MONASH News

Research, news and opinion from Monash University

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Monash remembers

A tile mural has been unveiled at Monash University in memory of the tragic shooting at the Clayton campus one year ago.

Monash arts/law student Ms Katherine Ryan, pictured here with the mural, conceived the idea and managed production of the permanent display of more than 200 tiles, hand-painted by students and staff.

"The mural is a symbol of the love felt for those lost, and a colourful gesture to remember and celebrate their lives," Ms Ryan said at the unveiling, held on the anniversary of the shootings in which honours econometrics students Mr William Wu and Mr Steven Chan died.

Photo: Melissa Di Ciero

Building research strengths

Research leader: Professor Cornish.

Monash University has appointed a leader in biotechnology and an experienced research administrator as its new deputy vice-chancellor for research. Professor Edwina Cornish will take up the appointment in February.

Professor Cornish is currently deputy vice-chancellor (research) at the University of Adelaide and is a former research and development director and managing director for plant biotechnology company Florigene Ltd.

Monash vice-chancellor Professor Richard Larkins said he was "absolutely delighted" that Professor Cornish had agreed to join Monash at this exciting point in its evolution.

"Her appointment will strengthen Monash's growing reputation as a leading international research university," he said. "Her expertise in the academic administration of research within the university sector, combined with her involvement with the commercial aspects of biotechnology, will be invaluable. We are delighted to welcome her to Monash."

Professor Cornish has contributed widely to the development of government policy on science and technology and has served as a member of the Prime Minister's Science and Engineering Council and the Victorian Government Science and Engineering Technology Taskforce.

She graduated from the University of Melbourne with an honours degree in science and a PhD in microbiology and is a fellow of the Australian Academy of Technological Sciences and Engineering. She was awarded the Centenary Medal for Services to Biotechnology and University Administration.

Prior to her appointment at the University of Adelaide in 2000, she played a key role at Florigene, where, under her leadership, the company developed and successfully commercialised some of the world's first genetically modified plants.

Professor Cornish said Monash had an important role to play in underpinning the nation's future competitiveness. "It is a great honour to be given the opportunity to work with Monash staff to build on the university's many research strengths and further enhance its international reputation for quality research and research training," she said.

"I also look forward to working closely with the Victorian Government, as it clearly recognises the importance of innovation and knowledge creation as drivers of economic prosperity."

Taking the strain out of the game

Medicine

St Kilda footballers have dramatically reduced their on-field injuries, due to a close collaboration with Monash University researchers.

The university has helped the Saints avoid hamstring strains – the most common AFL injury – over the last three seasons.

Between 1997 and 2001, hamstring problems caused more games to be missed than any other type of injury across all AFL clubs. However, while the average club faced six new hamstring injuries each season, by the middle of the 2001 season St Kilda had recorded 16 strains.

Since then, with the help of the Monash project, St Kilda's hamstring tears were reduced to five in 2002 and just two in 2003.

Dr Paul Percival, research fellow with the Monash Centre for Biomedical Engineering, and Professor Uwe Proske and Professor David Morgan, from the Department of Physiology, have found it is possible to determine an individual player's susceptibility to muscle damage, and therefore injury, by measuring the optimal length of their hamstrings.

Dr Percival said muscles are at their weakest when contracted or stretched and at their strongest in between those two extremes. "The muscle length at which this peak occurs is the optimal length. The shorter that length, the more vulnerable the player is to damaging their muscle," he said.

The muscles are damaged by repeated eccentric contractions – when a muscle is stretched while active – at long muscle lengths, but the healing process will adapt the muscle to this activity and provide protection from further damage if the activity is repeated.

In light of these findings, St Kilda changed its training program and introduced a warm-up that included more kicking and interval training, as well as more hamstring-specific weight work – all designed to stretch the muscles while under load.

"The Monash research provided clinical evidence to support my own theories about how hamstring injuries occur and how they can be prevented," said St Kilda training manager Mr Chris Jones, who has previously lectured in anatomy and physiology.

Monash research also persuaded the club to alter its rehabilitation methods for injured players by introducing exercises to restore the hamstring muscle's optimal length and by building up the player's running strength.

"As a further safeguard, we conducted isokinetic tests once an injury was healed to determine a player's susceptibility to re-strain," Dr Percival said.

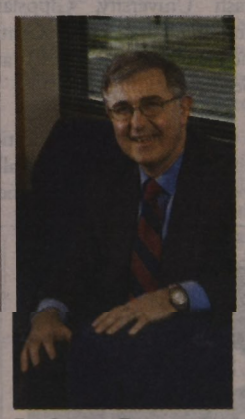
"If a risk was identified, rehab would continue for longer before the player was allowed to return to the oval."

Word of their success has spread, and the Monash team will conduct pre-season hamstring stress tests on Essendon football players this November.

Measuring the strain: Dr Paul Percival puts St Kilda footballer Jason Blake through a strength test on his hamstring at the Monash Centre for Biomedical Engineering.

Contact:
paul.percival@eng.monash.edu.au
Ph: +61 3 9905 3488

New deans for Monash



Professor Byrne.

Professor Freiberg.

Monash University has appointed a new dean of Medicine, Nursing and Health Sciences and a new dean of Law.

Pioneering neuroscientist Professor Edward Byrne will take up his position as dean of Medicine, Nursing and Health Sciences on 24 November, while eminent criminologist Professor Arie Freiberg will begin as dean of the Faculty of Law in late January.

Professor Byrne, currently director of the Centre for Neuroscience and professor of experimental neurology at the University of Melbourne, has combined an outstanding contribution in basic neurological research with an active clinical career.

He has carried out pioneering research into neuromuscular disorders such as muscular dystrophy and is recognised worldwide for his research into disorders in the mitochrondrial DNA including rare forms of epilepsy, muscular disorders and certain types of stroke. He also played a role in the discovery of mitochondrial links to ageing.

Professor Freiberg returns to Monash after spending 15 years at the university between 1976 and 1990, during which time he gained a Master of Laws from Monash. He is an international authority on sentencing and white-collar crime. He has served as consultant to the federal and various state governments on sentencing matters and was president of the Australian and New Zealand Society of Criminology.

Currently Arts dean at the University of Melbourne, Professor Freiberg has published widely in areas including tax compliance, corporate crime and juvenile justice. He has also played a leading role in the establishment of the drug court in Victoria.

Leading role in film and TV industry for Monash South Africa

Boost for campus: Monash South Africa pro vice-chancellor Professor John Anderson speaking at the launch.

The film and television industry in South Africa has received a welcome boost through a new short course unit launched at Monash recently.

The Monash South Africa Film and Television Short Course Unit aims to upskill and reskill professionals working in the film and television industry, by teaching production elements such as management, business skills, accounting, budgeting, scheduling, directing, broadcast commissioning and scriptwriting.

South African specialists and invited Australian industry professionals will teach the courses.

More than 60 people attended the launch at the South Africa campus, including course participants, leading film and media representatives and members of the local film industry. Monash South Africa pro vice-chancellor Professor John Anderson said the course was an innovative and exciting development for the campus.

Course consultant Dr Melanie Chait said the unit filled a void in film and television education throughout South Africa. "In South Africa, there are many programs for entry-level study but relatively few aimed at intermediate and advanced study," she said.

"People already in the industry desperately need to upskill and to keep abreast of world trends. To provide these courses, we need to have international expertise to teach, to give global perspective and to make our industry international players.

