty of Medicine received 51.8 per cent, the Faculty of Science 26.2 per cent and the Faculty of Engineering 15.5 per cent (see figure 1).

Under the 1992 ARC Small Grants Scheme, the university has been awarded a notional \$1.235 million, of which \$30,000 will be disbursed to each of the 10 faculties and Monash University College Gippsland.

The remaining \$905,000 has been distributed on a 75/25 formula based on ARC funds awarded for 1991 (75 per cent) and those requested for 1992 (25 per cent).

The breakdown was: Science 46.2 per cent, Engineering 17.8 per cent, Medicine 13.6 per cent (see figure 2).

Under the Research Initiatives Scheme \$250,000 already has been earmarked on the 1991 budget, CSIRO-Monash Collaboration is \$100,000, Vice-Chancellors Conference Travel Grants \$70,000 and Postgraduate Grants in Aid \$80,000.

Of the remainder, \$30,000 has been allocated to each of the 10 faculties and to MUG.

The rest will be allocated according to postgraduate research student load in each faculty.

Professor Logan said that \$1.9 million had been taken off the top of the 1991 budget for the Monash Graduate Scholarships.

“We now contribute more to the MGS budget than ever before and have a greater number of commencing graduate students than in previous years,” he said.

ARC Infrastructure (Mechanism A)

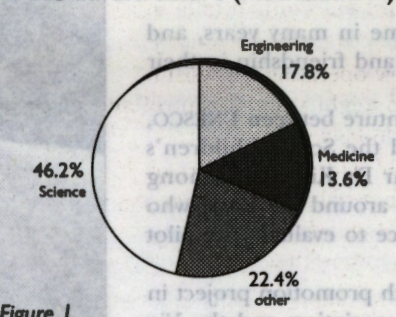


Figure 1.

ARC Small Grants

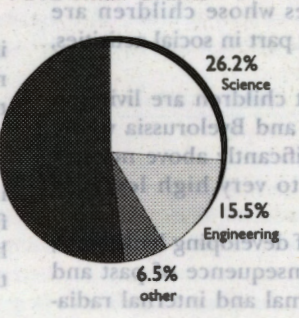


Figure 2.

Full-fee paying overseas students

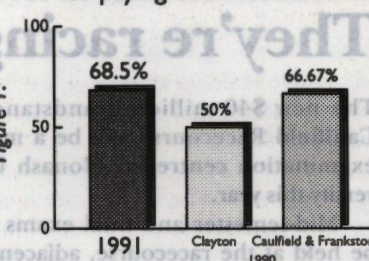


Figure 1.

State Government grants

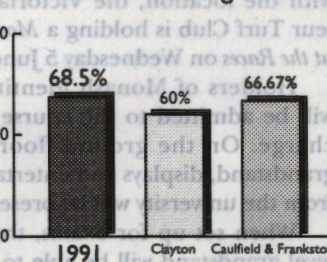
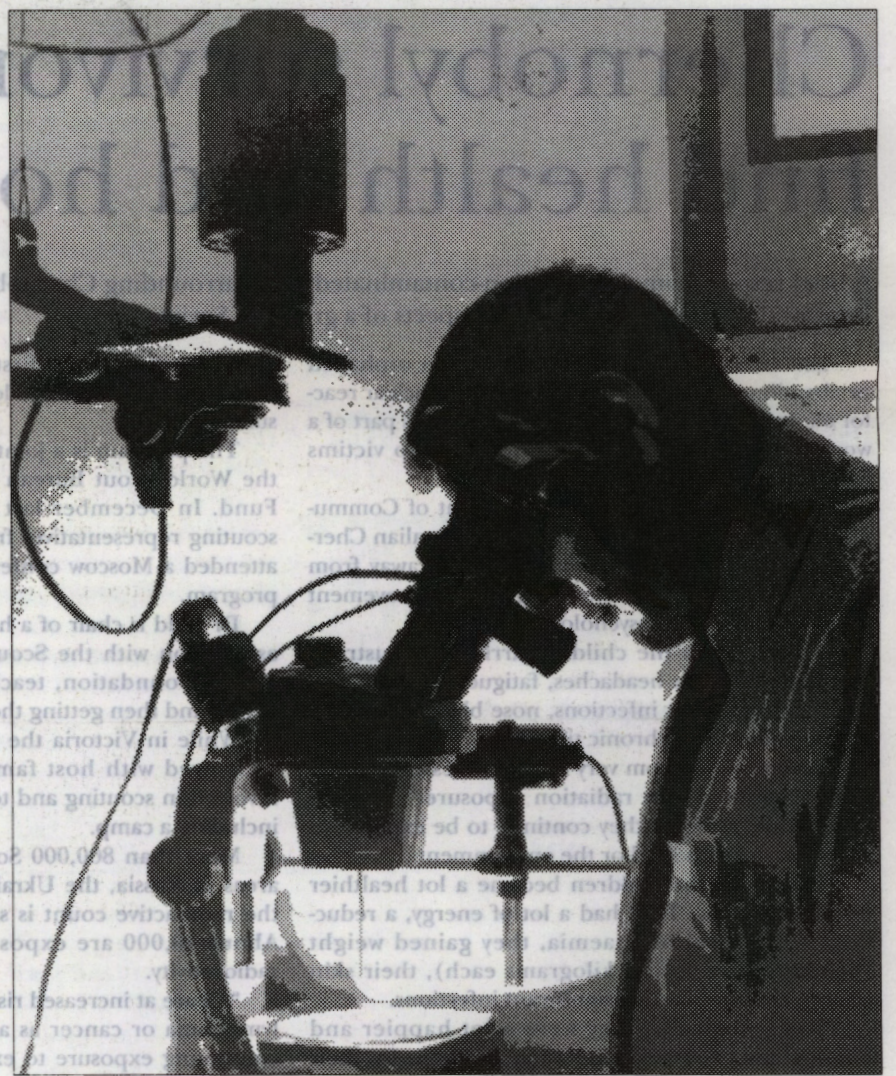


Figure 2.



## Understanding the budget

Teaching and research are the big winners in the 1991 university budget.

Under a major new policy, a specific share of funding is being devoted to these academic activities. At 68.5 per cent, it is the highest of any university in Australia.

It is the same percentage that was applied pre-merger to Monash University Commonwealth Grants, and means the level has been sustained for the post-merger Monash.

There are two major consequences for academic activities:

- The share of income from full-fee paying overseas students has been increased for 1991 to 68.5 per cent, from its previous level of 60 per cent at Clayton, and 66.67 per cent at Caulfield and Frankston (see figure 1);
- The share of State Government grants also has been increased to 68.5 per cent compared with the previous level of 50 per cent at Clayton, and 66.67 per cent at Caulfield and Frankston (see figure 2).

The combined effect is that academic activities have received \$1 million more in 1991 from the income listed in both of the above than would have been the case under the 1990 arrangement.

Full details are available in the 1991 budget book.





Mr Michael Watson and Mrs Diana Appo with paper recycling bins.

## Making paper make money

A pilot paper recycling scheme is up and running at the Clayton campus. The scheme has been dubbed *Re-tree-ve* by its organisers, Senior Assistant Registrar, Mr Michael Watson, and his secretary, Mrs Diana Appo.

After an attempt in 1989 by Central Services to encourage paper recycling, Mr Watson and Mrs Appo worked with Australian Paper Manufacturers (APM) to devise a new scheme.

Mr Watson said the placement of bins had been a problem in the first scheme. "The bins had been scattered all around the campus, mainly in outside locations," he said.

"It was probably the only time in Monash's history that students actually went out of their way to put cans, banana peels and other garbage in the bins provided. The only problem was that they were labelled Paper Only."

The scheme was abandoned, but Mr Watson was concerned about the huge amount of paper generated in his office, the University Secretariat, so he and Mrs Appo contacted APM to see what could be done.

Departments interested in recycling have been encouraged to buy one or more recycling bins and to nominate a recycling coordinator. APM pays \$60 per tonne for paper collected, once the purchase price of \$55 has been covered.

After six months there are 35 bins on the Clayton campus which are picked up weekly from one of six collection points. The scheme is now in the black by about \$500.

Mr Watson said money raised by the scheme would be spent on worthwhile and environmentally sound projects within the university.

With the scheme now operating successfully, he suggested that Central Services might resume control and place it on a professional and university-wide footing.

"It has nothing to do with my mainstream job, it's just something that arose from not wanting to see paper wasted. We've shown it is possible and that there are some genuinely committed people out there willing to give it a go," Mr Watson said.

The recycling scheme was saving money as well as paper.

"We've found the scheme is useful for getting rid of confidential papers. The university has been spending money sending papers to be shredded but now APM pays us to have it pulped. Security is maintained by the departments concerned having locks fitted to their bins," Mr Watson said.

He pointed out that there was not one bin in the scheme from the Menzies Building. "This is the last frontier that could put Clayton into the 50 bin league," he said.

"What is needed though are people keen enough to trundle their bins down to a pick-up point and back up again on a weekly basis. It's a great way to keep fit."

For more information about the scheme contact Mr Watson or Mrs Appo on extn 75 2010.

## Students earn and learn in big business

Business systems students can now earn more than \$11,000 a year – tax free – while still studying.

In conjunction with the Business Council of Australia (BCA) and the Federal Government, the Department of Business Systems has developed a Cooperative Education Program.

Under the program students gain industry sponsorship and work experience while completing their course. Although the program has been operating since 1988, the first group of students has only recently graduated.

In 1990 students were paid \$9300 a year, irrespective of their level, but next year an incremental system will be introduced. First year students will receive \$6000 a year and second and third year students, more than \$11,000.

The program supervisor, Mr Edward Wilson, said companies paid their sponsorship to the university, rather than to students. The university then distributed the money as a scholarship on the basis of academic merit.

With the companies' payments classified as a scholarship rather than income, students had no income tax liability. The normal HECS charges still applied.

He said sponsored students spent 10 months of their course working for companies participating in the scheme. The companies included BHP, National Australia Bank, IBM and Arthur Andersen.

Students gained an understanding of computer applications in business as part of a general grounding in management education, and the program fostered links between industry and the university.

Mr Wilson said students had no obligation to work for a particular company after graduation, just as companies had no obligation to the students.

However, both sides had been happy with the program and, as a result, many students had been employed by companies where they had worked.

The scholarships are available for up to 50 students a year. Non-scholarship students also can enrol for the course, but they undertake elective subjects while scholarship students complete work experience.

## Panorama camera wins world acclaim

Monash photographer Mr Steven Morton has come up with a world first in camera technology. He has designed a 360 degree panorama camera, capable of producing images which can be printed easily on a single page.

Panorama cameras normally have been used to photograph distant scenes, and while they may have a horizontal angle of more than 360 degrees, their vertical angle of view may be only around 50 degrees. This results in a shallow image.

"While the images can be striking, they are impractical to reproduce at any reasonable size in publications and

they are often difficult to enlarge," Mr Morton said.

One of his photographs taken in the Sherbrooke Forest has been included in the prestigious *International Photography*, which features a selection of the best photographs from around the world.

His design – built by Mr Allan Holland, a senior technician in the Faculty

of Science's mechanical workshop – has generated international interest.

The Japanese photographic magazine *Nippon Camera* and the *British Journal of Photography* both will publish articles about the camera soon.

