ISSUE 5 • NOVEMBER 2006

UNSWorld

THE MAGAZINE FOR ALUMNI AND FRIENDS

THE LAW ON TERROR

PAST PERFECT

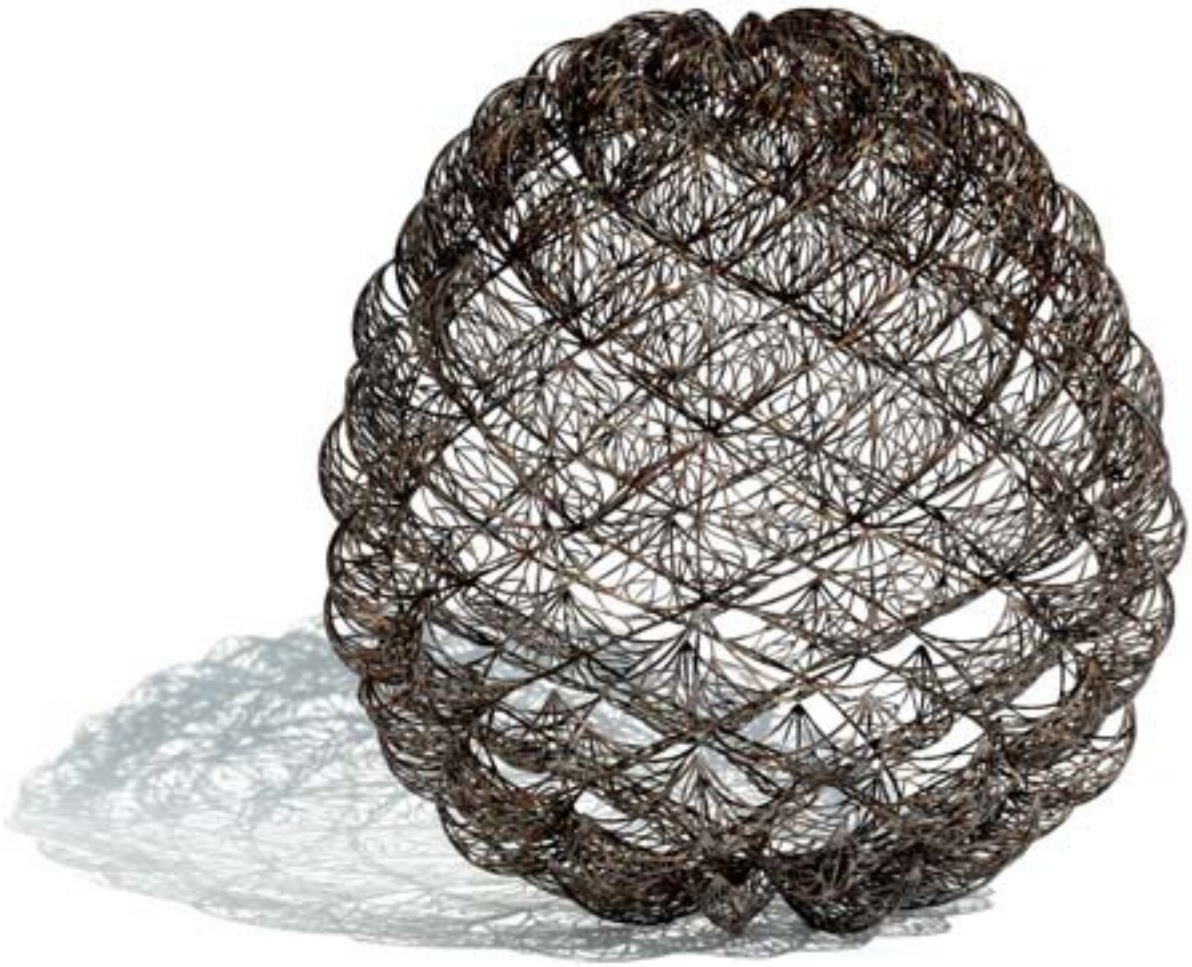
30 years at the Riversleigh World Heritage fossil site

WATER RESEARCH

UNSW leads the way

A tribute

to Bronwyn Oliver



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Welcome from the Vice-Chancellor

I am delighted to welcome you to the latest issue of *UNSWorld*. This is my first opportunity to write to alumni since taking up the role of Vice-Chancellor. As you may be aware, I spent a decade as Dean and Professor of Management at the Australian Graduate School of Management (AGSM) in the 1990s. To return to the University as Vice-Chancellor is a great honour.

UNSWorld is designed to keep alumni up-to-date with the University's major achievements, particularly in research, and with significant events and developments on campus. It also includes thought-provoking contributions from some of our leading academics on issues such as Australia's terrorism laws and the challenges of an ageing population. This issue showcases the world's first interactive three-dimensional cinema, developed through a unique collaboration between researchers at the College of Fine Arts and the Faculty of Engineering, and highlights the work of our water researchers, who have been leading the public debate on the management of this scarce resource. We also mark the anniversary of three decades of trailblazing fossil discovery by UNSW scientists at Riversleigh, one of the world's most amazing fossil sites, and pay tribute to internationally renowned artist and UNSW alumnus Bronwyn Oliver, who died earlier this year.

UNSW is a great university: we have every reason to be proud of our achievements. However, this is a time of significant change for the higher education sector and we must develop innovative strategies if we are to retain our position as one of Australia's leading teaching and research institutions.

