New camera takes in the big picture

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 1998.

"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 65,000 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 postgraduate 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 systems-wide basis.

"If the Government acts on its own to increase funding it will only exacerbate the problem," he said.

"The National Institute of Labor Studies (NILS) report concluded 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."
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 Monash 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.

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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 Clayton and Frankston campuses it also covers child care and legal aid.

Mr Graham Beves (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 writing about a full merger of the depart­ment's various services. The appointment of a director is the first step.

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

Picture (below, from top left) are: Mr Mathew Cartey, Melbourne; Ms Virginia Clarke, La Trobe; Mr Karen Arking, Tasmania; Ms Catherine Roberts, Melbourne; Ms Charlotte Oster, Monash; Ms Susan Ackroyd, Monash; (from front left): Mr Sam Willswright, Tasmania; Ms Lorenne Wilks, Melbourne; and Ms Krista Reid, Monash.

Planning already is under way for this year's program. For further information, contact Dr Jack Jellett on 725 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 Thursday 28 May in the Music Auditorium, beginning at 11.30 am. Ernie, whose residency is funded by the Australian 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 in Australia 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.

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.

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 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.
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 is part of a new advisory committee.

The university has been allocated $1.37 million of Australian Research Council grants won over the past two years.

On average, $30,000 will be disbursed to each of the 10 faculties Monash University College Gippsland.

The share of income from full-fee paying overseas students has been increased 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 3).

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.

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 net losers in the clawback exercise - 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.

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 facilities according to the amounts 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 $1.285 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).

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 in Monash University's Commonwealth Grant, 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 3).

- The share of State Government grants also has been increased to 69.5 per cent compared with the previous level of 55 per cent at Clayton, and 66.67 per cent at Caulfield and Frankston (see figure 5).

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, Rooster, Crowley 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.
Making paper make money

A pilot paper recycling scheme is up and running at the Clayton campus. The scheme has been dubbed Recycling by its organiser, Senior Assistant Registrar, Mr Michael Watson, and his assistant, 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 skins and other garbage in the bins provided. The only problem was that they were labelled Paper Only."

The scheme was abandoned. 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 $50 per tonne for paper collected, once the purchase price of $55 has been covered.

During six months there are 85 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 collecting papers to be shredded but now APM gives us something that we 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 trouble their bins down to a pickup 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 3010.

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 panoramic 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.

Students earn and learn in big business

Big 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 $3900 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 will still apply.

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 each year, 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.

Montage • Page 5
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 participants in the field produced a draft of Teaching Strategies for a Clever Class, 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 is now 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 Goodall said the workshop had been so successful that the AAEGT council now is preparing the document for publication. "We are looking forward to the book."

The guest speaker at the workshop's dinner, Justice Michael Kirby, who is the AAEGT's patron, will write a foreword 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 white of Asia - we must stop this 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 9000 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 connection 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-departments. Funds have yet to be earmarked for this purpose. A third step will be to extend Ethernet connections to 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, people can send electronic mail to other users.

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

"The coordination of networks and decentralisation of computers allows computing in a smart campus - where it is needed while retaining the information-sharing facilities that come with 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 many European and Asian countries.

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.

About, the Dean of Engineering, Professor Peter Darrold, addressed parents of engineering students.
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 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, 80 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 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 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 through. A special clutch mechanism compensates for the progressive change in the effective diameter of the split honeycomb 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. 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.
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 Bessamer) but the research is covering new ground in aluminium production.

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.

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 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.
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 a thermopile, called a thermocouple.

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 have 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.

Glycolysis

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.

“Just as we can say what happens in certain pathological conditions, we have no idea how cardiac muscle works normally,” Dr Gibbs said.

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

“Europe, we can see what happens in certain pathological conditions, we have no idea how cardiac muscle works normally,” Dr Gibbs said.

“In cardiac muscle, all the cells are supplied with oxygen by the own capillaries. As a cell becomes 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 five to six times higher than in skeletal muscle, so that it constantly consumes large amounts of oxygen.