"We are already witnessing international feature films being produced in South Africa using international expertise, when there is no reason why South Africans could not be doing this. Monash is aiming to address this skills shortage so that professional talent can be sourced from within South Africa."

The short course unit was established by Dr Chait and project manager Ms Nikki Tilley.

– Diane Squires

Contact:
melanie.chait@adm.monash.edu.au

Prescription for more rural pharmacists

Pharmacy

Monash University has introduced a new rural pharmacy entry scheme to help alleviate the shortage of professional pharmacists in rural Victoria, beginning in 2004.

The Rural Entry Scheme will provide more opportunities for country school-leavers to study for the Bachelor of Pharmacy degree at Monash, according to Pharmacy dean Professor Colin Chapman.

"Pharmacists play an important role in all communities, particularly in rural areas where their role extends far beyond the traditional retail pharmacy," he said. "Monash has developed the scheme to encourage students from rural and remote areas to study pharmacy, as they are more likely to return to rural areas after graduation."

The scheme gives students from these areas an enhanced opportunity to gain entry to the highly sought-after Bachelor of Pharmacy degree. It includes a Pharmacy Rural Scholarship, valued at $6000 a year, to be awarded to the highest-ranking applicant from a rural area.

The Rural Entry Scheme is available to students who have completed their VCE studies at a secondary school in rural or remote regions of Australia. Students applying to Monash will have their scores re-ranked, provided their actual score is no more than five points below the cut-off score for first-round entry into a HECS place. The cut-off score for the Bachelor of Pharmacy at Monash in 2003 was 98.1.

The Bachelor of Pharmacy is undertaken at the Victorian College of Pharmacy at Monash's Parkville campus.

– Penny Fannin

Contact:
lee.prentice@vcp.monash.edu.au
Ph: +61 3 9903 9530

Learning environment: Monash Gippsland pro vice-chancellor Professor Brian Mackenzie, Monash student Ms Kirsten Ferguson, Gippsland Group Training student Mr Leigh White, member for Morwell Mr Brendan Jenkins and the Minister for Education and Training, Ms Lynne Kosky, at the launch for the new education precinct.

Work begins on Gippsland Education Precinct

Construction has begun on a multimillion dollar education precinct located at the Gippsland campus.

After being officially launched by Victoria's Minister for Education and Training, Ms Lynne Kosky, earlier this month, building work on the Gippsland Education Precinct officially commenced.

On hand to witness the launch were the project's four education partners – Monash University, Gippsland Group Training, GippsTAFE (Central Gippsland Institute of TAFE) and Kurnai Secondary College.

The $16 million precinct is designed to meet the future education and training needs of the Latrobe Valley and Gippsland. The State Government is contributing $14 million towards the precinct, with a further $2 million being provided by the Australian National Training Authority for a technology training centre. It is scheduled to open in 2005.

"This precinct will create a unique learning environment, combining a secondary campus and education and training facilities at the Gippsland campus of Monash University," Ms Kosky said. "It will also ensure that young people can remain in Gippsland to complete their education and have access to the very best educational opportunities."

Gippsland campus pro vice-chancellor Professor Brian Mackenzie said the education precinct was unique in Australia. "It is the first one involving a leading university – a Group of Eight university – as one of the partners. It is also particularly important for Monash, as the whole precinct is located on the university campus in Churchill," he said.

"It is an adventurous, major development that Monash is proud to be involved with."

The precinct will include an information and communication technology hub to provide off-campus learning to other parts of Gippsland and the state, and a purpose-built facility for up to 750 senior secondary students.

– Karen Stichtenoth

Economist named top among peers

Leading Monash economist Professor Peter Dixon (right) has been awarded the highest Australian honour in his field – the Distinguished Fellowship of the Economic Society of Australia. The award was conferred by the Economic Society of Australia at the 32nd Conference of Economists in Canberra, in recognition of the professor's outstanding contribution to Australian economics.

Professor Gill Palmer, dean of the Faculty of Business and Economics at Monash, congratulated Professor Dixon on his achievement. She described him as a leading force in the development of economic modelling whose work had enhanced policy debate around the world. "Professor Dixon's pioneering work is of international significance with practical application for organisations conducting economic research. He has paved the way for policy analysis in Australia and around the globe," she said.

Professor Dixon, director of the Centre for Policy Studies within the Business and Economics faculty, has been at Monash since 1991. He is the principal architect of the computer general equilibrium models (CGE), the static ORANI model and the dynamic MONASH model for policy analysis. The ORANI/MONASH-style models are used extensively in Australian economic debate and have been developed and applied in more than 50 countries.

Briefly

MBA scores four out of three

The Monash MBA has been named among the top MBA programs in Australia four times in the past three months.

In August, the program was ranked as the best in Victoria and third in Australia by leading business magazine *Asia Inc.*

In September, it was ranked in the top band with four Australian MBA programs by the *Australian Financial Review's BOSS* magazine, and it received a five-star rating in the graduate management programs section of the 2004 *Good Universities Guide.*

Now, the Economist Intelligence Unit of *The Economist* magazine has named the Monash MBA as one of only five Australian MBA programs to be rated in the world's top 100. *The Economist* scored the MBA programs on four factors: their ability to develop career opportunities, personal development and educational experience, salary increases and networking potential.

Gippsland PhDs

The recent Gippsland campus graduations included seven PhD candidates, the largest cohort of PhD students to graduate from that campus. One of the graduates, Dr Helen Sheil, is the first Faculty of Education student from the Gippsland campus to obtain a doctorate.

Hong Kong exchange

Monash is hosting a group of postgraduate education students from the University of Hong Kong who are in Australia to improve their English language and teaching skills.

The 30 students are spending eight weeks at Monash, undertaking an English language training program and learning skills in teaching English to use when they return.

Staff in the Faculty of Education and members of Monash International Projects initiated the program, which is currently in its second year.

The program has been given considerable support and funding by the Government of Hong Kong and is expected to encourage further exchanges in the future.

Science faculty on show

Highlights of the inaugural Faculty of Science 'Research your future' evening, held recently at Clayton campus, included the Synchrotron development project, mathematician Dr Andrew Prentice – the only Australian scientist to be involved in NASA's recent Galileo mission to Jupiter – and research into crazy ants.

Monash Science dean Professor Rob Norris said the event, which highlighted research projects in each of the faculty's six schools, was an outstanding success.

"It was an opportunity to showcase our research across the faculty schools and to a significant number of external business and industry guests."

Professor Norris said the event's key objectives were to provide a forum for networking and further advance collaboration between Monash, industry and research organisations, while also promoting the benefits of science research.

Hatching new hope for the big turtles

Biological Sciences

Monash University has joined an international crusade to help protect and study some of the world's largest and most endangered turtles.

Until next February, honours student Mr Cameron Ralph will be based at a research station in Costa Rica to study the nests of leatherback turtles – animals that can weigh more than 400 kilos with shells up to 1.5 metres long.

His thesis will be supervised by Dr Richard Reina, a lecturer in the School of Biological Sciences, who is a member of the international Costa Rican Leatherback Turtle Research Project.

Leatherbacks have a low hatching success rate, and Mr Ralph's study will focus on how the location of eggs within the nests affects their development.

"Turtles are such ancient creatures – they go back at least 50 to 60 million years. Leatherbacks are an endangered species. A lot is known about their breeding and nesting biology, but almost nothing is known about what happens to eggs while in the nest," he said.

"They have a low hatching success rate of around 50 per cent compared with 80 per cent for other turtle species. The reason for the low hatching success is unknown, and this project will provide insight into the possible reasons behind it."

