Do breaks fail for sleepy drivers?

Taking a rest break while driving long distances may have little lasting benefit for drowsy drivers, according to road safety research at Monash.

An Accident Research Centre (ARC) study into finding ways of reducing driver fatigue has shown that for tired drivers the benefits of a break are transient. It found that within 15 to 30 minutes after a break the drowsy driver may again be on the verge of falling asleep at the wheel.

The study supervised by Dr Narelle Haworth, also found that some commercial devices designed to alert drivers that they are falling asleep at the wheel fail to provide sufficient warning. In long-distance driving tests, researchers found that drivers' performance deteriorated significantly up to half an hour before they actually fell asleep (see Research Monash for more details).

Road safety authorities generally advocate that drivers take a 10 minute break every two hours on a long journey. The Accident Research Centre supports current strategies which focus on the benefits of drivers making regular rest and food stops, but Dr Haworth says most drivers go much more than two hours before resting.

In a driving simulator the researchers monitored drivers over four to six hours. "They would take a break, and then drive for a couple more hours," Dr Haworth said. "We found that the break has a very short-acting effect. The sleepy driver's performance soon declines to its previous level."

The study confirmed overseas research showing that a rest break with a snack was more effective in beating the onset of fatigue than a rest break alone. "That is not to say a heavy meal will have the same beneficial effect, because people tend to go to sleep after a heavy meal," she said.

"The interesting thing about taking a snack is that we are not certain whether the effect is physiological or psychological. Does the snack work by making the rest break more interesting, by relieving boredom, or does it raise alertness by causing the release of glucose into the bloodstream?"

"Our experiments showed that a boring stop doesn't seem very useful at all to a tired driver," Dr Haworth plans to go back to the test track to see if the laboratory results translate to real driving.

Researchers monitored frequency and duration of blinking to predict when drivers were about to fall asleep. Dr Haworth found that drivers' alertness and performance began to decline markedly up to half an hour before they fell asleep at the wheel.

"What interested me was that in almost every case where somebody was falling asleep, the experimenter would say their name to alert them, and they would wake up with a terrible shock and refuse to go on further," Dr Haworth said.

"Even though the experimental conditions meant they were quite safe, their impression was that it was far too dangerous to continue. It's comforting that the drivers are acting the same way they would on the road, and they won't keep going."

The study also confirmed accident statistics which showed that drivers tended not to go to sleep at the wheel in the daytime, but were much more likely to do so at night.
Now & Then

This Month Last Year

Rapid expansion in the higher education sector has been at the expense of the quality of teaching and research in universities. Vice-Chancellor, Professor Mal Logan said that "desirable trends of growth in student numbers have been achieved at marginal funding levels, which has had an inevitable impact on the quality of teaching and research."

Monash photographer Steven Morton came up with the world's first 360 degree panorama camera, to produce single-page images.

5 Years Ago

The Asian success ethic could hold the key to Australia's survival as a nation, according to Dr Brian Bulvivant, a reader in the Faculty of Education. He was commenting on findings in his report on ethnic success. Bulvivant, which showed that Europeans and Asians were achieving academically out of all proportions.

15 Years Ago

Professor Peter Singer, author of Animal Liberation, criticized the lack of academic awareness about the ethics of using non-human animals in scientific experiments. He said that millions of animals were dying in laboratories, often in the course of trivial experiments or pointless teaching demonstrations.

25 Years Ago

Professor H. A. F. Dudley has returned from South Vietnam after three months with the Alfred Hospital surgical team at the Bien Hoa Base and will resume duties as chairman of the Department of Surgery.

Club renovations feature new bars, function room

The Monash University Club is considering a proposal to allow student membership, as part of a $300,000 redevelopment.

The plans involve:

- creating a general purpose function room and student bar;
- providing a new lounge bar for members; and
- extending the existing food service.

Under the proposal, non-voting student memberships would be offered for $20 per year. (Full membership for staff costs $110.) Student memberships would be admissable only after 3 pm.

The club's board of management will resubmit a proposal to council after considering the prospects of students' functions or members' functions being advertised after 3 pm.

The president of the University Club, Mr Keith Allen, said the previous proposal had been defeated mainly because of members' concerns over privacy and control of the trading hours of the student bar.

"Rather than being part of the house rules, which can be altered at any time by the club committee, the opening hours for associate members would now be inserted in the constitution, which could only be changed by members. Operable walls would cut noise and screen the function area and student bar from the rest of the club."

"The club has been servicing only a small portion of all the people who are on campus every day," Mr Allen said. "The proposal would open it up to the whole university community as well as visitors."

"Before going ahead with the plans we had an in-depth study carried out by marketing specialists. Their main criticism was that we serviced such a small group, and didn't particularly cater for anybody else. They felt that in this day and age you needed a bigger audience to sell to."

He said over the past three years the current board had turned around a substantial deficit. However, with current revenue levels, existing services could only be maintained, and not extended.

"We can't expect the university to give us a grant whenever the place needs a facelift," he said. "To provide better service and facilities, we need to expand the horizons of our membership."

"Only a small part of the membership patronise the club after 3 pm. The area we are still looking at is more than adequate to service these people."

He said members' functions would be given preference over opening the student bar, and dress and behaviour standards would be the same for all members.

Floor plans and artist's impressions of the proposed development.

An architect's drawing of the proposed development.

MONTAGE

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Gippsland plan affirms identity and regional links

The identity and style of the Gippsland campus will be retained and its strong regional focus encouraged under an integration strategy adopted by the University Council.

It covers the first stage of incorporating Gippsland's schools into the university faculty system, within the framework laid down by the Vice-Chancellor, Professor Mal Logan.

The plans were presented to Council by the Deputy Vice-Chancellor, Professor Robert Pargetter, following consultations with the Committee of Deans, Academic Board and the Gippsland Advisory Council, and discussions with heads of schools and general staff at the Gippsland campus.

The main points are:

- Each of Gippsland's seven schools will become a school of a relevant university faculty (see box);
- University faculties will be responsible for degree programs;
- The schools will be responsible for student selection, arranging teaching programs, and publicising and delivering those programs;
- The role and status of school heads will be largely unchanged.

"Gippsland will continue to function in a similar way on a day-to-day basis," the paper, titled 'Gippsland - The Next Step' says. "Interaction with the community must be maintained, and hopefully developed further."

The Gippsland Advisory Council would continue to operate, and its views on name of the campus should be given considerable weight. At issue is whether the name Monash University College Gippsland should be maintained or the name Monash University - Gippsland adopted.

"The former name preserves a historical link and perhaps emphasises the role for local involvement; the latter indicates that the university proper operates in Gippsland, and that this is one of four university campuses," the paper says.

On an organisational level, academic issues would be the responsibility of faculty boards, it says. "It would be inapplicable to have school boards to look after a range of functions and for school administration units to service the operation of the schools."

A general academic forum has been proposed to give the Pro Vice-Chancellor special responsibility for distance education and act as director for the Gippsland operations.

"Heads of school would remain as the senior academics responsible for the operation of each school at Gippsland and carry out functions such as at present," the paper says. "A head of school would report to the relevant dean, but for operational matters would liaise with the Gippsland Pro Vice-Chancellor."

"Conditions of appointment and reappointment for heads of schools are currently under consideration by the Academic Board and arrangements for the incumbents will be determined after consultation with the Vice-Chancellor."

Professor Loggan in a framework statement says there will be:

- A movement of distance education load to non-distance education load without his approval;
- A move towards parity of funding when possible;
- No reduction in student load or diversity of courses.

The paper notes that school is an ambiguous structure at Monash and, subject to eight general issues set out in the document, a school's relationship with its faculty would be determined by mutual agreement.

"An agreement would determine membership of departments and arrangements to provide links to other faculties at units. If agreement could not be reached, the matter would be referred to the Vice-Chancellor's integration Committee to recommend steps towards a resolution."

Negotiations would also involve existing schools in faculties which may need to adjust structural arrangements. One such change would arise if the Graduate School of Arts should be a school within the Faculty of Medicine.

"A new development plan for the Faculty of Professional Studies would have to be produced. Negotiations concerning this will take place," the paper says.

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Graduate salaries defy economic gravity

Graduate starting salaries continue to ride out the recession, according to a recent survey conducted by the Course and Career Centre. The Australian-wide survey found that on average 1991 salaries had increased by between 1.4 per cent ($1400) and 9.4 per cent ($2700) over 1990 figures.

The survey, conducted by Ms Sandra McNamara, examined the salaries of graduates from six major disciplines.

It found that starting salaries of graduates in:

- Science showed healthy increases — geology rose by 5.1 per cent, maths/statistics by 5 per cent, and biology, physics, environmental science and chemistry by about 4 per cent, and
- Computer science recorded the lowest increase of 1.4 per cent.

