

uniken

The race against time

A new look at the
ageing debate

■ Eureka! UNSW
tops science prizes

■ Inside the University
Art Collection

■ Learning lab fast-
tracks future leaders



UNSW

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Group of Eight

Child-care support for women researchers

This year marks the 10th anniversary of the establishment of the Vice-Chancellor's Childcare Support Fund. Over the past decade, 125 staff members have successfully applied for funding under this scheme, which is designed to enable women researchers with child-care responsibilities to enhance their research careers. As part of the Fund, the University assists women researchers financially to participate in prestigious national or international conferences, workshops or symposia essential to their research programs.

Associate Professor Lucy Taksa, Chair of the Fund's assessment committee says the program has had immense benefits for women researchers at UNSW. "Statistics show that every researcher who successfully applied to this fund more than once have also been successful when applying for promotion," she says.

The Fund was one of the UNSW initiatives specifically identified in the Employer of Choice for Women citation earlier this year, awarded by the Equal Opportunity for Women in the Workplace Agency. "The scheme clearly supports the University's family-friendly policy by allowing women researchers to balance their careers and family responsibilities."

Grants of up to \$2000 are available to fund extraordinary child-care costs associated with conference participation. Applications are assessed quarterly and are available on the Research Services website. For more information please contact Hart Devitt at h.devitt@unsw.edu.au.

He's got the numbers

The first Australian to win the mathematics equivalent of a Nobel Prize has had a long and close association with UNSW. A maths professor at UCLA, Dr Terence Tao, 31, is one of the youngest winners of the prestigious Fields Medal.

The Adelaide-born maths prodigy could add and subtract numbers at age two, started high school at seven, university at nine, and became a full professor at 24.

During his early years Tao was mentored by Garth Gaudry, a former head of mathematics at UNSW, who is now director of the International Centre of

Excellence for Education in Mathematics at the University of Melbourne. Professor Gaudry taught Tao from age 12 at Flinders University, where he graduated with a Bachelor of Science (Hons) at 16 and a Masters of Science the following year. This was followed with a PhD from Princeton University at 21.

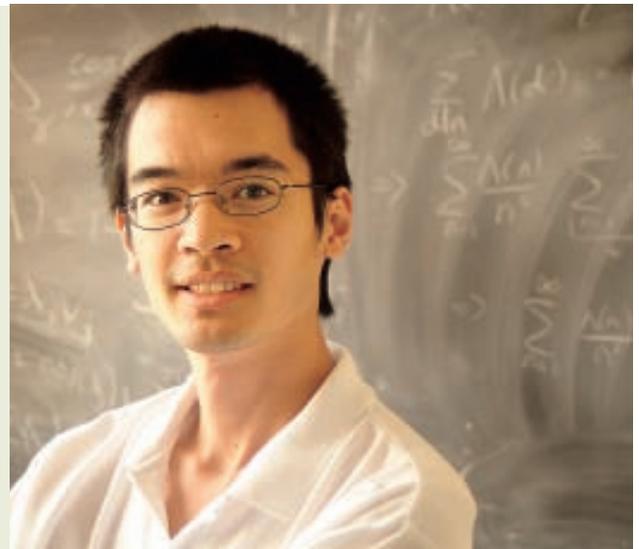
Even as a boy he displayed dazzling insight and creativity, said Gaudry, who attended the prize-giving ceremony in Madrid. "To be Terry's teacher was, for me, the privilege of a lifetime."

Since age 10, Tao has had an association with UNSW's Dr David Hunt, who led Australia at the 1986 International Mathematical Olympiad, where Tao won the first of many prizes. "Perhaps the most significant aspect of Terry's win is as a role model to young Australians," Dr Hunt said. "He has shown that with hard work and natural ability it's possible to become a world leader in an area of endeavour."

Following appointments at Princeton and then UCLA, Dr Tao has worked on two occasions at UNSW. In 1999 he spent six months here as a Visiting Fellow and returned in 2000 as a Visiting Professor, publishing papers with staff and former staff of the University's School of Mathematics.

His research spans diverse fields, including profound new work on prime numbers, new techniques that could simplify equations for Einstein's theory of general relativity, and equations of quantum mechanics that describe how light bounces around in a fibre optic cable.

The International Mathematical Union awards up to four medals every four years during the International Congress of Mathematicians. The Fields Medal is usually awarded for a body of work rather than a single, isolated research result.



Terry Tao, a former Visiting Professor at UNSW, is the first Australian to win the prestigious Fields Medal

Courtesy UCLA



A room of her own ... Angeline Meloche with her winning design

UNSW student Angeline Meloche is brushing up on her Italian after being named the *Sydney Morning Herald* Young Designer of the Year. A third-year industrial design student in the Faculty of the Built Environment, Angeline's prize includes a \$5000 investment package and a trip to Milan's Furniture Fair next April.

She plans on making the most of her success by spending six months at Milan's Politecnico di Milano, one of Europe's most prestigious architecture and engineering universities. "My Italian is a little rusty," Angeline, 23, confesses, "but I'm taking Italian lessons so I can take advantage of the design studio class I plan on taking at the Politecnico."

It is the third time in four years that a UNSW industrial design student has won the coveted prize. Isobel Scanlon was last year's Young Designer of the Year and in 2003, UNSW student Lan Nguyen-Hoan won first prize for her white knot cushion.

Angeline's winning design is an acrylic model called *Spare Room*, which consists of a green leafy park with an aluminium carpet, model chairs and a lamp, sprayed to give a cast aluminium effect.

"People seem to spend a lot of time inside their homes watching television instead of outside talking to each other," she says. "I thought about ways of getting people out of their lounge rooms by taking indoor furniture outside."

Spare Room was part of the Sydney Design '06 exhibition at the Powerhouse Museum.

Prize-winning architect walks the talk

Professor Deo Prasad, from the Faculty of the Built Environment, has won the prestigious 2006 RIAA Neville Quarry Architectural Education Prize for his leadership in teaching and research.

An architect and director of the Centre for a Sustainable Built Environment, Deo's commitment to sustainability doesn't end at work. He and his family live in an eco-friendly house that uses no heaters or air-conditioning. The thermally insulated house that Deo designed and converted a few years ago draws on photovoltaic energy to power his home and heat the backyard pool.

"Our home shows that a high level of household sustainability can be achieved through appropriate lifestyle," says Deo, who is a founding member of The Kensington Group, a leading international think-tank on urban and regional sustainability. "This doesn't mean becoming a left-wing greenie but being an informed user."

Deo will be presented with the prize in October at the annual RIAA National Awards in Brisbane.

Five star rating

UNSW has rated exceptionally well in the 2007 *Good Universities Guide*.

The guide, a comprehensive handbook for anyone choosing a university course or campus, gave UNSW the maximum five star rating for eight key performance indicators: student demand, graduate starting salaries, research grants, research intensity, student-staff ratios, cultural diversity, gender balance and international enrolments.

New scholarship targets best and brightest

Every high school in NSW and the ACT has been invited to nominate its top student for an Academic Achievement Award (AAA), as part of a new scholarship program announced by Vice-Chancellor Fred Hilmer.

"We want to reach out to every school in the state and say, 'This should be the destination of choice for your best students'," he said.

Should the nominated students – who are selected on their combined academic results from Years 11 and 12 – meet the University's entry criteria and decide to take up a place, they will be awarded a one-off scholarship of \$4000, payable during their first year.