Mr Ralph is using innovative technology to measure what happens inside the turtle nests to determine if the conditions within the nests cause the eggs to fail to develop. "The eggs of the leatherback are round, about the size of a billiard ball. While there is an annual laying season, individual leatherback turtles only lay eggs every three or four years, in batches of 60 to 80 eggs at a time. They start laying eggs from about 10 years of age. Because their life span is 30 or 40 years, they may have at most 10 laying periods during their lifetime. Overall, only one hatchling in a thousand makes it to adulthood.

"It is extremely important to understand what is going on in the nest and determine what factors influence egg development. The more you know about a species, the more effective a conservation program will be."

Leatherback turtles are also found in the waters off South America, Mexico, Malaysia and Western Australia. **– Karen Stichtenoth**

Contact:
richard.reina@sci.monash.edu.au
Ph: +61 3 9905 5600

Protection: A leatherback turtle hovers over its nest of eggs.

Bubbles may solve missing ships puzzle

Mathematics

Some of history's most intriguing mysteries involving ships lost at sea could now be solved, thanks to the work of two Monash mathematicians.

Professor Joe Monaghan and Mr David May from the School of Mathematical Sciences have been studying what happens when gas bubbles escape through cracks in the ocean floor. While such eruptions are not uncommon, the researchers have calculated that a large one could destabilise a ship.

They now believe that a wrecked fishing trawler, recently discovered on the bottom of the North Sea, could have been sunk by a massive bubble of methane.

"It's long been known that there are pockets of methane gas, known as methane gas hydrates, beneath the ocean floor that could erupt if they're disturbed or if their internal pressure becomes too large," Professor Monaghan said.

Sonar surveys of the ocean floor in the North Sea have revealed large quantities of methane hydrates and eruption sites. One such survey in 2000 found the sunken trawler in the Witch's Hole, a particularly large eruption site.

"One theory of how the trawler came to be there is that it lost its buoyancy after bubbles of methane gas were released from an erupting underwater hydrate," Professor Monaghan said.

In the past, numerical computations have been made for bubbles rising to the surface but not for the interaction between a bubble and a floating body.

Professor Monaghan and Mr May found that as a bubble approaches the surface, a mound of water forms above it. When the layer of water above the bubble has thinned sufficiently, a symmetric pair of troughs develops on either side of the bubble.

As the bubble continues to rise, the depth of the troughs increases until the bubble ruptures.

Through experiments and mathematical simulations, the researchers found that it is possible for a bubble to sink a ship, provided the radius of the bubble is equal to, or greater than, the length of the ship's hull.

"The sinking occurs because a mound of water is raised above the region where the bubble reaches the surface. The flow from the mound creates a deep trough on each side of the mound, and the flow from the mound carries the boat into the trough," Professor Monaghan said.

"Whether or not the ship will sink depends on its position relative to the bubble. If it is far enough from the bubble it is safe.

"If it is exactly above the bubble, it is also safe because the boat is not carried into the trough. But once carried into the trough, the boat will sink.

"It's quite possible that the trawler now languishing in Witch's Hole was sunk by a bubble with a radius equal to or bigger than the trawler's hull."

Their research was published in the *American Journal of Physics* in September.

– Penny Fannin

Contact:
joe.monaghan@sci.monash.edu.au

Pole position: Michael Milton in the Monash wind tunnel.

Skier turns to Monash for help in record attempt

Engineering

A gold medal-winning skier has turned to aerodynamics experts at Monash University as he seeks to set a new world speed record.

Michael Milton, this year's World Sportsperson of the Year with a Disability, has turned to aerodynamics experts at Monash in his attempt to go faster.

Mr Milton, who won all four gold medals in his class at the Paralympic Winter Games in the United States last year, is aiming to become the first one-legged downhill skier to break the 200 kilometres-an-hour mark.

After hearing about the improvements fellow skiers had made in their techniques using wind tunnels, he spent a day in Monash's wind tunnel under the supervision of Emeritus Professor Bill Melbourne of the Mechanical Engineering department in the Faculty of Engineering.

"I wanted to find out which were the best ski poles for me to use and to find a good skiing position that was both aerodynamic and stable," Mr Milton said.

"Bill and his team were extremely helpful in passing on their knowledge. I learnt a lot about what is and what is not aerodynamic, and I have made changes to my poles which will help me go faster."

Professor Melbourne said they identified the best downhill position for Mr Milton by measuring the wind drag on him and his equipment while he was in the tunnel.

"Michael was able to monitor his own performance by watching a meter in front him during the tests and adjust his stance accordingly. He is very determined and very skilful," he said.

Armed with his new knowledge, the skier, who lost a leg to bone cancer when he was a child, is aiming to make his world record attempt at the French resort of Les Arcs next April.

By coincidence, a Channel Nine camera crew was on hand to film the testing at Monash as part of a profile, shown on television recently.

"The public reaction to the program has been great. It has really opened the floodgates, with lots of people wanting to get me involved in their events. And it looks like I will have some sponsors' logos on my speed suit in future," Mr Milton said.

- Richard Ewart

Contacts:
milto3@bigpond.com
Ph: 0412 155 150
william.melbourne@eng.monash.edu.au
Ph: +61 3 9905 3512

Monash wins $18.8m in ARC funds

Monash researchers have received $18.8 million in funding from the Australian Research Council.

Monash-led research projects have attracted 50 Discovery grants and 14 Linkage grants, awarded to institutions for research involving industry partners.

Researchers in information technology, chemistry, computer science, environmental science, engineering, history, education, politics, econometrics and management were successful in obtaining funds.

The funding is part of a $248 million package announced by the Federal Minister for Education, Science and Training, Dr Brendan Nelson.

Monash vice-chancellor Professor Richard Larkins said this year's result was recognition of the outstanding work being undertaken at Monash.

"This is an excellent result that acknowledges our current research strengths and allows us to grow and develop in a range of new and exciting fields," said Professor Larkins.

A School of Computer Science and Software Engineering project, led by Professor Kim Marriott, received a five-year Discovery grant worth $1.45 million for a project to develop more flexible visual interfaces for computers.

Other Discovery projects that attracted grants include:

- $1 million to a School of Chemistry team led by Professor Douglas Macfarlane for new designs, insights and applications into ionic liquids and solids.
- $900,000 over five years to Dr Peter Junk and Professor Glen Deacon from the School of Chemistry for research in the field of synthetic and structural rare earth chemistry.
- $440,000 over three years to a team from the School of Geography and Environmental Science for a project investigating the sustainable futures of Australian temperate forests.

Monash received $3.24 million in Linkage grants across a range of faculties and related industry, including:

- $1.2 million to Dr Jamie Rossjohn from the Department of Biochemistry and Molecular Biology, with an industry partner, for their work on designing drugs to combat cancer and immune-related disorders.
- $680,000 over four years to the Monash University Accident Research Centre to research and develop occupant protection in far-side crashes.

More details of the ARC projects can be found at www.arc.gov.au/.

Gene find may aid bone disease treatment

Genetics

The discovery of a novel genetic mutation could improve future treatments for bone diseases and help people affected by a severe form of dwarfism.

Associate Professor Vincent Harley, from Prince Henry's Institute and Monash's Department of Medicine, and Associate Professor Eric Vilain from UCLA discovered the mutation in a patient with the genetic disease Campomelic Dysplasia (CD).

People with CD have a specific form of dwarfism as well as a variation in their sex organs. Typically, 50 per cent of CD patients are genetically male and 50 per cent female but nearly all appear female because the testes do not develop in the patients who are genetically male.

