

Monash breakthrough in nerve cells



BY TRACY HOCKING

In a world-first, Monash scientists have grown human nerve cells from embryonic stem cells – a breakthrough that could pave the way for new treatments for degenerative diseases such as Alzheimer's, Parkinson's disease and stroke.

The team's success, which was recently announced in the prestigious journal *Nature Biotechnology*, marks the first time cells derived from an early human embryo have been successfully turned into nerve cells in the laboratory.

Led by Professor Alan Trounson and Dr Martin Pera of the Monash Institute of Reproduction and Development, the breakthrough was made in conjunction with colleagues from the National University of Singapore and Hadassah Medical Centre in Israel.

According to Professor Trounson, deputy director of the Institute of Reproduction and Development, the discovery is a major step forward in the quest to use stem cells therapeutically.

"Because human embryonic stem cells represent, in principle, an indefinitely renewable source of any type of human cell, they have major applica-

tions in research and medicine," Professor Trounson said.

Embryonic stem cells have the ability to turn into any type of adult tissue cell such as nerve, blood, or heart cells and can be grown in the laboratory.

Human embryonic stem cells were originally reported in 1998, but this is the first independent confirmation that these cells can be grown from human embryos.

It is also the first indication that production of large numbers of body cells can be achieved in culture dishes.

"We have been able to get them to form pure nerve cells out of the embryonic stem cell line – no one has done that before," Professor Trounson said.

According to Dr Pera, a senior research fellow at the institute, the breakthrough brings closer the possibility of growing new tissue and even organs for transplant.

"These cells give us a new means of studying human embryonic development and its disorders, such as birth defects and childhood cancers, and they provide a new resource for the discovery of molecules which might help in regenerating diseased or damaged tissues for organ transplantation," he said.

Monash academic on Korean board

The head of the Monash Asia Institute has joined the advisory board of a key participant in unification moves on the Korean peninsula.

Professor John McKay recently returned from Seoul, where he signed a research cooperation agreement with the Korea Institute for National Unification, the major government-funded think-tank in South Korea dealing with work on North Korea and unification issues.

The Monash Asia Institute has been involved for more than 10 years with issues relating to Korean unification, the North Korean nuclear program,

North-South relations and tensions, and the role of China, Japan, Russia and the United States in the question of the Korean peninsula.

This work has involved close cooperation with universities and other organisations in both North and South Korea.

Under the Seoul agreement, Professor McKay has joined the KINU advisory board and the editorial board of the *International Journal of Korean Unification Studies*, which it publishes. Discussions are also under way on a series of joint research projects between KINU and the Monash Asia Institute.

Pioneers in their field: Professor Alan Trounson (left) and Dr Martin Pera. Photo by Jason South, courtesy of The Age.

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Unravelling the complex mystery of blood clotting

BY DAVID BRUCE

Monash researchers have identified the early steps that lead to the formation of blood clots and have revealed that blood clotting is considerably more complex than is currently understood.

Studies performed by PhD student Ms Su Kulkarni, and her colleagues at the Australian Centre for Blood Diseases, part of Monash's Department of Medicine at Box Hill Hospital, have taken a decisive step in unravelling the complexity of blood clotting. The findings have been reported in *The Journal of Clinical Investigation* and in *New Scientist*.

Heart attacks and strokes are the biggest killers in our midst. Worldwide, there is enormous interest in trying to identify the mechanisms that lead to these events. The key has been to understand the role of platelets – small, sticky blood cells that stop bleeding after injury. Platelet aggregation, the ability of platelets to stick to one another, is a critical process that stops us bleeding to death after an injury. But an exaggerated platelet aggregation can lead to the formation of a blood clot in the circula-

tion of the heart or the brain, leading to either heart attack or stroke.

Ms Kulkarni looked at the blood of patients with a rare form of von Willebrand's disease, which affects one person in every million. Sufferers are born without a blood protein called von Willebrand factor (vWf) and unless they undergo treatment that stimulates natural clotting, they could bleed to death.

Using state-of-the-art artificial systems that mimic blood clotting as it occurs in the body, Ms Kulkarni identified the pivotal role of the poorly understood vWf in starting the clotting process.

In a series of tests, Ms Kulkarni found that vWf allowed platelets to stick to one another in all areas of the blood stream, suggesting that this protein may contribute to clotting diseases in many body organs. The research demonstrated that the natural inhibitors of vWf actually serve as powerful anti-clotting agents by preventing the aggregation of platelets in both arteries and veins.

Over the last 30 years it has generally been assumed that platelet aggregation

is attributed to the binding of a protein in blood, called fibrinogen, to a receptor on the platelet surface. This knowledge has been used to develop drugs that block fibrinogen binding to the platelet surface and prevent blood clots in people with high risk of heart attacks.

Dr Shaun Jackson, Ms Kulkarni's supervisor at the centre, said the research firmly places vWf, not fibrinogen, at the beginning of a chain of events that lead to clotting.

"Su and her colleagues have demonstrated that blood clotting is much more complex than we thought. The research shows that the first protein that initiates the clotting is platelet vWf, and that fibrinogen has a subsequent role, probably in stabilising the clotting."

The studies have paved the way for the development of powerful new anti-clotting drugs by the centre through its alliance with Thrombogenix Pty Ltd. Thrombogenix has already licensed two technologies from the centre and is planning to begin clinical trials on new anti-clotting drugs this year.

Driver-side airbags necessary for all cars, researchers say



Driver-side airbags can reduce soft-tissue neck injuries by up to 40 per cent in a crash, according to MUARC test results.

BY COREY NASSAU

A new study into the effectiveness of driver-side airbags in cars has shown that they play an important part in reducing soft-tissue neck injuries in low-to-medium-severity frontal impacts.

The research, which was carried out by the Monash University Accident Research Centre in cooperation with Swedish Insurance Group Folksam, adds fuel to the growing argument for the inclusion of driver-side airbags in all cars.

While past studies have shown that the airbags reduce injuries to the skull, brain and face, this is one of the first pieces of research that has specifically

measured the effectiveness of airbags in reducing injuries to the neck.

According to the director of the Monash University Accident Research Centre, Professor Claes Tingvall, while neck injuries are not always immediately identified, they often result in long-term disability.

"We now know that soft-tissue injuries to the neck can occur at a change of velocity in a crash of just 15 km/h," Professor Tingvall said.

"With this in mind, the case for the standard inclusion of airbags is strengthened, as tests have shown that they protect not only the head in high-severity crashes, but also the neck in low-severity crashes."

Statistics from the study suggest that airbags can reduce soft-tissue neck

injuries by as much as 40 per cent. Such a reduction is seen as a remarkably good result considering that airbags have not been designed with the intention of reducing these sorts of injuries in frontal impacts.

The data used for the study was collected over a five-year period and included mounting 130,000 crash recorders in vehicles to extensively study the relationship between impact severity and injuries.

According to Professor Tingvall, with all the scientific evidence available, no car should be sold without a driver airbag.

"A modern car is simply not complete without an airbag, which, when combined with a seatbelt, makes a complete safety unit," he said.