"About 26 per cent of employers surveyed expected graduate recruitment to increase in 1992, 52 per cent said it would remain at the same level, and about half expected it to be lower than 1991 levels," Ms McNamara said.

Continuing graduate recruitment was highly desirable, even in the current economic downturn, as it helped companies secure a reputation among potential recruits and ensured that future skills shortages at the middle management level did not occur.

"Although fewer jobs were being offered, the survey indicated that new graduates were seen as being well-prepared for the job market," she said.

"Decision making, problem solving and analytical ability were rated highly by prospective employers."
Computing pioneer dies

Mrs Pearl Levin, Head of the Pearcey Centre for Computing, died this week. She was 56.

Recognised as a pioneer in Australian computing, she had been studying and teaching at the Caulfield campus since 1965, overcoming many barriers against women in computing careers.

When she took her first step towards a career in computers, married women were not allowed to hold permanent teaching positions in colleges and universities. Twenty-seven years later, she became head of one of Victoria's largest computer training organisations.

The Pearcey Centre, part of the Faculty of Computing and Information Technology at the Caulfield campus, was established 15 years ago. It is a self-funding organisation which devises and promotes computer courses for industry and commerce.

Mrs Levin was the first female permanent part-time staff member in the Victorian Institute of Colleges. At the time of her death, she was the only woman in Victoria who was a principal lecturer in computing and one of only two women in the state who were Fellows of the Australian Computer Society.

After beginning her studies part time, Mrs Levin graduated in 1976 with a Certificate in Computer Operating and Coding and completed a Bachelor of Applied Science in Computing in 1980. She joined the Pearcey Centre at its inception as a consultant and part-time lecturer and succeeded the former executive director, Mr Doug Burns, in 1990.

Parking problems examined

The Vice-Chancellor, Professor Mal Logan, has asked the Acting Comptroller, Mr John White, to prepare an option paper on the university's parking problems.

Professor Logan told the Academic Board that due to the greater number of students and staff, and the increasing daily movement between the four campuses, parking was now at a premium.

He asked those with suggestions on the parking problems to pass them on to Mr White.

The Vice-Chancellor also revealed that he had placed on hold the ring road to help alleviate congestion. Another suggestion was that cars carrying more than one passenger should be allowed to park in specially designated areas.

MONASH INTERNATIONAL

University info bank targets Asian business

Australia's export capacity has been boosted significantly by the establishment at Monash of the country's largest data bank on Asia.

Asia Bureau will develop in-depth profiles on each of Australia's Asian neighbours, especially the latest data on their economies, culture, language, politics, demographics and business trends.

The service will channel the resources of 22 centres at Monash that deal with Asia: Australia's biggest collection of Asian expertise.

The Vice-Chancellor, Professor Mal Logan, said the Asia Bureau would be a concrete example of how the resources and expertise of a major university could be harnessed for the national good.

"The bureau will break new ground by offering a range of cost-effective services previously unavailable anywhere else in Australia. In particular, the bureau will tap into the skills of Monash's Asia Institute, Centre for International Briefing and David Syme International Briefing Centre."

Monash, as well as being Australia's largest university, is also the country's biggest provider of Asian and business studies and its leading education exporter.

Professor Logan said globalisation meant Australian firms had to be better prepared than their international competitors. In the case of Asia, he said, price advantage was not sufficient, business also must understand the culture.

He cited the example of an Australian manufacturing firm seeking to export to South Korea.

Monash could provide the firm with print-outs on Korean government policies, import regulations, economic trends, culture and language, technical background and guidelines on social behaviour.

IVF technology exported

Childless couples in Asia may soon have access to the latest in in vitro fertilisation technology.

Monash University's Infertility Medical Centre, which supplies research to the biggest IVF business in the US, is planning to establish clinics in the region.

The centre's chief executive, Dr Robert Hetzel, said the first clinic would be operating in Asia within a year.

The clinics would be run independently using local doctors and management, but would depend on Australia for the development of new techniques.

All profits from the exports will go towards research at the centre, which is owned by Monash University and its Centre for Early Human Development. Dr Hetzel said there were clearly enormous business opportunities for the export of medical technology to Asia and a definite demand for infertility services.

The Infertility Medical Centre is the second-largest infertility clinic in the world, after Brussels, providing 2000 IVF treatments annually.

AUSTRALIAN CAMPUS REVIEW WEEKLY

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Campus Review Weekly is available from campus bookshops.
The mailroom tries to sort it all out

The medium is undeniably the message in the mailroom on Clayton campus. Between seven and eight million glad, bad and indifferent tidings are delivered to the room each year.

Before the amalgamation, the staff of three sorters, two drivers and one trainee handled a mere four million articles annually. Now, the mailroom in the Central Services Building deals with more than four tonnes of mail each week.

The only thing that hasn’t changed, according to acting supervisor Mr Brian Blackhall, is the number of complaints. The mailroom still receives on average only one grumble each month.

Pictured (from left) are mail room staff David Fields, Brian Blackhall, Nick Carydias, Ann Tauti, Lou Bourazikas and Steven Fletcher.

Missing from the line-up is mailroom supervisor Don McKie. Also absent is Ian Newbold, who served in the mailroom for 23 years and was posted recently to the university offices.

Recycling study probes community behaviour

The first psychological and behavioural study of community recycling attitudes, conducted by Monash, is helping to formulate State Government policy.

The study, ‘Understanding why people recycle’, surveyed householders in Camberwell, Frankston and Richmond about their views on recycling and waste reduction. The Environment Protection Authority (EPA) and collection contractors provided information on whether or not a household had put out a recycling bag for collection at least once over a five-week period.

The main finding was that while 98 per cent of people surveyed thought recycling was a good idea, actual participation rates were significantly lower. In some areas, there was a difference of up to 20 per cent between the ‘self-reported’ and actual level of participation.

The research team was led by Ms Helen Goring of the Department of Applied Psychology, Frankston campus, with funding from the EPA and the Litter and Recycling Research Association. Other team members included lecturer Ms Mary Marsh, and research assistants Ms Robyn Parker and Ms Stephanie Delley, and 15 community psychology students.

The study, which developed from local teaching initiatives, looked at the differences between residents who do and don’t recycle, differences in participation rates among different socio-economic groups, and the attitudes towards the perceived costs and benefits of recycling.

Mr Curnow said the suburbs chosen were typical of high (Camberwell), medium (Frankston) and low (Richmond) community involvement in recycling. “There was a consistent indication of involvement that did not match behaviour,” he said.

“Confusion exists about how to recycle appropriately,” he said.

On surprising results was that only nine of the 342 people sampled correctly recognised which items could be placed in a recycling bags. All were from Camberwell, and eight were participants.

Participants in recycling tended to be younger, better educated, more willing to get involved, stronger in their sense of commodity, more confident in the gains and impact from recycling, more confident in their capabilities for setting goals, and more involved in community initiatives.

“Greater community education is required for all areas,” Mr Curnow said. “High participation areas can use peer pressure, or positive role models and social support to encourage others to get involved.

“Low participation areas need authorities to take the lead in providing guidelines, together with effective service delivery, active promotion and reinforcement of results.”

“Clear evidence emerged that people looked to their local papers and councils for information and encouragement to help them contribute to schemes which made a broader impact.”

Launching the study and April as ‘Recycling month’, the Minister of Conservation and Environment, Mr Barry Pullen, said more needed to be done to translate people’s desire to recycle into action.

“The survey tells us that motivating people to recycle requires a clear understanding of the system and how to do it,” he said. “Where people think their actions don’t translate into real benefits, we will participate in recycling.”

The Government’s response included legislation intended to strengthen the recycling industry and to halve the amount of waste going to tips. A new supply of white recycling bags and information pamphlets would be supplied to all council areas, and a new media campaign based on the ‘Don’t bin it. Bag it’ theme.

Ms Helen Goring in the music library with issues of Australian Musical News from 1949.

Musical history back in the news

A two-year project to find and film the 52 volumes of Australian Musical News has been completed by the music librarian Ms Helen Goring.

Dated between 1911 and 1963, the publication is one of the most important Australian music history sources available. After an Australia-wide search, the volumes were obtained from the State Library of Victoria, the Performing Arts Museum, the University of Melbourne Library, the National Library of Australia, and Monash’s music library.

The set is now available for the first time on microfiche and 35 millimetre microfilms. Ms Goring believes that all universities offering Australian studies will want a copy of the collection, made up of 470 microfiche or 12 microfilms.

The set will soon be available for consultation in the Main Library.

The cost of the collection is $400 for the microfiche, or $200 for the microfilms version.
Course prices pegged

The price of all courses for Clayton students at the Arts, Crafts and Tuition Centre has been pegged at $20 for the second consecutive year.

Since early last year, when charges across the board were cut and the special student rate introduced, interest in the centre's activities has increased.