But Dr Harley found that one genetically male CD patient had an unusual form of CD – abnormal bones but normal testes and therefore male appearance. When the patient's DNA was sequenced, a mutation was found in the SOX9 gene.

The research has been published in the *Human Molecular Genetics* journal.

"SOX9 typically acts as a genetic switch, regulating the function of genes involved in bone development and testes development," Dr Harley said. "In this patient, the mutation prevented SOX9 from switching on bone-making genes but didn't affect its ability to switch on testes-making genes. This is an extraordinary finding that shows a type of gene regulation previously not known in the human genome.

"We have discovered a mechanism by which genes can be controlled separately by the same switch in humans, creating new possibilities for the development of drugs or other treatments for bone diseases such as arthritis," he said.

The finding also explained why some CD patients were both genetically and physically male. "We didn't know why this was occurring, but discovering the mutation in SOX9 and its effects on the function of the SOX9 protein has given us an answer.

"Patients with CD find it very difficult to lead normal lives. Any insight into this condition is a step in the right direction to improving quality of life."

Dr Harley and Dr Vilain have recently been awarded $US1.2 million ($A1.83 million) by the National Institutes of Health in the US to further study the genetic causes of intersex conditions.

– Penny Fannin

Contact:
vincent.harley@phimr.monash.edu.au
Ph: +61 3 9594 3244
Weblink:
www.phimr.monash.edu.au/molgenetics.html

Schools

Change of Preference

The new Monash University *Change of Preference Guide* has been sent to all schools and will be mailed to Year 12 students who subscribe to *VoiCE* magazine.

VCE students thinking of changing their preferences are invited to attend the Monash Change of Preference Information Sessions, where teaching staff will be on hand to answer their questions.

The Gippsland region session will be held at the Edison Mission room, building 5N, Gippsland campus, on Tuesday 16 December from 3 pm to 6 pm.

The metropolitan region session will be held at South One lecture theatre, building 64, Clayton campus, on Wednesday 17 December from 10 am to 2 pm.

Enhancement studies

The Monash Enhancement Studies Program offers high-achieving secondary students the chance to study a Monash subject while still in Year 12.

Applications for the 2004 Enhancement Studies Program close on Monday 3 November. Late applications will be accepted, subject to availability of places.

For further information, contact Ms Rebecca Hillman in the Prospective Students Office on +61 3 9905 4241, or email enhancement@adm.monash.edu.au.

Closing dates for accommodation

Prospective Monash students who want to live on campus next year are advised to get their applications in now.

Applications for Halls of Residence at Clayton campus and accommodation at Berwick campus close on 30 November.

For further information about accommodation at these or other Monash campuses, contact +61 3 9905 6200 or go to www.monash.edu.au/mrs/.

Technology for district nurses: Dr Helana Scheepers (left), district nurse Ms Julie Hampton and PhD student Ms Liz Burley exchange views on the mobile computing experiment.

Bedside manner goes hi-tech

Information Technology

By the end of this year, all Melbourne's district nurses will be using mobile computers to collect patient information during home visits, as part of a Monash University research program.

The Royal District Nursing Service will use the wireless technology to download patient information at the start of each working day, during home visits, or at the end of their shift.

Established in 1885, the RDNS is Australia's largest home nursing provider. Every year the organisation's 1000 nurses and 200 allied health staff coordinate and deliver more than 600,000 hours of direct care to over 40,000 patients.

Monash IT researcher Dr Helana Scheepers said the technology provided nurses with the opportunity to introduce flexible work practices. "For example, it is no longer necessary for all staff to begin and complete their working day at one of the RDNS regional offices," she said.

"At each patient visit, the nurse adds information to the person's electronic record on the tablet PC. They synchronise the data at the office during or at the end of the day, allowing the updated information to be easily accessible to other staff providing care.

"Before the implementation of mobile computers, much of this information was held on paper cards, which meant it had to be passed on to a nurse in the field, either verbally or via written messages."

The introduction of the technology is one of several social computing projects in health care being conducted by the School of Information Management and Systems in the Monash Faculty of Information Technology.

Dr Scheepers and her co-researcher, Professor Phillip Steele, intend to conduct follow-up interviews with nurses and patients and observe the mobile computer being used in the home environment.

"We want to identify both successful and unsuccessful strategies employed by nurses, so that changes can be made and introduced into future training plans," Dr Scheepers said. "The aim is to fully integrate the use of mobile computers into the nurses' practice."

– Richard Ewart

Contact:
helana.scheepers@sims.monash.edu.au
Ph: +61 3 9903 1066

Mission to Saturn: Dr Andrew Prentice will spend four months at NASA fine-tuning his predictions for Saturn. **Photo: Greg Ford**

Mathematician to the planets

A Monash mathematician who made headlines recently through his involvement with the Jupiter space probe Galileo will work at NASA next year in preparation for the next mission, destined for Saturn.

Dr Andrew Prentice, regarded as one of the world's foremost experts on the formation of the solar system, was the only Australian scientist involved with the Jupiter exploration trip.

Many of his mathematical predictions about Jupiter were proved through the Galileo mission, which came to an end when the probe made its programmed crash into the giant planet's atmosphere on 22 September this year.

Dr Prentice will spend four months at NASA's jet propulsion laboratory next year, fine-tuning his predictions for Saturn and its mysterious family of icy moons, prior to the arrival of the Cassini-Huygens space probe on 1 July 2004. He will also be involved in NASA's missions to Mercury and Mars beyond 2004.

A highlight of the Cassini mission will be the spacecraft's encounter with Titan, the only known moon of Saturn, on 27 November 2004. Dr Prentice's theory suggests that Titan is not a native moon of Saturn but instead was captured by the planet soon after Saturn had formed.

Galileo was the first spacecraft to directly measure Jupiter's atmosphere and conduct long-term observations of the Jovian moon system from orbit.

From the time it arrived at Jupiter in late 1995, the Galileo probe verified many of Dr Prentice's mathematical theories, including the main one that Jupiter and its family of Galilean satellites or moons (Io, Europa, Ganymede and Callisto) are a 'showcase' example of a miniature solar system.

"The Galilean system of satellites shows exactly the same trends in physical, chemical and orbital properties as are seen in the planets which orbit the sun," Dr Prentice said. "Almost certainly, there must be myriad other planetary systems just like ours spread through the cosmos."

– Karen Stichtenoth

Contact:
andrew.prentice@sci.monash.edu.au
Ph: +61 3 9905 4499,

Where to from here? Workers from the Geelong Wool Combing factory picket outside the northern Geelong site early in October, after the company announced that it was shutting the factory and cutting more than 100 jobs.

No 'stitch-in-time' to save TCF

The Federal Government continues to pursue trade liberalisation, despite the steep social and economic costs, writes **Dr INGRID NIELSEN**, research fellow in the Monash Centre for Work and Society in the Global Era.

The textile, clothing and footwear (TCF) sector has been contracting for more than two decades. Tariff reduction has played a central and ongoing role in that contraction, particularly in the area of employment. Between 1996 and 2002 alone, more than 21,000 jobs were shed in the sector – yet still the globalisation train steams on towards its free-trade destination.

The question of what happens to such vast numbers of retrenched workers is a vexed one. The Howard government has claimed they are absorbed back into the labour market. However, a recent study of 400 retrenched TCF workers has found that the labour market does not, in fact, clear.