"UNSW has a tradition of encouraging gifted students from diverse backgrounds. Building on the academic excellence of our students and programs, these awards will support the most gifted student from each school across NSW and the ACT in their study at UNSW," the Vice-Chancellor said.

Young refugees kick goals

A UNSW academic has started a unique program to help refugees adjust to life in Australia.

The *Refugee Youth Soccer Development Program*, organised by Anne Bunde-Birouste of the School of Public Health and Community Medicine, aims to use the world game to help promote social cohesion and build racial harmony.

The program is designed for young people between the ages of 10 and 25 who have arrived as refugees. Football personalities Craig Foster and Andy Harper are co-patrons and are actively involved in the program's development. The range of activities will include skills training, referee and coaching clinics, after-school and holiday camps, and workshops on fundraising, club, team and sports management.

"Sport is increasingly being looked to as an effective way of bringing people together, to promote not only health, but social cohesion and even peace-building," said Anne Bunde-Birouste. "But many initiatives tend to be one-off events. This program is different because it will be ongoing, and will link with existing social networks and build new ones."

More than a hundred young refugees took to the field at the project's recent launch at Merrylands in Sydney's West. For more information go to <http://soccer.sphcm.med.unsw.edu.au/>



Having a ball ... young refugees take to the field with local players

For the record

Universities are much more than educational facilities and a lot of universities are not making as much out of what they can do.

UNSW Chancellor David Gonski on university fundraising – The Australian

Control orders have no precedent in Australia. They give the government a second chance to deprive someone of their liberty even after they have been acquitted in a fair trial or had any convictions quashed on appeal.

Professor George Williams and Edwina MacDonald on the legal battle over control orders in the Jack Thomas case – The Age

Sydney is fortunate the transfers from the Shoalhaven have allowed it to weather the drought. However, it is not a long-term fix.

Associate Professor Greg Leslie of the Centre for Membrane Science on the NSW government's water plan – Sydney Morning Herald

Spelling is not a high-order cognitive skill such as sentence construction, however, it requires practice and memory – two aspects of traditional pedagogy that have somehow fallen out of favour.

Associate Professor Peter Knapp, director of UNSW's Educational Assessment Australia, on their test results showing Singaporean students are better spellers than Australian children – The Australian

LPG is not a long-term solution and to get a lot of people converting their cars is just a waste of money.

Dr Mark Diesendorf of the Institute for Environmental Studies – Daily Telegraph

Doctors are sometimes seen as the innocent victims, and the villains in the piece are the pharmaceutical industry. In reality it is a two-way relationship.

Associate Professor Paul McNeill of the School of Public Health and Community Medicine – Sydney Morning Herald

Politicians who champion the moral high ground over sanctity of life can hardly oppose the use of human embryos for research yet also condone our involvement in the war in Iraq.

Dr Ben McNeil of the Faculty of Science – Canberra Times

We're also telling young girls that the actual [engineering] profession is changing too. There are women engineers across the board, predominately in environmental, chemical and food sciences, but also in mechanical and civil engineering.

Professor Dianne Wiley, Associate Dean in the Faculty of Engineering – Sydney Morning Herald

Eureka!

UNSW scoops the pool

The University carried off four Australian Museum Eureka Prizes last month, more than any other participating institution. **Dan Gaffney** was there.

Now in their 26th year, the Australian Museum Eureka Prizes are the nation's largest single national award scheme for research into critical environmental and sustainability issues facing Australia. Prizes are awarded in the four categories of research, leadership and innovation, education, and science communication, with most carrying a cash prize of \$10,000.

This year more than a thousand people turned out for the awards dinner at the Royal Hall of Industries in Sydney. Among those attending what are regarded as "the Oscars" of Australian scientific research were the Federal Minister for Education, Science and Training, Julie Bishop; Federal Minister for the Environment and Heritage, Senator Ian Campbell; NSW

Winder from the chemical safety and applied toxicology labs in the School of Safety Science.

While new technology is increasingly used as an alternative to animal testing for scientific purposes, more than a million dogs, cats, rabbits, sheep, cattle, pigs and mice are used each year in research and teaching in Australia. Sponsored by the Sherman Foundation, the prize rewards scientists for work that has reduced the use of animals or animal products in laboratory-based research, education and testing.

The UNSW team were recognised for pioneering a cheaper and more humane way to do toxicity tests by using human lung cells grown on a membrane. Traditionally, this question

UNSW had an unprecedented 18 finalists for the 2006 awards – more than any other institution in the prizes' history. They were drawn from the faculties of science and medicine, spanning the fields of neurology, microbiology, quantum computing, toxicology, nanotechnology, epidemiology, oceanography, and climate and environmental science.

Minister for Science and Medical Research, Frank Sartor; Australian of the Year, Dr Ian Frazer; Nobel Laureate, Professor Barry Marshall; and from UNSW, Vice-Chancellor Professor Fred Hilmer and Deputy Vice-Chancellor (Research), Professor Les Field.

UNSW had an unprecedented 18 finalists for the 2006 awards – more than any other institution in the prizes' history. They were drawn from the faculties of science and medicine, spanning the fields of neurology, microbiology, quantum computing, toxicology, nanotechnology, epidemiology, oceanography, and climate and environmental science.

By evening's end, eight UNSW scientists had been recognised by their peers.

The Voiceless Eureka Prize for Research went to **Dr Amanda Hayes, Ms Shahnaz Bakand** and **Associate Professor Chris**

is answered by having animals breathe contaminated air.

The Sherman Eureka Prize for Environmental Research was awarded to **Professor Matthew England**, director of the climate and environmental dynamics laboratory; PhD student, **Alex Sen Gupta**; and **Dr Michael Dawson**, a research fellow in the Centre for Marine and Coastal Studies.

The prize is awarded for research that resolves an environmental problem or which improves the natural environment. The UNSW team was recognised for devising a computer model that reliably predicts circulating ocean currents.

The tool has been used to improve understanding of how Australia's weather patterns are being influenced by chilly ocean currents in the Antarctic. It has also highlighted the role of ships in spreading invasive ocean pests.



Steve Preece

Mike Manefield is developing new communities of bugs that eliminate industrial nasties

The NSW Office for Science and Medical Research Eureka Prize was awarded to **Dr Michael Valenzuela**, a clinical neuroscience research fellow in the School of Psychiatry, based at the Black Dog Institute.

Dr Valenzuela's landmark research involving a study of 29,000 people has revealed that a lifetime of complex mental activity nearly halves the risk of getting dementia.

Published earlier this year with UNSW colleague Dr Perminder Sachdev, the finding is being followed up in large clinical trials to test whether structured mental exercises such as ongoing study, crosswords, chess and art could prevent dementia.

The British Council Eureka Prize for Innovation and Leadership in Environmental Science was awarded to microbiologist, **Dr Mike Manefield**, senior research associate in the Centre for Marine Biofouling and Bioinnovation.

Dr Manefield is developing technologies to harness bacteria that could clean up polluted land and water environments (see breakout story). The technology is based on Mike's postdoctoral research at Oxford University, where he developed a way to identify and match-make bacteria with specific pollutants in the environment. His technology is beginning to find demand from governments and corporates in Australia and overseas. ■

Smart bugs clean up

The heavy industrial processes that produce iron, steel, petroleum, chemicals and plastics are notorious for polluting our soil, air and water. Many by-products and emissions from these processes are difficult to break down and their negative impacts on living organisms are well documented.