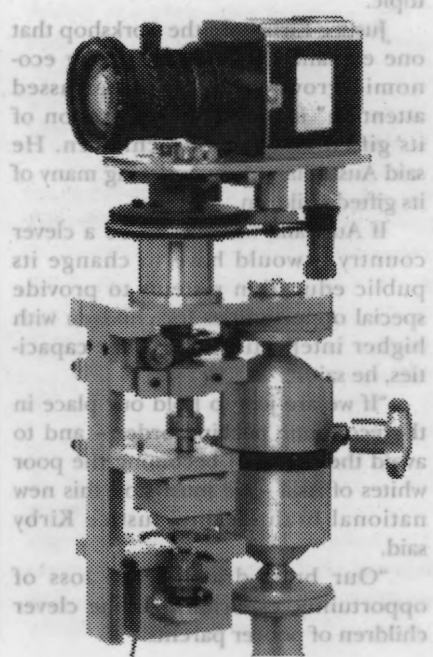
Mr Morton, a senior scientific photographer in the Faculty of Science since 1983, began work on the camera last year.

A graduate of RMIT's photography department, Mr Morton is still a part-time student there, studying for his Masters of Applied Science in Photography.

His master's project is to develop a new camera autofocus system.

The full story about the camera's development as well as two examples of its photographs are in *Research Monash*.

The camera is pictured at right.





## Writing the gifted and talented book

Educators from around Australia literally wrote the book on teaching gifted and talented children during a workshop at Monash last month.

Over just two-and-a-half days, about 70 experts in the field produced a draft of *Teaching Strategies for a Clever Country*, expected to be published in July.

They were attending the national workshop of the Australian Association for the Education of the Gifted and Talented (AAEGT) held from 4 to 6 April at the Krongold Centre.

The 13-chapter book will provide an Australian perspective on teaching children with gifts and talents, according to workshop director, Ms Marilyn Goodall, who is the centre's program coordinator.

"Rather than another conference where presenters talk about what they do, we grouped participants together to write chapters for the book," she said. "At the end of the second day groups submitted their drafts to typists who prepared drafts for editing the next day. An editorial team from the AAEGT council now is preparing the document for publication."

The book, aimed at primary and secondary schools and teachers, provides general information about teaching gifted and talented children, with subjects ranging from organising a school for such teaching to preparing specific lessons.



Ms Marilyn Goodall (centre) with workshop participants.

The guest speaker at the workshop's dinner, Justice Michael Kirby, who is the AAEGT's patron, will write a forward to the book.

Ms Goodall said the workshop had been so successful that the AAEGT hoped to use the method again to write a book which addressed a specific topic.

Justice Kirby told the workshop that one explanation of Asia's strong economic growth was "unembarrassed attention" it paid to the education of its gifted and talented children. He said Australia was squandering many of its gifted children.

If Australia was ever to be a clever country it would have to change its public education systems to provide special opportunities for children with higher intellectual and other capacities, he said.

"If we are just to hold our place in the economic pecking order – and to avoid the threat of becoming the poor whites of Asia – we must stop this new national brain-drain," Justice Kirby said.

"Our brain-drain is the loss of opportunity, especially for the clever children of poorer parents."

## State-of-the-art computer network connects campuses

A state-of-the-art computer network, now being installed at Monash will bring the campuses closer together, according to the Director of the Computer Centre, Mr Peter Annal.

The Ethernet network will allow for fast information transfer in an expanded network, giving access to institutions around the world.

"Ethernet is a great technological step forward for Monash. It allows a link with the computer down the hall, across the campus, on the next campus, or even across the continents. Files which were originally sent through the regular mail now will be delivered electronically," said Mr Annal.

"Eventually even reports or meeting minutes will be sent through the network – speeding delivery, aiding interaction and reducing the need for hard copies."

Ethernet operates at speeds up to 10 million bits per second, compared with MONET which operated at about 9600 bits per second. MONET, installed 10 years ago, is in widespread use around Monash. It connects computers to the mainframe, allowing access to information stored in the central system.

The Computer Centre is responsible for the complex activities required for the Ethernet's configuration, installation and operation.

Until this year a fee of \$10,000 was charged to bring an Ethernet connec-

tion into a department on the Clayton campus.

The University has set funds aside for the first stage of Ethernet connections for all faculty offices. This will spread the infrastructure over a wide area of the university, and make all sub-

department. Funds have yet to be earmarked for this purpose. A third step will be to extend Ethernet connections in departments. This is expected to be funded by departments according to their needs.

All people using the network have an electronic mail address identifying the domain (eg, Monash University), and a subdomain (eg, an administrative or academic department). Using the mail address the Computer Centre is able to exercise control over which people may access specific computer resources in the network.

"The number of personal computers and powerful workstations being used has increased dramatically on campus, creating the need for networking capabilities for people to share information with colleagues," Mr Annal said.

"The coordination of networks and decentralisation of computers allows computing power to be installed where it is needed while retaining the information-sharing facilities of mainframe computers."

Ethernet also allows access to AARNet, the Australian Academic and Research Network, which provides network connections to nearly all higher education institutions in Australia. AARNet also provides links to CSIRO, and worldwide links to countries including the USA, Canada and many European and Asian countries.



Ethernet enables high-speed communication between campuses and across the world.

sequent connection easier. Optical fibre cables are being laid to accommodate new connections.

The second stage of development will be to supply a connection for each

## University opens up to parents



More than 500 parents of first year students attended parent orientation day at the Clayton campus on 14 April. The Vice-Chancellor, Professor Mal Logan, spoke to parents about the role and function of the university. He emphasised the opportunities it presented for the testing and forging of new ideas, and for free discussion and debate.

Ms Katherine West, addressed the group from a parent's perspective. "Education is about developing character and having the character to speak out. The function of a university is to teach courage," she said.

Above, the Dean of Engineering, Professor Peter Darvall, addresses parents of engineering students.



# RESEARCH

## MONASH



A view of Sherbrooke Forest, similar to the one included in *International Photography*, which features a selection of the world's best photographs.

## Discovering a different perspective

*Since the invention of photography, 360 degree images have been a source of fascination. Monash photographer Steven Morton has designed a camera which provides a unique viewpoint.*

The human eye sees the world very differently to any camera, challenging photographers and film-makers to capture in two dimensions, images that approximate the human perspective. The first continuous photographs were produced in the 1840s, only a few years after the invention of photography.

Last year Monash University palaeontologist Dr Pat Vickers-Rich asked senior scientific photographer in the Faculty of Science, Mr Steven Morton, if it was possible to produce 360 degree close-up images of forested environments in the Otway Ranges to help illustrate a forthcoming book on dinosaurs. The request posed many technical challenges.

The few commercial 120 mm and 70 mm medium format panorama cameras which are available today usually use 50 mm, 65 mm or even longer focal length lenses. While the images can be striking, they are impractical to reproduce at any reasonable size in publications and they are often difficult to enlarge.

Panorama cameras normally have been used to photograph distant scenes. While they may have a horizontal angle of more than 360 degrees, their vertical angle of view may be only

around 50 degrees. The resulting images are shallow; consider how little vertical movement is demanded of the human eye as it takes in a distant mountain range.

But for somebody standing in the middle of a forest glade, the horizon is defined by the nearby vegetation, and the eye must move vertically through a much larger arc to take in the view from the forest floor to the canopy.

To approximate this view and produce images with much greater depth in relation to their width would require a lens of much shorter focal length with a wide covering power.

Designing a camera to obtain images of closed-in environments posed other problems. It would have to be capable of working at long exposure times because such environments offer less light. And any pronounced variation in exposure from one part of the scene to another – whether due to

unevenness in ambient light levels or slight variations in the camera's panning speed – would result in an unevenly exposed image.

Mr Morton decided to design a panorama camera around a 28 mm perspective correcting lens to provide the necessary vertical depth in a two dimensional image, while reducing a 360 degree image to less than the width of a single page.

He took his design to Alan Holland, a senior technician in the Faculty of Science's mechanical workshop in the Physics Department, who spent many weeks building it. Mr Morton describes the camera, which is unique in the world, as being "over-engineered" to ensure its reliability.

With the Nikon 28 mm PC lens, the camera produces a 360 degree image 56 mm high and 180 mm wide. The vertical angle of view is 110 degrees, representing almost two thirds of the full arc that a human would observe by moving his gaze from his feet to a point vertically above his head.

Building a wide format 70 mm panorama camera probably would have been easier, but few emulsions are available for low light conditions in this format and 120 is much easier to get processed. The 120 roll is long enough to provide a continuous exposure spanning more than four 360 degree rotations.

The film movement mechanism consists of a mechanically driven capstan that holds the film taut by pressing it against one of the two spools as it

passes the slit. A special clutch mechanism compensates for the progressive change in the effective diameter of the spool holding as it winds up.

The drive roller is linked by gears to the main drive, so that the speed of film movement is precisely synchronised with the camera's rotation as it pivots through 360 degrees.

Planetary gear modules can be combined to provide different exposure times, ranging from 1/30th of a second to two minutes. One 360 degree rotation can take from five seconds to five hours, depending on the light conditions. Further flexibility can be obtained by varying the voltage to the drive motor, doubling or quadrupling basic exposure times.

The camera stands about 40 cm tall, without its tripod, and weighs 7.5 kg, due to its complex and robust construction. It uses a Hasselblad 70 mm magazine, large enough to contain the film spools and drive roller while being completely light-proof.

The whole camera rotates about a point aligned with the rear nodal point of the lens, to provide an image that most closely approximates the view seen by somebody turning on a fixed point through 360 degrees.

Further modifications are planned to reduce the camera's size and weight. Mr Morton is planning to incorporate a transmission with a shift mechanism similar to a car gearbox so that the 12 volt DC motor can be adjusted easily to different rotation rates, depending on the exposure time required.

The combination of natural gloomy conditions in the closed temperate forests of the Otways, and the need for the diffuse, even lighting which occurs only on heavily overcast days, results in very long exposure times. If the scene is to remain sharply in focus, there must be no wind movement.

Mr Morton says these problems, inherent in the subject matter rather than the camera's design, will limit its use to closed environments, including the interiors of buildings. It is not suited to landscape panoramas of mountain ranges on the distant horizon.



A view from the third floor of the Menzies Building, Clayton campus.



# Divining aluminium's secrets

*Aluminium foil is such a familiar product that we take its remarkable properties for granted. Research student Ms Lisa Hazelden has been trying to improve modern foils using a technique invented over a century ago.*

The aluminium foil that has become so indispensable in the kitchens of modern households can seem a rather mundane material. But Monash research student Ms Lisa Hazelden knows otherwise: its performance and resistance to tearing depends on some subtle metallurgy.

For her PhD thesis, Ms Hazelden has conducted research into the performance of several aluminium alloys using a technique called strip casting.

The technique itself is not new (it was invented in 1854 by Sir Henry Bessemer) but the research is covering new ground in aluminium production.

The world market for aluminium foil is very competitive; each company seeking a market edge by producing better quality products at lower costs. Strip casting has the potential to do this.

Ms Hazelden's work in the Department of Materials Engineering, supervised by Associate Professor Brendon Parker, is sponsored by the Swiss aluminium company Alusuisse.

Her research project investigates how the different operating conditions which occur during strip casting – in particular the very high cooling rate – can be exploited to produce products with an improved performance.