The study, by Monash University's Centre for Work and Society in the Global Era (WAGE), indicated that 46 per cent of those retrenched workers had not found new work after three or more years of unemployment. About 20 per cent of the workers had managed to find only transient casual work, with few, if any, benefits. In regional Victoria, one retrenched worker said: "I work casual now, so there are no holidays and no sick leave – nothing after working all those years."

Even for the 21 per cent of retrenched workers who did find full-time work, their new jobs – in terms of duties, wages and conditions – were rarely equal to the ones they had lost. The post-retrenchment picture is a far cry from the pre-retrenchment one, where 96 per cent of workers worked full-time, with some 40 per cent having been in their current job for a decade or more.

So why do these retrenched workers have to struggle so hard to find new jobs? Certainly age matters. The average age at the time of retrenchment was 43, and 68 per cent of the retrenched workers who found new work were below this average age. As another retrenched worker put it: "Once you're 40, you're on the heap."

Not having English as a first language made finding a job more difficult too. A retrenched worker from Wangaratta put it clearly: "Non-Australian women who don't speak that much English … who the hell is going to employ them?"

Many of the retrenched workers in the WAGE study were hindered by a lack of job-search skills – an ironic casualty of having a long, stable work history. One retrenched worker in regional Victoria explained: "Why would I even know what a resumé is? I just walked into my job 20 years ago."

For these workers, the absence of any assistance or information from employers or government agencies hit them particularly hard. Many retrenched workers felt abandoned by employers. Some comments included: "I got five minutes notice … they were absolutely disgraceful." It was a sadly and all-too-familiar story. Many of the retrenched workers also told of the frustrations of dealing with Centrelink: "Even if you're half dead they don't care as long as you fill in the form right."

Retrenched workers who did manage to secure assistance from Centrelink fared little better than those for whom the experience was either too confusing, or too demeaning, to endure. Disturbingly, only 3 per cent of retrenched workers in the WAGE study reported finding a new job through Centrelink. Even more disturbing was the voice of a retrenched worker who had lost all his superannuation and leave entitlements, only to have a Centrelink officer tell him: "We are not obliged to tell you what your entitlements are."

And as if these obstacles are not enough, structural barriers are also at work. The TCF industry is shrinking – some would say dying – and further tariff cuts will strike a fatal blow for many struggling companies. TCF workers are highly skilled – but their skills are acutely industry-specific.

One Melbourne man explained: "I have acquired skills over many years, but where do I use them now?"

Clearly, re-training for these retrenched workers should be at the forefront of labour market policy.

"When I started, there were six or seven textiles factories here – there's only one left now. You think: Where's the job? What am I going to do? Where am I going to go?"

– retrenched Bendigo textile worker

The suggestion that people should uproot their lives to find jobs is impractical. Regional workers, 72 per cent of whom grew up in the community in which they live and work, are not prepared to pack up their lives and move away from family and friends to find work. As one worker commented: "Why should I have to relocate my life to get another job?"

Further reductions in import tariffs can only damage our local industry, which must already compete with overseas manufacturers whose wage bills and production costs are a fraction of ours. There was no 'stitch-in time' to save more than 21,000 TCF workers who were laid off through past tariff cuts. It is hard to see what can save the jobs of a further 15,000 workers, who are projected to fall victim to further cuts scheduled for 2005 should the Howard government adopt the Productivity Commission's preferred position on TCF tariff reductions and elimination of the Strategic Investment Program – the scheme that provides Commonwealth-funded industry incentives designed to help the sector become competitive and sustainable beyond 2005.

While some will continue to argue the virtues of trade liberalisation, one of its unwelcome effects has been the disintegration of Australia's TCF sector – a fall-out that will significantly burden our health and welfare systems.

The centre has projected an extra cumulative cost to the Federal Government of $750 million in unemployment benefits between 2004 and 2020. This figure does not include the additional millions that might be incurred from other ongoing welfare payments, nor costs associated with the frequently reported physical and mental health issues arising from retrenchment and long-term unemployment.

There is little doubt that the pressures of competing against Chinese and South-East Asian markets with no protection will force closure and downsizing for all but the most tenacious Australian TCF manufacturers. The responsibility of that reality will then be squarely on the Federal Government to implement appropriate re-training and remove structural barriers to re-employment for retrenched TCF workers – both for the quality of life of thousands of Australians and for the fiscal health of the nation.

Contact:
ingrid.nielsen@arts.monash.edu.au
Ph: +61 3 9905 2401

It's time again: new book on Whitlam

Former Australian prime minister Mr Gough Whitlam was special guest speaker at the launch of a new book of essays about the Whitlam era edited by Monash academics Associate Professor Jenny Hocking and Dr Colleen Lewis.

The book was launched by Federal Member for Fremantle Dr Carmen Lawrence at the Readings store in Lygon Street, Carlton.

It's Time Again: Whitlam and Modern Labor is published by Circa, an imprint of the Melbourne Publishing Group, and includes essays by two other Monash academics, Dr Paul Strangio and Professor Simon Marginson.

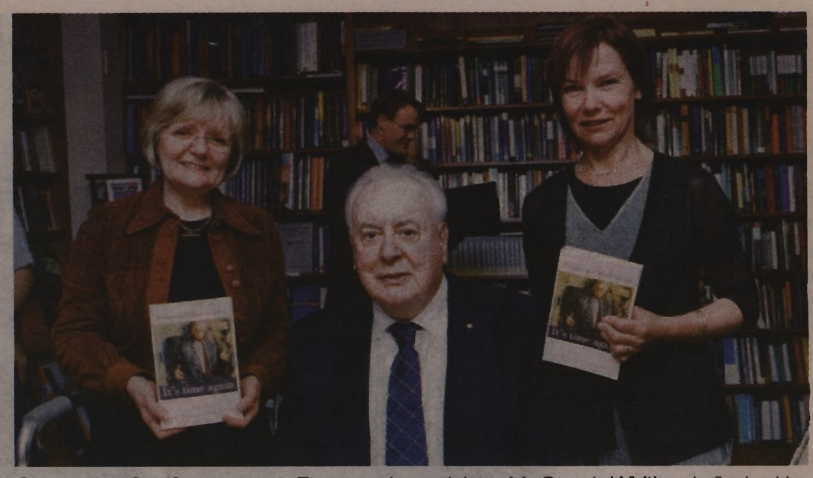
Dr Strangio's essay, 'Whitlam vs Cairns: Colliding Visions of Labor', revisits the relationship between Gough Whitlam and Dr Jim Cairns and their different visions for the Labor Party.

Professor Marginson's essay discusses Mr Whitlam's commitment to education, arguing that his capacity to universalise and mobilise popular aspirations for education played a key part in Labor's electoral gains in 1969 and 1972.

According to Associate Professor Hocking and Dr Lewis, to dismiss interest in Whitlam and 'Whitlamism' as mere nostalgia "fails to recognise that it is not a yearning for the past but a concern for the present".

"Voters feel unable to influence the policy process and are bemused by the cynicism of both major parties which focus on polls and not persuasion."

In his essay, 'The Relevance of the Whitlam Government Today', Gough Whitlam concludes that contemporary policies "creatively mobilising the resources of the Labor Party, the Parliament, the Constitutions and the United Nations will speed the day when the men and women of Australia will proclaim once again: It's Time".