Since the dawn of the industrial revolution the dirty business of cleaning up the harmful and intractable by-products of industrial processes has been a difficult, costly, low-order priority. Until now.

Dr Mike Manefield, a Senior Research Associate in the Centre for Marine Biofouling and Bioinnovation, is developing novel approaches that employ microbes to clean up contaminated industrial sites.

"Bioremediation harnesses the remarkably versatile metabolic abilities of micro-organisms to break down harmful and recalcitrant by-products of industrial processes," says Manefield, who is helping Orica Australia to clean up polluted groundwater associated with the Botany Industrial Park in Banksmeadow.

As the microbes begin to break down the pollutants their population increases and swells until the contaminant is eliminated. The bugs then die and the problem is solved.

He is developing new communities of bugs that eliminate persistent industrial nasties by literally "breathing" in these compounds in the same way that we breathe oxygen. In this way the pollutants are broken down and used as a part of the bugs' natural metabolism.

The hope is that by breeding and matching bugs to a smorgasbord of harmful industrial by-products, science can help industry to shrink the accumulating mountains of pollutants, explains Manefield.

"The process starts by inserting a 'starter batch' of microbes into a polluted site. As the microbes begin to break down the pollutants their population increases and swells until the contaminant is eliminated. With their vital pollutant gone, the bugs then die and the problem is solved. It's a classic exhaustion of resources scenario."

Thanks to a recently awarded ARC linkage grant (\$327,000) and funding from Orica (\$248,000), Mike is working with colleagues to surgically "deliver" these microscopic bug communities to consume pollutants in hard to get at locations, such as in soil and aquifers.

It's a new breed of science that he hopes will ultimately give Australia an unprecedented advantage in the billion-dollar global bioremediation market. ■

Dan Gaffney



Cinema in the round

Interactive cinema is here. And it's blurring the boundary between audience and screen that's stood firm since cinema's dawning more than a century ago. **By Dan Gaffney.**



In contrast to conventional cinema where we passively watch and listen to a linear narrative in two-dimensional space, interactive cinema permits almost limitless narratives that can be authored both by viewers and the technology that underpins this new medium.

Its debut at the newly launched iCinema Scientia Facility at UNSW, home of the iCinema Centre for Interactive Research, comes 110 years after the pioneering filmmaker, Louis Lumiere, claimed that cinema was "an invention without a future".

Some might be tempted to say the same of interactive cinema, passing it off as technical gimmickry. History will be the judge but for now, the director of iCinema, Professor Jeffrey Shaw along with co-directors Dr Dennis Del Favero and Professor Neil Brown, see boundless possibilities.

"It's a new form of cinema that combines all forms of digital media – voice, video, music, text, images and animation, so that people can create their own cinematic experience," says Shaw. "It literally plunges an audience into a 'hybrid reality' where there are no barriers between the virtual and the physical, and where narrative is created spontaneously and cooperatively."

Based in the lower ground floor of the UNSW's iconic Scientia Building, iCinema contains an array of curious technological paraphernalia. Looking around the cavernous black-draped interior one sees all manner of novel-looking lights, cameras, computers, stages and unusually shaped projection screens.

iCinema's technological showpiece is *AVIE*, a 120 square metre circular screen that surrounds an audience and provides the backdrop for three-dimensional immersive cinema experiences.

Driven by six computers, 12 high-resolution digital video projectors and a 26-channel spatialised audio system, it is a cinema in the round like no other.

In their most recent showcase creation, the ARC-funded research project, *T_Visionarium*, Del Favero, Shaw and Brown together with Professor Peter Weibel of Germany's ZKM, Centre for Art and Media Karlsruhe, push the boundaries of the latest advances in automated video analysis, multimedia search and retrieval, and high-density video streaming. It is an immersive environment

Place-Hampi is an example of how immersive cinema can help people to better appreciate these often fragile heritage sites. The augmented stereo panoramas reveal the embedded richness of the ritual and archaeological landscape – qualities not immediately obvious to the touristic gaze.

Sarah Kenderdine, Museum Victoria

Do not adjust your set ... clockwise from top: Ganesha at Hampi in *AVIE*; panorama, Hampi; *Eavesdrop 360°*, and panorama.



where viewers can navigate a three-dimensional library of tens of thousands of broadcast television clips, and freely assemble these “samples” into unexpected and emergent narrative sequences. While something like this was fantasised in Steven Spielberg’s sci-fi film *Minority Report*, iCinema has now made it a reality.

In another interactive installation called *Place-Hampi*, viewers are transported to the medieval ruins of a Vijayanagara Empire in southern India, a UNESCO World Heritage-listed site.

Standing by a dirt road surrounded by Hampi’s sites and sounds one almost feels the heat, the hot throng of pilgrims; the palpable air of festival celebrations. The effect of *AVIE*’s immersive projection and audio technology makes the experience staggeringly tangible.

Place-Hampi’s industry partner is Museum Victoria where Sarah Kenderdine is a world authority on virtual heritage. “*Place-Hampi* is an example of how immersive cinema can help people to better appreciate these often fragile heritage sites. The augmented stereo panoramas reveal the embedded richness of the ritual and archaeological landscape – qualities not immediately obvious to the touristic gaze,” says Kenderdine.

A hybrid theatre–cinema installation that reveals the potential of interactive cinema is *Eavesdrop*, a high-definition panoramic film that shows actors sitting at tables distributed in a 360-degree circle around the viewer.

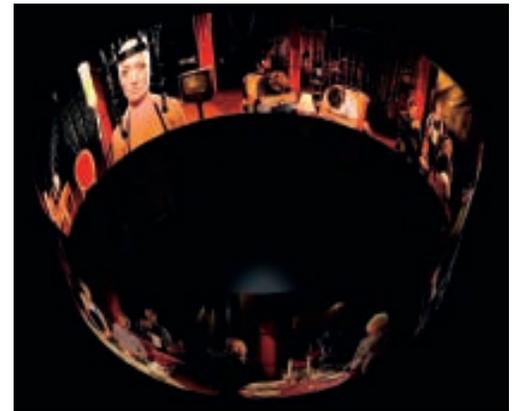
Created by Shaw together with David Pledger, *Eavesdrop* is a multi-layered narrative reflection on moral inertia. Viewers are drawn into the action by being able to interactively navigate and edit a personal unfolding of its multiple story lines.

Shaw says interactive cinema isn’t going to make the traditional cinema obsolete: “It’s adding a new dimension to the cinema. Like Omnimax theatres, soon there will be urban locations where people can go to engage in fully immersive, interactive cinema. What’s more, the internet and the games industry will drive new types of immersive experience in the home as well.”

He argues that three-dimensional cinema, where the virtual world of the screen “reaches out into the real space”, reintroduces a natural element into cinema that has been missing since movies began.

“It has a lot to do with the way we apprehend information,” Shaw says. “We live in a fully surrounding multifarious world. So the constrained nature of TV and the traditional cinema is an abstraction, a reduction of the richness and variety of information that constitutes the real world.

“In immersive interactive cinema we put viewers in the middle of a 3D environment, where they can look around, walk around and interact with that environment as if they were really there. The expressive power this offers artistic production is unprecedented. It also has enormous potential in, for example, architectural simulation, healthcare, educational settings and entertainment.” ■



Interactive cinema literally plunges an audience into a “hybrid reality” where there are no barriers between the virtual and the physical, and where narrative is created spontaneously and co-operatively.