Researchers hang out in the name of medical science



Monash medical researchers Dr Shaun Jackson (right), and Dr Andrew Perkins and former Monash researcher Dr Caroline Speed have been honoured for their contributions to medical research by being named Tall Poppies – a metaphor for excellence and endeavour – by the Australian Institute of Political Science. The Tall Poppy tram, which ended its month-long run around the city at the end of April, featured the research of 16 of Melbourne's leading young medical researchers on individual display panels inside the tram. Photo by Craig Wetjen.

BRIEFS

Attorney-General launches family law program

Federal Attorney-General Mr Daryl Williams last month launched Monash University's Family Law Assistance Program at the Monash-Oakleigh Legal Service.

The program utilises the skills of final-year Monash law students in providing assistance to clients involved in issues arising as a result of relationship breakdown, based on a model of self-help and workshops.

Mr Williams said the program was "innovative, holistic and a leader in its field", reinforcing Monash's national and international reputation in clinical legal education.

The program, based at Monash-Oakleigh Legal Service, is funded by the Federal Attorney-General's Department under the Clinical Legal Education Initiative Program.

Monash graduate to head women's office

Monash graduate Ms Rosemary Calder (BA (Hons) 1978) has replaced Ms Pru Goward as first assistant secretary in the Office of the Status of Women.

Ms Calder, 52, a former journalist and Victorian public servant, brings to the position 20 years' experience in health policy and development, particularly for elderly people.

Ms Calder, who will take up the position at the end of this month, said she had a strong interest in older women's issues.

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Monash to promote its expertise in economic crisis management

BY SANDRA BUCOVAZ

An international research project spearheaded by a team of Monash University academics promises to raise Monash's profile as a world authority on economic crises management.

It is hoped the findings will steer government and non-government institutions towards reforms necessary for economic stability in this new era of globalisation.

While it is early days for the project, interest has been shown already by the Committee of Economic Development in Australia together with governments and agencies in Malaysia, Vietnam and even Cambodia, which is not on the official list of countries to be studied.

Project convenor Associate Professor Chris Nyland from the Department of Management said there was a long-term need for crisis management which "really does seem to be part of the wave of the future".

"One of the concerns with the Asia currency crisis was that it was over so quickly," Dr Nyland said.

"People forget so fast and it is very difficult to get the necessary reforms introduced. Some minor reforms have been implemented but they will not be enough to get some countries through another crisis. Some of these countries are still as vulnerable as ever."

The recent extreme volatility on Wall Street, and the domino effect on other international stock markets, was indica-

tive of how fickle the global economy can be.

Australia has been internationally acknowledged for how effectively it responded to the Asian financial crisis and as a result has been lauded by some observers as a "miracle economy".

Monash University is determined to build on this new appreciation of Australian expertise in managing such a crisis so successfully.

"It will be very much in Monash's interests if we can develop an international reputation for our expertise and knowledge in economic crises management," Dr Nyland said.

Eight countries have been selected as the focus of the research based on several criteria, including the way they coped with the currency crisis, their level of industrialisation, the sophistication of their banking systems, and labour movements.

Of those selected, Australia, Taiwan, the Philippines and Vietnam survived the crisis relatively well, whereas the remaining four - Thailand, Indonesia, Korea and Malaysia - were affected far more adversely.

The research will look at four key areas, each of which will be led by a Monash specialist and also involve input from government, employee and union leaders in each country, together with independent academics with relevant expertise.

Science moving ahead

BY DAVID BRUCE

New directions and strategies for science at Monash have been set out under Science Forward, a paper released this month by the interim dean of Science, Professor Homer Le Grand.

Science is to become a faculty whose schools, centres and programs will draw upon the research and teaching expertise of staff across the university and from outside bodies.

There will be several new interdisciplinary undergraduate and graduate programs which build on existing strengths, and a greater emphasis on the preparation of first-degree students for life after university.

Plans include a Centre for Excellence in Science Teaching, which will create a unique environment for the teaching and learning of basic science in the early years of the undergraduate degree. In the longer term, a dynamic Science Precinct based around a new, central science building will be developed on the university's Clayton campus.

Meeting with Science staff recently, Professor Le Grand explained that Science Forward had emerged from an intensive strategic thinking process begun in February this year.

"We now have a compass to guide the faculty in new directions. All Science staff have a stake in the actual process of moving forward," he said.

"This is just the beginning - but it is an exciting beginning. Much hard work remains to be done to follow through on the directions Science has set itself. This will involve not only staff in the Faculty of Science but also deans and



Professor Homer Le Grand.

many colleagues in the other science-related faculties at Monash."

Addressing the meeting with Science staff, vice-chancellor Professor David Robinson said senior Science staff had met with the Vice-Chancellor's Group to discuss the final draft of Science Forward and had gained its full support.

"Science Forward crosses faculty boundaries, and also has the support of the other deans who will be involved in the new developments."

Professor Robinson said the appointment of a new dean of Science would move ahead as quickly as possible now that the directions and strategies for Science were in place.

Monash breaks new ground in South Africa



Monash University's new South Africa campus website, www.monash.ac.za, is already generating great interest among prospective students. Work is progressing on the new campus near Johannesburg, and Monash vice-chancellor Professor David Robinson, centre, and deputy vice-chancellor (Academic and Planning) Professor Alan Lindsay visited recently to unveil campus development plans to the media. With them at the campus site is Monash's student liaison officer in South Africa, Ms Caryn Ralston. The campus will welcome its first students next year.

Unique drug reduces stroke trauma

BY COREY NASSAU

A collaborative effort between scientists in Monash University's Pharmacology and Chemistry departments has led to the development of a new drug that could significantly decrease the number of people who experience sustained physical and mental disability after a stroke.

The neuroprotective drug, known as AM-36, has been shown to reduce the level of trauma sustained to the brain following a stroke by as much as 65 per cent. The drug's success has already led the Monash team to consider the application of similar drug compounds to treat other neurodegenerative diseases.

According to Pharmacology head Professor Bevyn Jarrott, AM-36 is unique not only because it utilises a multifunctional strategy to actively rescue brain cells, but also because of the 'time window' for care it could offer to sufferers of stroke.

"With a stroke, unlike a heart attack, it is often hours before medical attention is received as the symptoms are not always clear. AM-36 has been designed with this therapeutic intervention in mind and has been successfully administered in an animal model of stroke as late as four to six hours after the trauma," Professor Jarrott said.

Each year, more than 40,000 Australians are affected by stroke, which is now recognised as the country's leading single cause of disability and the second greatest cause of death after heart disease.

A stroke occurs when the supply of blood is significantly reduced to either the whole or part of the brain. Most commonly this occurs as a result of a clot in the artery that supplies blood to that region, resulting in restricted blood flow.