In strip casting, molten aluminium is cast between two rotating water-cooled

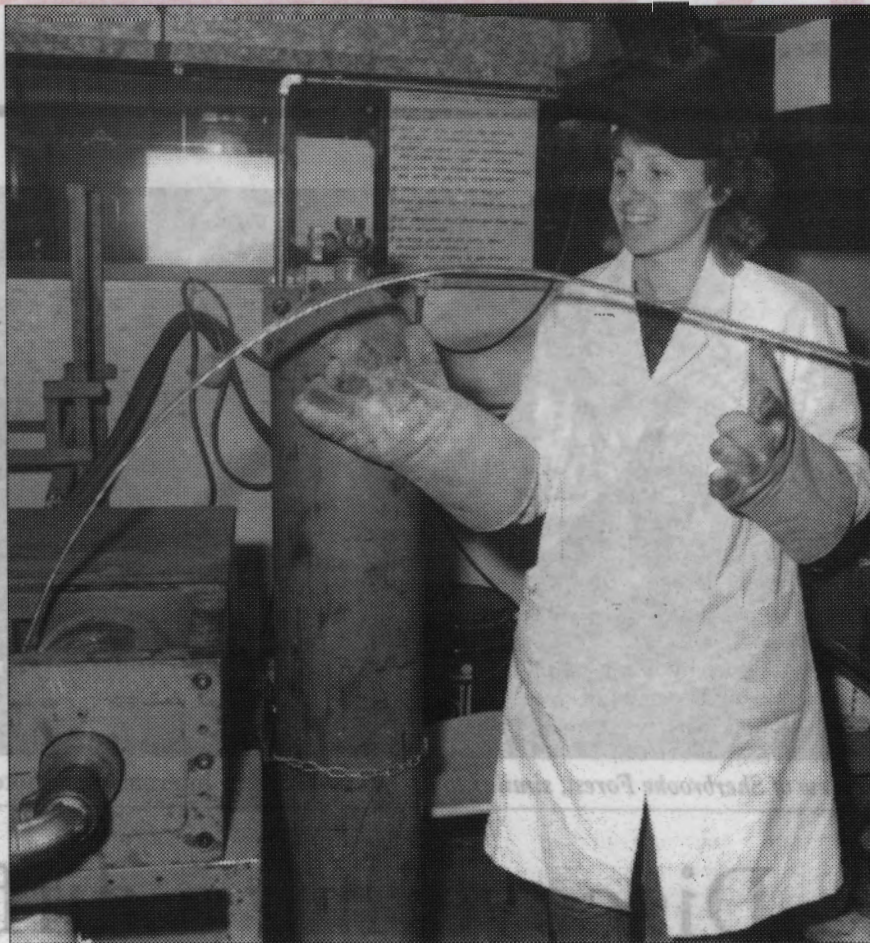
rolls, emerging as a strip only a few millimetres thick.

The process offers considerable advantages over the conventional method of casting alloy slabs a few hundred millimetres thick which are then rolled down to the required thickness.

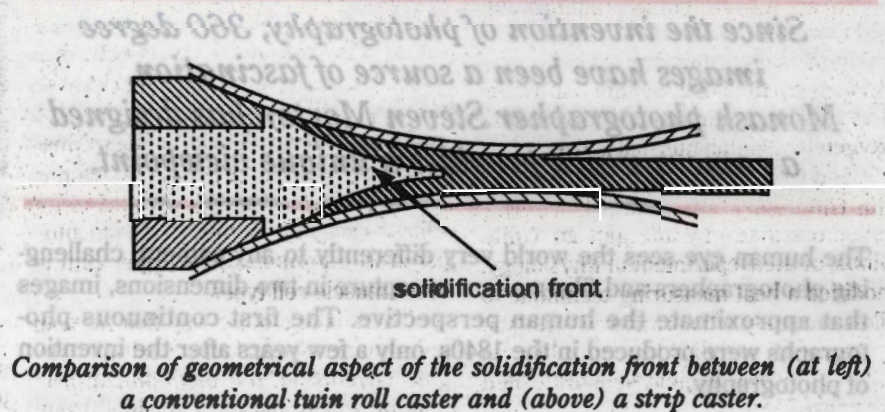
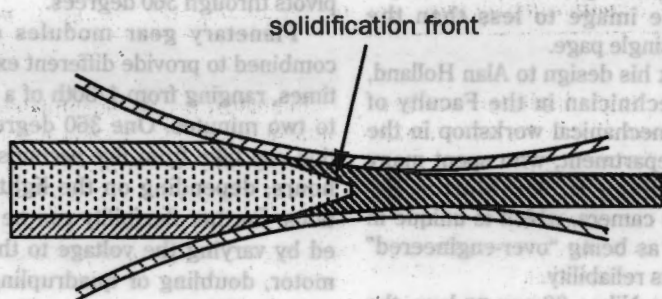
Conventional casting uses more energy and requires a greater investment in capital equipment than does strip casting.

There also are significant differences between the structure and properties of strip cast alloys when compared with the products of conventional casting. The laboratory work aims to exploit the benefits of the process and solve its production problems.

Industrial strip-casting machines are too large and expensive to operate for experimental runs involving small quantities of material. So the production research has used a laboratory-scale strip casting machine designed by Dr Parker and Mr Geoff Geist, and built by Mr Jim Hobson and his team in the Materials Engineering workshop.



Research student Ms Lisa Hazelden with an extruded aluminium strip.



Comparison of geometrical aspect of the solidification front between (at left) a conventional twin roll caster and (above) a strip caster.

The machine produces an alloy strip about 3 to 4 cm wide, and about 5 mm thick. After casting, the strip is cold rolled to foil of various thicknesses

between 6 and 100 microns. Six microns is a typical thickness for household aluminium foil.

Heat treatments are then applied at various stages. The properties of the finished foil vary according to a complex interplay of factors including the composition of the alloy, the casting conditions and the rolling and heat treatment conditions.

Aluminium foil is not pure aluminium, but contains small quantities of other elements. The principal alloying elements studied in Ms Hazelden's research are iron and silicon.

These elements often are regarded as impurities in aluminium alloys and costly procedures are used in industry to reduce their levels. Under the relatively slow solidification conditions in conventional casting, the iron and silicon form as quite large intermetallic particles.

The higher rates of solidification that can be achieved with strip casting technology lead to changes in the structure of aluminium-iron-silicon alloys.

More of the silicon and iron are retained in solution and their precipitation, in the form of fine particles, can be controlled during the later stages of processing.

When the cast strip is heat-treated prior to rolling into its final thickness, the added elements form precipitates which give the foil extra strength. Strip casting also tends to reduce porosity and eliminate defects.



Associate Professor Brendon Parker and Ms Lisa Hazelden with the laboratory-scale strip casting machine.



# Revealing the heart through heat

*Studying the human heart poses special problems for researchers. Dr Colin Gibbs and his team are working towards understanding the heart's energy usage by measuring the minute changes in heat produced by its biochemical activity.*

A healthy human heart will beat at least three billion times during its owner's lifetime, without maintenance or repair. It is the nearest thing to a perpetual motion machine known to science.

The heart is a muscle unlike any other because it can never rest. Skeletal muscle can go temporarily into oxygen debt by breaking down carbohydrate into lactic acid as a temporary energy source. The debt, in the form of the toxic by-product lactate, is repaid later when the muscle is at rest.

Anaerobic activity is not an option for heart muscle because, even at its lowest level of activity, it demands large amounts of oxygen. Dr Colin Gibbs, of the Department of Physiology, says this high oxygen demand poses special problems for researchers studying isolated cardiac muscle to understand its unique biochemistry, and how pathological conditions affect heart muscle structure and function.

Deprived of its normal oxygen supply, heart muscle behaves abnormally and may suffer permanent damage. The study of isolated heart muscle is constrained by the small amounts of tissue that can be adequately perfused with oxygen to maintain normal activity.

As a postgraduate research fellow at the University of Los Angeles in the 1960s, cardiac physiologist Dr Colin Gibbs, of the Department of Physiology, modified a heat measuring technique to allow the study of heart muscle using an instrument called a thermopile – a miniature array of heat sensors called thermocouples.

Biochemical reactions involving muscle contraction and oxygen usage generate heat. The challenge is to study

rapid temperature changes of the order of a thousandth of a degree, in real time, and at sufficiently high resolution to reveal molecular-scale events in very small samples of cardiac muscle.

With the aid of a skilled instrument maker, Dr Gibbs and his team of physiologists and biochemists has made significant contributions to understanding the energy usage of the heart.

Dr Gibbs says that when the heart contracts, cardiac muscle breaks down an energy-rich molecule called adenosine triphosphate (ATP). In the rest phase between heartbeats, depleted ATP molecules are recharged by a second energy storage molecule called creatine phosphate, while ATP is continually being produced by a process called oxidative phosphorylation.

Adenosine triphosphate is the product of a cascade of biochemical reactions that occur in tiny cellular powerhouses called mitochondria. The enormous energy demand of heart muscle is underscored by the fact that some 20 to 30 per cent of the volume of its cells is occupied by mitochondria, compared with no more than 10 per cent in other muscle cell types.

There is one other way that ATP can be produced without the need for oxygen. Glycolysis, the biochemical process by which energy is obtained from glucose, also produces ATP but it is less efficient and its breakdown products feed back and inhibit the energy cycle.



*Dr Colin Gibbs with a thermopile, used for measuring heat change in muscle.*

Dr Gibbs says depleted energy stores must immediately be replenished to keep the cellular economy in equilibrium. It is not yet clear how heart muscle keeps its energy budget balanced against the fluctuating demands imposed by its owner's activity.

"Before we can say what happens in certain pathological conditions, we have to know how cardiac muscle works normally," Dr Gibbs said.

"One line of our work involves trying to understand the components of the energy balance sheet. The other is applied, and involves studying pathological conditions that affect the heart's energy output.

"For the past four or five years we have been looking at the response of cardiac muscle to conditions that overload the heart, of which there are two main types.

"One is pressure overload, where the heart has to eject blood into peripheral circulation against high pressure caused by conditions like atherosclerosis, which leads to hypertension, or by a narrowing of the valves leading from left ventricle, where blood leaves the heart and enters the peripheral circulation system.

"The other type of overload occurs where too much blood comes in on the input side. This causes volume overloading, in which the heart is being distended during rest periods by unusually high volumes of blood. It can be caused by defective valves that leak when they should be completely closed."

Dr Gibbs says that in both cases, the heart attempts to cope by becoming larger; a condition called hypertrophy. But because heart muscle cannot lay down new cells, this can only happen if existing cells become longer and wider.

In healthy people like athletes this is a normal response, accommodated by superior lung function and an unobstructed circulatory system. But a person with a pathologically stressed heart typically has impaired circulation in the coronary arteries that keep the heart supplied with oxygen.

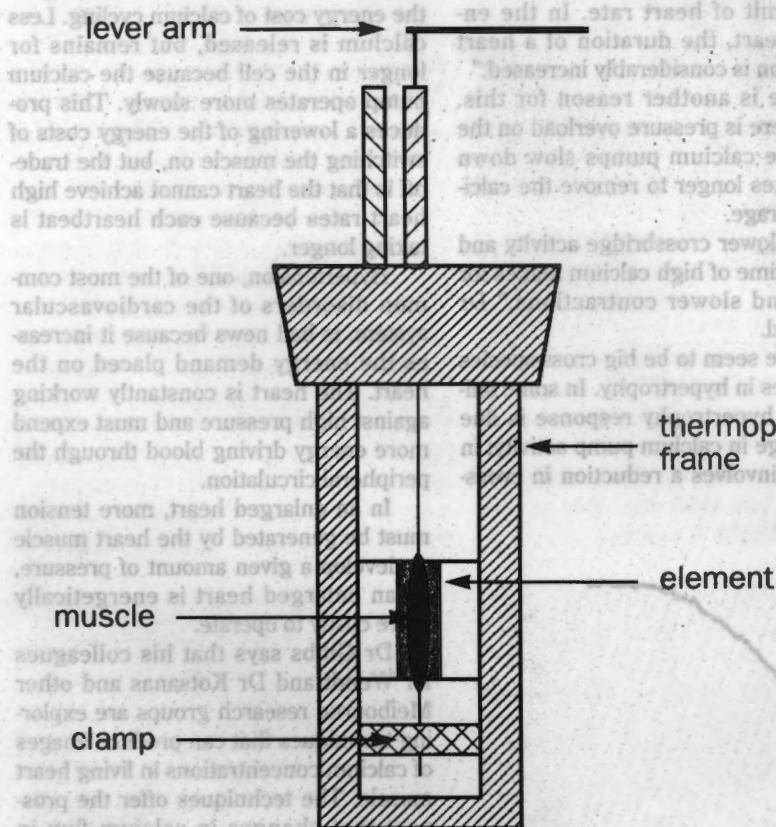
In cardiac muscle each individual cell is supplied with oxygen by its own capillary. As cells become larger there is inadequate oxygenation of their centre, placing the mitochondria under oxygen stress. Energy (ATP) production becomes impaired, making sustained or vigorous activity potentially dangerous.