"The centre now regularly reviews its courses with the aim of attracting students and staff," said Ms Tess Mora. "The results speak for themselves, as shown by the heavy turnout in classes." Ms Mora said although the centre was attracting more Monash people to its courses than ever before, its budget was tight. "To continue contributing to the cultural and recreational life of the university, it needs continuing support from students and the wider community," she said.

Dance bridges cultures

Indian classical dancer and arts educator Ms Tara Rajkumar (above), has been appointed an honorary fellow of the Monash Music Department.

A guest lecturer and performer of Indian classical dance at the university since 1986, she was appointed to a teaching position last year.

Ms Rajkumar has been instrumental in developing a dance program under the auspices of the Music department as part of its performing arts program.

"The fellowship acknowledges work being put into creating the dance program and recognises the important role that dance has within an Asian performing arts program," she said.

She said that dance was a wonderful form of expression and could also be an important way of bridging the cultural gap.

"To learn to dance, we need to have a sound knowledge about that country's culture, to appreciate the customs, the people, their lifestyle," she said. "Dance encourages an understanding of the way of life in a country and therefore has an important role in the wider community."

Her life-long passion for dance began at the age of five, and she has gone on to establish a reputation as a performer and teacher of the two classical Indian dance forms Kathakali and Mohiniattam.

She has taken her classical dance from traditional Indian temples to theatres in London, where she founded the National Academy of Indian dance, and also formed her own Indian dance school called Nitya Sudha in Melbourne.

Ms Rajkumar was a keynote speaker at this year's Asian Pacific Conference of Arts Educators, held at the Frankston campus, and has recently finished a season as artistic director and performer in Traditions in Transition at the Beckett Theatre.

As well as her Monday evening classes, she is keen to run lunchtime lessons in Indian classical dance. Interested people may contact her on 551 7592.

Jewish civilisation centre launched

A national home for Jewish studies was unveiled last month at Monash. The Australian Centre for Jewish Civilisation was launched jointly by Sir Zelman Cowen and Israel's ambassador to Australia, Mr Zvi Kedar.

About 250 members of the Melbourne Jewish community attended the launch of the centre, which expects to be the major focus for research on Jewish communities in Australia. In his speech, Sir Zelman described Jewish civilisation as a proud possession of Australian society.

The centre will recognise the Jewish contribution to the modern world by providing an overview of Jewish history and heritage, from the origins of the Jewish people in Biblical times through the dispersion of the Jewish people, the Holocaust, the establishment of contemporary Jewish experiences in Australia.

"Under a portrait of Sir John Monash, Sir Zelman said it was appropriate that the national centre for Jewish studies be established at the university named in his honour.

"Monash University is a highly successful and very vigorous university and the establishment of the centre will only add to that success," he said.

The Ambassador for Israel, Mr Kedar added: "The centre will help focus on the rich heritage of the Jewish civilisation."

Lab test for VCE students

Hundreds of secondary students swapped the classroom for a Monash chemistry laboratory recently for a practical introduction to science.

More than 640 Year 12 students from metropolitan schools took part in a week-long workshop series, designed to help schools meet their curriculum requirements for the VCE.

Senior chemistry lecturer, Dr Ian McKinnon, said the series - the first of its type at Monash - was a cooperative effort to familiarise students with scientific instruments.

"The workshops provided students a unique opportunity to gain practical experience in a laboratory," he said. "They also covered important curriculum material for the VCE."

Dr McKinnon said the workshops had received positive feedback from both students and schools and would be held at Monash annually.

"I think the students enjoyed the practical learning and took advantage of the content of the workshops," he said.

Staff and graduate and honours students from the Chemistry department conducted the teaching and demonstrated equipment.

BRIEFS

VCE students pictured during the scientific instruments workshop series.
Peace has returned to Ethiopia with the collapse of the Mengistu regime, and like many other Western scientists, Professor Martin Williams is looking forward to returning to the Awash Valley, the cradle of mankind.

Professor Williams, of the Department of Geography and Environmental Science, is an expert in hominid evolution. He says the Danakil region in the country's north-east, where the Great Rift Valley is slowly bleeding the continent, offers a rich record of hominid evolution spanning the past 6.5 million years. That richness, he believes, is the product of a unique cross layer between regional geology and global climate.

Hominids were widely distributed in Africa, Asia and Europe between about 15 million and 6 million years ago, but in Ethiopia, some special quirks of the environment gave a push to hominid evolution, and it acquired a momentum that culminated in the appearance of our own species, Homo sapiens, around 250,000 years ago.

In 1981 Professor Williams, along with two long-time palaeoanthropologist colleagues, Professors Desmond Clark and Tim White, of the University of California at Berkeley, were searching an area to the east of the Awash River for hominid fossils that could help determine their age and relationships. Some of his ideas, developed with the help of his geologist wife Frances, who worked for seven years with two long-time palaeoanthropologists, have found butchery sites - the hominids were using sharp stone flakes, capable of cutting through two centimetres of tough hide, to dismember game as large as hippo and buffalo.

Now, the hominids were eating meat, an abundant resource in the region. And because their upright stance greatly reduced the area of their body exposed to the direct rays of the noonday sun, and they had sweat glands all over their bodies, they could hunt without competition from the big cats, which were forced to rest in the shade.

An upright stance liberated the hominids' hands, and they increased their skills at fashioning stone tools. The free availability of meat meant these proto-humans gained leisure time for social interaction, and for improving their communication skills. Feedback effects now saw a dramatic increase in the size and complexity of their brains.

Another pivotal development occurred some 1.5 million years ago. This is the estimated age of many fossilised animal bones. Professor Williams says some researchers speculate that the practice of cooking meat began with the accidental burning of animal carcasses. The first hominid tool users - although not hominid fossil fragments.

The hominid bone fragments found in the Awash Valley by Professor Williams and his colleagues in 1981.
Expanding biological frontiers

Protein molecules largely handle the flow of information from cell to cell. Tapping into this vital communication network at a molecular level is leading to a new frontier in biology: custom-designed molecules with the potential to treat cancers, virus infections and autoimmune diseases.

First there was biology, then came molecular biology. Professor Milton Hearn, Director of the Centre for Bioprocess Technology, believes the new frontier will become known as atomic biology, where biology fuses into chemistry and physics, as foreshadowed by the eminent Swedish scientist Professor Mosbach more than 10 years ago.

Much of biology revolves around interactions between protein molecules. Cells communicate via special receptor proteins in their membranes. Viruses and bacteria link their own surface proteins to these receptors to invade or damage cells, and even the formidable intelligence of the human brain relies on neurons exchanging specific proteins and other low molecular weight substances called neurotransmitters.

"Cells can understand protein-protein interactions in terms of the interplay of the functional properties of the amino acid side chains, and the underlying molecular forces involved, it will be well on the way to custom-designing compact molecules that will mimic, and perhaps improve upon, the natural activity of proteins and enzymes. Such molecules could be used as vaccines, as drugs to treat metabolic disorders and cancers, or as potent enzymes to catalyse biochemical reactions in industry."

"Way back in 1983, Professor Hearn's research group reported on the work of Matthew Wilce, a PhD candidate supervised by Professor Hearn, who is studying how proteins interact with synthetic carbon-based molecules attached to surfaces. Mr Wilce's research - as well as the associated investigations of Dr Mibel Aguilar, Dr Peter Stanton, Dr Phillip Thompson, Dr Irena Cotic and other postgraduate students in Professor Hearn's research team - have shown that these reactions simulate the interaction of proteins with their natural ligands, such as other biological substrates or surfaces, and can be used to help pinpoint the active regions of protein molecules."

"Unfortunately, we don't yet understand the rules but one can get a lot of information from chemical interactions that have relevance to biological phenomena," Professor Hearn said. "The important contribution if the research team is that we are now starting to be able to quantify those interactions. This project really has been a gold mine of information."

"A protein will 'see' a synthetic chemical ligand in much the same way that it sees its natural receptor or ligand. But the advantage of using synthetic molecules is that their chemistry and shape are much easier to manipulate than large biological molecules. Through this type of research, we can build up a large database without too many years of effort."

Professor Hearn explains that proteins consist of long chains of amino acids that fold up into three-dimensional molecules; shape, as much as the composition, determines the protein's function. Much of the amino acid sequence of a protein is purely structural, serving only to hold the small, functional regions in the right three-dimensional conformation that allows the protein to do its job.

"If it were possible to excise these functional regions from the protein without altering their shape, these mimics could display the biological activity of the original protein. Moreover, synthetic molecules of quite different chemistry, but of similar shape, could be used to replicate behavioural properties similar to biochemical substances."

"We are now starting to quantitatively understand subsets of behaviour, seeing how amino acid side-chains - specific parts of proteins - interact with different substrates. Proteins, when they interact, see only particular functional or binding regions of their interacting partner."