A concern for the present: Former prime minister Mr Gough Whitlam is flanked by Monash academics Dr Colleen Lewis (left) and Associate Professor Jenny Hocking, both from the School of Political and Social Inquiry. **Photo: Delwyn Hewitt**

Roll out: Ms Antonietta Covino-Beehre at work in the studio. **Photos: Melissa Di Ciero**

Top award for print technician

A staff member of the Faculty of Art and Design at Monash University has won one of Australia's most sought-after print awards.

Ms Antonietta Covino-Beehre, a printmedia and photomedia studio technician from the Department of Fine Arts, won the prestigious Shell Fremantle Print Award, chosen from a record entry of more than 300 entries from around the country.

Established in the mid-1970s, the award is offered annually for prints and artists' books in any print media.

Ms Covino-Beehre's winning submission was *Studio D'una Citta* (study of a city) – an artist's book containing eight unbound pages, printed using a series of traditional printmaking and photographic techniques and, in the words of the judges, "evoking the qualities of antiquated classical architecture". The pages work as a series of prints or they can be sat upright to form a miniature cityscape of ancient buildings.

"My inspiration was my childhood home in the Italian province of Avellino and my memories of visits to Rome and Florence in 1997," said Ms Covino-Beehre. "I originally began the piece as part of my masters degree, and I was absolutely ecstatic when I heard I had won the Fremantle prize."

Outstanding: Pages from the winning submission.

The prize is worth $7000 but the award is acquisitive, so Ms Covino-Beehre's work will remain as part of the permanent collection at the Fremantle Arts Centre.

"I was sad to let the piece go but hope my success will serve as an inspiration to my students," she said.

– Richard Ewart

Contact:
antonietta.covino-beehre@artdes.monash.edu.au
Ph: +61 3 9903 2382

Sculpture students create sparks in the dark

Residents of Banyule Council in Melbourne's outer northeast were recently treated to a fiery display by Monash University students as part of a community arts festival celebrating the beginning of spring.

A fire sculpture, at the Malcolm Blair Reserve in Montmorency, was created by second-year Bachelor of Fine Arts sculpture students studying at the university's Caulfield campus. It was commissioned by Banyule Council's Cultural Development Office.

The blazing artwork was constructed from straw-filled 'sausages' of birdwire – each 5.5 metres long – joined together to form a zig-zag structure. It took a month to plan, two days to build and 15 minutes to burn.

Mr Tony Trembath, a lecturer in sculpture and drawing at the Department of Fine Arts at Caulfield, supervised the project.

"The Banyule sculpture was special because it was a full-scale piece that gave the students real hands-on experience. Students benefited from creating and working on a major public project, as part of a team," Mr Trembath said. "They liaised closely with local government staff and learnt first-hand how to deal with occupational health, safety and environmental issues."

Ms Jodie McCleery, a student who worked on the project, said it was an amazing experience for all those involved. "It was great working as part of a team. The whole process from start to finish was quite intensive, and we were really pleased the sculpture worked so successfully," she said.

The design and construction of fire sculptures is part of the second-year sculpture program within the Bachelor of Fine Arts, which includes proposal writing for an ephemeral sculpture or event.

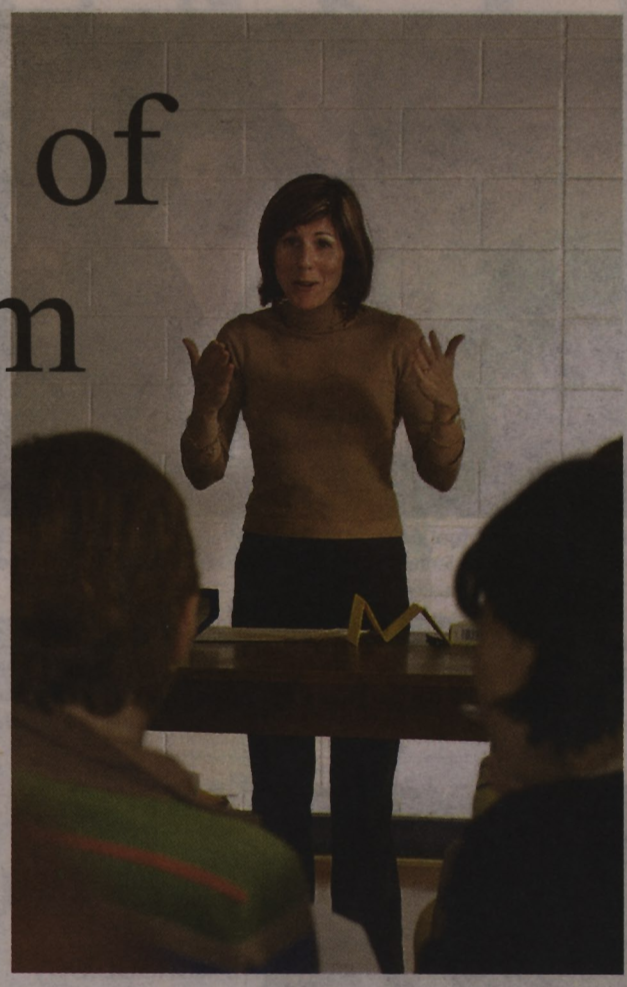
– Karen Stichtenoth

Contact:
tony.trembath@artdes.monash.edu.au
Ph: +61 3 9903 2277

Blazing art: Students set up the fire sculpture (left), which was soon in full display (above).

Photos courtesy of Banyule Council

A model of classroom support



Supporting role: Ms Anne de Kretser offers advice for Japanese language teachers.

The young teacher stands in front of her first class for the new year. She is teaching Japanese language in a Melbourne high school for the first time.

She has only been in Australia for one month, and in that time she has had to settle herself in new accommodation, acclimatise to her new work surroundings and prepare to teach her language to a group of Aussie teens.

While it is a daunting task by any standards, this scenario is not uncommon. Faced with this situation, many teachers are calling on the resources of Monash University's Melbourne Centre for Japanese Language Education.

Established in 1995 with the aid of a $2 million endowment from the Nippon Foundation, the centre provides programs and activities for teachers of Japanese in South Australia, Tasmania and Victoria.

Since its establishment, the centre has helped scores of teachers. Ms Miyuki Manzai, a Diploma of Education graduate from Monash, is one of them.

"I had a difficult time teaching in my first term at a new school, but being able to hear about other teachers' experiences and talk about my problems was extremely encouraging," she said.

She first came into contact with the centre during her university studies but has maintained her links since taking up her first full-time teaching post at St Leonard's College in Melbourne.

Based at Monash's Clayton campus, the centre is run by director Ms Anne de Kretser and administrative assistant Ms Keiko Kagawa. They actively support teachers who call on them for advice.

"We are ready to answer their questions at any time. We run discussion groups to help teachers with issues such as report writing and parent-teacher interviews," Ms de Kretser said.

The centre's activities also complement existing secondary school texts, recently producing a free CD pack for senior secondary students.

The centre has very close links with the Japanese Language Teachers' Association of Victoria (JLTAV).

"It provides excellent professional development for teachers of Japanese," said Ms Susan Hodgson, the association's president. "In Victoria, the Department of Education and Training has downsized its languages support area and will no longer be offering professional development. It has contracted out that role to the association, so the support of the Monash centre will be vital in the future."

For native Japanese speakers like Ms Manzai who are coming to grips with the Australian education system, the centre provides invaluable support and guidance.

"Teaching style is much more student-centred in Australia compared to Japan, where it is teacher-centred," she said.

Ms de Kretser said the centre often gets calls from teachers who are teaching VCE Japanese for the first time. "We run seminars for the teachers, but we also visit schools and help them with their teaching plan to ensure they are following the guidelines and providing students with the experience they need," she said. "We review what we do every year, and the professional development programs we run are updated annually to meet the changing needs of the teachers."