While living human heart muscle cannot be studied in situ, Dr Gibbs says some of these pathological conditions can be modelled by surgically overloading animal hearts. Also there are certain strains of rodents that are genetically predisposed to develop hypertension, just as occurs in some humans.

Dr Gibbs' team takes muscle samples from hearts of pressure- or volume-overloaded rats, or from hypertensive rats. They select the papillary muscles that emerge from the walls of the ventricles and assist the normal operation of the valves of the heart.

Using the thermopile technique to study these small cardiac muscle preparations, the team has been studying various components of the energy balance sheet of normal and abnormal hearts.

In cardiac muscle the basal metabolic rate (the amount of energy consumed in the relaxed state) is some four to five times higher than in skeletal muscle, so that it constantly consumes large amounts of oxygen.



*A schematic diagram of a miothermic apparatus. The frame provides a heatsink for the cold junctions of the thermopile, while the muscle lies directly on top of the hot junctions.*

*Continued on Research Monash 4*



# Chemistry of the heart

From Research Monash 3

"This is part of problem of flying hearts around Australia for transplantation," Dr Gibbs said. "In the absence of the normal coronary circulation, you have only a limited time before damage occurs.

"Chilling the heart to around 12 to 15 degrees reduces its metabolic demand, but surgical teams are now trying to perfuse the isolated heart to establish some sort of oxygen supply, or are experimenting with drugs that damp down metabolic demand.

"Our laboratory is interested in this component. In a normally beating heart we would expect that possibly 20 to 25 per cent of the oxygen being used is going to basal or resting metabolism.

"That's a very big energy demand, and we don't really understand the exact molecular basis of this high resting energy flux."

Dr Gibbs' team has been able to identify and quantify several of the energy-consuming processes in the cell. One is a sodium-potassium pump in the cell membrane that maintains the cell's electrical potential by controlling the distribution of potassium ions across the membrane during normal cellular activity.

The membrane pump, powered by ATP, pumps sodium out of the cell and potassium into the cell. Although the process is energy intensive, Dr Gibbs says it accounts for only some 10 to 15 per cent of the energy involved in basal metabolism.

Another 15 to 20 per cent is consumed in the breakdown and resynthesis of the contractile proteins, myosin and actin, whose ratchet-like molecular interaction allows cardiac muscle fibres to develop pressure and to shorten with each heartbeat.

"Some of our colleagues in New Zealand believe that the mitochondria themselves set up a significant energy drain in their own right; the energy is used to set up proton gradients across mitochondrial membranes," Dr Gibbs said.

"But all of these processes probably account for no more than 60 per cent of basal energy consumption. What are the other energy-consuming processes, and why is the basal metabolic rate so high?"

In some pathological conditions, Dr Gibbs says, basal metabolism may ultimately fall to half the normal level. Some insult to the heart initially stimulates basal metabolism, but it then declines.

"This initial stimulation may relate to the cost of synthesising more protein to enable the heart to enlarge," he said. "But once the enlarged heart is established, it has bigger cells so it may be energetically less costly to maintain its

membrane potential and hence may lower basal metabolism."

Dr Gibbs says certain drugs used to treat cancer may produce cardiac failure as a side-effect, particularly in children. Some of these drugs appear to depress basal metabolism in animal models.

The other 75 per cent of normal cardiac metabolism is associated with contraction. The contraction that occurs during a heartbeat begins as an electrical impulse that propagates like a wave throughout the heart. At the wave front, cells depolarise; calcium ions flood into the cell interior, activating the contractile proteins.

As the wave of depolarisation passes, intracellular calcium must be restored to its normal, low levels, allowing cells to relax while their ATP level is restored.

Some of the calcium needed for muscle activation enters the cell from the external reservoir of fluid between individual cells; other calcium is released from an organelle within the cell, the sarcoplasmic reticulum.

A calcium pump on the sarcoplasmic reticulum draws the calcium ions back into storage, while other calcium pumps on the outer cell membrane pump calcium into interstitial fluid. Both pumps consume ATP - they account for some 25 per cent of total energy consumption - but this still leaves at least 50 per cent of the cell's energy consumption unaccounted for.

Dr Gibbs says much of this energy seems to be expended in the interaction of the contractile proteins, myosin and actin.

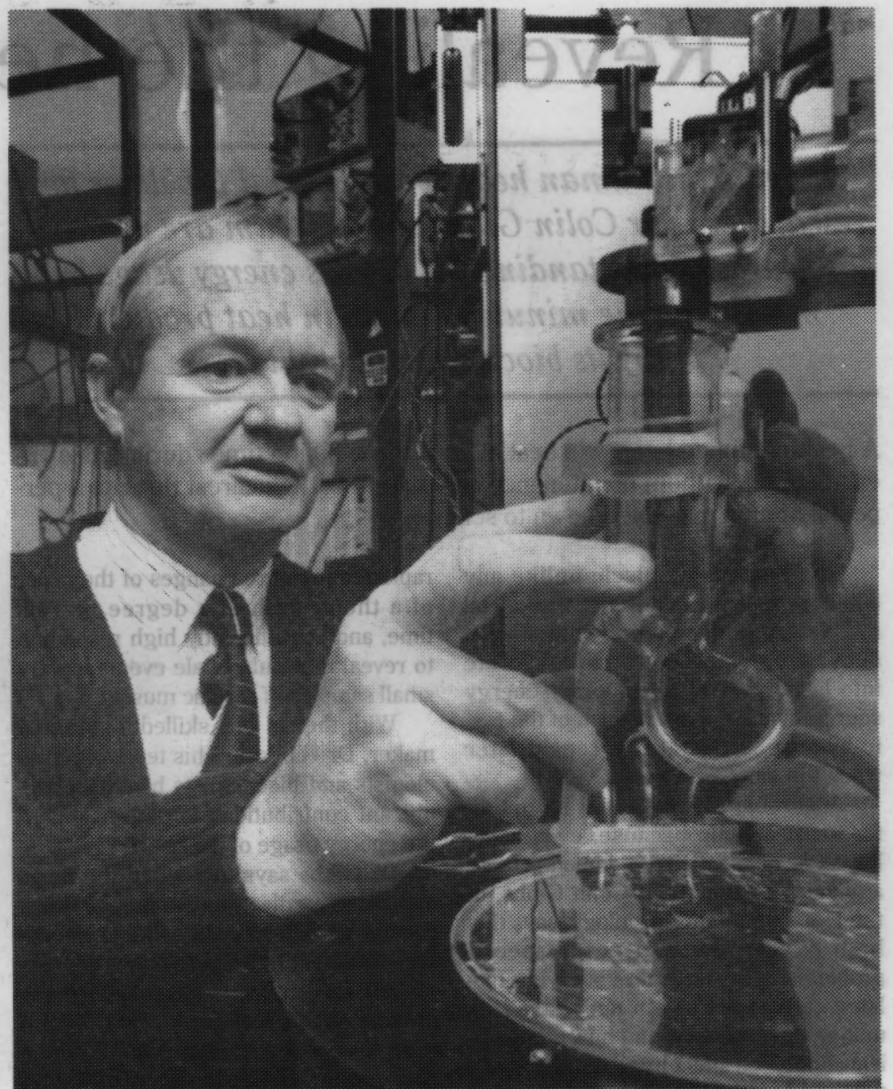
The ratchet-like interaction that causes the fibres of the cell to shorten and to develop pressure and to do work involves the conversion of biochemical energy, in the form of ATP, into the mechanical energy of ratcheting.

The catch-and-release interaction of myosin and actin molecules is controlled by another protein, troponin. Calcium ions must bind to troponin before the myosin ions bridges can interact with actin; as calcium is pumped away the bridges detach. The crossbridge action is not unlike the synchronised pull of a rowing shell's oars on the water, and in common with rowing is very energy intensive.

The rate of contraction is fundamentally limited by how fast specialised enzymes called ATPases can liberate the energy of the ATP molecule to power the myosin-actin ratchet.

"There is a huge range of myosin ATPase activity across the animal kingdom," Dr Gibbs said.

"If you extract myosin and actin from cardiac cells and measure how fast they consume ATP under test-tube conditions, there is a wide range of activity



Dr Colin Gibbs: "We have to be careful when extrapolating from animal models to humans."

in different animals, which is basically related to the heart rate of each species.

"In some small birds the heart works at 1000 beats per minute. The rat heart rate is about 300, compared with about 70 in humans. In general, the higher the heart rate, the more rapidly these crossbridge mechanisms must operate.

"Interestingly, this rate of ATP breakdown (energy usage) seems to be controllable, and it changes in certain pathological situations, especially in pressure overload situations.

"The enzyme seems to change to a fairly slow form, so that the crossbridges cycle more slowly, reducing the upper limit of heart rate. In the enlarged heart, the duration of a heart contraction is considerably increased."

There is another reason for this. When there is pressure overload on the heart, the calcium pumps slow down and it takes longer to remove the calcium to storage.

"So, slower crossbridge activity and a longer time of high calcium makes for longer and slower contractions," Dr Gibbs said.

"There seem to be big cross-species differences in hypertrophy. In some animals the hypertrophy response is due to a change in calcium pump activity; in others it involves a reduction in cross-

bridge activity. In other species, both are involved.

"So we have to be careful when extrapolating from animal models to humans. We are also looking at the various energy components, asking whether mechanical efficiency is lowered, or if the ability of cardiac muscle to shorten is depressed."

Dr Gibbs said that, surprisingly, there seemed to be little or no reduction in the mechanical efficiency of the myosin-actin ratchet in enlarged hearts, but there was a reduced ability of the cells to shorten, so that individual cells were doing less work per beat.

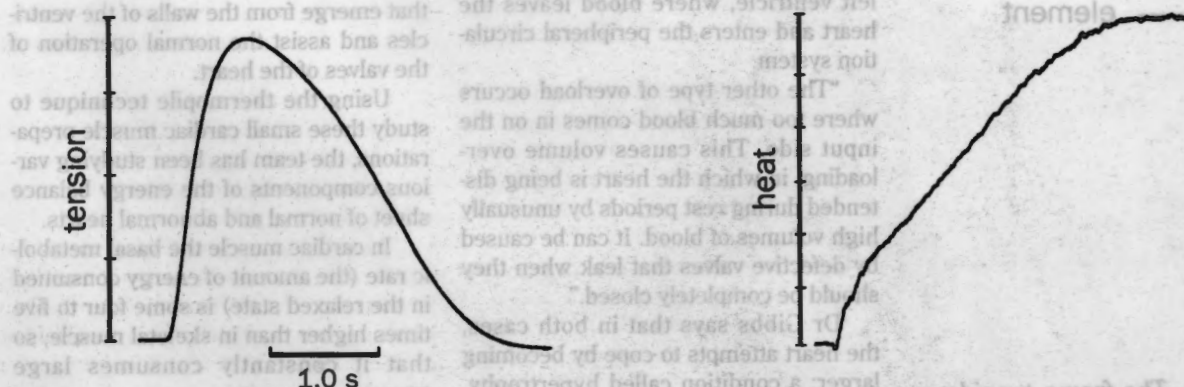
This, he says, reflects a saving in the energy cost of calcium cycling. Less calcium is released, but remains for longer in the cell because the calcium pump operates more slowly. This produces a lowering of the energy costs of switching the muscle on, but the trade-off is that the heart cannot achieve high heart rates because each heartbeat is taking longer.