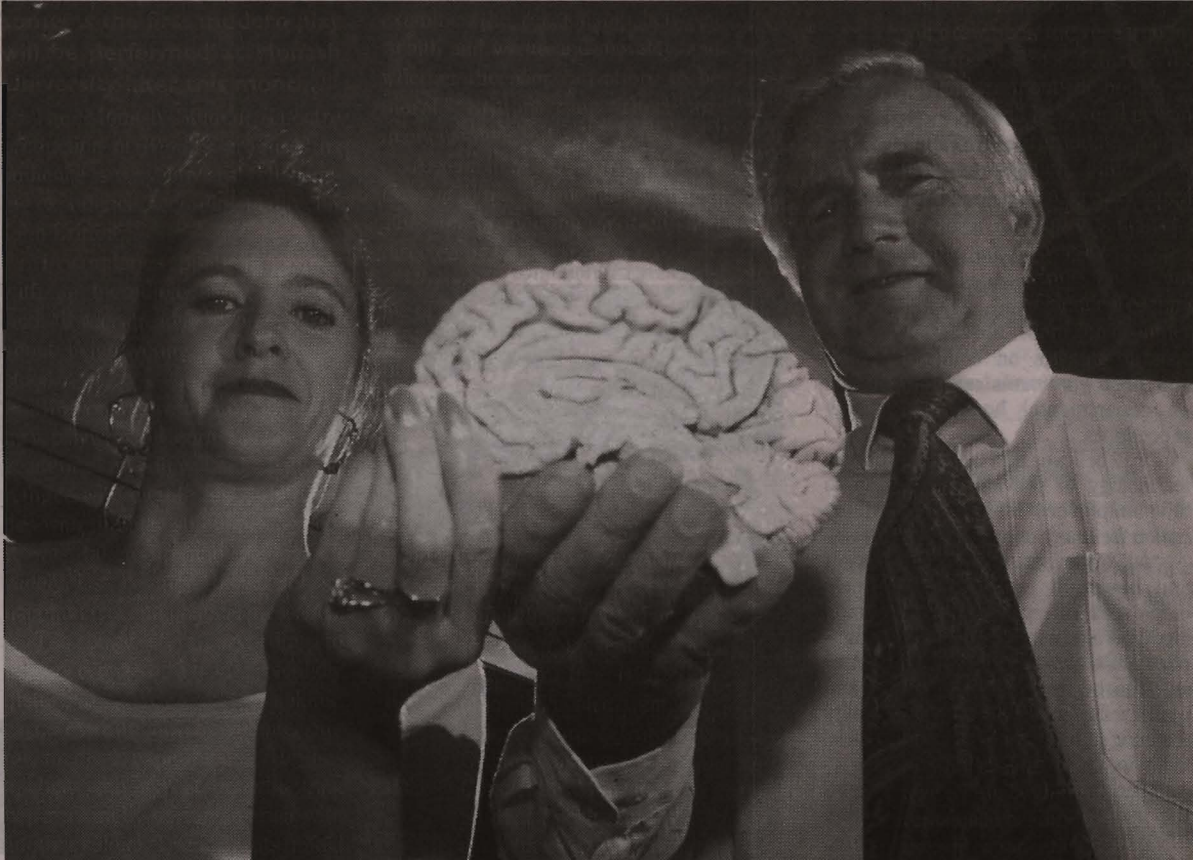
According to Professor Philip Beart of Monash's Pharmacology department, who was also instrumental in the

development of AM-36, a series of cascading toxic events occur after a stroke. It is during this time, he says, that the areas of the brain surrounding the clot are at an increased risk of cell death caused by free radicals or toxins.

"The strategy that our drug employs is actually to save the cells from dying during the oxidative imbalance," Professor Beart said.

The Australian pharmaceutical company AMRAD Corporation Ltd, in a cross-licensing agreement with the UK-based company DevCo Pharmaceuticals, is supporting the development of the drug.

Further study of the AM-36 group of compounds has also shown that some related compounds could be effective for a number of other neurodegenerative diseases such as Parkinson's disease, Alzheimer's or even Huntington's chorea.



Professor Bevyn Jarrott (right) and Dr Jennifer Callaway from Monash's Pharmacology department. Photo by Greg Ford.

Schools



Teachers seminar

15 June

The annual teachers seminar will be held at Monash's Clayton campus. The seminar is aimed at careers teachers and year level coordinators and will bring them up to date with developments and changes at Monash.

The morning program will cover major developments in all faculties as well as information on selection and scholarships. After lunch, teachers can choose a workshop to attend. Workshops include Medicine selection, transition, Art and Design selection and industry learning in Information Technology.

All schools have been sent programs and bookings forms. For more information, contact the Prospective Students Office on (03) 9905 4164.

Experience Monash Peninsula

27 June

A new program aimed at Year 10 students will be conducted at the Peninsula campus during the June school holidays. The all-day event will give Year 10 students hands-on experience in a range of university disciplines including nursing, business, education, wine technology and marketing, arts and applied science.

As well as the academic aspect of the program, the day will also involve activities such as sporting events and a BBQ lunch.

For more information, contact Ms Julie Ryan on (03) 9904 4015.

Building the legal framework of cyber-space

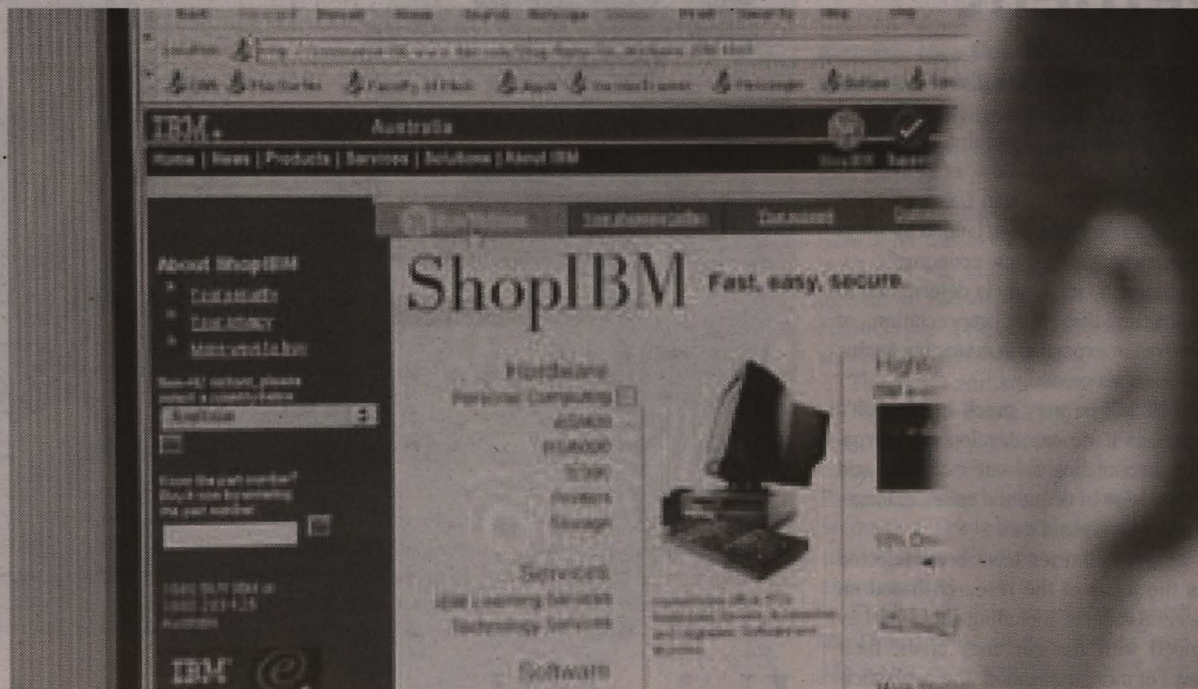


Photo by Greg Ford.