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 larger and wider.
Chemistry of the heart

From Research Monash

This is part of problem of flying hearts around Australia for transplanta-

on," Dr Gibbs said. "In the absence of

in the normal coronary circulation, you

bored the normal level of energy use is

velop to perfuse the isolated heart to

hearts around Australia for

ing to perfuse the isolated heart to

or are experimenting with drugs that

are going to basal or resting metabolism.

we would expect that possibly

per cent of the oxygen being used is

ing energy flux."

identify and quantify several of the

One

per cent of the energy involved in basal

 says it accounts for only some 10 to 15

and actin, whose ratchet-like molecular

Each heartbeat

Zealand believe that the mitochondria

Calculated basal metabolism, but it then

energetically less costly to maintain its

Gibbs says, basal metabolism may

it has bigger cells so it may be

nally fall to half the normal level.

"Chilling the heart to around 12 to

energy-consuming processes in the cell.

"That's a very big energy demand, and we don't really understand the

exact molecular basis of this high rest-

The membrane pump, powered by

The membrane pump, powered by

basal energy consumption. What are

"But once the enlarged heart is

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

models to humans."

"So we have to be careful when extrapolating from animal models to

humans. We are also looking at the various energy compartmen-

tasking whether mechanical efficiency is low-

or, if the ability of cardiac muscle to

shorten is depressed."

"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 cross-

bridges cycle more slowly, reducing the

upper limit of heart rate. In the en-

larged 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

and slower contractions," Dr Gibbs

said.

There seem to be big cross-species

differences in hypotrophy. In some ani-

mats the hypertrophy response is due to

a change in calcium pump activity; in

other it involves a reduction in cross-

bridge activity. In other species, both

are involved.

"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.
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 a 1:400 scale model 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 460 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 30 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 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 wind resistance in bluff (non-aerodynamic) structures. In contrast to 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 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 of 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 frequencies, so that a small amount of energy applied at this 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 Parc des Princes in Paris employs this design: air currents bleeding off the surface, rather than on the leading edge. A huge new soccer stadium built in 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.

In Australia, whose capital cities have the largest number of tall buildings outside North America and Hong Kong, there are 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 impairs sufficient damping to resist extensive wind-induced acceleration.
Applications are invited from individuals, groups or institutions which are eligible 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 grants 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.

Hoechst Diabetes Research and Development

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

National Multiple Sclerosis Society of Australia

Applications are invited from individuals or groups concerned with the treatment, research and care related to multiple sclerosis. Postdoctoral fellows, seed 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 Biological and 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 5085 or 75 6154. Applications must be lodged by the due date specified.

Alfred Hospital Scholarships

The Alfred Group of Hospitals invites applications for the Postgraduate Research Scholarships and the Postdoctoral Research Fellowships for 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 1992-93.

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 5090.

Hijikata Tatsumi, the founder of Butoh, is sharing her knowledge of medieval and pre-modern Japanese dance with Monash staff and students. Ms Kuniyoshi has written widely on aspects of traditional and contemporary dance, including Jiuta mai, Kabuki dancing 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 Binional Conference of the Japanese Studies Association of Australia at the Australian National University in July.

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/semiant conferences 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 conferences on the biological sciences to enable active research workers in rapidly advancing fields to discuss current research and professional problems. Societies and organisations are invited to submit one or more proposals for conferences in 1993.

Elisabeth and Frederick Whish Conferences

The Academy conducts a series of conferences on the physical and mathematical sciences related to the solid earth, the terrestrial oceans, the earth's atmosphere, solar-terrestrial science, space science and astrophysics. 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 scientists with relevant scientific, administrative and policy expertise to consider current environmental issues. 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 excitement in Australia as a result of performances by Sankaijuku and Byakkosha, which have played to enthusiastic audiences.

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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 an official acknowledgment of increased childhood cancer, leukemia among the children affected by Chernobyl. The actual figures remain in 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 able to fight off infections and have a much better chance of delaying the onset of serious diseases."
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 Anaesthesia, 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 organizing 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 15 minutes and 55 seconds.

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

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

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.

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

A new book by senior lecturer in linguistics Dr Anne Pauwels, aims to raise awareness of all kinds of language that 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. 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 "emission" and "extirpavoidability". 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 someone which may be less Anglo-Celtic."