Hypertension, one of the most common disorders of the cardiovascular system, is bad news because it increases the energy demand placed on the heart. The heart is constantly working against high pressure and must expend more energy driving blood through the peripheral circulation.

In an enlarged heart, more tension must be generated by the heart muscle to develop a given amount of pressure, so an enlarged heart is energetically more costly to operate.

Dr Gibbs says that his colleagues Dr Wendt and Dr Kotsanas and other Melbourne research groups are exploring techniques that can produce images of calcium concentrations in living heart muscle. The techniques offer the prospect that changes in calcium flux in hypertrophic muscle can be monitored dynamically during a single heartbeat.

"Our feeling is that the calcium story will turn out to be more important than the crossbridge story, so we're very keen to try these new techniques," he said.



A single contraction of rabbit heart muscle is shown at left, with the associated heat output at right.



## Drafting buildings for high winds

*Skyscrapers have become a familiar part of city landscapes around the world. Professor Bill Melbourne's pioneering work on the wind resistance of such structures is influencing the design of cities of the future.*

A large room on the ground floor of the Mechanical Engineering laboratory is occupied by 1:400 scale models of the central business districts of Australia's capital cities.

Dominating the Brisbane model's skyline is a metre-tall building that towers over all its companions – in the real world it would have been 400 metres tall, more than 50 per cent taller than Melbourne's 260 metre Rialto building.

As originally conceived, it would have been the tallest building in the world at 460 metres, some 20 metres taller than Chicago's Sears Building. It was never built – but it could have been, and may yet be.

Professor Bill Melbourne, of the department of Mechanical Engineering, is proud of the design he helped to develop. Rearing almost half a kilometre into the sky, its upper levels would have been exposed at least once a year to wind gusts of 140 km/h.

Tapering smoothly from its rounded triangular base to an approximately circular peak, the giant building distils Professor Melbourne's quarter-century of expertise in predicting the behaviour of tall buildings in high winds.

Professor Melbourne is a world leader and writer on designing for tall buildings to resist wind. His research group was a key contributor to the development of the Australian wind-loading code, which specifies minimum standards for the wind performance of all buildings, from city office towers and stadiums to shopping centres and domestic dwellings.

The standards draw upon years of fundamental research by Professor Melbourne's group into patterns of air flow over and around bluff (non-aerodynamic) structures. In contrast to an aerofoil shape like an aircraft wing,

where the flow remains in smooth contact with the surface, bluff structures cause air flows to separate from their surfaces, setting up turbulence.

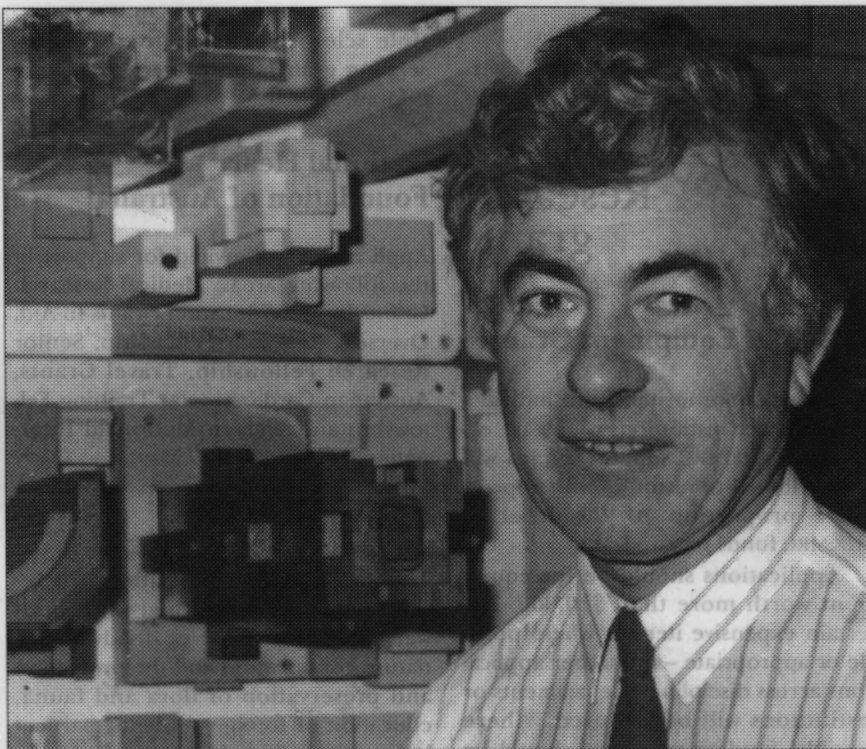
The failure of engineers and architects to appreciate the difference between bluff body and aircraft aerodynamics and the behaviour of turbulent air flow has led to such disasters as the collapse of the Tacoma Narrows suspension bridge in Washington State in 1940. More recently, Chicago's lofty new Hancock building suffered major glazing failure in high winds, and cost millions of dollars to repair.

Professor Melbourne's studies using Monash University's wind tunnel showed that the central problem in designing for wind resistance in bluff structures is not necessarily the wind pressure on the windward face of the building. Rather, it is the effect of winds flowing along the sides of the building.

The wind flow tends to separate from the surface, creating vortices. Low-pressure regions develop at the core of the vortices, producing very large outward-acting forces that cause the walls to flex outwards into the low-pressure region.

Vortices arise and dissipate at a characteristic frequency that varies with the design of the building and the prevailing wind speed. The regular flexing that occurs on the building's facade can be destructive, particularly to glazing elements.

Even though the structure is quite safe, the building will oscillate at its natural frequency, causing accelerations



Professor Bill Melbourne: "A structure can be extremely strong, yet still not adequate enough to resist acceleration caused by the wind."

that can induce motion sickness among the occupants. Professor Melbourne's research has been instrumental in helping architects and engineers in Australia and around the world to minimise such problems.

"A critical factor in the design of tall buildings is to maintain motion levels within acceptable limits," Professor Melbourne said. "The design of a building is more often dictated by the need to minimise acceleration for occupant comfort than by its ultimate requirement for strength."

"A structure can be extremely strong, yet still not adequate enough to resist acceleration caused by the wind."

"The aim should be to keep the maximum acceleration level below 0.01 G (G is the natural acceleration due to gravity) during the maximum wind gust that might be expected in a normal year. People can detect accelerations as small as 0.005 G, while a 20 year storm might produce accelerations as large as 0.025 G."

Vortex shedding at the same frequency as the natural frequency of a structure could occur at quite low wind speeds.

"This was not well understood until recent times," he said. "A structure responds at one of its natural frequen-

cies, so that a small amount of energy applied at that frequency can generate large accelerations, in much the same way that a small, regular push on a swing at the right time of its cycle will produce large-amplitude oscillation.

Professor Melbourne says it was this type of oscillation that destroyed the Tacoma Narrows Bridge. A second effect develops when a structure reaches a certain amplitude of oscillation – its own movement begins to dictate the rate of vortex-shedding, locking the structure's movement into an increasingly violent cycle that ends in destruction.

"We began by studying the mechanisms underlying this behaviour. Having understood the mechanisms, we were able to define the loads that must be accommodated by the design, and then design for those loads."

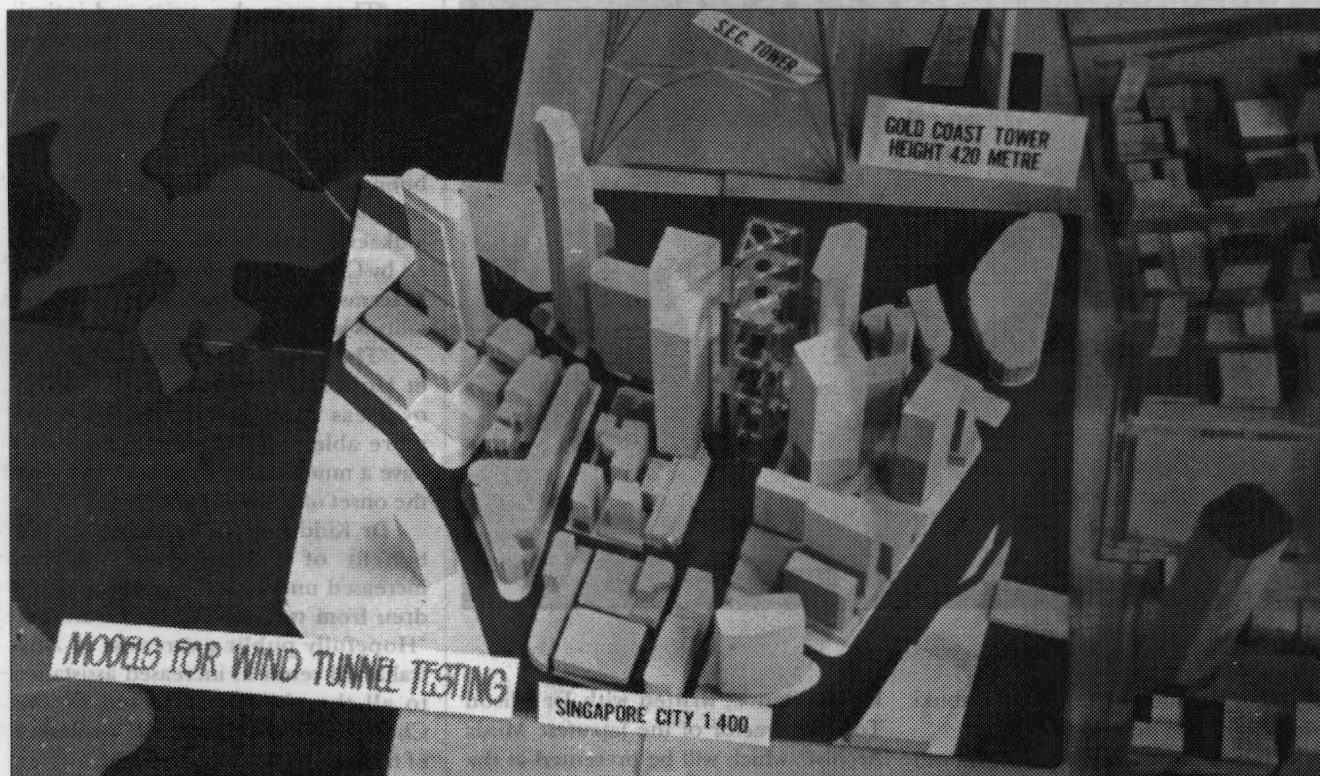
One of the Monash research group's innovations was a slotted leading edge for stadium roofs. The new Parramatta Stadium in Sydney employs this design: air currents bleeding through the slots exit from the surface of the roof, where it interferes with the formation of vortices that might otherwise lift off the roof.