BY PETER GOLDIE

What are the names or the positions of those in your organisation who have access to your email? Guidelines published by the Federal Privacy Commission will, among other things, urge employers to be more transparent about who has access to email by naming those involved.

The suggestions are contained in the commission's latest guidelines on the use of email and web browsing in the workplace and are part of an overall response attempting to balance of interests of Internet users, both private and organisational.

While most employees know emails are not secure, they also seem to expect a degree of privacy in personal use, even though they use their employer's equipment.

Ms Melissa de Zwart, a lecturer and PhD candidate in Monash's Law faculty who specialises in copyright and privacy issues, fears that an over-regulatory approach to the issues could damage the nature and function of the World Wide Web and the Internet.

"I think we have to sit back and think what we as a nation, and more globally, want the Internet to be," she says. "Do we want it to be yet another bland commercial medium that is regulated, protected and full of advertising? Or do we want it to be something a bit different?"

Ms de Zwart believes that matters such as the legal framework surrounding postings and discussion groups ought to be of equal interest and concern to students and academics.

"It is a real worry because people look at these discussion lists as being akin to a closed community so they think they are dealing with the equivalent of a room full of their peers.

"So there is a tendency among people to reveal confidential information, and it might be either of a commercial or personal nature, or to share views about other people or their work with that group, something which also brings in the subject of defamation.

"But it's a false sense of safety because you really don't know who is looking at the screen at the other end."

However, Ms de Zwart is worried that attempts to set firm legal boundaries or censor material also run the risk of stifling the Internet's renowned accessibility.

"The original architects of the Internet envisaged it as a new medium of expression.

"If we want it to be how the original architects envisaged it - a medium to which everybody has access, one which might have its faults and dark spots but which gives us a whole new way of accessing information - we will have to avoid over-regulation," she said.

Monash multimedia means business

BY DEREK BROWN

Monash researchers are helping pharmaceutical giant Bristol-Myers Squibb develop inexpensive and effective methods for training new staff through the creation of a virtual learning environment on CD-ROM.

Dr Raymond Li and his team from the School of Business Systems at Monash have created a CD-ROM induction program for the company that includes details on company policy and office protocols and information on departmental health and safety procedures.

Dr Li believes that using multimedia technology to provide information to new employees is proving a viable option for many organisations.

"As organisations become larger and busier, it is unlikely that new employees will receive one-on-one training. The alternative - mass teaching - often falls short of desired outcomes and can be expensive. CD-ROMs and multimedia technology allow quality teaching at a personal level that is relatively inexpensive.

"The flexibility of CD-ROMs allows the user to learn at their own pace. They can repeat sections at any time, find answers to specific questions or complete periodic tests to see if the information has been absorbed," he said.

Dr Li pointed out that the ability to test competency is particularly important for pharmaceutical companies like Bristol-Myers Squibb, where there is a legal obligation to ensure that anyone who enters a plant is educated in safety procedures to a certain level of competency.

According to Ms Kathy Connolly, human resources officer at Bristol-

Myers Squibb, the project was designed as an information source for new employees, but further applications were discovered as the project developed.

"We have plans to include additional information on occupational health and safety and sections for our sales staff who live interstate," she said.



A CD-ROM induction program created by a Monash team for Bristol-Myers Squibb includes details on company policy, office protocols and health and safety procedures.

BRIEFS

Dean invited to join key government IT taskforce

Monash Information Technology dean Professor John Rosenberg has been appointed to the Victorian government's Information and Communications Technology Skills Task Force.

Professor Rosenberg was one of a select number of IT industry and education leaders appointed to the taskforce, formed to provide high-level advice to the government on the strategies necessary to address gaps in IT skills.

Professor Rosenberg said he was pleased to be a part of the taskforce. "Our ability to solve the IT skills gap will be the most critical factor determining the growth of the Australian information sector," he said.

Distinguished award for software developer

Monash Information Technology lecturer and *BlueJ* software developer Dr Michael Kölling has been awarded the Distinguished Dissertation Award by the Computer Science Association of Australasia.

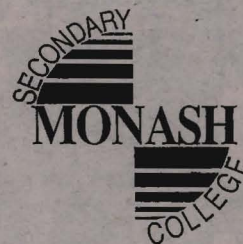
Dr Kölling won the award for his thesis titled 'The Design of Object-Oriented Environment and Language for Teaching'.

Last year Dr Kölling was the winner of the inaugural State Pearcey Award for an innovative Java teaching program known as *BlueJ*.

Monash wins technology in teaching award

Monash University recently won an award at the Australasian Society for Computers in Learning Education conference for 'exemplary use of electronic technologies in teaching and learning in tertiary education'.

Dr Len Webster and Associate Professor David Murphy, from Monash's Centre for Higher Education Development, won the award for *InterLearn*, a software package designed to facilitate interaction between students in online courses, with the aim of encouraging collaborative learning.



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Women in combat: the fight for women's full citizenship

The current exclusion of women from combat-related roles in the Australian defence forces is based on myth and prejudice, not reality, argues Monash senior history lecturer Dr Eleanor Hancock.

OPINION



In 1970 no Western armed forces allowed women in combat or combat-related roles; as we move in to the twenty-first century, some Western countries have no restrictions on women in combat, some have only minor restrictions while others hesitate before such an historic change in policy.

At least one Western navy has a woman submarine commander and one Western army a woman infantry battalion commander. They have taken the first steps towards the equal involvement of men and women in all aspects of the defence of the nation. This process of integration will be a long and continuing one.

Today's armed forces are not the first in this century in which women have had access to combat and combat-related roles. In addition to extensive use of women in revolutionary, guerrilla and partisan warfare, women fought in



Artwork by Elizabeth Dias.

commission of an act of violence against an armed adversary; and exposing a person to a high probability of direct physical contact with an armed adversary'.

This precludes women from employment in navy clearance diving teams, as airfield defence guards and ground defence officers in the RAAF and – most broadly – in the army from infantry, armour, artillery and combat engineers' positions. Legal restrictions currently prevent the ADF from placing women in roles which involve hand-to-hand combat.

The policies of other Western countries vary widely. They cover a spectrum, from those countries like Germany, which up to now have only allowed women to fill extremely restricted roles in the armed forces, through to a middle group (Australia, France, the United States, the United Kingdom), which have increased women's roles in the armed forces in the past 20 years while maintaining some or all combat restrictions.

At the most progressive end of the spectrum are countries which only have in place minor exclusions or none at all. These countries are Canada, whose only significant combat exclusion – submarine service – may end soon; and armed forces with no restrictions at all – Italy, Sweden, Belgium,

the Netherlands, Norway, Denmark, Spain and Finland.

There are a number of problems and objections which have arisen to the expansion of women's roles in combat and combat-related positions. The Soviet case suggests that, when integration has to work, ways are found around many of the anticipated problems. Men and women bonded in small fighting units. By cooperation, men and women accorded each other privacy when necessary. In a society where women were expected to, and did, undertake hard physical labour in the paid workforce, women were capable of the acts of physical strength required in combat.

A recent Canadian study has suggested that insufficient upper body strength often is an ostensible objection which in fact conceals male opposition based on self-interest, taboos and prejudice. The physical standards required for the Canadian combat arms were often found to be ambiguous or hard to justify.