Professor Jeffrey Shaw, iCinema



Crunch TIME

A new look at the ageing debate

UNSW has been awarded more than \$4 million as part of the Federal Government's *Ageing Well, Ageing Productively* research priority. The University won two of the six joint NHMRC-ARC grants announced under the scheme – the best result of any institution. **Susi Hamilton** reports.

Love your work

UNSW is establishing a major new research institute on population ageing. Led by the Faculty of Commerce and Economics, the centre will undertake cross-disciplinary research across a range of ageing issues, starting with a \$2 million project on working longer.

Treasurer Peter Costello is right about us having to work longer, according to John Piggott, one of the drivers behind the Australian Institute for Population Ageing Research (AIPAR), which is being established at UNSW.

He predicts that in 30 years, people will be working into their 70s. It is just that topic that will be the first major research area of the new Institute.

Professor Piggott, who is Acting Dean of the Faculty of Commerce and Economics, is the team leader of the project, *Working longer: Policy reforms and practice innovations*, which has recently been awarded \$2 million over five years.

"A popular response to increased longevity is to suggest that workers should work longer to fund their retirement," says Professor Piggott. "But that is simplistic. Working longer involves changes to established policies, practices and institutions, which are currently built around retiring earlier."

Ever the economist, Professor Piggott gives the numbers to illustrate what we are facing: "At the moment, there are five people working for every retiree, by 2045 there will be 2.5."

As well as engaging with business and government, AIPAR will bring together UNSW researchers from a range of fields to draw a more accurate picture on population ageing. It is believed to be the first institute of its kind, both in Australia and overseas, to cover such a spectrum of disciplines, including economics, finance, actuarial studies, community health, engineering, computer science, behavioural science, the built environment, and social sciences.

Another cross-disciplinary research project that packs a political punch is already underway. AIPAR's interim director, Dr Hazel Bateman, is leading a study on the effect of the increasingly casualised workforce on superannuation adequacy.

"The government has a very positive outlook on superannuation, but it's not totally accurate," says Dr Bateman. "There's this perception that everybody's got superannuation coverage and everybody's going to work for 40 years, but if you look more carefully at the data you see that's not the case."

The work, which involves researchers from the Faculty's Centre for Pensions and Superannuation and Industrial Relations Research Centre, indicates there





is an increasing number of self-employed, part-time and casual workers who are not covered to the same extent as the full-time workforce.

In fact, it finds that only around 70 percent of casual and self-employed workers are currently covered by superannuation, with those in the hospitality, retail and tourism industries, as well as the self-employed, particularly vulnerable, according to Dr Bateman.

“Australia’s report card on funding retirement incomes is very good, we could probably get somewhere between an A and a B+,” she says. “We pre-fund most of our retirement incomes, which is in contrast to most other developed countries.” But she adds: “While we’re doing alright so far, we could be doing better.

“Population ageing is a problem everyone is going to have to address. It will have economy-wide impacts on economic growth, financial markets and living standards, and it will have a huge impact on government finances and the provision of public services.”

The ageing labour market, changing patterns of consumption and infrastructure requirements will also affect industry and the private sector, says Dr Bateman. “And it will, of course, have a profound impact socially.”

The Institute’s first step will be to gauge the scale of the problem, while solutions will be offered further down the track.

“If you talk to most economists, they say that health costs are skyrocketing and the cost of pensions will be relatively unimportant for governments, in comparison,” Professor Piggott says.

“But that’s only part of the picture. That does not figure in innovations in health technology, which engineers are currently working on. These developments will ease the cost burden on society.”

Community-based retirement villages, different types of housing and financial products to suit elderly people, workplace change to accommodate the needs of an older workforce, are all ideas which pepper Professor Piggott’s conversation.

The Institute will clearly have its work cut out for it. And retirement clearly isn’t on the mind of Professor Piggott: “This has only just started; I’ve got years of research ahead!” These words should be music to the ears of Peter Costello.

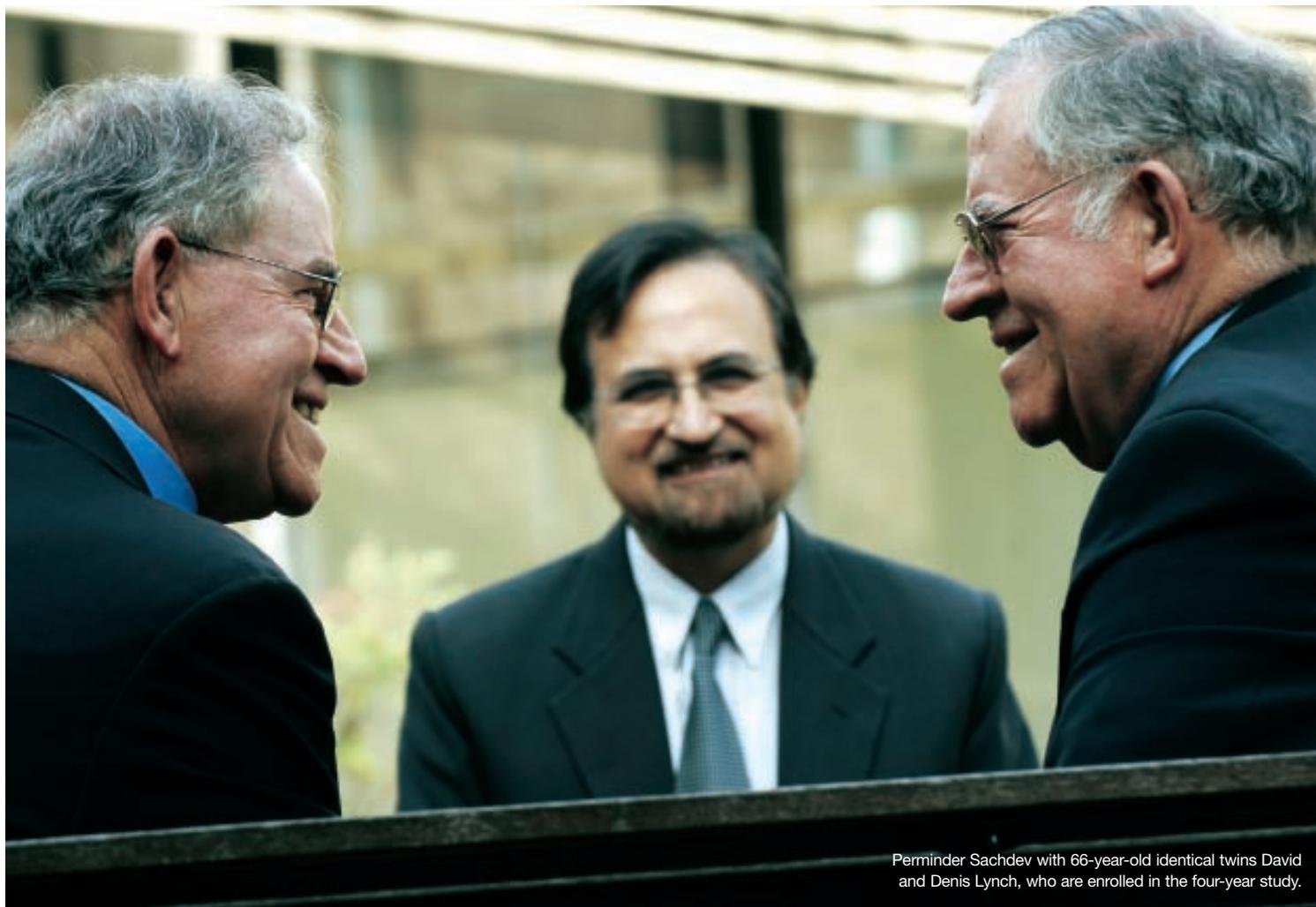
Super solutions ... John Piggott and Hazel Bateman are leading research in population ageing

Working longer involves changes to established policies, practices and institutions, which are currently built around retiring earlier.