The new Southern Stand at the Melbourne Cricket Ground employs a different design, but the same principle: the roof is made aerodynamically porous by slots above the main beams, rather than on the leading edge. A huge new soccer stadium built in the Saudi Arabian capital of Riyadh also exploits the slotted leading edge design. The English designers borrowed the idea after reading one of Professor Melbourne's research papers.

Professor Melbourne says the problem of resonant oscillation of tall buildings has become worse in recent years.

In the US, architects have designed many tall structures of lightweight glass and steel, and failed to build in devices to dampen motion. Some designers have faced litigation because of cladding failure or discomfort caused to occupants.

Australia, whose capital cities have the largest number of tall buildings outside North America and Hong Kong, has no such problems. Professor Melbourne says fire regulations in Australia have led to almost all tall buildings using reinforced concrete or concrete-encased steel that imparts sufficient damping to resist excessive wind-induced acceleration.



A scale model of Singapore city used in wind tunnel testing.





## Research grants

### NH&MRC Equipment Grants

Applications are invited from individuals, groups or institutions which are eligible for NH&MRC support. Funds will be distributed to institutions in approximate proportion to the level of NH&MRC funds received.

Applications should be for equipment worth more than \$10,000. For certain expensive items - where possible or appropriate - multi-user applications across disciplines, departments or institutions will be favoured. Where possible, funding requested should be for Australian-made equipment.

Current equipment grant applications will be considered together with new applications.

Funding for equipment specific to a particular project will continue to be considered as part of normal grant funding. 14 May.

### Hoechst Diabetes Research & Development

Hoechst Australia provides support for research aimed at furthering knowledge of diabetes and its treatment. Grants will be offered for applied research, basic research, development research and educational research. 17 May.

### National Multiple Sclerosis Society of Australia

Applications are invited from individuals or groups concerned with the treatment, research and care related to multiple sclerosis.

multiple sclerosis. Postdoctoral fellows, seeding grants and project grants are offered. 17 May.

### National Heart Foundation of Australia

Applications are invited for support in the following areas: Medical Research Grants-In-Aid, Education Grants-In-Aid, Overseas Research Fellowship, Senior Research Fellowship, Travel Grants, Australian Cardiovascular Training Fellowship and Warren McDonald International Fellowship. 17 May.

### RE Trust

The Trust invites applications for research projects concerned with social welfare and the issue of disadvantage, nature conservation and the protection and preservation of flora and fauna, education of foreign students, particularly students from Melanesia. 31 May.

### The Annie Danks Trust

The Annie Danks Trust provides support for a broad range of projects. Intending applicants should submit brief proposals of no more than three pages, written in non-technical terms, together with the total funding being sought. 31 May.

### Royal Society of Victoria Research Grants

The Society provides small grants to support research in the Biomedical or Earth Sciences.

### Australian Kidney Foundation

The Foundation will support specific research in clinical investigation, patient care, epidemiological studies or basic medical services concerned with function or disease of the kidney, urinary tract and related organs or relevant problems such as dialysis and transplantation. 31 May.

Further information, application forms and guidelines are available from the Office for Research, extn 75 3085 or 75 5134. Applications must be lodged by the date specified.



## Scholarships and fellowships

### Alfred Hospital Scholarships

The Alfred Group of Hospitals invites applications for the Postgraduate Research Scholarships and the Postdoctoral Research Fellowships from graduates in medicine, science and nursing. 26 June.

### European Business Institute Awards

Graduates and postgraduates may apply for the bursaries, research and travel grants offered by the European Business Institute for the academic year 1991-92.

### Awards at Commonwealth universities

Students interested in awards available in Commonwealth universities may consult a guide published by the Association of Commonwealth Universities entitled *Awards for Postgraduate Study*. Contact the Higher Degrees and Scholarships Section for further information.

For further details and application forms contact the Higher Degrees and Scholarships Section, extn 75 3009.

### Academy of Science

The Australian Academy of Science is offering a number of fellowships and conferences to local and overseas scientists. All inquiries should be addressed to The Executive Secretary, Australian Academy of Science, GPO Box 783, Canberra ACT 2601.

### Selby Fellowship

Fellowships are awarded to distinguished overseas scientists to visit Australia for public lecture/seminar tours and to visit scientific centres in Australia. Fellows are expected to increase public awareness of science and scientific issues. 31 July.

### Boden Research Conferences

The Academy conducts a series of small specialist research conferences in the biological sciences to enable active research workers in rapidly advancing fields to discuss current advances and problems. Societies and organisations are invited to submit one or more proposals for February 1993. 31 July.

### Elizabeth and Frederick White Conferences

The Academy conducts a series of research conferences in the physical and mathematical sciences related to the solid earth, the terrestrial oceans, the earth's atmosphere, solar-terrestrial science, space sciences and astronomy. Societies and organisations are invited to prepare proposals for conferences in 1992. 31 July.

### The Fenner Conferences on the Environment

The Academy conducts a series of conferences on environmental and conservation issues in Australia and its environs. The purpose of the conference is to bring together those with relevant scientific, administrative and policy expertise to consider current environmental and conservation problems. Organisations and societies are invited to prepare proposals for a meeting in 1992 or 1993. 31 August.

## Stepping from Kabuki to Butoh

An expert in traditional and contemporary Japanese dance is sharing her knowledge of medieval and pre-modern Japanese performing arts with Monash staff and students.

Ms Kazuko Kuniyoshi, a researcher at the Tsubouchi Memorial Theatre Museum of Waseda University, Tokyo, will be in residence at the Department of Japanese Studies until June.

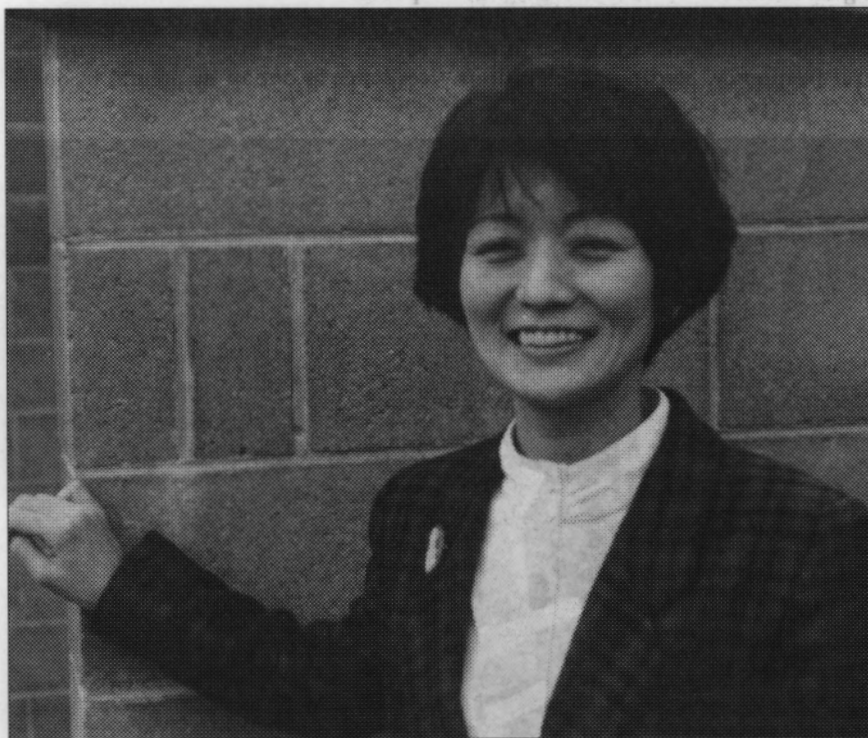
Ms Kuniyoshi is also an authority on Butoh, the avant-garde style of dance which came out of Japan in the 1960s. More recently, Butoh has created much interest internationally and productions by Sankaijuku and Byakkosha have played to enthusiastic audiences at festivals in Australia.

She has lectured at Waseda and has been the curator of the archives on Hijikata Tatsumi, the founder of Butoh.

Ms Kuniyoshi has written widely on aspects of traditional and contemporary dance, and has published in university journals and the arts press.

While at Monash, she will lecture on the Japanese performing arts, and this month will conduct an evening course, *Japanese Dance Past and Present*, for the Japanese Studies Centre.

Last month Ms Kuniyoshi hosted a performance seminar at the Malthouse, Beckett Theatre, at which various dance



Ms Kazuko Kuniyoshi.

ing styles, including Jiuta mai, Kabuki and Butoh were demonstrated.

While in Australia Ms Kuniyoshi will be touring universities, drama schools and dance companies. A major part of her visit is a joint research paper on

kabuki dance, written with Dr Alison Tokita, Director of the Japanese Music Archive, which will be presented at the Biennial Conference of the Japanese Studies Association of Australia at the Australian National University in July.

## Surviving Chernobyl

From page 3

"They left the depressing surroundings of the orphanages where they live with many sick friends," he said.

"They were shy, quiet and intimidated but on their return they were more open and articulate and happy."

"No-one knows what the longer-term prognosis is for these children. What we do know is that there has been officially at least a threefold increase in childhood cancer and leukaemia among the children affected by Chernobyl. The actual future toll in terms of human morbidity and mortality is unpredictable.

"The health authorities in the Soviet Union believe that as a result of overseas visits, the children will be more able to fight off infection and have a much better chance of delaying the onset of serious diseases."

Dr Kidd said an incalculable side benefit of the program was the increased understanding between children from two very different cultures. "Hopefully public awareness in Australia will result in increased assistance to all the children affected by the Chernobyl disaster and the provision of further medical aid," he said.

Planning already is under way for another group of Soviet children to visit Victoria next year.



# Fun runners raise stakes in kidney research



Picture: RICHARD CROMPTON

The start of the 1991 Kidney Fun Run.

Monash medical students have raised more than \$100,000 in the past 10 years for research into kidney disease through an annual street collection and the Kidney Fun Run.

Associate Professor in the Department of Anatomy, Dr Eric Glasgow, has coordinated these efforts for the past 15 years. Professor Glasgow is also Vice President of the Kidney Foundation in Victoria and has done extensive kidney research.

"These two fundraising events are one of the major individual sources of funds for the Kidney Foundation in Victoria" Dr Glasgow said.

"This responsibility identifies the medical students in a positive way with their faculty and the university. By organising these fundraising events they are taking responsibility for their lives and the lives of others. This is very important in the education process."

The street collection is organised by second year medical students and has been running for 15 years. University

of Melbourne and Lincoln Institute students also have participated in the street collection.

The Kidney Fun Run, organised by third year medical students, has been held for seven years. This year's event, at Clayton campus on 26 April, attracted 80 participants.

The route - twice around the campus ring road - was completed in 15 minutes and 13 seconds by the fastest male entrant, fourth year politics honours student, Mr Justin Wilson. The fastest female entrant was second year medical student Ms Kylie Lucas with a time of 17 minutes and 55 seconds.

Restaurants and hotels have donated meals as prizes for students who collect and raise the most money. Trophies and medals are also awarded.

## Exposing the subtle inequalities in language

Inequality in language is one of the most prevalent, and yet subtle, forms of discrimination.

A new book by senior lecturer in linguistics Dr Anne Pauwels, aims to raise awareness of the kinds of language that people may see every day but not consider to be discriminatory.

The book, *Non-discriminatory Language*, published by the Australian Government Publishing Service, concentrates on sexist and racist language. However, it also deals with discrimination in language against people with disabilities.

It covers three main subjects: identifying discriminatory language; avoiding discriminatory language; and providing information for people such as equal opportunity officers.