Nonetheless, upper body strength is a real problem for gender integration in the armed forces. For women to complete military training requiring upper body strength successfully, they may either need selection based more specifically on their physical capacity than currently appears to be the case in some of the armed forces and/or they need a specific targeted pre-training

program to build up their strength and endurance. US army studies suggest that with such a program they are capable of completing combat training without standards being lowered.

Physical training in most Western militaries appears to emphasise those areas where men tend to excel and not those where women tend to excel. Can military forces in combat training make use of women's average greater stamina and endurance and greater capacity to endure extreme temperatures and extreme conditions in general?

At the end of the twentieth century, which has seen deliberate bombing of civilian targets and a fluidity in warfare which requires support troops to be close to the front, it is astonishing to find objections to women in combat which still derive from a belief that excluding women from combat protects them from the dangers of war. Japanese soldiers in World War Two did not discriminate between nurses and troops when they shot the survivors of the *Vyner Brooke* on Banka Island in 1942.

Might women in the forces at times be more vulnerable if they are not trained to defend themselves as well as possible, and if they are dependent on men's decisions whether they will continue to be protected or not? This is an argument for more training of all women in the armed forces in combat techniques, not less. Arguments about

protection of women from war, or war's effects, by excluding them from combat, are based on an outdated view of war.

Above all, the widespread belief that gender integration in the armed forces will not work, can in itself be a self-fulfilling prophecy. Do you get maximum performance out of anyone by telling them from the beginning that they will be too weak and incapable to do many aspects of the job?

Have serious policies been adopted to make integration succeed? The example of African-American participation in the American military illustrates that policies have to be adopted which are not merely race or gender neutral, and which have on occasion to recognise and make explicit provision for difference. A degree of social engineering is involved.

We are at the beginning of a period of transition to achieving integrated armed forces in Western societies...

The strategic situation in our world is shifting as we speak. Dealing with this will require a considerable degree of flexibility in military leadership and training. Does the current education and training in armed forces foster this flexibility, either for men or women? Women might be able to contribute to this flexibility, but they will be less likely to do so if they are a beleaguered minority in the military.

We are at the beginning of a period of transition to achieving integrated armed forces in Western societies. It is less than 100 years in almost all Western societies since women achieved the vote, equal political rights; some aspects, such as full citizenship rights, have come still more recently. Military service is seen as an integral and normative part of citizenship.

In the nineteenth century, as political rights were extended to all male citizens, women's exclusion from service in the armed forces was used to justify their exclusion from political rights. Women are still on what has been called 'the uneven and unfinished path to full citizenship'. The process currently under way of opening combat and combat-related roles to them will be part of its completion. Success will require a commitment equal to that demanded of, and given by, the US armed forces in the racial integration of their armed forces.

Dr Eleanor Hancock is a senior lecturer in Monash's History department. This is an extract from a chapter Dr Hancock contributed to a book titled The Human Face of Warfare: Killing, Fear and Chaos in Battle, to be published later this year by Allen and Unwin.

Current Australian Defence Force policy is that men and women can compete equally for employment in all positions except those involving combat duties...

the Serbian and Russian armies in World War I, for both sides in the Russian Civil War, and for the army of North Vietnam in the Vietnam War. The current Australian policy towards women's roles in the armed forces is under review. Current Australian Defence Force policy is that men and women can compete equally for employment in all positions except those involving combat duties, which are defined as 'requiring a person to commit, or participate directly in the

Experience new ways of seeing via John Berger

A new exhibition at Monash University during May highlights the influence of art critic and essayist John Berger on the Australian art scene.

What John Berger Saw brings together works by 13 Australian artists showing the impact of the British critic on their art practice.

The artists include Robert Boynes, Susan Fereday, Elizabeth Gertsakis, Dean Golja, Paul Hoban, John Hughes, Tim Johnson, Peter Kennedy, Peter Lyssiotis, Polixeni Papapetrou, Gregory Pryor, Anne Zahalka and Constanze Zikos. The exhibition features a collaborative work by Berger and UK artist John Christie.

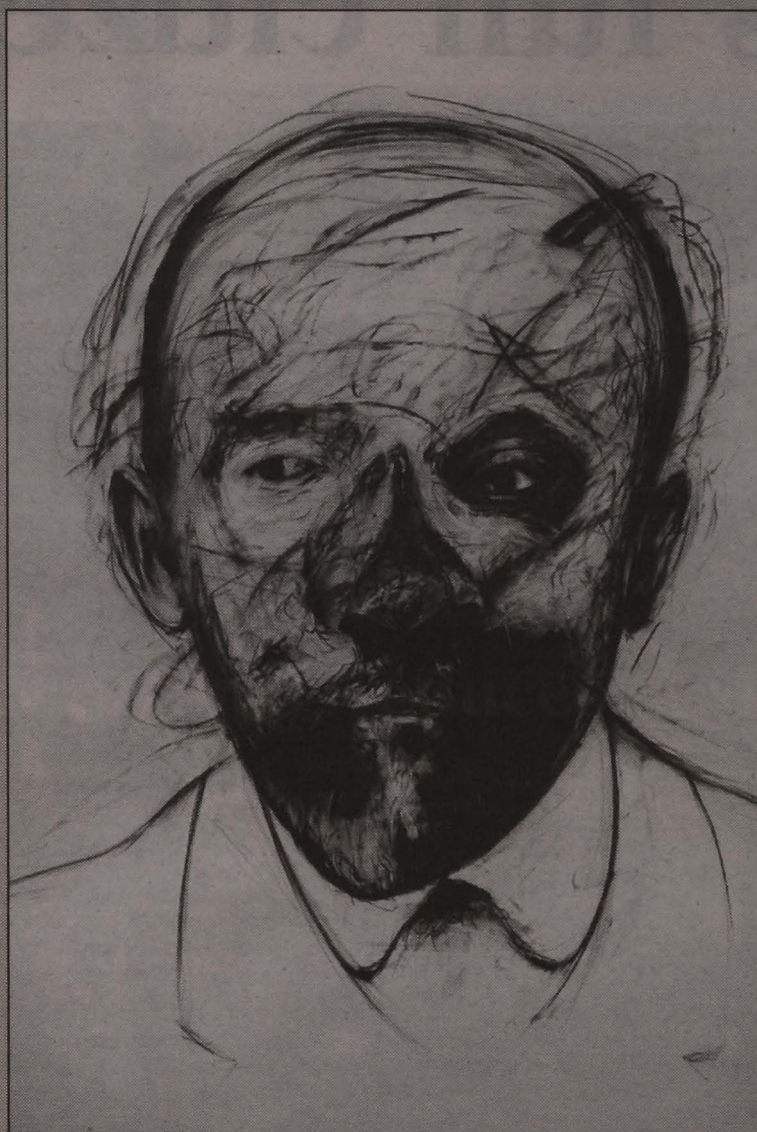
A Marxist, Berger forged a reputation as a questioner of the status quo which filtered through to his stand on art and its relationship to the individual and society.

One of his more lasting contributions to artistic debate was 'Ways of Seeing', a television program made in 1972 that marked a new approach to viewing and discussing art.