AGEING WELL

It takes **two**

Around 300 sets of older twins will take part in one of the largest studies of brain ageing ever undertaken in Australia. UNSW researchers are hoping to discover new genes that control how we age, writes **Susi Hamilton**.



Perminder Sachdev with 66-year-old identical twins David and Denis Lynch, who are enrolled in the four-year study.

Britta Campion

By studying twins, Perminder Sachdev says “we will be able to better determine which influences on the ageing process are genetic and which are environmental.” Sachdev, from the School of Psychiatry, is leading a team of researchers on the project, which has recently been awarded \$2 million over five years from the NHMRC and ARC.

The study will involve 150 sets of identical twins, a similar number of non-identical twins (all aged 65 or older), and the siblings of both groups.

Sachdev says the research has the potential to discover new genes involved in cognitive decline or resilience. “Even though we have twins that are identical, there are vast differences between them. Over time, the expression of that same DNA material varies depending on different influences in the environment.

“Our study will measure many environmental influences, but in particular: lifetime physical and mental activity, physical and psychological trauma, loss of parent early in life, later losses and life

events, early-life socioeconomic environment, alcohol and drug use, occupational exposure, and nutrition,” he says. “It will also determine how biological factors such as hypertension and antioxidant levels interact with genes to influence brain ageing.”

“This research is unique because we’re the first in Australia to use twins in this sort of work and because of the comprehensiveness of the assessments,” said Dr Julian Trollor, co-investigator on this project and UNSW Senior Research Fellow on the Brain and Ageing Program.

“Such a study will allow design of interventions with real potential to impact on ageing.”

The researchers hope the study could eventually be a longitudinal one, where they follow the same group for many years. “We hope the results might eventually be able to be used in a preventative manner, although it’s a long way off yet,” he says. “You might be able to test for a gene. If that gene is undesirable, then a drug could be used to counteract its effect.”

No time to waste

Susi Hamilton meets Professor Henry Brodaty, an international leader in psychogeriatrics.

It was a family member's experience with Alzheimer's disease 25 years ago that first led Henry Brodaty into the field of dementia. From that personal insight, a stellar international career in geriatric psychiatry has blossomed.

"I gradually moved into this area from working in a voluntary group to taking it on clinically, then as an academic exercise and now I'm totally involved in it," he says.

Apart from his extensive research, which spans 300 papers, Professor Brodaty is involved from the policy level (he is a member of Commonwealth and state reference groups), through to the community level. He helped start Alzheimer's Association NSW in 1982 and since then has been president of that group as well as the national and international equivalents.

The latest challenge for Professor Brodaty is spearheading a multimillion-dollar Federal Government initiative focused on dementia.

The project involves the establishment of three Collaborative Research Centres (CRCs), with the primary centre based at UNSW. It will coordinate the work of the other CRCs, which are based at the Australian National University and the Queensland University of Technology.

"The UNSW research focus will be on assessment and better care outcomes," explains Professor Brodaty. "One important area is improving GP skills in diagnosis and management. General practitioners are at the frontline, but I think that even they would admit there is a lot of room for improvement."

And looking at the figures, there is no time to waste.

Work co-authored by Professor Brodaty – published last year in *The Lancet* – shows that around the world there will be a new case of dementia every seven seconds. In Australia, there are 200,000 people with dementia. Fast-forward to 2040 and that number will be half-a-million.

"Apart from the human cost, the current health system would not be able to handle it," he says. "We would need to almost triple the spending on dementia. So we need to look at it differently and ask whether we can support families better and perhaps delay the onset of dementia."

It's just such a multifaceted approach that appeals to Professor Brodaty. "The thing I enjoy about working in the area is the complex interplay of medical, biological, psychological and social factors.

"I like its complexity and that it's multidisciplinary in nature. It suits my broad range of experience. I did physician training, then psychiatry, then psychotherapy. Psychogeriatrics brings together medicine and psychiatry a lot more than straight psychiatry, because there are so many physical things going wrong with people's brains in old age."

It's easy to feel overwhelmed by the scale of the problem, but Professor Brodaty's brisk, no-nonsense approach allays some fears.

"There's heaps of hope," he's quick to add. "There's hope in developing drugs that can stop dementia from happening, there are strategies we can put in place to delay the onset of the problem and there's hope in organising better services."

The breeze gusts in from the courtyard outside Professor Brodaty's office. He glances at the clock and I know my time is up. There's too much work to be done. ■



Britta Campion

Multifaceted ... "The thing I enjoy about working in the area is the complex interplay of medical, biological, psychological and social factors," says Brodaty.

Around the world there will be a new case of dementia every seven seconds. In Australia, there are 200,000 people with dementia. Fast-forward to 2040 and that number will be half-a-million.

Professors Perminder Sachdev, Henry Brodaty and Gavin Andrews, all in the School of Psychiatry, have begun work on a major NHMRC-funded project on the prevention, early detection and effective management of neurocognitive disorders in the elderly.

The five-year \$4.6 million program grant involves the identification of risk factors and the development of neuropsychological and neuroimaging techniques for the early identification of Alzheimer's disease and other dementias.

The researchers are also examining changes in proteins in dementia syndromes which may be markers of the disease and lead to new interventions. They are investigating novel therapeutic strategies, including the use of neural stem cells.

Another field of interest is the role of vascular risk factors in Alzheimer's disease, and the determinants of vascular dementia, in particular the role of small vessel disease.

Leadership learning gets a move on

AGSM's new Accelerated Learning Laboratory is developing a "new frontier" approach to finding ways to fast-track emerging leaders. By Deborah Tarrant.

Professor Robert Wood and Dr Shayne Gary from the AGSM are setting out to address one of the greatest foreseeable threats to the growth potential of Australian organisations – the diminishing availability of talented people for leadership roles.

The ability to develop emerging leaders fast has been highlighted as one of the most critical factors to determining the healthy future of Australian companies, and pressure is mounting not only due to the ineffable momentum of 21st century business but also with the global talent shortage that is already being exacerbated by generational workforce shifts.