Japanese currently ranks second in popularity only to French at VCE level, so the centre's role in providing classroom support and materials is likely to remain vital.

Contact:
anne.dekretser@arts.monash.edu.au
Ph: +61 3 9905 2313

Small business needs to hire right – not fire

Small Business

A Monash University academic has argued that small businesses should not be given the ability to summarily sack new employees within their first year on the job.

Currently, the Federal Government is seeking to exempt Australian businesses with fewer than 20 employees from the unfair dismissal provisions of the Commonwealth Workplace Relations Act of 1996.

Dr Rowena Barrett, director of Monash's Family and Small Business Research Unit, has challenged the belief that the exemption will create more jobs in the small business sector. "I question how eroding the rights of workers in small business will encourage people to work in this sector. I also ask why the exemption would make small business attractive to skilled workers," Dr Barrett said.

While acknowledging the cost to small businesses faced with unfair dismissal claims, she suggested the real problem lies in the recruitment and selection processes they use.

"Rather than focusing on dismissing workers who are 'no good', surely it would be better to examine the process to ensure employers are hiring the right people in the first place," she told a seminar of small business operators, academics and policy makers at Monash's Gippsland campus recently.

"Employers need to be trained to understand human resource management and the whole recruitment and selection process. Doing this requires employers having a good understanding of the nature of their own business and its needs."

Dr Barrett said small business is described as the 'engine room' of our national economy because 96 per cent of Australian businesses employ fewer than 20 employees. "These firms account for nearly 50 per cent of all private sector employment nationally. They are important to rural and regional Australia. In Gippsland alone, 80 per cent of employers have fewer than five employees."

She said one of the main problems with creating policies for small business was that the sector is treated as a single group. "The assumption of homogeneity results in untargeted policy, limiting the effectiveness of programs that are meant to assist small business," she said. "Just because these firms share 'smallness' as a characteristic does not mean they are the same or that they have the same needs.

"The policy to exempt small business from unfair dismissal provisions is an example of this thinking. It is a concern, given there is no evidence to suggest that an exemption will result in more jobs."

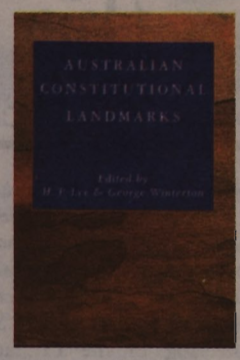
Dr Barrett called for evidence-based policy: "If we don't know exactly who we are dealing with, then we won't know what they really need. If we get it wrong, we can cause more problems than we're trying to fix, and we can waste taxpayers' money in the process."

– Robyn Anns

Contact:
rowena.barrett@buseco.monash.edu.au
Ph +61 3 9902 6619

INPRINT

Australian Constitutional Landmarks



By H. P. Lee and George Winterton
Published by Cambridge University Press
RRP: $89.95

Australian Constitutional Landmarks presents some of the most significant cases and controversies in the Australian constitutional landscape. It highlights important constitutional law cases that are considered turning points in the shaping of the Australian nation since federation. The book includes contributions by leading constitutional lawyers, judges and two former chief justices.

Each chapter looks at the legal and political context leading to a particular case or controversy and its impact on later constitutional reform. Topics examined include the Communist Party case, the Whitlam government dismissal, the Free Speech cases, the Lionel Murphy saga and the Tasmanian Dam case.

Professor H. P. Lee is acting dean in the Faculty of Law at Monash University and an expert on constitutional law. Professor George Winterton is a professor of constitutional law at the University of New South Wales.

Single & Free
Female Migration to Australia 1833–1837

By Elizabeth Rushen
Published by Australian Scholarly Publishing
RRP: $39.95

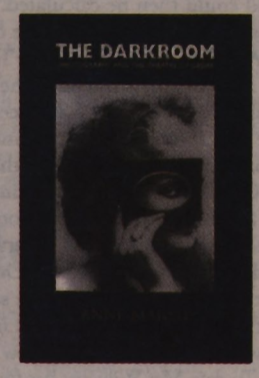
During the 1830s, nearly 3000 women emigrated to the Australian colonies under a scheme administered by the London Emigration Committee. The 'enthusiastic emigrators' responsible for administering this scheme were condemned for their selection processes in what was seen as a plot to transplant immoral women and the inhabitants of workhouses and charitable institutions to the colonies.

Vested interests in rigid interpretations of class and gender combined to create a myth about the perceived unsuitability of the women in a discourse that represented female immigrants as pauper prostitutes.

This book describes the scheme and the many women who emigrated from Britain and Ireland. Their selection interviews, life experiences and writings show they were drawn from a wide cross-section of 19th-century society. It challenges those who disparaged the women – while they travelled alone unprotected by a male guardian, they certainly could not be dismissed en masse as the "sweepings of the gutters". They were, in fact, bold and enterprising and made ideal workers and wives in the new colonies.

Dr Rushen is an honorary research fellow in the Department of History in the Faculty of Arts at Monash University and executive director of the Royal Historical Society of Victoria.

The Darkroom
Photography and the Theatre of Desire



By Anne Marsh
Published by Macmillian Art Publishing

This book describes photography as both a surveillance mechanism and an instrument for creating fantasy – a serious tool in the service of science and a major component of the entertainment industry. In between these two categories are a host of other practices jostling for recognition.

The author argues that the distinction between fantasy and reality, between truth and its interpretation, is blurred, that every photographic truth is an interpretation and that this interpretation is driven by the desire of the operator, the subject being photographed and the viewer looking on.

Dr Anne Marsh is a senior lecturer in visual culture in the School of Literary, Visual and Performance Studies at Monash University.

POSTScript

Data mining with Bayesian networks and the deployment of Bayesian networks in industry and government are two of the most promising areas in applied artificial intelligence today. Fully realising this potential demands a solid foundation that integrates basic Bayesian network technology with learning of Bayesian net technology and the use of both for knowledge engineering.

Bayesian Artificial Intelligence, published by Chapman & Hall (RRP $79.95), is written by Dr Kevin Korb and Dr Ann Nicholson, senior lecturers in the Faculty of Information Technology at Monash University. The authors present a broad range of topics, practical perspective and thoughtful discussion of philosophical underpinnings, making this book an ideal introduction for students and professionals who want to broaden their expertise.

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

Cashless world on the cards

Computer Science

A cashless world where you no longer have to reach into your purse or your pocket for coins to buy a sandwich or newspaper may not be too far away.

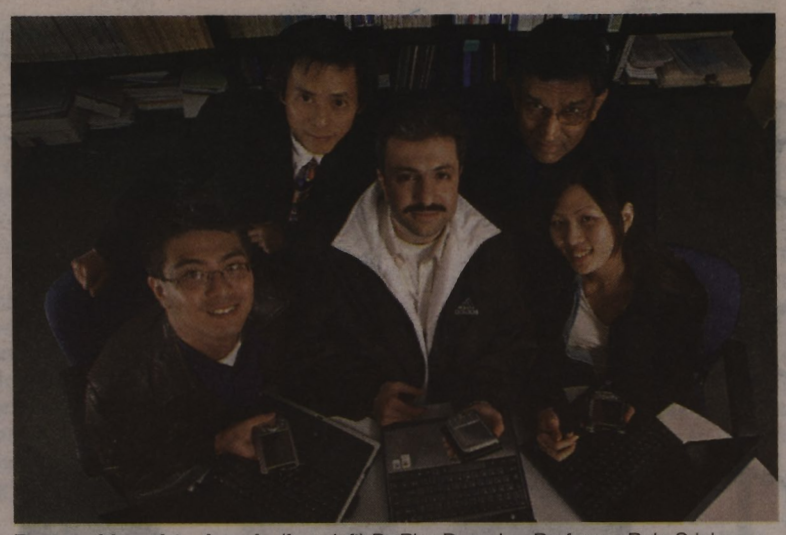
Researchers in the School of Computer Science and Software Engineering in the IT faculty at Monash University are working on a system with the potential to allow virtual cash transactions, using a variety of electronic devices including mobile phones.