According to exhibition curator Merryn Gates, its key ideas are art as property, technologies of reproduction (film and photography) and sexual politics.

"Any treating of contemporary art in the intervening 20 years will confirm how central these issues have been to art practice," she said. "They remain so, but are perhaps now so implicit that we do not name them as such; or rather, artists now work with these ideas as a given, and have come to a more complex position."

Berger's project in 'Ways of Seeing', she said, was to demystify the process of looking at art. "If in more recent years his presentation has become more reflective, and his writings have been in the form of novels or poems rather than critical essays, his concerns with the human condition have not lost their urgency," she added.



'Modern Quartet 1993' (detail), charcoal on paper by Peter Kennedy, one of the works in *What John Berger Saw*.

The works in *What John Berger Saw* include paintings, drawings, photographs and film. Talks by artists including Susan Fereday and Peter Lyssiotis will be held on 16 May at 1.30 pm.

Mounted by the Australian National University's Canberra School

of Art, the exhibition is touring Australia until 2001.

What: *What John Berger Saw*

When: Until 10 June

Where: Monash University Gallery, Clayton campus

Who: For more information, contact the gallery on (03) 9905 4217.

Artists show diverse approach to images

Australian and international artists display their interpretations of the theme of invention in a new exhibition at Monash University's Switchback Gallery in Gippsland.

Invention brings together works by established and emerging artists who have used the theme as a creative platform to invent other worlds and environments.

According to curator Shaun Wilson, the show looks beyond the literal into the artists' ability to create, invent and build.

"*Invention* is the second part of the EIM Project (*Environment, Invention and Memory*), acting as the middle film in a trilogy," he said. "It will be the link to understanding what the project is and where it is going. Participating audiences will be reminded of the *Environment* show and given a few clues as to the final display, *Memory*."

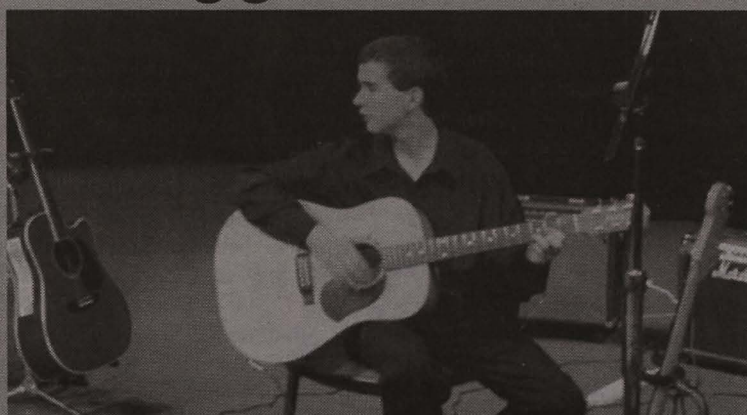
Environment was staged in April, *Invention* is on during May, and *Memory* will be on in June. In the three shows, artists have addressed the themes with varied approaches ranging from paintings to video projects.

According to Wilson, the series offers Gippsland art lovers a rare chance to view international artists' work.

"If you live in Melbourne, there are times you can readily see international alongside Australian art," he said. "But

if you live in regional settings like Gippsland, there are very few occasions to do that. So I have put together three dynamic shows and taken the project to a regional setting which doesn't experience what the Melbourne audience has access to."

Duelling guitars at Peninsula



Ten-year-old classical guitarist Adin Birchall was one of 32 of the state's most talented performers who pitted their skills for the title of 'Young Guitarist of the Year' at the George Jenkins Theatre at Monash's Peninsula campus last month. Prizes were jointly sponsored by the university and Monash's Student Union, MONSU.

Grand tale of romance and nation-building

BY JOSIE GIBSON

A classic love tale set against the grandeur of Australia's Snowy Mountains Hydroelectric Scheme premieres at Monash University this month.

The new musical play *Martin and Gina* tells the story of two migrants divided by war in Europe and reunited by one of Australia's most ambitious engineering projects, whose 50th anniversary falls this year.

The script and score are the work of Melbourne-based playwright and composer Darryl Emmerson, who has collaborated with Monash director Peter Fitzpatrick on its inaugural production. The two-act show features a cast of about 40 Monash performing arts students.

Fitzpatrick, director of the Centre for Drama and Theatre Studies, said Monash's involvement showed the important role universities could play in testing and developing new works.

"With music theatre, it's really hard to get new works into production," he said. "Most of the established theatre companies throw up their hands in horror because not only do you need to find an orchestra, you've got to find whole communities for choruses and the like."

Martin and Gina is set in post-war Australia, a period of rapid national growth when thousands of workers were recruited from war-torn Europe to work on the giant - and still controversial - hydroelectric scheme.

Among those arriving in Cooma were Martin (Alex Browne), a German migrant forcibly parted from his Italian-born wife Gina (Nina Simic) during

World War Two. Unbeknown to Martin, Gina had also come out to Australia and had established a relationship with a local man and she too winds up on the Snowy.

Their poignant story, set against a backdrop of hardship and hard work, is ironic given that many of the foreign workers came from Australia's war-time enemies.

"Historically, the Snowy was a really interesting melting pot of people from many different cultures, speaking many different languages," Fitzpatrick said. "They were engaged in a work that was at the time the Great Aussie Endeavour - and it wouldn't have happened without all these people who weren't yet citizens."

Martin and Gina tells the story of these other workers, too, with songs like 'To Build Our Dreams' summing up the new migrants' determined optimism.

Fitzpatrick said he had encouraged cast members to thoroughly research their roles to get a feel for the types of war-time experiences their characters had survived.

"People came to the Snowy not expecting to live there for the rest of their lives," he said. "It was very intense - all sorts of odd people were thrown together and then scattered again."

What: *Martin and Gina*

When: 18-27 May

Where: Drama Theatre, Performing Arts Centre, Monash University Clayton campus

Who: Centre for Drama and Theatre Studies.

For bookings and details, telephone (03) 9700 1590.

Poetic tragedy of the working man

A masterpiece regarded by some as the first modern play will be performed at Monash University later this month.

The Monash Student Theatre production of *Woyzeck* promises its audience a very physical, challenging experience, according to director John Britton.

"It combines political fervour with an incredible story," Britton said. "It was ahead of its time, partly about being young and misunderstood."

Woyzeck was written by 19th century playwright Georg Buchner, an academic prodigy and political refugee who died in his early twenties with the play still unperformed. It was taken up and performed widely last century, hailed for its poignant plot and political messages.

The basic story, according to Britton, centres on a man "profoundly disturbed". *Woyzeck*, a soldier, earns extra money by volunteering for medical experiments. He has a child with a partner, who then betrays him by having an affair with another soldier. Tragic events unfold when *Woyzeck* discovers the betrayal.

"Among other issues, the play examines the relationship between wealth and virtue and morality, and whether the poor can afford to be moral," Britton said. "There are many parallels today."

Also on in May is *Friendship on a Cask of Wine*, a lunchtime Student Theatre production written and directed by Celeste Barry.

Friendship takes the 'a-day-in-the-life-of' approach to a young man with schizophrenia, Marcus, who shares his two-room apartment with a cat, television set and cask of wine.

The cast of characters includes his two social workers, a loony neighbour, a stranger and a naked woman in a park.