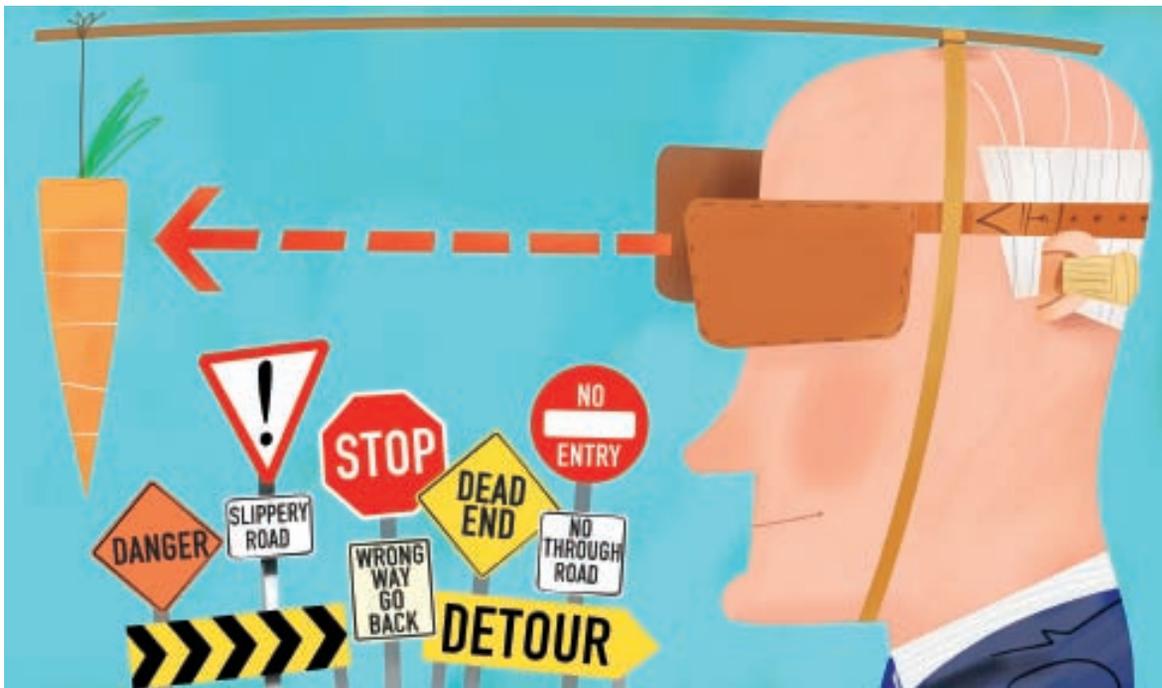
The traditional methods of filling the leadership gap – external recruiting and rapid promotion – have limitations because they fail to deliver people with deep insights to a business's logic, says Professor Wood.

recognition and response skills needed to perform complex tasks, and to become an expert in a field. Fighter pilots, elite athletes and chess players typically take this long to hit peak performance, yet the task of a senior manager or executive involves even more complexity and demands more nuanced mental models, observes Professor Wood.

Industry partners IAG and ANZ will kick off the project with the first rounds of managers going through the ALL over the next two months, while further groups will come from Brambles, Qantas and Macquarie Bank. Other key partners, executive search firm Egon Zehnder International (EZI) and management consultancy Booz Allen Hamilton, are playing an advisory role at this stage.

Research conducted by Booz Allen Hamilton, in conjunction with the Business Council of Australia, shows not only that Australia has

Wood and Gary are aiming to crack "the 10-year rule". Research has shown a decade is the average time it takes to produce the pattern recognition and response skills needed to perform complex tasks, and to become an expert in a field.



Gregory Baldwin

Launched recently, the Accelerated Learning Laboratory (ALL) introduces a "new frontier" approach to finding ways to fast-track emerging leaders, involving a strong line-up of industry partners who are actively participating over a five-year period.

Working in collaboration with Dr Jens Beckmann and Dr Damian Birney from the School of Psychology at the University of Sydney and backed by a team of 12, Wood and Gary anticipate the ALL – which combines extensive research with the latest tools and methodologies for executive learning – will result in groundbreaking intellectual property (IP) and outcomes that may revolutionise current thinking on management education.

With a clear research and development agenda, the ALL team will explore the evolution of flexible expertise, the ability of managers to analyse and solve dynamic, complex problems, in conjunction with the development of leadership perspectives and behaviours and – most significantly – ways to speed their pace.

Wood and Gary are aiming to crack "the 10-year rule". Research has shown a decade is the average time it takes to produce the pattern

a higher rate of CEO turnover than other nations, but that the performance of internally promoted CEOs outstrips the efforts of external appointments. "We're eager to identify ways to improve that internal pipeline," says Ian Buchanan, senior executive adviser at Booz Allen Hamilton and a member of the ALL steering committee.

The lab uses simulations, adaptable virtual worlds that enable managers to explore and experiment with possibilities from the highly realistic to the extreme and in the process develop the "flexible expertise" required to analyse and solve dynamic, complex problems. "Senior executives in large organisations must cut through many domains, such as production, marketing and people management. They need to be good decision makers, assessors and judges. 'Flexible expertise' is crucial because it underpins how leaders make sense of the world and their role in it," says Professor Wood. ■

The full article appears in the AGSM's 2006 annual magazine and is available online at www.agsm.edu.au.



Alex Buzo

1944–2006

“With all the ego of the young,” Alex Buzo jokingly told new graduates in 2005, on the occasion of receiving an honorary doctorate from UNSW, “I set out single-handedly to transform the Australian theatre into a truthful idiomatic reflection of the society around it.” Alex graduated from this University in 1966, having studied English, history and, a formal requirement in those days, two units of science. His only formal theatre study had been in a new course offered by Robert Quentin. Nonetheless, “transform the Australian theatre” is precisely what he helped to do, a year or so later, when he wrote his first short play, about racial harassment. That play, *Norm and Ahmed*, helped kick-start what is now called the New Wave of Australian drama.

The play became notorious – a test case in the censorship battles of the time – for its final line, “Fuckin’ boong”. As Alex often pointed out, with his usual dry wit, it was the first word, not the second, that was thought obscene. The play was produced in 1968 at the Old Tote Theatre (now the Fig Tree Theatre) as part of a double-bill with the venerable poet Douglas Stewart’s verse drama, *Fire on the Snow*. As a young teenager, taken to see this by my father, I squirmed in boredom through the Stewart play but was electrified by Alex’s tough, witty, classically simple study of a late-night encounter between an old ocker, out of his depth, and a bright young Pakistani student who represented all that was new and exciting about multicultural Australia.

He went on to become the first darling of the theatre revival of the early 1970s and the first of his generation to have international success. Indeed, for a time he was more highly regarded than that other chief exponent of New Wave playwriting, David Williamson. Alex produced a series of wonderful absurdist comedies about the new middle-class sons of ocker – *Rooted*, *The Front Room Boys* and *Tom* – and one of the first complex dramatic studies of the new independent women of the early 1970s, *Coralie Lansdowne Says No*.

His keen ear for language and his anthropological ability to record and report, always cynically, on the quirks and oddities of interpersonal social behaviour meant that for a while he was taken up in the nationalist enthusiasm of that time as a clever social satirist. But he was never simply that. His greatest plays came after his first flush of success during the New Wave and, unfortunately for him, well after the critics, with whom he publicly fought during the late 1970s, had tried to abandon him on the shore. Nor did his directors, except for his old UNSW student friend Aarne Neeme, the



only one who really understood what he was trying to do, serve him particularly well.

Makassar Reef, *Big River* and *The Marginal Farm* are stylish comedy dramas in which a deep respect and yearning for simple human decency keeps suddenly bursting through the brittle surface of what, in his journalism, Alex always called the world of the “pseuds”. In each of these plays the drily detached, flippantly cynical central character, trapped in that awful social world, suddenly rebels and reclaims their humanity.

Alex continued, in his restrained way, to explore this in his later plays, *Shellcove Road* and *Armadillo*. *Shellcove Road* was given a public reading in the early 1990s, when he returned to UNSW as Writer-in-Residence in the School of Drama (now the School of Media, Film and Theatre). That play and *Armadillo* were read in a tribute to him at Currency House in 2005. The historical drama about Doc Evatt and his role in the establishment of the United Nations, *Pacific Union*, was produced in Melbourne in 1995. His books on language, starting with *Tautology: I Don’t Want to Sound Incredible but I Can’t Believe It*, were great successes. He wrote two elegant novels, *The Search for Harry Allway* and *Prue Flies North*.