"The basic rules to unravel these recognition events come from beyond biology, from the biophysics of interactions at the atomic level. We are moving from molecular biology to atomic biology."

"Ways of describing molecules in the digital language of computers, in terms of contoured surfaces, have been developed by the research team, allowing the simulation of these interactions on powerful computers. The molecular interactions can be experimentally modified on the computer until they fit the structure of a particular ligand or substrate."

"A good analogy to imagine that you are flying over the city, so high up that you can't see your own home, but you have a grid reference in mind, and if you can match the pattern of city streets to the one in your mind, you can find your home," Professor Hearn said.

"We are using pattern recognition to generalise different classes of protein behaviour. In this way, one can begin to tackle some very interesting problems involving biorecognition. For example, what is an antibody seeing when it recognises an antigen, and what part of a viral protein is responsible for causing the symptoms of a disease?"

"We can approach these questions, but we have a long way to go. It's an exciting study because in the few examples we have looked at, we have been able to very accurately predict the key component on a protein's surface that confers its specific biochemical property."

"One potential application of this new generic technology would be the development of novel peptide vaccines, based on synthetic molecules that would mimic the antigenic properties of viral proteins. The use of attenuated viruses in the production of vaccines always carries the slight risk that the vaccine might cause the very disease it is intended to prevent. By designing molecular mimics capable of eliciting the same protective antibody response from the immune system as the viral protein, scientists could develop completely safe vaccines."

"Professor Hearn's research group has already used its pattern-recognition technique to develop peptide fragments for prototype vaccines against several viruses and has established a stronger research collaboration with the French research agency, the Centre National de Recherche Scientifique (CNRS) to test these peptide mimics."

"The combined efforts of this international research team has led to the preparation of synthetic peptide antigens that produce an appropriate antibody response from the immune system. In addition, the collaborative research is currently developing synthetic antibodies that recognise viral proteins. Experiments with rodents suggest that these synthetic molecules will have no adverse effect on the body."

"Eventually, scientists may be able to design synthetic molecules to fit or mimic the active sites of any natural biological substance, but this would require an enormous database of molecular structures. For example, within Professor Hearn's research group, Mr Wilce's PhD project alone has employed more than 2000 different structures."

"Based on similar methodology, the Monash team has developed other peptide mimics that show promise of selectively inhibiting a particular class of humour by blocking the growth of blood capillaries that carry nutrients for tumour growth. Several of these peptide analogues are currently under evaluation in Germany."

"Professor Hearn believes similar strategies could be used to develop small peptide analogues to deactivate the immune system processes that cause autoimmune diseases such as rheumatoid arthritis and some forms of diabetes, or could be applied to the development of several classes of protein drugs."
Exploding a volcanic puzzle

Around 1620 BC a massive volcanic eruption devastated the island of Thera, causing floods in the Nile Valley, and lowering world temperatures for several years. But did it also cause the collapse of the Minoan civilisation? Mathematics, geology and classical studies experts are working together to solve this ancient puzzle.

The island of Thera, dominated by the caldera of its extinct volcano.

Some 110 kilometres north of Crete, the crescent-shaped island of Thera, and the massive caldera of its extinct volcano.

The caldera dominates the island's outline - 28 kilometre-long and 10 kilometre-wide - suggesting the eruption released four times more energy and material than the Krakatoa eruption in Indonesia in 1883. Huge tidal waves and a glowing cloud of ash and gas veiled the Sun, cooling the Earth for several years. Oak trees recovered from bogs in Ireland made almost no growth in two successive summers. Similarly aged ice cores from Arctic glaciers bear Thera's chemical signature.

The disaster left scientists and historians with a mystery. As accurately as scientists can determine from these two lines of evidence, Thera erupted between 1625 and 1620 BC, yet the archaeological evidence places the collapse of the Minoan civilisation at 1560 BC - some 60 years later.

At this time, the Mycenaean civilisation from nearby Greece seems to have rapidly supplanted the Minoans, occupying Crete and surrounding islands, and taking over the Minoans' extensive trading networks in the Aegean.

This mystery has brought together an unusual interdisciplinary team at the University, comprising mathematician Professor Joe Monaghan of the Department of Mathematics and volcanologist Professor Ray Cas of the Department of Earth Sciences in the Faculty of Science, and Dr Peter Bicknell, of the Department of Classic Studies in the Faculty of Arts.

Professor Monaghan says that the third international conference on Thera in 1989 was unable to reconcile the conflicting dates. One theory raised at the conference was that the tree-ring and ice-core records from 1620 BC might not be the signature of Thera, but of a smaller eruption somewhere else in the world. A relatively small eruption with the right chemistry can have a disproportionately large impact on global climate, as typified by the eruption of Mexico's El Chichon volcano of 1982.

That Thera erupted, violently, is beyond doubt. But if the mystery is to be resolved, scientists must provide historians with a realistic picture of what happened to the Minoans when Thera exploded.

The eruption was so powerful that it would have had widespread effects throughout and even beyond the Aegean. Dr Bicknell's review of the history of the age indicates that the Nile delta suffered catastrophic flooding, perhaps because of tsunamis, the tidal waves spreading out from the eruption.

But in the more immediate proximity, the primary agent of death and devastation may have been a pyroclastic flow, a glowing hurricane of ash and gas that the French call a nuee ardente, which raced outwards over the surface of the Aegean at 500 to 700 kilometres per hour on a cushion of vapourised sea water.

In 1991 the world saw video footage of a relatively minor pyroclastic flow speeding down the slopes of Mount Unzen in Japan. Krakatoa's mists were dark enough to seem like a curtain of ash and gas, falling out over the surface of the ocean, causing fatal skin burns to people on islands up to 40 kilometres away. The same phenomenon, applied to the much larger pyroclastic flow from Thera, might explain why Minoan settlements 140 kilometres away, on Crete, were devastated well away from the coast, at altitudes beyond the reach of even the largest tsunamis.

The Monash team has approached the Australian Research Council for a grant to support its project, which will attempt to develop mathematical models of the dynamics of the eruption and the propagation of tsunamis in the Aegean. Professor Monaghan has developed a series of mathematical models that quite closely reproduce the dynamics of water and waves flowing through channels, and over and around objects such as dune walls and sluice gates.

Some 110 kilometres north of Crete, the crescent-shaped island of Thera, and the massive caldera of its extinct volcano.

He plans to use scaled-up models to simulate the generation of tsunamis during the Thera eruption, and the subsequent propagation of the giant waves across the Aegean. The models must take into account the depth of the water, the sea-floor topography, and the shape of the many islands.

Under certain circumstances, waves can be amplified by channels, especially in shallow waters. Professor Monaghan says Krakatoa caused tsunamis 30 to 50 metres high to pound up in the shallower waters of the narrow Sunda Strait, where the water is about 200 metres deep. The sea floor of the Aegean between Thera and Crete is very rugged, and ranges between 600 metres and 2000 metres deep. As the depth of water approaches the typical 2000 metre interval between waves, the waves lose height but move faster.

Professor Monaghan believes the tsunamis generated by Thera would have been at least 20 to 30 metres high - about the height of a 10-storey building - and would have been moving through deep water at about 400 kilometres per hour. The damage these waves caused would have been strongly influenced by both the shape and coastal topography of the islands in their path.

"No one has tried to do this sort of thing accurately before," Professor Monaghan said.

"We would like to determine how the waves propagated, and then use the information to develop a video animation of what it might have been like for Minoans on the shoreline to watch the tidal waves and the pyroclastic flow approaching."

Given the variable depth of the Aegean, and the shape and position of the islands, Professor Monaghan says there would have been repeated episodes of focusing and defocusing as waves spread out.

The other question is whether, given the shape and topography of the shoreline, we can predict the behaviour of the waves as they came ashore at various sites," he said. "For example, near Zakros in the east of Crete, there are offshore islands and promontories, and as the waves turned around them they would be diffracted and may have lost height.

"We want to be able to predict which sites are going to be disrupted, and see how consistent these predictions are with on-the-ground information from the local archaeology. We also want to see the effects on other islands in the region. There may be places where the damage was quite significant, and we want to talk to the archaeologists about that as well."

Professor Monaghan said that when he first considered the possibility of modelling the tsunamis generated by Thera, he had assumed in ignorance that they were caused by the sea rushing into the collapsed magma chamber within the caldera.

"But Ray Cas pointed out that the tsunamis are more likely to be caused by the pyroclastic flow, which throws up a tremendous amount of rock, ash, dust and gases," he said. "Any material heavier than air then comes down like a giant ram on the sea surface around the island, displacing enormous masses of sea water and throwing up tidal waves."

Professor Cas also pointed out that tsunamis can be created by the horizontal outburst of pyroclastic material at temperatures between 600 and 800°C. Just as a droplet of water will skate across the top of a hot stove, suspended on a thin layer of vapour, a pyroclastic flow can propagate long distances on a cushion of vapour created by its own intense heat.