What: *Woyzeck* and *Friendship on a Cask of Wine*

When: Lunchtime 17-19 May (*Friendship*); evening 24 May - 1 June (*Woyzeck*)

Where: Student Theatre, Campus Centre, Monash University Clayton campus

Who: Contact the Monash Student Theatre for performance times and bookings on (03) 9905 3108.

Yeah, folks, it's a big, big world

Monash artists will reveal what they think about the state of the world this month as part of Victoria's Next Wave Festival.

A *Big, Big World*, which opens at the Faculty Gallery at Monash University's Caulfield campus on 18 May, features work by 20 undergraduate and postgraduate students from across the Faculty of Art and Design.

Exhibition curator Nadine Sawyer described the show as an eclectic mix, ranging from paintings and sculpture to graphic design and ceramics.

"The theme is about now and what it means to each student," she said. "It's a very personal view of the new millennium, its uncertainties and challenges."

The state government-funded Next Wave Festival, held every two years, is regarded as an important showcase for emerging artists from the performing and visual arts.

Ms Sawyer said Monash students had to undergo a competitive process to be selected for *A Big, Big World*.

"It's a very worthwhile exercise, even for those who didn't make the exhibition," she said. "The whole process of submitting their CVs and presenting their work is highly relevant to when they graduate. For those students whose work has been included in the exhibition, the exposure is brilliant."

What: *A Big, Big World*

When: 18 May - 3 June

Where: The Faculty Gallery at Monash University's Caulfield campus

Who: For more details, contact gallery manager Malcom Bywaters on (03) 9903 2882.



'Fire Cloud Storm Light' by Lynne Miller Coleman, one of the artworks on display in *A Big, Big World*.

ARTS SCENE

Metals studio launch and exhibition

Monash University is hosting an exhibition of work by distinguished contemporary metal-smiths and jewellers from Japan, Korea and Australia this month.

Ways of Working has been organised to coincide with the launch of the new metals studios in the Faculty of Art and Design building at Monash Caulfield on 16 May. The exhibition in the Faculty Gallery includes work by Caz Guiney, Kyuko Fukuchi, Ian Ferguson, Yasuyo Izumi, Natalie Léonart, Wayne Guest and Karl Millard.

Several of the international artists will attend the exhibition opening, including Tomoyo Hiraiwa from Japan, who will hold a workshop on hammering techniques in the metals studios.

Monash alumni and current students will exhibit recent work including jewellery and experimental pieces in the Concourse Gallery of the Art and Design building.

US glee club choir to visit Monash

The University of Michigan Glee Club Choir will give two performances in Melbourne this month.

The daytime performance on 19 May at the Glen Eira Arts Complex is part of Monash University's Free Lunchtime Concert Series, in collaboration with the city of Glen Eira.

In the evening, the choir will join the Viva Voce mixed choir and Monash Women's Choir at the Music Auditorium at the Monash Performing Arts Precinct at Clayton for performances of traditional glee club songs, as part of the School of Music - Conservatorium's Making Music Series.

Founded in 1859, the University of Michigan Glee Club Choir is renowned for its wide repertoire and is regarded

as one of the finest male choruses in the world.

For more information, contact Monash concert manager Nadia Sartori on (03) 9905 9034.

Nine Dreams and a Song

A new exhibition by Monash artist Susan Purdy has opened at the helen-gory galerie in Melbourne.

In *Nine Dreams and a Song*, Purdy has continued an investigation of her Chinese heritage by creating an archive of oriental botany.

Throughout the cycle of the seasons, she has selected white flowers for their translucency and, in the darkroom, passed the white light of her enlarger through them to record their forms on photographic paper. This parallels a Buddhist meditation where white light is imagined as passing through the body of a loved one.

Purdy is a lecturer in photography at Monash's Gippsland Centre for Art and Design. *Nine Dreams and a Song* is supported by Monash and runs until 28 May. For details, call the helen-gory galerie on (03) 9525 2808.

Photos show how things connect

Novel works by second-year Monash photomedia students are on show at the Faculty of Art and Design until 2 June.

In *Connect*, students used continuous strips of photographs instead of prints to capture and interpret the connection - or lack of one - between one image and the next. Subjects range from explorations of colour and texture to concrete images such as a tube of toothpaste and a toothbrush.

The photoworks are displayed on the floor of the Concourse Gallery on the second level of the Art and Design building at Caulfield campus.

New gallery, shop for Art and Design

A new Monash student gallery will be launched with an exhibition of student work at the Caulfield campus on 17 May.

The Link Space will be administered by the Faculty of Art and Design and consists of 16 exterior display cabinets, located at the end of the building A library and administration, between building G and B.

The inaugural exhibition will feature works by Monash sculpture studio students.

The faculty has also established a shop that sells glass, ceramics and other artwork made by the students. For inquiries about purchases, contact reception at the Art and Design faculty office, on level two.

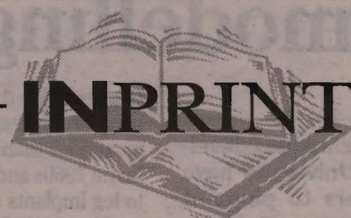
Lecturer's work in Sydney show

Work by Monash Caulfield lecturer Danielle Thompson has been included in a group show at the Australian Centre for Photography in Sydney.

Minimal, based on the theme of minimalism and the unexpected, runs until 21 May.

In a just-concluded show at Gallery 101 in Melbourne, Thompson featured 15 large photographic images focusing on water and sky, some photographed from within an aquatic environment.

Thompson is a lecturer in photomedia and coordinator of the photomedia course at Monash.



The Making of Educational Leaders

Peter Gronn

Published by Cassell, London

RRP: \$49.95

Peter Gronn offers unique insights into the way educational leaders are formed by offering the latest ideas and research on leadership in education.

Filling an important gap in research currently available, this new work details clearly the way leaders learn and operate. Gronn's book offers a framework of leadership that sets out to promote discussion, contribute to improvement in policy, and facilitate a much more efficient selection of candidates who must lead. It also looks at effective negotiation of succession processes.

Peter Gronn is an associate professor in the Faculty of Education at Monash University.

Guns and Ballot Boxes: East Timor's Vote for Independence

Edited by Damien Kingsbury

Published by Monash Asia Institute

RRP: \$24.95

Here is a record of the turmoil that befell the ordinary East Timorese who went through the maelstrom of their one chance to determine their own future.

The authors, who were in East Timor during the critical time of the ballot process, write with authority, knowledge and insight, bringing their experiences powerfully to life. In his two contributions, Damien Kingsbury writes on East Timor to 1999 and explains the role of the Indonesian Army and militias.

Damien Kingsbury is executive officer of the Monash Asia Institute and author/editor of five other books on aspects of South-East Asian politics.

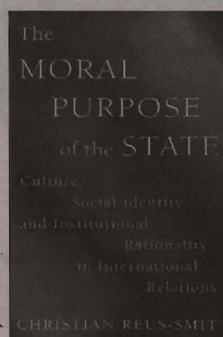
The Moral Purpose of the State:

Culture, Social Identity, and Institutional Rationality in International Relations

Christian Reus-Smit

Published by Princeton University Press

RRP: \$61.95



Sparked by an interest in the development of critical international theory, Christian Reus-Smit's book seeks to explore the question: Why isn't modern international society organised differently?