In everything he said and wrote there was always a cool, self-protective wit and a deep underlying humanism. One of his great supporters, Rob Jordan, Emeritus Professor in the School of Media, Film and Theatre, said to me a few days after his funeral: “He was shy and reserved, and yet we all felt warmed by him.”

The desultory production history of his plays in the late years of his career is a mystery. He wrote with style and a submerged passion about big issues. There is no doubt that his subtle and powerful work will one day be rediscovered, when the flash movers and shakers of the Australian theatre settle down and finally realise what he was trying to do. He was never a schmoozer. He was one of the finest playwrights of his generation, and a wonderfully decent man. ■

John McCallum
School of Media, Film and Theatre

Alex Buzo died last month following a long battle with cancer. He was 62. His occasional address, *Memoirs of an Unswonian*, was delivered at a graduation ceremony in December 2005 at which he received an Honorary Doctorate of Letters. The full speech is available on the UNSW alumni website.

For art's sake

Anabel Dean takes a tour through the UNSW Art Collection.

"These humorous and edgy works are intrinsic to the collection," says curator Belinda Webb.

Photos by Britta Campion

Michael Kempson & Matthew Tome, *Mr Furbags* 1996, suite of nine screenprints, 56 x 75.5 cm each

A painting by one of Australia's most respected contemporary artists is never cheap but this William Robinson was a steal at \$45,000. "I said to the Vice-Chancellor: 'We have to buy now or we will never be able to afford the artist'," explains Belinda Webb, curator of the UNSW Art Collection. "The VC listened, which is great, and the painting, which we bought in 1997, is now worth more than \$300,000."

Robinson's vision, *Near Tallanbanna*, frolics in the inventive splendour of nature with its towering forest, sky and waterfall. The picture is the most valuable artwork owned by the University and, yet, it is so much more. Like the 1200 other works that make up the collection, Robinson's picture has been incorporated into campus life, a sight to send the spirits soaring as high as the gum trees.

Robinson's vision, '*Near Tallanbanna*', frolics in the inventive splendour of nature with its towering forest, sky and waterfall. The picture is the most valuable artwork owned by the University and, yet, it is so much more.

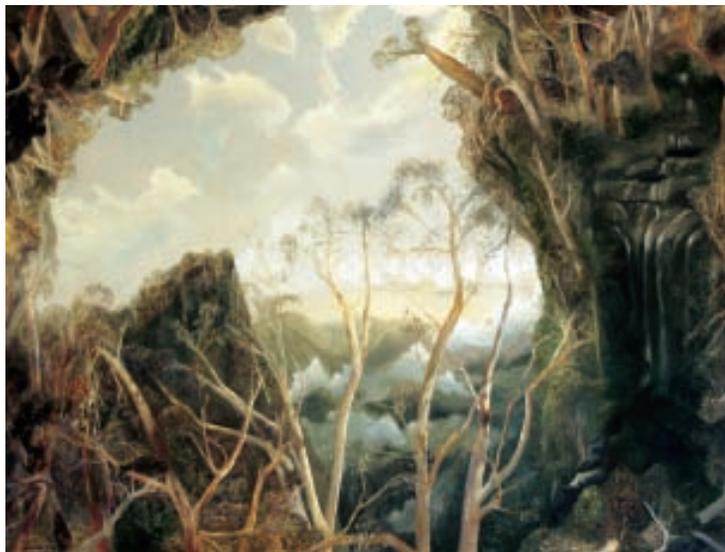
The paintings, sculptures, prints, drawings, ceramics and barks (displayed in secure public spaces, libraries and administration offices throughout the University) are meant to provoke contemplation and discussion in what might otherwise have been a pretty bleak environment. It was in 1955 that Professor Phillip Baxter, the first Vice-Chancellor, had the notion of humanising a campus then likened to an industrial estate.

The first commission – Tom Bass's sculpture *Falconer* – is attached to the side of Main Building as a powerful visual reminder of the conflict between the value of beauty and the unrestrained function of the intellect. The analogy has been emphasised again more recently with the acquisition of Bronwyn Oliver's radiant sculpture *Globe* – the winning entry in the 2001 UNSW Sculpture Commission Competition. The appealing tension between the circular movement of the sphere set against the soaring lift of the Scientia's glass wings has transformed the

International Square precinct where it sits. (Oliver, an internationally renowned artist and UNSW alumnus, died in July, see tribute opposite.)

The sculpture is still honoured by students who fling money into *Globe* as if it were a modern day Trevi Fountain. The conservator wishes they would desist but, Ms Webb says, the main thing is that "it's not just wallpaper or 'plonk' art: something you walk past every day for the next four years without ever noticing. They may love it or hate it, they may not understand it, or be critical of it, but that's what art is all about."

Another body of work that could never be accused of disappearing into the background is Howard Arkley's *Suburban interior* and *Suburban exterior*. It appears "almost as graffiti" on a wall in the UNSW library: lines of black and white sprayed ink humming with vibration on two large bits of paper.



William Robinson, *Near Tallanbanna* 1997, oil on linen, 137 x 183 cm



Bronwyn Oliver, *Globe* 2002, brazed copper rod, 300 cm diameter

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Just as likely to divert eyes from books is Margaret Morgan's irreverent *Bathroom*. "This is fun," Webb continues. "Looking straight into a toilet as if you're swirling down the plug hole. It's kind of destabilising." The same could be said of Michael Kempson's *Mr Funbags* suite, just around the corner, where advertising is turned into fine art and more on close inspection.

These humorous and edgy works are intrinsic to the collection. "The ones that last are often those that are a bit difficult. You don't want to get too friendly and if they are a bit edgy, they will always be challenging, no matter what mood you're in or how many years down the track it is," says Webb.

This is one of the criteria used for selection in an art collection that is limited to works by Australian artists produced since the University's foundation in 1949. The artists must have a proven record of practice and development of their art form. They must be represented in public collections or have attracted award recognition and their works must relate to the endeavours encountered at the University.

Many of the works have become available through the support of the U Committee and NewSouth Global but almost a quarter of the collection has been acquired through donations made via the Cultural Gifts Program. Ray Crooke's painting *The Departure* was an unexpectedly generous gift (without the benefit of tax incentives) which the artist himself calls his "best" work.

Much art has been donated with equal generosity over the years but none of it is displayed in museum conditions. Works by artists such as Sidney Nolan, Clifton Pugh, Donald Friend, Lloyd Rees, Robert Klippel, Jeffrey Smart, Gloria Petyarre, Frank Hodgkinson and Syd Ball have had to withstand long periods of display in not always ideal conditions.

Others that are just as well known rest in a darkened room, next to Belinda Webb's office, where the smell of linseed oil hangs heavily.

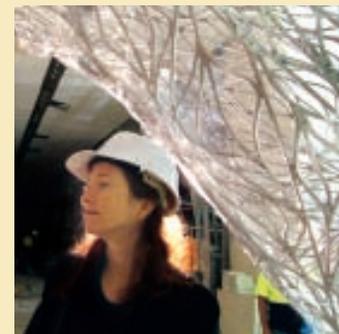
"It's the room that I'd like to empty if I had the money," she laments. Hundreds of works await conservation but Webb enthusiastically anticipates that they too will, one day, live again in the bright light of learning. ■

The UNSW works are included in the Australian Distributed National Collection. All works are featured on the website www.artcollection.unsw.edu.au.