Professor Monaghan hopes to model the interaction between a pyroclastic flow and the sea surface, to see whether the nuée ardente from Thera could have traversed 140 kilometres to Crete - a possibility suggested by the apparent destruction of buildings well inland on Crete. Dr Bicknell will analyse archaeological records and memories preserved in myths to throw light on a catastrophe which many historians believe gave rise to the legend of Atlantis.

People living in the 20th century may one day be able, via the latest computer graphic and video techniques, to gain some inkling of what the last minutes of the Minoans may have been like.
National road safety authorities may have to reconsider their advice to long-distance drivers following research which has found that rest breaks provide no lasting benefits for drowsy drivers. Within a short time after stopping for a break, a driver's performance declines to its previous level.

Road signs along Australia's major highways urge drivers to stop and take a break to prevent them falling asleep at the wheel. But many drivers still think they don't need to stop until they are tired.

Research at Monash's Accident Research Centre, supervised by Dr Narelle Haworth, found that within 15 to 30 minutes after a break a tired driver may again be on the verge of falling asleep. By monitoring the frequency and duration of blinking, the researchers found that they could predict up to half an hour beforehand when a driver would fall asleep.

The study also found that certain commercial devices provide insufficient warning. By the time a passenger detected that a driver was sleepy, it may already be too late to avert a life-threatening accident.

In 1991 Dr Haworth conducted a literature review for the Federal Office of Road Safety, on factors which affect driver performance. She identified fatigue as one of the most important of these, and received further funding to develop a simple device which would alert drivers when a driver is close to falling asleep at the wheel. She was also interested in looking at the influence of how quickly a driver's performance declines with increasing fatigue.

Dr Haworth experimented in a car simulator in her laboratory at Monash University, and on the test track at Lang Lang, showed that as drivers become more tired, they tend to close their eyes more frequently, and for longer periods.

"We found we could plot the length of eye closure against time to predict when a person was going to fall asleep at the wheel," Dr Haworth said. "People keep the eye open for quite a long time when they are sleepy, which means that you have a long enough period of time to forecast "what's going to happen next.""

In hundreds of hours of monitoring driver fatigue on General Motors-Holden's Lang Lang test circuit, Dr Haworth found that drivers' alertness and performance began to decline markedly up to half an hour before they fell asleep. The test drivers at Lang Lang made repeated circuits for up to six hours, while Dr Haworth or other researchers sat in the passenger seat monitoring their performance.

Dr Haworth said that drivers tended not to go to sleep in the daytime. As suggested by accident statistics, they were much more likely to go to sleep at the wheel during the night. The phenomenon of fatigue seems to be linked to the body's circadian rhythms, which in turn are driven by changing light levels during the day and night.

Back in the laboratory, Dr Haworth tried to find ways of preventing or slowing the onset of fatigue. The first thing that was tested was the value of rest breaks. Road safety authorities generally advocate that drivers take a 10 minute break every two hours on a long drive, but most drivers will go much longer before taking a break.

In a driving simulator, test subjects drove for four to six hours, took a break, and then drove for a couple more hours. "We found that the break would change the very short-acting effect," Dr Haworth said. Within 15 to 30 minutes, the sleepy driver's performance had declined to its previous level.

"Looking at overseas research, we concluded that perhaps if drivers eat during the break, the benefit is much more prolonged," she said. "We did the relevant experiments and showed that when a subject had taken a typical rest break with a snack there is much more effect than a break alone.

"The break not to say a heavy meal will have the same beneficial effect, because people tend to go to sleep after a heavy meal. This is one of the interesting things about taking a snack is that we are not certain whether the effect is physiological or psychological. Does the snack work by making the rest break more interesting, by relieving boredom, or does it raise alertness by causing the release of glucose into the bloodstream?"

Dr Haworth plans to conduct open road testing to see if the laboratory results translate to real driving conditions, but she says that having a snack does seem to improve driver alertness.

But drivers on our highways will still go to sleep, and have potentially fatal accidents by running into other cars, hitting trees off the side of the road. How can this be prevented?

Dr Haworth has tested several commercially available devices which supposedly monitor driver alertness. One is a device containing a mercury switch, which sounds an alarm when the driver's head drops forward, below the threshold.

"Unfortunately it doesn't work," Dr Haworth said. "The simple device misses the dangerous decline in alertness and performance in the half hour before the driver's head actually falls forward. By this time, the driver is actually asleep, and in the few seconds that it takes for the alarm to sound and rouse him, an accident may already be unavoidable."

A commercial device which monitors blinking by reflecting an infra-red beam off the eyelid and eyelid works better, but its presence in the field of vision can be irritating to the driver, and may also invalidate an insurance claim. "It could be argued that it obscured the driver's field of view."

Another device which requires the driver to press a button every few seconds - it is based on similar devices already fitted to rail locomotives and some trucks - works surprisingly well. Dr Haworth says drivers do not seem to be unduly irritated by the repetitive action, but Tim White cleans the device which relieves boredom. However, the device may be impractical for motor cars because drivers on commuting trips would need to be able to switch it off, and might fail to reactivate it for long trips.

Dr Haworth has been working with a major European car manufacturer which is developing a steering wheel movement monitor. She recently spent several weeks at the manufacturer's research centre in Europe, exchanging data with its researchers.

The steering wheel monitor has the advantage that it monitors the deterioration in driver performance, without the driver being aware of it.

An alert driver makes very frequent, small corrections to the steering wheel to keep the car well positioned on the road; with fatigue, these corrections become less frequent, and of greater amplitude because the driver is straining at increasingly larger angles from the ideal line.

The frequency and amplitude of these corrections form characteristic patterns that can be monitored and analysed by a specialised computer chip. "There is no way of knowing what the computer is doing, but it is to develop algorithms that can discriminate between the corrections made by a driver on the point of sleep, and the patterns generated by, say, a drive on a twisting mountain road.

Stone tools appear

From Research Monash

1 The discovery of trees that had caught fire in lightning strikes. Some of these trees contained minerals, when heated by the slow-burning tree-trunk. This became natural ovens in which animals resident in the trees were accidentally resident. In the trees were accidentally illuminated by the slow-burning tree-trunk, presumably some form of death ritual. "They indicate..." Professor Williams said.

"Whoever did it was proficient, because the..." Professor Williams said. The tool discovered near the Bodo Valley, another small valley off the Bodo Valley, was..." Professor Williams said.
Bringing new dimensions to AIDS research

A journey through the AIDS virus within a computer database, developed at Monash, illustrates the growing importance of computers in both teaching and research. Information scientists and medical researchers are using this multimedia tool to enrich our understanding of HIV infection.

In the information age, computers, the global telecommunications network and a constellation of databases have made information on almost any subject readily accessible to expert and lay person alike.

The problem is no longer one of access, but excess. How can information be organised and distilled so people can learn what they need without drowning in detail or irrelevant data? At the Department of Information Systems at Monash's Caulfield campus, Mr Henry Linger is developing a prototype of tomorrow's information system, around a subject that has probably acquired more new knowledge faster than any century: AIDS.

Linger's multimedia tool is based on the remarkable Apple Macintosh HyperCard software package, but extends the HyperCard concept into new dimensions. The program gives researchers and students a way of following an information trail: moving between multiple layers - from the general to the highly specific and back again - and laterally within layers, at the click of a mouse button.

The layers offer information in a number of complementary formats. Network-like diagrams, including a model of the dynamics of the infection process, show how the AIDS virus infects human cells. The diagrams are supplemented by captions, bibliographies of AIDS-related literature, descriptive text and animated sequences. The system uses its home base three diagrams which describe the interactions between the human immunodeficiency virus (HIV) and its human host. It employs a concept, called Petri Nets, developed by the German scientist C. A. Petri during the 1960s and 1970s. Petri originally developed his networks to model computer systems and as a tool for designing computers.

Mr Linger is working with Drs N. Deacon and D. McFhere at the Macfarlane Burnet Centre for Medical Research to develop descriptive, mathematical and visual models of HIV infection. The researchers at the centre are interested in the dynamic role played by the various HIV proteins in the process of infection.

The project also involves researchers in Italy. On the biology side, Mr Linger is collaborating with Professor A. Clivio, of the University of Milan, and Professor A. Sicardi, of the San Raffaele Scientific Institute. On the computing side, he is working with Professor P. Musio, of the University of Milan.

Professor Musio spent two weeks in Melbourne in March working on the project and presenting seminars. In addition, a graduate student from Monash's Department of Information Systems has been awarded a research fellowship by San Raffaele Institute to work in Italy on the project.