His exploration details the different historical systems of sovereign states and the different types of fundamental institutions that govern interstate relations. This major study is a significant addition to the theoretical and empirical understanding of international relations, past and present.

Christian Reus-Smit is senior lecturer in international relations at Monash University. He is one of the co-editors of *Between Sovereignty and Global Governance: The United Nations, the State and Civil Society*.

POSTscript

Multimedia Database Management Systems by Dr Guojun Lu, from the Faculty of Information Technology at Monash, presents current and emerging methods for managing the increasing demands of multimedia databases. For more information, visit the publisher's website at www.artechhouse.com.

Dr Claire Colebrook, from Monash's Centre for Comparative Literature and Cultural Studies, has recently contributed to *Becomings*, an international collection of essays by leading academics looking at our concepts of time, memory and the future.

If you are a member of the Monash community and have a forthcoming book, contact monashnews@adm.monash.edu.au

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New modelling techniques help predict bone health

BY JOSIE GIBSON

New modelling techniques developed at Monash University have allowed researchers to pinpoint significant stress areas in bone, with major implications for athletes and people with artificial limb implants.

Ms Melanie Franklyn, a doctoral scholar in the Centre for Biomedical Engineering, has been researching stress regions in long bones in a two-pronged project focusing on people with artificial limbs, and an athletic group comprising aerobics instructors and runners.

The five-year project has involved extensive collaboration with Swedish researchers and patients with titanium-secured artificial limbs.

At the Swedish end are engineer Ms Julie Matthews and Dr Rickard

Branemark, the son of orthopaedic surgeon Professor P. I. Branemark, who pioneered titanium-bolt dental implants in the 1960s and extended the technique to leg implants about 10 years ago.

About 40 Swedes have undergone the surgery in which a titanium bolt is inserted into the thigh bone, leaving one end protruding from the skin to attach an artificial leg. Titanium is one of the few materials suitable for such implants; not only is it not rejected by the body, growing bone actually adheres to it.

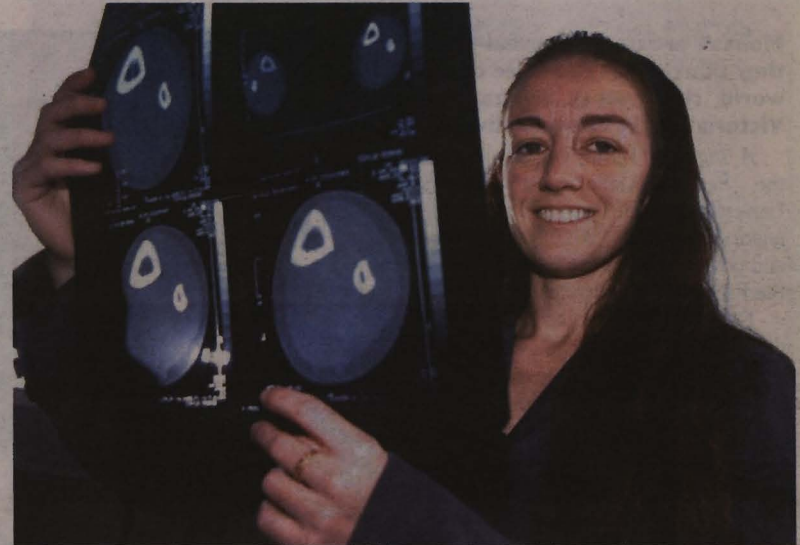
"It's very experimental - the surgeons are not sure what will happen in the long term," Ms Franklyn said. "From an engineering perspective, the objective is to model the bone/implant system and locate regions of high stress in the thigh bone. Consequently, areas where the bone might fail can be located and the long-term outcome of the implants can be determined."

Areas of high stress are where the bone might fail. Interestingly, low-stress areas also pose problems.

"In normal engineering stress analysis, low stress is desirable because it means the material will not fail," Ms Franklyn said. "But in bone this is not the case, because low stress leads to reduced bone remodelling, resulting in bone wastage. Bone needs a minimum amount of applied stress to aid the remodelling process."

Ms Franklyn is still analysing data from the group of aerobic instructors, but said she had identified parameters that would make it possible to scan an athlete's bone and determine the potential for stress fractures or other shin injuries.

Such information would enable athletes to modify their training programs or, if injuries recurred, force them to reconsider elite competition, she said.



Monash researcher Ms Melanie Franklyn. Photo by Greg Ford.

Monash Hall of Fame to honour champion sporting graduates

BY JOSIE GIBSON

Monash University has established a Sporting Hall of Fame to recognise the elite sporting achievements of its graduates.

Featured are John Bertrand (sailing), Edward Denis (water polo), Geoff Hunt (squash), Janine Ilitch (netball), Paul McNamee (tennis), Paul Trimboli (soccer), Chris Wardlaw (athletics) and Anna Wilson (cycling).

Monash Sports and Recreation Association director Mr John Campbell said the Hall of Fame celebrated the graduates' achievements, not only for their intrinsic value as sports performers but also for the inspiration they would provide for future generations of Monash students.

He noted that of the inaugural inductees, all had represented Australia internationally and four had been the top-ranked athletes in the world in their chosen disciplines.

John Bertrand (BE (Hons) 1970) was awarded an AM for his sailing achievements, which include an Olympic Games bronze medal and his role as skipper of the victorious Australia II in the 1983 America's Cup. Edward Denis (BE (Hons) 1993, ME 1996) has competed at elite level in water polo for the past decade, including the World Cup, world championships and World University Games.

Janine Ilitch (BE 1995) represented Australia in netball throughout the 1990s, and was a member of the teams that took Commonwealth gold in 1998 and the world championship against New Zealand in 1999. Tennis player Paul McNamee (BSc 1976) became a household name during the 1980s, with victories in the Davis Cup, Wimbledon doubles and Wimbledon mixed doubles.

Long-distance runner Chris Wardlaw (BEc (Hons) 1972, GradDipEd 1973) has competed at elite level within Australia and at two Olympic Games and is head coach of the Australian track and field team for the Sydney Olympics. Cyclist Anna Wilson (BSc 1992, LLB (Hons) 1995) has taken Commonwealth gold and bronze medals, was second in the world time trials and road race at the world championships in 1999, was named Australian Cyclist of the Year that year, and in March achieved world number-one ranking.



Australian netballer and Monash graduate Janine Ilitch.

South Melbourne captain since 1995, Paul Trimboli (BBus(Acc) 1992) was Australian under-21 Player of the Year in 1988 and 1989, Australian players' Player of the Year in 1993 and 1998, and has notched up 44 international games and played in three World Cup campaigns for Australia. During an illustrious squash career, Geoff Hunt (DipAppChem 1969, BSc 1970) scooped every major tournament in the world. He won the British Open a

record eight times, the World Open four times, the South African Open and Australian Open eight times each and was international amateur winner three times.

The Sporting Hall of Fame will be launched in June and will be located in the Sports Centre on Monash's Clayton campus. It will be open to the public seven days a week, from 8 am until 11 pm. For further information, contact Ms Judi Sutton on (03) 9905 1159.

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