"My team is developing a method of making micro-payments that would allow people to buy small-value goods or services on wireless networks using tokens that represent coins," said school head Professor Bala Srinivasan.

"Downloading ring tones and logos onto mobile phones are clear examples of wireless micro-payments that already happen, but our system goes much further.

"The tokens would be stored in a smart card plugged into a mobile device that has wireless connectivity. For mobile phones, the tokens can be stored in SIM cards. The holder would be able to charge up their card with any amount they choose on a daily or weekly basis from their own bank account.

"After each re-charge, they would be given a personal identification number so they could confirm their identity each time they made a purchase."



Researching virtual cash: (from left) Dr Phu Dung Le, Professor Bala Srinivasan (standing) with students Mr Jingxian Wang, Mr Osama Dandash and Ms Boon Tiong Sunny Toh (seated).

The researchers plan to build extra security into the system by having the banks encrypt access numbers, while merchants providing facilities for wireless transactions would get their payments by cashing in tokens electronically at the end of each day's trading. "Our devices would be better than existing smart cards because if you lose one of those, you lose the cash stored on it," Professor Bala said.

"Under this system, a lost or stolen card would be useless to anyone else, and unused amounts would revert to the cardholder's bank account."

The project is currently at the stage of mathematical computer simulations, and the Monash team needs to investigate compatibility and performance issues such as the speed at which messages could be transmitted.

Their aim is to complete the research by the middle of next year and then test the system by establishing a small wireless network at the university's Clayton campus so students and staff could experiment with virtual dollars.

– Richard Ewart

Contact:
bala.srinivasan@infotech.monash.edu.au
Ph: +61 3 9905 1333

Balances of gold

Science History

The chemical balances used to weigh gold in the heady days of Australia's gold rushes are being sought by a Monash University researcher.

Mrs Nicola Williams, an honorary senior lecturer in the School of Chemistry, has spent time over the past 20 years collecting antique scientific instruments and glassware. Her main interest is assay, chemical and bullion balances, particularly those that were imported into Australia in the early days of the gold rushes.

"The balances have great historical importance because they were used by assayers on the goldfields to weigh the gold that was brought in by prospectors," she said. "The gold companies, and later the Mints, had their own assay labs where the gold was weighed, treated in a furnace to remove any impurities, and re-weighed. The purity of the gold could then be calculated. The chimneys of the assay labs can still be seen in some of the old mining sites, such as Arltunga in the Northern Territory."

Mrs Williams has been the curator of Monash University's Faculty of Science instrument collection since the late 1980s. The first balance she obtained was a model 9 balance made in 1896 by the British company L. Oertling. It is on display in the Monash Science Centre.

She is contributing to a book detailing the history of the Oertling company. "I'm trying to find, photograph and identify as many of the Oertling balances that came out to Australia as I can," she said. "Hundreds of balances, not only from Oertling, were imported from the 1860s onwards, and it's amazing how many have survived."

To date Mrs Williams has found nearly 60 Oertling balances plus many others made by companies such as Sartorius, Becker, Bosch and Ainsworth. "They usually turn up in little mining museums in out-of-the-way places, but also in tertiary institutions, big museums and private collections."

Collecting history: Mrs Nicola Williams and a gold rush balance.

One particularly well-preserved Oertling – a model 65 on display at the Miners' Hall of Fame in Kalgoorlie, Western Australia – is the only known survivor of just 45 that were produced between 1937 and 1940. "Mostly the balances are in good condition. They all have a serial number except some of the very early ones, and other information can be found from pencil markings in the grooves of the sliding door, and on the surfaces of drawers or drawer cavities," Mrs Williams said.

"From a combination of serial number and careful copies of all the markings, my UK collaborators can work out the date a balance was made, when it was repaired, and even the names of the workmen involved. I can then pass all this fascinating background information back to the museums.

"The old balances have now been replaced by electronic balances, but they are an important part of our mining history and the workmanship is remarkable. One balance I found, at a mining museum in Charters Towers, is a very early model 5 Oertling, made between 1854 and 1860. The pan chains are made of pure platinum, and the pans are made of copper, plated with platinum on the upper surface. Another of these early model 5s is held in the Physics museum at the University of Queensland."

– Penny Fannin

Contact:
nicola.williams@sci.monash.edu.au
Ph: +61 3 9905 5509

Life on top of the world – 15,000 years ago

Archaeology

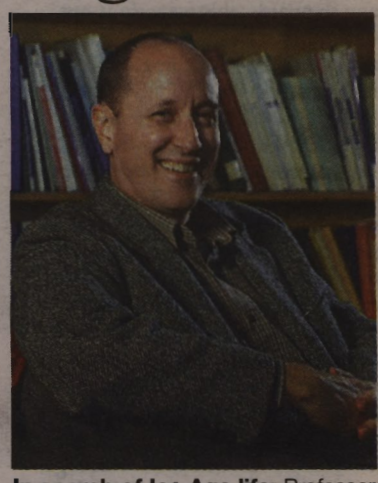
The University of Arizona's Professor John Olsen can tell a lot about how our early human ancestors lived in the high, arid plains of Tibet and Mongolia using evidence as subtle as small chips of stone left behind by nomadic hunter gatherers around 15,000 years ago.

In a recent public lecture at Monash, the anthropology and East Asian studies professor intrigued his audience with stories of research into Ice Age life in some of the world's highest and driest places. Titled 'The search for human ancestors on the roof of the world: archaeological explorations in Tibet and Mongolia', the illustrated presentation focused on some of Professor Olsen's most fascinating discoveries and their possible meanings.

"Quite often I'm crawling around on my hands and knees looking for tiny pieces of stone, which provide evidence of tool-making and proof that people were living in the area," Professor Olsen said. "So it was particularly exciting to come across a geothermal hot spring in Tibet with a collection of stone tools arranged around the vent – evidence of a wide range of possible activities.

"The tools could have been used to kill animals, butcher them or process hides, strongly suggesting the site was a hunting camp.

"It's possible the early humans, who left the tools behind up to 15,000 years ago, could have been a nomadic band of between 20 and 30 people with a hunter-gatherer style of existence who would have hunted wild yak, Tibetan antelope and migratory fowl.



In search of Ice Age life: Professor John Olsen of Arizona University.

"We don't know, however, if the people would have been of Tibetan, Chinese or other origin, as no human skeletal remains have been found yet."

Professor Olsen's lecture was hosted by the Monash Asia Institute, the Monash Science Centre and the Monash Centre for Archaeology and Ancient History, with the support of a grant from Monash's North America Steering Group.

– Michele Martin

Contact:
olsenj@email.arizona.edu,
Weblink:
http://w3.arizona.edu/~anthro/

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Editorial inquiries: **+61 3 9905 9317**
Fax **+61 3 9905 2097** or email
media@adm.monash.edu.au

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