Mr Linger says the Petri Net concept is now beginning to find much wider application because of its power to organise large volumes of related information. "I have tried to model the whole area of AIDS," he says. "The first, which is still only partially implemented, is the process of HIV infection. Another deals with the structure and function of the human immune system, and the third deals with the immune system's response to HIV infection.

"I have modelled one biologist's view of how HIV infection proceeds. Its attraction is that each step of the infection process is described by equations, so with appropriate software, the researcher can simulate the infection process dynamically.

"This network is overlaid with the sorts of interfaces common to Macintosh software. If you want to look at one component of the infection process in more detail, you use the mouse to highlight the box surrounding it and it takes you to another level of detail.

"You can do the same at this next level, and keep going until you reach the most specialised level of interest. Using the same techniques you can track back up through the network to see how processes relate to one another."

Mr Linger says another valuable aspect of the system is that it provides access to reference material on each component of the infection process.

"The amount of money devoted to AIDS research, and the consequent explosion of knowledge, has seen researchers move to mass storage systems based on compact disc read-only memory (CD-ROM). "The system also makes provision for a researcher reading the information to make comments and add new material. "The last time I looked, there were 10 CDs on AIDS, containing traditional referencing information, comments and the full text of research articles," he said. "To date, I have focussed on the Medline system on CD-ROM using the Petri Net model to organise and structure the literature in such a way that the biologist can use the mouse to highlight a node in the model as a way of requesting a literature review on that specific topic.

"The biologist then has the ability to display just the bare minimum, such as title and author, but can then move on to the abstract from the Medline CD-ROM. The next level of detail would be the full text of the article, but we don't yet subscribe to these services.

"Each node is then described in my system's encyclopaedia. You can use key words alone or in combination to extract the information you want, and when new information comes in, the system will be set up so that the person maintaining it can select important information, attach it to the relevant node or delete information which has been superseded."

"The notion is that once it has been modelled, any subject of interest related to AIDS becomes the basis of the organisational structure of the information. The system also makes provision for a researcher reading the information to make comments and add new material."

"Then we need to look at the much more interesting problem of how the models can converge again," Mr Linger said. "The model itself then becomes a point of discussion, so that researchers will look not just at the data being produced, but why certain experiments were performed, and how their results may support the assumptions of one model versus another."

"All the elements that relate to a particular model can be stored in an encyclopaedic repository, where they are accessible to anybody interested. Potentially this could be part of office automation systems, where the researcher obtains the experimental results, records them in a lab book, writes the paper, and then links all the information into the model. In this way, you could extend the model and build upon the knowledge base."

The last component of Mr Linger's system is an animation. He describes biology as an "inherently visual discipline," but one in which each individual is likely to maintain his or her own idiosyncratic mental images of what happens in a particular event or process during an AIDS infection.

"Using an animation package, Mr Linger and his colleagues have provided animated sequences that illustrate the process of the HIV virus infecting a cell. But this is no ordinary animation, because just as the tool kit provides access to multifaceted information - either as diagrams or text - the animation provides access to moving images at different levels of magnification."

"It shows, for example, a broad view of HIV encountering a cell and then moving into the cell. By clicking on one part of the scene, the researcher can magnify it and show how this...
**Info service on call**

The Monash Information Service (MONINFO) – the university library's commercial arm – should be supporting itself by the end of the year, according to the manager of the service, Mr Leigh Oldmeadow.

Nearly two years after its launch, the fee-based information service has surpassed its projected $250,000-a-year, becoming the most active university-based information service in Australia.

With two full-time staff and about 30 specialist librarians to consult, Mr Oldmeadow believes the service is unique. External organisations and individuals could access the university library without primary users being neglected, he said.

MONINFO provides access to all major database services, market research, borrowing rights in university libraries, document provision from a world-wide network, and industry and product reviews.

Information searches are its most frequent task. "It is not unusual for a business to contact us and request an information search by the next day," Mr Oldmeadow said.

Located at Clayton, one of Victoria's recognised technology precincts, MONINFO is geographically well positioned for industrial business.

Projects have included the production of a source book for the Australian Telecommunications Industry, the marketing of the ALLI (Australian Legal Literature Index) database, and briefings for Monash ANZ International Briefing Centre.

"A real need exists for information services but many businesses don't realise the benefits," Mr Oldmeadow said. "Our biggest challenge is promoting the information service to external organisations."

**Immersed in language studies**

Professor Merrill Swain, visiting fellow in the Language and Society Centre, believes Australian schools are successfully implementing the immersion language method.

Under the method, originated in Canada in 1965, children are taught some or all of their subjects in a second language. The mother language; it is considered, will be mastered at home and in the first language classes.

Professor Swain, a pioneer evaluator of the teaching method, says that even though Australia's language situation is different to Canada's, immersion programs here could be just as effective in promoting bilingualism. In Vancouver, for instance, French immersion programs had been very successful despite the fact that there were few French speakers there.

"The key to the method's success is that it is taught by teaching content in a school environment," Professor Swain said. "The reason it works is because language teaching and content teaching are integrated."

Professor Swain visited Australian schools using the method and found comprehension and language skills were very high, despite the limited hours of immersion. The schools usually offered from three to five hours of the program each week.

In Canada it is usual for at least half of all classes to be taken in the second language.

Professor Swain became interested in evaluating the method in 1971 in response to concerns raised about the first language skills of children in immersion programs.

She has concluded that there is "no negative impact at all. If anything there seems to be an enhancing effect on first language skills."

Children involved in the program also have been high achievers in other areas of study, and their listening, reading and comprehension skills were enhanced.

The earlier a child was introduced to the program, the more confident they would be with the second language in adulthood, she said.

From previous page

As the mathematical model underpinning the Petri Nets becomes increasingly sophisticated, researchers may be able to minimise their reliance on costly, time-consuming experiments and do 'experiments' on the model alone.

"We could explore the dynamics of infection using the mathematical model, and when the model provides useful information, it can be fed back into the Petri Net to improve the sophistication of the simulation," Mr Linger said.

Mr Linger, who has been working on his package for two years, believes it offers two major benefits. As an educational tool, the software would bring students and researchers up to speed on the subject of AIDS more rapidly than by any other method.

And while most researchers in the field will be familiar with the information contained in the system as a general basis, if not a detailed level, he believes that the way the information is structured will force researchers to think about their own activities in a much more organised way. They may see gaps in knowledge that they have been avoiding, or have simply overlooked.

With the mathematical model allowing the testing of new hypotheses, the system may begin to influence and formalise the pattern of experimentation, in contrast to its rather ad hoc nature today. "To do in vivo and in vitro experimentation, we may soon be able to add a third mode – the in machine experiments," Mr Linger said.

**Press cuttings**

A selection of recent Monash print media coverage

**MARCH**

Modern Times - Professor Peter Singer, Centre for Human Bioethics: Not what you produce, but how much you spend.

6 The Herald-Sun – Dr Joseph Mathew, Mechanical engineering: SEC averts computer virus disaster.

8 The Sunday Age – Dr Helga Kuhse, and Professor Peter Singer, Centre for Human Bioethics: Should we be allowed to slip the bonds of life?

10 The Herald-Sun – Mr Bill Yeates, David Syme Centre for International Business: Need spurs expert export trading group.

12 The Herald-Sun – Professor Jeff Northfield, Graduate Studies: Vet letter row.


14 The Age – Dr Eve Field, Rooke Research Centre: Intervention fuels bigoted attitudes.

15 The Herald-Sun – Mr Ian Haig, Centre for International Briefing Centre: How to manage social and cultural change.

18 Sydney Morning Herald – Dr Bob Birrell, Anthropology and Sociology: Gov't told to scrap migrant program.

19 The Australian – Professor Robert Porter, Medicine: Medical debris urged to fight cuts.

20 Business Review Weekly – Professor Janek Ratananong, Centre for Human Bioethics: Should we be allowed to slip the bonds of life?

21-22 The Weekend Australian – Mr Jeff Jarvis, National Centre for Australian Studies: Industry 'undervalued'.

23 Herald-Sun – Associate Professor Neil Cameron, Mathematics: VCE maths crisis.


24 The Herald-Sun – Professor Bob Williams, Law: Prisoner clamp push blasted.

25 The Australian – Associate Professor Threlgoth, English literature: Who?!

26 The Age – Dr Kevin O'Connor, Geography and Environmental Science: Recovery could take some time.

26 The Herald-Sun – Mrs Paddei-Ledtike, Monash University Medical School, Alfred Hospital: New skin hope on burns.

28 The Age – Associate Professor P. McCarthy, Psychological Medicine: Attitude here to human rights gone to glorious.

May 1992
Wrestling with reason and the emotions

Can I be blamed for my emotions?

Dr Justin Oakley, a lecturer at the Centre for Human Bioethics, explores the significance of human emotions in his new book entitled *Moral Reason and the Emotions*.