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

"One other example is " atheist in Tax Fraud", whereas if you look at headlines to do with people of English-speaking backgrounds you get 'Lawyer accused of Cyciste Killed'. So the ethnicity does not matter if the article deals with Anglo-Australians."

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Professor Glasgow encourages the eventual winner, Mr Justin Wilson, during the first lap of the circuit.
MAY
12 Mother's Day Concert, presented by the Melbourne University Academy of Choirs. Robert Blackwood Hall, 3.30 pm.
13 Lunchtime Concert Monash University Orchestra. Robert Blackwood Hall, 1.30 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, ext 75 2952 or 79 5414.
16 Ecology & Evolutionary Biology Seminar Foraging strategies in an aquatic six-spotted predator, Dr Paul Bailey. S8, 1.30 pm.
Southeast Asian Studies Seminar Japanese influence in Southeast Asia during World War II, by Dr Grant Goodrow, University of Hong Kong. Griffith University. Room 515, Menzies Building. 11.15 am.
Monash in the City Lecture Landmarks in the history of the novel: Flaubert's Madame Bovary, by Professor Brian Nelson. Suite 3, Sir John Monash Business Centre, 6.7-7 pm. Presented by the Centre for General and Comparative Literature and the Centre for European Studies.
Koorie Studies Seminar The Australian Environment - Koorie Carving for the Land, by Mr John Austin. R6, 1.20 pm.
17 Ethnic Community Conference Ethnic communities: 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 544 8896.

ACCOUNTING & FINANCE SEMINAR Wasted audit adjustment and reporting risk, by Professor Wright, Northeastern University and Dr Sally Boston, University of Technology. Room 904, 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, 1.30 pm.
4 English Seminar Another version of pastoral: Public school critics between the wars, by Mr Ian Brittain, Melbourne University. Room 706, Menzies Building. 12.10 pm.
22 Genetics & Developmental Biology Seminar Seed proteins, by Dr Ken Gayler, University of Melbourne. Room 662, Biology Building, 4.15 pm.
LITERATURE SEMINAR Uncommon Pursuits: The debate over eugenics in its own words, by Associate Professor Suzanne State University of New York. Room 809, Menzies Building. 3.15-5.15 pm.
23 Ecology & Evolutionary Biology Seminar Floral and terrestrial orchids, by Professor Malcolm Calder, Melbourne University, S8, 1.30 pm.
Monash in the City Lecture Landmarks in the European novel: Marcel Proust's 'Sousan's Way', by Associate Professor Colin Nettelbeck. Suite 3, Sir John Monash Business Centre, 6-7.30 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 Raislon. Gallery Theatre. 1.23 pm.
ACCOUNTING & FINANCE SEMINAR A study on the impact of feedback on the relationship between ability, effort and performance, by Ms Susan, Robertsons. Room 904, Menzies Building. 2.15 pm.
25 Evening Concert Victorian Children's Chair Celebrity Concert, Robert Blackwood Hall. S8, 8 pm.
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 interpretation of Shakespeare, by Dr Dennis Barboliniomeus. Room 707, Menzies Building. 12.10 pm.
Bureau of Immigration Research Seminar Migrants and trade unions, by Dr Gerry Griffin and Santino Bertone, University of Melbourne, Conference Room, 3rd Floor, 334 Little Bedford Square South, Carlton. 4.30-6.30 pm. For further information, contact Mr Charman de Silva on 542 1107.
30 Environmental Forum A paradigm shift for science and society, by Dr Frank Gock and Mr Peter Fisher. Presented by the Graduate School of Environmental Science. R6, 5.15-6.30 pm.
GENETICS & DEVELOPMENTAL BIOLOGY SEMINAR THE plasmid-chromosome interactions in pseudomonas, by Ms Martha Sinclair. Room 662, Biology Building. 4.15 pm.
CHEMISTRY LECTURE Scientific instruments - milestones or missteps, by Dr Coogan, Australian Scientific Industry Association. S2, 4 pm.
30 ECOLOGY & EVOLUTIONARY BIOLOGY SEMINAR Biodiversity, classification and the nature of organisational classification, by Dr Mark Harvey, Museum of Western History. Room 12, Menzies Building. 5.15 pm.
Monash in the City Lecture Landmarks in the European novel: Maud Proust's 'Sousan's Way', by Associate Professor Colin Nettelbeck. 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 marketing 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 feeling, by Ms Katie Rigby. Room 809, Menzies Building. 3.15-5.15 pm.
GENETICS & DEVELOPMENTAL BIOLOGY SEMINAR Del 2: A 1.714 retrotransposon from flysim sp. by Professor Peter Leeton. Room 662, Biology Building, 6.15 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, 6.7-7.30 pm. Presented by the Centre for General and Comparative Literature and the Centre for European Studies.
7 ACCOUNTING & FINANCE SEMINAR Past-cad pollutey in Australia. A review of past-cad poreuty, presented by Professor Robert Brown and Mr Stephen Easton. Room 954, Menzies Building. 2.15 pm.