Bronwyn Oliver 1959–2006

"Bronwyn Oliver had that rarest of all skills: she knew how to create beauty."

It might seem facile to read her life, and her death, into the works, but she was so much like her work: simple yet complicated, fragile yet strong, eccentric though oddly straightforward. She was a deeply awkward person, but it was this awkwardness that lent her works their peculiar grace, that made them interesting. The shadows cast by the object were an integral part of the artwork, and sometimes became the work itself. One wonders if her extraordinary industriousness was a way of warding off the shadows that finally engulfed her.



Oliver at the Hilton hotel in Sydney installing *Vine* 2005

Bronwyn was modest yet utterly sure of her vision, secure in the confidence of her originality. Her art was fully resolved – perfect, really – and she stands alone in the annals of Australian art history. There was no-one like her: she invented her own deeply intelligent form, and entered fully into the world that it opened out to her."

This passage by Hannah Fink beautifully encapsulates the remarkable qualities that Bronwyn Oliver brought to her life and her work, the quality of which was recognised early. Graduating from the College of Fine Arts at UNSW (then Alexander Mackie College of Advanced Education) in 1980 she was awarded the NSW Travelling Art Scholarship which took her to London to complete a masters degree at Chelsea School of Art in 1983. Returning to Australia, she won the 1994 Moet and Chandon Art Fellowship taking her back to Europe. Too numerous to mention are the prizes, awards and accolades accrued to her outstanding career right up until her untimely death.

Sydney held two memorials for Bronwyn. One a civil ceremony at a crematorium chapel where mourners hopelessly outnumbered the capacity of the building to hold them, and another, more of a celebration of her life and work, was held in a packed lecture theatre. And Bronwyn was a loner who shunned friends and art world associates alike. At this celebration of Bronwyn's contribution to the arts in Australia, her partner, Huon Hooke, remarked how ironic and sad it was that the tragedy of her ultimate loneliness, and now death, had brought forth such a powerful personal and public affirmation of her valued life.

If the loss wasn't so grave, the powerfully inspirational person, the career so clearly only at half-way point, one might feel, at rest, to just let it be, recognising the enormous body of work (more than 200 pieces) as a bountiful legacy, more than most could hope for. A hero she already is of Australian art, but this alone sells Bronwyn Oliver and those with similar sensitivities and vulnerabilities, passions and convictions, insights, contradictions and afflictions, too, too short. External success, no matter how great, should never stand as the paymaster to early and avoidable death. Rather, calamity of this kind germinates somewhere within the private realm and hardens, locking out good sense and perspective. And it is left to her closest friends and arguably all of us within the Australian art world to ponder what we might have done?

Perhaps I go too far in the writing of an obituary. But you must understand, Bronwyn was one of COFA's own, one of our very best. And much earlier, she was the brilliant little 10-year-old kid I taught in Saturday morning art classes in rural NSW, already clearly destined for great successes, but not this singular failure. ■

Professor Ian Howard, Dean of COFA

An obituary by Ian Howard appears in the September issue of *Artlink* magazine, Volume 26#3.



Injecting science into the stem cell debate

The campaign underway to overturn the ban on embryonic stem cell research could well succeed, with recent polls showing a majority of federal coalition MPs – to be given a rare conscience vote on the issue – would support a change in the legislation. **Bernie Tuch** argues that Australian medical researchers should be given the opportunity to explore what might be achieved with all types of stem cells.

In case it has been forgotten, treatment with insulin is responsible for saving the lives of 130,000 people with the juvenile form of diabetes. Yet, when insulin was first introduced into Australia, there were critics, with one report in the *Medical Journal of Australia* claiming that “public propaganda” had been used to build expectations about insulin; “no doubt hundreds of diabetics will be hastened to their graves”.

Similar conservative attitudes were heard several decades ago when Christiaan Barnard introduced open-heart surgery for those with chronic heart disease. Today, we accept such treatments without hesitation. They are established forms of medical practice.

The same might be said about the use of stem cells for therapies, whether diabetes, Alzheimer’s disease, spinal cord damage or other chronic disorders.

At present, stem cells are relatively new, adult human stem cells being isolated just four decades ago, and embryonic human stem cells just eight years ago. Adult stem cells from bone marrow and cord blood are now of major benefit to individuals suffering from a variety of blood diseases, such as leukaemia. Their use in genetic disorders is being tried. There is hope that these multipotent cells will eventually also be of benefit in chronic disorders.

It is imperative that the recommendations of the Lockhart review be implemented. We should not have to wait for discoveries to be made overseas before applying them in our country.

While adult stem cells do offer the promise of treating some diseases, there is a very widely held view among experts in this field that their usefulness may be limited. Human embryonic stem cells seem to offer more hope for therapies in that, unlike adult stem cells, they have the potential to form many if not all cell types within the body.

Embryonic stem cells are created from fertilised eggs that are in excess of those required for use after in vitro fertilisation treatment. They might also be created by a process called nuclear transfer, also colloquially called therapeutic cloning. This process involves the use of unfertilised eggs, but not sperm. The advantage of cells produced in this manner is that they are genetically identical to potential recipients, and hence will not be rejected when transplanted.

Evidence that this type of stem cell may be of therapeutic benefit was shown in mice three to four years ago. The initial models used were Parkinson’s disease and the genetic disorder of immune deficiency. These data hold out hope that, given time and suitable legislation, such strategies will also work in humans and therefore provide therapies for diseases that have poor prognoses at present. This was one of the major conclusions of the Lockhart report, produced by an independent committee commissioned by the Federal Government last year to review embryo research legislation. It recommended lifting the current ban on therapeutic cloning.

There are those who, because of their beliefs, disagree with the use of human embryonic stem cells for medical research. Their objection should be respected, regardless of the fact that it is a minority view in Australia.



The use by some of scientific arguments against experimental use of stem cells, including those produced by nuclear transfer, is not valid. It is simply not true, as has been claimed by some, that there are no experimental models of disease in animals where such cells have been of benefit.

Medical researchers in Australia should be given the opportunity to explore what might be achieved with all types of stem cells. It is counterproductive to restrict interest in one type, as this limits opportunities and outcomes.

Moreover, the placing of such blockages will encourage our best and brightest to depart for countries where restrictive legislation does not exist. Our neighbours Singapore and Japan will benefit from this, as will the United States and Britain.

Earlier this year, for example, we lost our top human embryonic stem cell scientist, Monash University’s Associate Professor Martin Pera, to California; last month we lost one of our top adult stem cell scientists, Melbourne University’s Associate Professor Paul Simmons, who is now heading a centre for stem cell biology at the University of Texas.

It is imperative that the recommendations of the Lockhart review be implemented. We should not have to wait for discoveries to be made overseas before applying them in our country. ■

Originally published in the *Sydney Morning Herald*.

Bernie Tuch is professor of medicine at UNSW and director of the Diabetes Transplant Unit. His lab has developed embryonic stem cell lines from fertilised eggs created and discarded by IVF centres. He is currently working on growing pancreatic cells.

The NSW Stem Cell Network, hosted by UNSW’s Faculty of Medicine, is running a workshop on 19 September at the Prince of Wales Hospital called *Science and Politics of Nuclear Reprogramming of Cells*. Speakers include Professor Loane Skene, a member of the Lockhart Committee, and WA Liberal backbencher Dr Mal Washer.