He argues that emotions have intrinsic moral significance and demonstrate that a proper understanding of emotions can reveal the important roles they play in our lives. He says too often emotions can be taken for granted, and they are often regarded as being outside the scope of reason and responsibility.

"We excuse ourselves from blame because of our feelings, and yet we praise those who have deep emotional capacities for sympathy and compassion," he said. "This ambivalence in our attitudes towards our emotions betrays a degree of ignorance about what they are and how they reflect on us.

"I believe that we don't think enough about how we feel, so we don't understand our emotions. I would like to see people debate the issue of what emotions are and how we may be responsible for them, as these are topics of interest and interest for most people."

"For example, some people conclude incorrectly that because we cannot change an emotion of ours at will, we cannot be responsible for having it."

"But on reflection, we can see that little of significance in our lives is subject to such immediate control, yet we are still held responsible for those things."

He said philosophers were now showing a renewed interest in the emotions, but there had been little attempt to present an overview of how we can properly appreciate the moral significance of our emotions.

*Moral Reason and the Emotions* looks at moral assessments which may unjustifiably be made about us because of our emotions, and also reveals the extent to which we are responsible for those emotions.

Dr Oakley has taught moral psychology and ethics at La Trobe University and Monash, and his writings have been published in several journals. The book, for non-philosophers and professionals, is a revision of his PhD which took five years to complete.

In the first month of sales, the book has sold more than 500 copies. It is available in hard back at the University Bookshop, Clayton campus, for $59.95. A paperback edition will be available later this year.

Orchestra and choir in concert

The Monash University Choral Society celebrates 30 years of production this year with the Melbourne premiere of Mozart's 'Great' mass in C minor.

In its first major performance for 1992, the society will be joined by the Monash Orchestra and choir in concert. They will perform the newly-published Maunder edition of the Great Mass, with anthems by Purcell and Handel, on Saturday 23 May at 8 pm in Robert Blackwood Hall.

According to the Choral Society's president, Mr Andrew Wailes, the Mozart production shows the university's desire to become a major force in the cultural and musical life of Melbourne.

"The choir has built a reputation for producing high quality performances and provides an example for others to follow," he said.

"The high musical standards and youthful exuberance demonstrated by the choir in recent years has led to a high regard from within and outside the university."

He said the increasing number of offers from musical organisations to work with the choir, and healthy audience numbers, was a reflection of the choir's growing reputation.

The Choral Society is one of the university's oldest student organisations. To celebrate its 50th anniversary, the choir hosted 'Cherubfest II', a festival named after the choir's mascot, over the Easter weekend. It brought together past members, conductors and committee members.

Mr Wailes said to join the choir, no previous experience was necessary; and this non-auditioning policy had ensured greater student involvement. The society has also launched a fund raising program for a proposed regional tour and hopes to participate in the Australian National Choral Championships in Wagga later this year.

"Tickets for the 23 May concert are now on sale, and can be reserved at the Robert Blackwood Hall box office on extn 75 3990. For further inquiries and information regarding group concessions, contact Mr Wailes on 568 7374."

Encore performances in subscription season

Some productions in this year's Monash subscription theatre season may be extended due to popular demand.

The Director of Monash University theatres, Phil A'Vard, said the season was shaping up to be one of the most successful yet. "Last year we tripled our subscriber base, so we are looking forward to an even better result in 1992," he said.

"The George Jenkins Theatre season in Frankston is ahead of budget, with three productions to go in only its second year of subscriptions. The season at the Alexander Theatre has also attracted a much greater response than last year's season."

Extra performances of the play *Dear Liar*, which opens in May, have already been scheduled to meet demand. This Australian premiere production stars Lorraine Bayly and Lewis Fiander and portrays an unusual love affair between George Bernard Shaw and Mrs Campbell; the original Eliza Doolittle. Internationally-known author, actor and director Jerome Sily will travel to Australia to direct the play, which he wrote in 1960.

The Victorian State Opera production of *La Traviata*, which is directed by Reg Livermore, has already sold out. The final production of the season is *Shirley Valentine*, starring Amanda Muggleton.

Bookings can be made at the Monash Box Office on extn 75 3992.
Darvell honoured
The Institution of Engineers Australia, Victorian division, has presented its 1991 Chairman's Award for Service to the Profession to the Dean of Engineering, Professor Emeritus T. Darvell.

After graduating in Engineering at the University of Melbourne in 1963, Professor Darvell gained higher degrees at Ohio State University and Princeton University, and a Diploma in Tertiary Education at Monash. In 1970 he joined Monash as a lecturer in Civil Engineering and was subsequently promoted to senior lecturer and reader in that department. Since 1988 he has been Dean of Engineering.

Professor Darvell, now a recognized engineering education expert, is the president of the Australasian Association of Engineering Education, a Fellow of the Institution of Engineers Australia, and a Chartered Professional Engineer.

Most recently, Professor Darvell's research work has concentrated on the softening of concrete structures and high strength concrete.

Medical chair
Dr Stephen Holdsworth has been given a personal chair in Medicine.

Dr Holdsworth graduated MBBS from Monash University in 1970. He has held positions including professorial registrar in the Department of Medicine and nephrology registrar. From 1972 to 1977 he was an NHMRC fellow in the Nephrology and Medicine departments. He was admitted to the degree of Doctor of Philosophy at Monash in 1978.

Dr Holdsworth was appointed senior lecturer in the Department of Medicine at Prince Henry's Hospital in 1980, after spending two years in the United States on fellowships. He was promoted to reader in 1981. His research activities focus on glomerulonephritis, the major cause of kidney failure. He has also made an important contribution to the understanding of the male reproductive function in chronic renal failure.

Green scholarship
Ms Bronwyn Ridgway (above), of the Civil Engineering department, has been awarded the Sir James McNeil Foundation Postgraduate Scholarship.

Her research project is on assessing the effects of environmental impact analysis on engineering projects, as well as the broader topic of the application of sustainable development to engineering projects.

"It is a great honour to win the scholarship", she said. This is the second consecutive year that the scholarship has been awarded to a Civil Engineering student.

Polish community award
The Polish Government last month awarded Professor Jiri Marvan (above, centre), of the Department of Mathematics, the Cross of Merit for services to the Polish community.

In his presentation address, Dr Waldemar Figal, a counsellor with the Polish Embassy, said that "the splendid work done by Professor Marvan and his colleagues in the Department of Slavic Studies has greatly expanded and sustained the interest of Australians in Poland and other Slavic countries."

Telecommunicating in residence
Senior telecommunications managers from 16 countries in the Asia-Pacific region attended a residen­tial seminar, organized by the Public Sector Management Institute, at the Banks Hotel, city.

Twenty-five representatives from telecommunications agencies, government ministries and regulat­ing authorities, examined key issues to be faced over the current decade in this rapidly-changing field. They heard presentations from prominent Australians and overseas speakers from telecommu­nications carriers, government, business and academia.

Benefits of the seminar, opened by the Vice-Chancellor, Professor Mal Logan, included executive development for regional managers, forging further links with countries in the region, and promoting Australia's telecommunications products and support skills.

The keynote address was delivered by Mr Mike Hutchins­on, Deputy Secretary of the Department of Transport and Communications. Sponsors included Telecom, the Australian and Overseas Telecommunications Corporation, government organizations and telecommunications manufacturers.

Through sponsorship, Monash provided a fellowship covering fees and accommodation for each participating country, as well as assistance with air fares.

Orchestral leader
Mr David Stefanaki, a first-year student in the Faculty of Medicine, has been awarded the inaugural Vice-Chancellor's Orchestral Leader Scholarship.

His musical background includes completing his Associate Diploma in Violin while in Year 10 and a perfect VCE Music score in 1991.

The scholarship, worth $2500, will be presented to Mr Stefanaki at a concert in Robert Blackwood Hall on 23 May at which the New Monash Orchestra and the Monash University Choral Society will perform.

Competition for the scholarship also attracted six other string players to the orchestra.

Engineering chair
Associate Professor Peter Dransfield has been appointed to a personal chair in the Department of Mechanical Engineering.

After a period as an associate professor at Oklahoma State University, he took up appointment as a senior lecturer in the Department of Mechanical Engineering at Monash in 1968. He was promoted to associate professor in 1971.

He has made scientific contributions in several fields of fluid power engineering, such as dynamic modelling, analysis, design and control of high pressure hydraulic control machines, vehicles and industrial automation systems.

Mathematics scholarship
Monash's first International Women's Day Scholarship has been awarded to Ms Tahlia Kestin (as right) of the Faculty of Science.

The scholarship, proposed by the Vice-Chancellor, Professor Mal Logan, recognizes an outstanding female mathematics student. It was awarded to Ms Kestin on the basis of her 1991 VCE results. She gained a VCE score of 405, which included a perfect score for the maths subject Change and Approximation.