Dr Pauwels says discrimination can range between the extremes of "omission" and "extra-visibility". For example, in the media and text books, immigrant minorities are seldom mentioned.

"They are hardly ever given as an example to demonstrate a fact or to demonstrate a principle," she said. "For instance, Mr John Citizen is usually given as an example on cheques. We never get a name which may be less Anglo-Celtic."

An example of extra visibility is the headline 'Greek Man Kicked to Death' when the article refers to someone not in Greece but in Melbourne.

"Another example is 'Viets in Tax Fraud', whereas if you look at headlines to do with people of English-speaking backgrounds you'd get 'Lawyer Acquitted' or 'Cyclist Killed'. So the ethnicity does not matter if the article deals with Anglo-Australians."

The book deals with trying to avoid some of the terms that are traditionally used in English-speaking societies which may no longer be appropriate to a multi-cultural society.

"One that sticks out is the fact that we find on most forms such things as the request for a christian name," Dr Pauwels said.

"Even if people are Christian but are not of European background they often do not have a christian name so you may unintentionally offend quite a few people by asking their christian names or referring to these names as christian names."

## ANZAAS looks at the ethics of progress

Reproduction and renewal is the theme of the 60th ANZAAS Conference, to be held in Adelaide from 1 to 3 October.

Over nine sessions, about 145 scientific papers will be presented, covering the diverse interests of the scientific community. Sessions are in three streams, covering biological, social and physical sciences. Speakers will present cutting-edge research, as well as considering the ethical costs of scientific advances.

Congress organiser, Professor David Boyd, of Adelaide University, said the congress would focus on the key issues of the 1990s, including the need to

integrate scientific research into community activities.

He said ANZAAS had been a link between scientists in different disciplines for more than 100 years.

Overseas speakers include Professor Joe Schuster, head of range management at Texas A & M, who will look at reproduction in an arid environment, and US manufacturing expert, Dr Sonny Pierce, manager of manufacturing and quality technology at General Electric.

Keynote speaker in the conservation session is the principal research scientist in CSIRO's Division of Wildlife and Ecology, Dr John Ludwig, who will examine the role played by decision support systems in restoration ecology.

Registration for the full three-day program costs \$120 (members) and \$195 (non members) if paid before 6 August. Day registration costs \$70 and \$90 respectively. For information and program details phone (08) 228 5236 or fax (08) 232 4590.



Professor Glasgow encourages the eventual winner, Mr Justin Wilson, during the first lap of the circuit.



# NOTES AND DIARY



## Diary

### MAY

- 12 Mother's Day Concert**, presented by the Melbourne Academy of Choirs. Robert Blackwood Hall. 3 pm.
- 13 Lunchtime Concert** Monash University Orchestra. Robert Blackwood Hall. 1.15 pm.
- 15&22 Staff Development Seminar** Assertiveness Skills, by Mr John Swinton. Sport & Recreation, seminar room. 9 am - 1 pm.
- 15 Environmental Forum** Women and ecology, by Professor Carolyn Merchant, author of *The Death of Nature*. Presented by the Graduate School of Environmental Science. R6. 5.15-6.30 pm. A private seminar with Professor Merchant will be held in R6 from 3-5 pm. For bookings contact Mr Frank Fisher, extn 75 2925 or 75 5114.
- Genetics & Developmental Biology Seminar** Characterisation of the glycerol-3-phosphate gene-enzyme system of *Drosophila melanogaster*, by Ms Jennifer Ross. Room 662, Biology Building. 4.15 pm.
- 16 Ecology & Evolutionary Biology Seminar** Foraging strategies in an aquatic sit-and-wait predator, Dr Paul Bailey. S8. 1 pm.
- Southeast Asian Studies Seminar** Japanese influence in South-East Asia during World War II, by Dr Grant Goodman, Griffith University. Room 515, Menzies Building. 11.15 am.
- Monash in the City Lecture** Landmarks in the European novel: Gustave Flaubert's 'Madame Bovary', by Professor Brian Nelson. Suite 3, Sir John Monash Business Centre. 6-7.15 pm. Presented by the Centre for General and Comparative Literature and the Centre for European Studies.
- Koorie Studies Lecture** The Australian Environment - Koories Caring for the Land, by Mr John Austin. R6. 1-2 pm.
- 17 Ethnic Community Conference** Ethnic community organisations: Role and provision of services, presented by the Centre for Migrant and Intercultural Studies. Conference Room, first floor, Union Building. 9.30 am - 5.15 pm. For further information, phone 75 2958 or 75 3267.
- Accounting & Finance Seminar** Waived audit adjustment and reporting risk, by Professor Wright, Northeast-

ern University and Dr Sally Wright, Boston University. Room 954, Menzies Building. 2.15 pm.

**20 Lunchtime Concert** Sparrow Mass - Mozart and accompanied songs, by Monash University Choral Society and Monash University Orchestra. Robert Blackwood Hall. 1.15 pm.

**English Seminar** Another version of pastoral: Public school critics between the wars, by Mr Ian Brittain, Melbourne University. Room 707, Menzies Building. 12.10 pm.

**22 Genetics & Developmental Biology Seminar** Seed protein genes, by Dr Ken Gayler, University of Melbourne. Room 662, Biology Building. 4.15 pm.

**Literature Seminar** Uncommon Pursuits: The debate over ectogenesis in science, Associate Professor Susan Squier, State University of New York. Room 809, Menzies Building. 3.15-5.15 pm.

**Environmental Forum** Alternative lifestyles: Misfits or models, by Don Corbet, University of South Australia. Presented by the Graduate School of Environmental Science. R6. 5.15-6.30 pm.

**23 Ecology & Evolutionary Biology Seminar** Floral biology of terrestrial orchids, by Professor Malcolm Calder, Melbourne University. S8. 1 pm.

**Monash in the City Lecture** Landmarks in the European novel: Fyodor Dostoyevsky's 'The Possessed', by Millicent Vladiv-Glover. Suite 3, Sir John Monash Business Centre. 6-7.15 pm. Presented by the Centre for General and Comparative Literature and the Centre for European Studies.

**24 Free Lunchtime Talk** Greening the organisation, by Ms Kath Ralston. Gallery Theatre. 1-2 pm.

**Accounting & Finance Seminar** A study on the impact of feedback on the relationship between ability, effort and performance, by Ms Susan Robertson. Room 954, Menzies Building. 2.15 pm.

**25 Evening Concert** Victorian Children's Choir. Celebrity Concert, Robert Blackwood Hall. 8 pm.

**Evening Concert** Monash University Orchestra Conducted by Richard Green and Warwick Stengards. Religious Centre. 7.30 pm. Contact David Smith on 579 1701 for reservations.

**27 Lunchtime Concert** Programme of works by Mozart, by Gil Sullivan. Robert Blackwood Hall. 1.15 pm.

**English seminar** Text and performance: Recent productions of 'The Tempest' and the interpolation of Shakespeare, by Dr Dennis Bartholomeusz. Room 707, Menzies Building. 12.10 pm.

**Bureau of Immigration Research Seminar** Migrants and trade unions, by Dr Gerry Griffin and Santina Bertone, University of Melbourne. Conference Room, 3rd Floor, 33 Lincoln Square South, Carlton. 4-5.30 pm. For further information, contact Ms Charmaine de Silva on 342 1107.

**29 Environmental Forum** A paradigm shift for science and religion: Are they necessary for survival?, a debate between Dr Frank Cock and Mr Peter Fisher. Presented by the Graduate School of Environmental Science. R6. 5.15-6.30 pm.

**Genetics & Developmental Biology Seminar** TOL plasmid-chromosome interactions in *Pseudomonas*, by Ms Martha Sinclair. Room 662, Biology Building. 4.15 pm.

**Chemistry Lecture** Scientific instruments - milestones or millstones, by Dr Coogan, Australian Scientific Industry Association. S2. 4 pm.

**30 Ecology & Evolutionary Biology Seminar** Biodiversity, cladistics and the nature of organismal classification, by Dr Mark Harvey, Museum of Western Australia. S8. 1 pm.

**Monash in the City Lecture** Landmarks in the European novel: Marcel Proust's 'Swann's Way', by Associate Professor Colin Nettlebeck. Suite 3, Sir John Monash Business Centre. 6-7.15 pm. Presented by the Centre for General and Comparative Literature and the Centre for European Studies.

**31 Staff Development Series** Tapping our consulting potential: The enterprising consultant, by Dr John Bailey, Clark Hummerston Bailey. Gallery Theatre. 9 am - 5 pm.

**Accounting & Finance Seminar** Flexible manufacturing strategies: Implications for organisational arrangements and manufacturing performance measures, by Dr Margaret Abernethy, University of Melbourne. Room 954, Menzies Building. 2.15 pm.

### JUNE

**5 Literature Seminar** Uncommon Pursuits: Goethe's enlightenment of tragedy: Towards an aesthetics of healing, by Ms Kate Rigby. Room 809, Menzies Building. 3.15-5.15 pm.

**Genetics & Developmental Biology Seminar** Del 2: A non-LTR retrotransposon from *Lilium speciosum*, by Mr Peter Leeton. Room 662, Biology Building. 4.15 pm.

**6 Monash in the City Lecture** Landmarks in the European novel: Frank Kafka's 'The Trial', by Dr Silke Hesse. Suite 3, Sir John Monash Business Centre. 6-7.15 pm. Presented by the Centre for General and Comparative Literature and the Centre for European Studies.

**7 Accounting & Finance Seminar** Put-call parity in Australia: Review, reinterpretation and additional evidence, by Professor Robert Brown and Mr Stephen Easton. Room 954, Menzies Building. 2.15 pm.

## Notes



### Mannix College tutorials

Mannix College is offering a limited number of places in its tutorials to non-resident undergraduate students. The tutorials, which cover a wide range of undergraduate disciplines, are held each weeknight (except Fridays) during semester. A nominal fee of \$15 a semester for each subject will be charged. For further information, phone 544 8896.

### OHS training programs

The Occupational Health and Safety Branch will be conducting several programs between June and September this year:

- CPR Refresher - 5 June, 18 July, 27 August.
- Fire Safety at Work - 6 June, 22 July, 30 August.
- First Aid Level 2 (4 day course) - 7, 14, 21, 28 June; 16, 23, 30 September and 7 October.

**Breathing apparatus refresher** - 11 June, 11 July, 20 August, 20 September. Zone committee training - 23, 24 July.

For further information, contact Ms Gael Hayes or Ms Bozena Janczuk on extn 75 5003.

### A very private conference

The School of Banking and Finance is holding a one-day conference at the Windsor Hotel on 31 May. The conference, on *Privacy in an Information Society*, will include topics such as operation of the federal privacy law, responses of corporate Australia to privacy regulation, a review of current and proposed state laws around Australia, and overseas trends and the likely impact of a European 'data wall'. For further information, contact Mr Greg Tucker on extn 73 2588.

### Philosophy with practical intent

*Philosophy with practical: Decisions and frameworks* is a one day course designed for everyone who makes decisions and is affected by the decisions of others.

The course, held on Saturday 25 May from 9 am to 5 pm, will be led by Don Gunner, Philosopher. For further information, contact Ms Janet Westwood, School of Art and Design, on 73 2392.

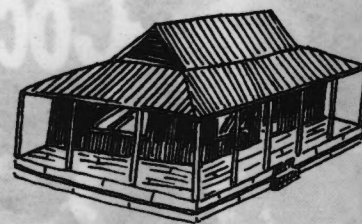
### Solo graduates

The Graduate Union of the University of Melbourne welcomes all single graduates of any tertiary institution to its regular monthly get-togethers.