NOTES AND DIARY

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 seminar for each seminar will be charged. For further information, phone 544 8896.

OHS training programs
The Occupational Health and Safety Branch will be conducting several programs this year:
CPR Refresher - 5 June, 18 July, 27 August, Fire Safety at Work - 6 June, 22 July, 50 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, 10 July, 20 August, 20 September.
Zone committee training - 25, 24 July.
Further information, contact Mr Gael Harvey or Ms Bozena Janczuk on ext 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 is on Privacy in an Information Society, and will include topics such as the operation of the federal privacy law, responses of corporate Australia to privacy regulations, 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 ext 73 2508.

Philosophy with practical intent
Philosophy with philosophical, practical, and scientific intent is one day course designed for everyone who makes decisions and is affected by the decisions of others.

The course, held on Saturday 23 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 2592.

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 ext 75 4275 (4-6 pm) or 380 9626 (ah).

ATTEA travel fellowship 1992
The Australian Institute of Tertiary Educational Administrators is seeking applications from ATTEA members. Further information is available from Mr Di Barker, Staff Development Branch, ext 75 4110. Applications should be sent to Mr John Swinton, Head of Staff Development, by 10 June.

Accommodation

Glen Waverley
3 bedroom, SB home with BIRs, new paint, carpet, modern kitchen and bathroom, near school, bus, shopping, LG garage on a large block, available in mid-june. $175 per week fully furnished. Phone ext 75 5562 or 543 1529 after 7 pm.

Mount Waverley

May 1991
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 Quindos 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-Coral E, Astra Choir, Tudor Choirs 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 Intervarsity Choral Festival, held in Melbourne during January and February, the choir’s high standard received critical and popular acclaim. Age critic Kenneth Hince praised its performances of Mozart’s Requiem and Rachmaninoff’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 auditoium, 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.

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.

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 Ginivan 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 directly from his starring role in Yendina Taxi. He is currently rehearsing a new show, Song To Sing-0, which will be presented at the Alexander Theatre early in July.

For information about forthcoming productions at the Alexander Theatre, phone 75 3992.
The study of law has been criticised as providing training rather than education. It is true that the lawyer's technique of legal reasoning, employed in case analysis and statutory interpretation, can be taught in a sterile fashion, without any intellectual challenge. In the 1980s at Melbourne University students were subjected to much of this 'black letter' or 'rote learning'. To be fair, there were academics who appreciated the theoretical work of historians, economists, sociologists, and anthropologists to inform an analysis of the law.

In the past 20 years there has been a revolution in legal education with the law curriculum drawing on the theoretical works of historians, economists, sociologists, and anthropologists to inform an analysis of the law. The fruits of 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 Anglo backgrounds 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 in 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 heroin. She argued, 'My skin is white, my bones.'

The ugly of our skyscrapers could be gently camouflaged, 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 intersections.

The suburbs would cease to echo with 'Fado' or 'Shanai' or 'Karens'. But somehow they would remain full of inhabitants with such names as descriptive as that of the American Indian.

The Commission has been asked to report whether the various written laws (in the areas of evidence 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 have some training in the indigenous culture 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.

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We would then be forced to swap our cars for a less expensive means of transport such as horses. We would then be forced to stitch the Centre into the law school to undertake role plays.

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Think of the effect of such aberrant behaviour on the national psyche. In the process of driving around in cars with names too difficult to pronounce, they would opt for those manufactured locally. But just to show them 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: 'Com- m To- do-Bote.'