The scholarship is worth $6000 over three years.

Ms Kestin, a former student of Ballarat College, is pictured with (from left) the Manager of the Equal Opportunity Office, Dr Margaret James; Professor Logan; and the Head of the Department of Mathematics, Professor Warren Evans.

Delegates and staff (from left) are: Chairman of Sri Lanka Telecom, Mr Veron Watthan; Dr Anna Boll, GSM; Vice-President of Indonesia's INDSORAT, Mr Herman Simandjuntak; GSM conference manager, Mrs Irene Thavarajah; GSM Director, Professor Bernard Barry; Dr Peter White, of La Trobe University; Head of Information General INDSORAT, Mr Abden Djabar; Chief of Cambodia's ITNW; Mr L.Y. Sam Au; GSM conference convener and senior research fellow, Mr Tony Niezintar; and Assistant General Manager, Telekom Malaysia, Mr Mohd Zedri Hassan.

People
MAY

1 Accounting and finance seminar 'Company takeovers and equity returns: The target size effect', by Associate Professor Dot Anderson, University of Queensland. Room 954, Menzies Building. 2.15 pm.  

Psychology colloquium 'Implicit evidence for retained linguistic competence in agn大军atation', by Dr Doug Saddy, University of Queensland. Room 96, Biology Building. 2.15 pm.

History discussion 'Hungary after the revolution', by Dr Elizabeth Boross. Room 614, Menzies Building. 2.15 pm.

4 Physiology seminar 'Fetal lung development and oligohydramnios', by Dr Kerry Dickson. Seminar Room, Department of Physiology. 4 pm.

5 Music seminar 'The voices of the rainforest: Problems of ethnomusical activity and representation', by Dr Steven Feld, University of Texas. 2.15 pm.

Environmental forum 'Theories, nature and spirituality', by Dr Ron Feden, University of Texas. Room 907, Menzies Building. 9.30 am.

6 Environmental forum 'Environmental and reality', Room 605, University of Queensland. 6.15 pm.

7 Monash Technology Protostar forum 'Commercialisation technology', by Professor Denis Kellieper, Synyure Centre for Enterpreneur Development and Dr Don Anderson, Australian Limited. Auditorium, Telecom Research Laboratories, 770 Blackburn Road, Clayton. 4 pm.

South-east Asian Studies seminar 'The 1975 student revolution in Thailand: Report on fieldwork', by Ms Eli Borland, Centre for Behavioural Research on Cancer. 4.15 pm.

8 Accounting and finance seminar 'An architecture for computer-based accounting systems: New directions for researches', by Dr Peter Seddon, University of Melbourne. Room 954, Menzies Building. 2.15 pm.

Psychology colloquium 'Evaluation of comprehensive health programme: Quit and Sun Smart', by Dr Ronald Borland, Centre for Behavioural Research on Cancer. Room 906, Biology Building. 2.15 pm.

History seminar 'Doig public history', by Chris McCown, Room 614, Menzies Building. 12 noon.

11 Women's studio seminar 'Cultural and contemporary sexuality: How to live with romantic love and feminist deconstruction', by Ms Bernie Martin, University of London. Room 7505, Menzies Building. 12 noon.

12 Physiology seminar 'Closing and expression of the ovine growth hormone receptor', by Dr Tim Adams, University of Melbourne. Seminar Room, Department of Physiology. 4 pm.

13 Comparative literature and cultural studies 'A Female Gnomology: George Sands family', by Marie Maclean. Room 809, Menzies Building. 8.15 pm.  

Environmental forum 'Nature as a spiritual guide', by Ms Susan Beckie, Room 805, University of Queensland. 5.15 pm.

14 South-east Asian Studies seminar 'The formal sector in Indonesia: Development and policies', by Dr Bob Rice. Room 951, Menzies Building. 11.15 am.

15 Accounting and finance seminar 'An empirical analysis of the ED59 Longform audit report on user perceptions of the auditor's role in financial reporting', by Mr Grant Gay and Mr Peter Schellih. Room 904, Menzies Building. 2.15 pm.

Psychology colloquium 'Huntington's disease: A paradigm for understanding brain-behaviour relationships', by Associate Professor Edwin Chiu, University of Melbourne. Room 306, Biology Building. 2.15 pm.

History seminar 'Derrida and history: Is there anything beyond the text?', by Kevin Hart. Room 614, Menzies Building. 2.15 pm.

18 Professional development forum David Suzuki launches his new book 'Wisdom of the Elders: Bringing native and scientific visions of the natural world'. Monash Medical Centre. 5.30 pm. Cost: $40. Bookings: Ms Belinda Van der Zee, 550 2708.

Psychology seminar 'Cholinergic and non-cholinergic nervous control of adrenal catecholamine release', by Dr Philip Marley, University of Melbourne. Seminar Room, Department of Physiology. 4 pm.

19 Faculty of business research seminar 'Discourse and measurement in accounting: Some definitions and their exploitation', by Mr David Warrell, Australian Stock Exchange. Clayton Campus. 3 pm.

20 Environmental forum 'Fire and the environment: What do we want and how do we get there?', by Mr David Packham, Bureau of Meteorology. Rotunda. 6.15 pm.

21 Short Courses:


Music seminar 'What's new in Tippett's opera New Year', by Dr Sue Robinson. Room 8007, Menzies Building. 9.30 am.

22 Accounting and finance seminar 'Lepaktoxic stock distributions: Implications for option valuation', by Mr Howard Chan. Room 954, Menzies Building. 2.15 pm.

Psychology colloquium 'Cortical mechanisms that be involved in localising the source of a sound in space', by Dr John Brugge, University of Wisconsin. Room 306, Biology Building. 2.15 pm.

History book discussion 'PC (political correctness) - a review of D-insou Squall's Aboriginal education: the politics of race and sex on campus'. Room 614, Menzies Building. 12 noon.

26 Faculty of Business research seminar 'Consolidation accounting and piecemeal acquisitions', by Mr Chris Grainger and Mr Trevor Wise, University of Melbourne. Clayton Campus. 11 am.

27 Comparative literature and cultural studies 'Mass Mediasur's or: Art, aura and the media in the work of Walter Benjamin', by Professor Samuel Weber. Room 809, Menzies Building. 3.15 pm.

Environmental forum 'Institutional auditing: Issues of culture and environment in psychiatric hospitals', by Mr Peter McCallum, Deputy Chief Psychiatrist, State of Victoria. Rotunda. 6.15 pm.

Genetics and environmental biology 'Bioethotology at Burnley: Applications to horticulture and agriculture', by Dr Karen Neilson, Burnley. Room 662, Biology Building. 4.15 pm.

29 Women's studio seminar 'Investigating gender differences in language maintenance', by Dr Anne Pauwels. Room 526B, Menzies Building. 11 am. Clayton Campus. 11 am.

Psychology colloquium 'Movement control systems and animal models', by Dr Mal Horne. Room 506, Biology Building. 2.15 pm.

JUNE

5 History seminar 'The capital of capitalism: the image and reality of New York city, 1890-1990', by Professor Ken Jackson of Columbia University, a Fullbright Fellow attached to the Department of History. Room 614, Menzies Building. 12 noon.
forms of relatively intense suffering. This suffering administered an extra mathematics test to many of their first-year students. Alas, the results deepened their distrust.

Generation after generation of children undergo compulsory mathematics education, and they experience both of self-confidence, and other forms of intense suffering. This suffering might be justified, if it led to some great long term benefit. Yet many children learn just one lesson really well: that they cannot do mathematics. Their parents suffer along with them; so do their teachers. This tragedy of epistemic proportions is at least partly the fault of philosophers.

DIOGENES

The pace was maintained throughout lunch, when the second bottle of wine helped produce Human Howel, an appropriate and agreeable title for a project aimed at cleaning up the Melbourne-Sydney highway.

But that afternoon the fog began to roll in.

The call came while the alcohol still held the company's director in its loose and languid grasp. The inquirer was obviously Scottish.

"He had invented, it transpired, a new computer, and wanted to call it The Real McCoy."

"This will be the Big Mac of computers," he thundered down the line in tongs dripping whisky. "It'll make everything else on the market look third-rate. Aye, supersidled.

"With your help we are goin' to be bigger than that American clan of preachers. Hah! Now on from 'er'll be such thing as a paddlin' 'mouse'. In fact, they'll be a moose, the true Scots pronunciation.

"I intend giving the computer back to the army to set it up in the classrooms."

Another suggested that the hard disk be renamed the caber. "Well," he began hesitantly when questioned, "I think some comparisons - tenuous, I admit - could be drawn in the way the caber can be difficult to get moving, makes a noise when it crashes, and takes one person to operate but an army to set up."

Eyes were downcast. It was proving a lot harder than first imagined. Then someone mentioned bagpipes, the anarchical Scott symbol.

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