For further information, contact Dr Marg Parnaby on extn 75 4275 (4-6 pm) or 380 9626 (ah).

### AITEA travel fellowship 1992

The Australian Institute of Tertiary Educational Administrators is seeking applications from AITEA members. Further information is available from Ms Di Barker, Staff Development Branch, extn 75 4110. Applications should be sent to Mr John Swinton, Head of Staff Development, by 19 June.



## Accommodation

### Glen Waverley

3 bedroom, BV home with BIRs, new paint, carpet, modern kitchen and bathroom, near school, bus, shopping, LU garage on a large block, available mid-June. \$175 pw or \$185 pw fully furnished. Phone extn 75 3562 or 543 1529 after 7 pm.

### Mount Waverley

For 10 months from September 1991. Four bedroom house, fully furnished. Owners (retired academics) going overseas. Phone John and Mardie Fyfield on 807 3518.





Ms Odamura, pictured during a concert in Robert Blackwood Hall last year.

## A masterly koto class

Master koto player Ms Satsuki Odamura is giving classes at the Japanese Studies Centre, Clayton campus. She travels from Sydney to Monash each month especially for the classes.

Ms Odamura, who appeared last year at Monash in two concerts for the Japanese Music Archive, is available for group or individual lessons on the fourth Friday of each month, between 12 noon and 8 pm.

A one hour class costs \$25, with five lessons available for \$100. A student discount and half-hour classes also can be arranged.

The Director of the Japanese Music Archive, Dr Alison Tokita, said Ms Odamura, a shihan or master player, was a young and vital exponent of the Sawai school, a vigorous style of koto playing within the Ikuta style.

She said access to an instrument for practice could be arranged, and kotos could be hired or bought through Ms Odamura.

Group lessons in shakuhachi (bamboo flute) are held in the Music Department's seminar room every Friday lunchtime. The lessons, which cost \$5, are suitable for beginners or advanced players. Instructor Mr David Brown can provide instruments for hire or sale.

For more information contact Dr Tokita on extn 75 2275 or 75 2281.

## Choral society's uplifting requiem

The Monash University Choral Society last week presented its first major concert of the year at the Robert Blackwood Hall.

The society, conducted by Andre de Quandros with the Preston Symphony Orchestra, performed Brahms' *Ein deutsches Requiem* and Vaughan Williams' *Festival Te Deum*.

The choir is one of Victoria's leading amateur groups, with former members going on to sing in choirs including Melbourne Chorale, Astra Choir, Tudor Choristers and the Victoria State Opera chorus.

Its performances last year, including Verdi's *Requiem* and Handel's *Coronation Anthems*, were well received.

At this year's Interschool Choral Festival, held in Melbourne during Jan-

uary and February, the choir's high standard received critical and popular acclaim. Age critic Kenneth Hince praised its performances of Mozart's *Requiem* and Rachmaninov's *Vespers*.

The Choral Society, formed in 1962, is one of the university's oldest clubs. The non-auditioning choir provides members with the opportunity to learn and perform choral works of different types.

Rehearsals are held on Tuesdays from 7 pm to 9.30 pm in the Music Department's auditorium, 8th floor, Menzies Building.

For more information about the society, contact Ms Janet McDougall on 836 4533. For concert details, phone the concert manager, Mr Andrew Wailes, on 568 7374.



Members of the Monash University Choral Society.

## Magic possum meets Faraway girls



Possum Magic had a two-week return season at the Alexander Theatre last month before beginning a national tour. The children's musical, based on the best-selling book, is produced by the Victorian Arts Centre, the Alexander Theatre and Garry Gini-van Attractions. Cast members, possum Baby Hush and Echidna, are pictured with the children from the theatre's production of *The Magic Faraway Tree*, presented at the Comedy Theatre last month.

## Mother's Day in concert

A Mother's Day concert at the Alexander Theatre featured Australian stage legends, June Bronhill and Dennis Olsen.

The one-off concert, held on Sunday 12 May, included popular songs from musical comedy, Gilbert and Sullivan and Noel Coward.

June Bronhill's career has spanned opera and musicals. She appeared last year at the Alexander Theatre in the musical comedy *Nunsense*.

Dennis Olsen, known for his many Gilbert and Sullivan roles, came direct from his starring role in *Venetian Twins*. He is currently rehearsing a new show, *Song To Sing-O*, which will be presented at the Alexander Theatre early in July.

For information about forthcoming productions at the Alexander Theatre, phone 75 3992.



**T**HE STUDY of law has been criticised as providing training rather than education. It is true that the lawyer's techniques of legal reasoning, employed in case analysis and statutory interpretation, can be taught in a sterile fashion without any intellectual challenge.

In the 1960s at Melbourne University students were subjected to much of this 'black letter' or 'rote learning'. To be fair, there were academics who questioned the status quo and demanded that we think creatively about issues of justice and morality.

However, throughout the law degree there was not one mention made of Koories (Aborigines), or of the non-English-speaking residents of Australia, or of the working class. Indeed the female half of the population was given scant attention.

The special needs of these groups went unexamined as we focused on a system of law designed to serve the interests of the white males in positions of authority in society. The rest of the population were 'outsiders' and their needs went unrecognised.

Property law was studied and Britain's invasion of the Australian continent was clothed in legitimacy with the legal doctrine of *terra nullius*. This Latin phrase pronounced Australia as empty land peacefully settled by Britain. The doctrine is now widely discredited by legal scholars and is being contested before the High Court in the Mabo Case.

Another subject was legal history, where we examined legal documents in old French and Latin and focused on centuries of British history with no mention of the Australian experience.

In the past 20 years there has been a revolution in legal education with the law curriculum drawing on the theoretical work of historians, economists, sociologists, and anthropologists to inform an analysis of the law.

Feminist legal theory and other critiques of the law are bringing issues of gender, race, ethnicity and class into the forefront of legal studies. The process of change is uneven but unstoppable, as academics with interdisciplinary qualifications take up senior positions and redevelop the curriculum. These issues are being integrated into the mainstream rather than hived off into optional courses.

One area in which Monash University is making a unique contribution to this revolution in legal education is its work in the area of crosscultural issues in law.

A few years ago an Australian woman travelling in Greece was arrested and charged with possession of tablets containing Codeine. As Codeine is a restricted substance in Greece, she had unwittingly breached the criminal code. Her plight aroused great sympathy among Australians. "Why," people argued, "ought an



by Greta Bird

innocent woman be dragged before the courts and punished. After all, she was not aware of the illegality of her actions."

That case made headlines because of its novelty. Unfortunately the same scenario is played out daily in Australian courts. Citizens recently arrived in Australia are charged with behaviour that was legal in their own country but criminal in Australia.

These offences are mainly minor regulatory ones. However, the offences are tried in the Magistrates' Courts with all the stigma that involves. Fact situations such as these are used to sensitise students in Australian law schools to the issues they will face when working as professionals in multicultural Australia.

In 1985 the Faculty of Law at Monash University obtained a grant to undertake curriculum development to bring crosscultural issues into the teaching of law. The success of that original project led to the Federal Government establishing, in late 1988, the National Centre for Crosscultural Studies in Law. The centre is based at the Clayton campus and the University of Melbourne. It works on material that raises legal issues of concern to Koories (Aborigines) and non-English speaking background Australians.

In the two and a half years since its inception the centre has produced a number of curriculum units for Australian law schools, worked on the documentary 'The Right to be Heard' for SBS television and organised a national conference, 'Law in a Multicul-

tural Society'. The centre also has provided consultancy services, seminars and advice to such bodies as the Merit Protection and Review Agency, the Office of Multicultural Affairs, the Australian Institute of Judicial Administration and numerous universities and colleges.

At Monash the centre has organised training sessions for law students in the proper techniques of working with an interpreter. These sessions involve bringing graduate interpreting students from Victoria College into the law school to undertake role plays. The law students act as solicitors and the interpreting graduates play the part of non-English speaking clients and interpreters.

The field of crosscultural issues in law is a developing one both practically and theoretically. Law is one of the most important of our institutions. Social cohesion cannot be maintained if the legal system is not responsive to people from all sectors of society.

Historically, there has been little access to the processes of developing the law for those from non-Anglo backgrounds. The recent reference to the Australian Law Reform Commission on Multiculturalism and the Law is a demonstration of the Government's desire to democratise development of the law.

The Commission has been asked to report whether "laws (in the areas of family, criminal and contract law) are appropriate to a society made up of people from differing cultural backgrounds and from ethnically diverse communities". It is undertaking wide-ranging public consultations and has received hundreds of submissions about reflecting cultural issues in the law and providing access to the legal system for people from non-English speaking backgrounds.

One of the issues that constantly arises at the Law Reform Commission's public consultations is that of the training of legal professionals, including police officers, lawyers, magistrates and judges. Those consulted argue that all legal professionals ought to receive instruction in crosscultural issues before they begin their careers and during in-service programs.

The work of the National Centre for Crosscultural Studies in Law is a stimulus to the integration of crosscultural issues into degree courses and training programs for legal professionals. The centre's research program is assisting to develop a theoretical perspective concerning the role of the law in a multicultural society.

Ms Greta Bird is Director of the National Centre for Crosscultural Studies in Law.

## DIOGENES



**J**AZZ SEEMS to have a way with words. Look at this chorus from one of the old standards:

"It ain't no sin to take off your skin and dance around in your bones."

Who knows what the writer may have been driving at, or under the

influence of. The point is that years after they were penned those lines could prove to be of national significance.

Forget lower interest rates and a restructured economy, deep down we all recognise the panacea for our nation's ills: a nonconformist-led recovery. At this time, like no other, we need to slough off our inhibitions (dance around in our bones), confound everyone, and generally frighten the horses.

The seeds have already been planted. For instance, how many people have stumbled out of 'Dances With Wolves' harbouring a newborn and still secret desire that they too possessed a sobriquet as evocative as Wind In His Hair, Kicking Bear or Stands With A Fist? Only to return home, open up the latest bill, and be reminded that they are saddled with a name about as colourful as recycled paper.

Just imagine if we had the courage to rechristen ourselves in a manner as descriptive as that of the American Indian.

The suburbs would cease to echo with 'Paul' or 'Shane' or 'Karen'. Instead, they would resound to cries of 'Snore After Drinking', 'Has A Little Weight Problem', and 'Hi Your Dinner's In The Oven I've Just Popped Down The Street To Get Some More Disposables See You When I Get Back PS By The Way Your Mother Rang To Say She's Having Her Stitches Out On Monday'.

Fuelled by a sudden flood of non-conformism, the national curiosity index would rise, publicity machines would be hurried into action, ears would prick, voices chatter, and the tenor of life would move up a notch.

Even the wealthy could add to the confusion. Instead of driving around in cars with names too difficult to pronounce, they would opt for those manufactured locally. (But just to show that they had not fallen completely out of their surgically enhanced English oaks, they would still retain the right to place the stress on the wrong syllable: 'CommodORE'.)

The ugliest of our skyscrapers could be gently dismembered, piece by piece, and reconstructed in very large holes in the ground.

Of course, the holes would then be filled in again, but at least the exercise would have provided badly needed employment.

At the same time, flying squads would swoop on pristine streets and turn them into Swiss cheese by digging potholes at strategically placed intervals.

We would then be forced to swap our cars for a less expensive means of transport such as horses.

Think of the effect of such aberrant behaviour on the national psyche. In time, expectations would not be dashed, they would be exceeded. And numbers would not be crunched, they would be counted.

It would be pointless for our political leaders to join the push, however. As every move they make is more confusing than their last, no one would notice the difference.