A major initiative now underway is the integration of AGSM and the Faculty of Commerce and Economics into a new Faculty of Business, aimed at strengthening UNSW's reputation as the leading centre for business education and research in Australia and the Asia-Pacific region. On other fronts, we are boosting our efforts to attract and retain the best and brightest students, and refocusing our resources to better support research and other key activities.

I am looking forward to working with the UNSW community to meet the many challenges ahead. The University greatly values the contribution of its alumni and I hope to have the opportunity to meet many of you in the coming months.

Professor Frederick Hilmer AO
Vice-Chancellor

Tell us what you think of *UNSWorld*

We welcome your input about *UNSWorld*. Your comments and suggestions will help us to provide the most engaging and relevant magazine for graduates and friends of UNSW. Please log on to www.unsworldsurvey.unsw.edu.au where you will find a brief survey as well as a chance to win a short course of your choice at UNSW or other prizes.

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Editor: Deborah Tarrant
Design: Gadfly Media
Cover image: Bronwyn Oliver, Grandiflora (Bud), 2005, copper 60 x 58 x 58cm Courtesy of the artist and Roslyn Oxley9 Gallery, Sydney.
Printed by: Rostone Print

Australia Post Print Post Approved
PP 255003/07978
UNSW, Sydney NSW 2052
CRICOS Provider No. 00098G

THE ART OF FUNDRAISING

The appointment of Jennifer Bott as Chief Executive of the UNSW Foundation, the University's fundraising arm, signals a commitment to stronger engagement with the community, with business and with our alumni. In announcing her appointment, Vice-Chancellor Fred Hilmer expressed his delight at having attracted someone of Ms Bott's calibre and experience to the role. Ms Bott took up her new appointment in early October following seven years as Chief Executive Officer of the Australia Council for the Arts. One of Australia's most prominent arts administrators and advisors, she is a former General Manager of Musica Viva Australia and has occupied senior positions in several cultural organisations, including being Australia's Cultural Commissioner for the 2004 Olympic Games. In her new role she is responsible for driving the University's main fundraising activities, attracting philanthropic support for scholarships, capital works, research initiatives and other major projects. ■

UNSW MOVES INTO INDIA

In recognition of UNSW's long history of engagement with India, the University has established an on-ground presence in Mumbai and Delhi. New offices set up by NewSouth Global (NSG), UNSW's international education, training and consultancy arm, will enhance existing institutional relationships, business partnerships and projects in India. They will also facilitate new relationships for research initiatives, staff and student exchange, and support undergraduate and postgraduate recruitment to both UNSW Sydney and the new UNSW Asia campus opening in Singapore in March 2007. The Manager of UNSW's Indian operations is Mumbai resident Shireen Ardeshir who has postgraduate qualifications in international communications and extensive marketing experience in the education sector. Mohit Gupta, who will manage the Delhi branch office, is an engineer with diverse international corporate sector experience. The Australian High Commissioner to India, the Honourable John McCarthy AO, will launch the UNSW operation in India on October 30 in New Delhi. In conjunction, the NSG India scholarship for the top student in the International Assessments for Schools will be announced. ■

TURNING POINT

UNSW medical graduate Soulivanh Pholsena has made history as the first person from Laos to be trained as a doctor in a western country in 25 years. Laotian medical schools are not recognised by the World Health Organization and under the country's former socialist regime only a handful of would-be doctors were permitted to study overseas, and then only in other socialist countries. The 26-year-old Pholsena whose studies were supported by an AusAid scholarship is now working on disease prevention for the Laotian Government. In Laos, 1200 doctors currently serve a population of 6.5 million. "Life expectancy is low. Infant mortality is high and many people die of malnutrition and malaria… Even one person can make a difference and I believe more will follow," Pholsena says. ■

DEAN FOR NEW FACULTY OF BUSINESS

Professor Alec Cameron will head the UNSW's new Faculty of Business – due to be in place by January 2007 – following the integration of the Faculty of Commerce and Economics (FCE) and the Australian Graduate School of Management (AGSM). The aim of the integration is to strengthen UNSW's position as a world-class centre of excellence in an increasingly competitive international market for business education. This bold initiative requires vision and strong leadership which Professor Cameron is eminently qualified to provide as the new Faculty's inaugural Dean, says Vice-Chancellor Professor Fred Hilmer. Professor Cameron, who has been with UNSW since 2003 as Deputy Vice-Chancellor (Resources), has a strong business focus, having held a number of senior corporate positions in the IT and telecommunications industry, as well as experience in the higher education sector. A former Rhodes Scholar and University medallist, Professor Cameron also has a distinguished academic record, holding a PhD from Oxford University and a Master of Science in Management from Polytechnic University, New York. ■

PURPOSE-BUILT FOR LAW

The Chief Justice of the High Court of Australia, Murray Gleeson, officially opened UNSW's new law building in September, a milestone in a major redevelopment of the Kensington campus. The new building brings together for the first time The School of Law, the Australian School of Taxation, the Faculty's research and community centres, the Law Library, the Centre for Continuing Legal Education and the Kingsford Legal Centre. Four storeys high, the innovative structure was designed by Melbourne architects Lyons to promote interactivity between staff and students and houses 13 classrooms with 40-plus seats, two "Harvard" - style lecture rooms with 90 seats and a 350-seat auditorium, along with a new Moot Court. ■

GOOGLE AND BEYOND

UNSW PhD student Ori Allon has developed a search engine which may have a major impact on the way people use the internet as a research tool. The Orion search engine refines internet searching by returning pages that are strongly related to the keyword, instead of returning links to any websites containing the keyword. Allon was 26 when he developed Orion in a few months based on his thesis. "I implemented it myself and actually got some pretty good results. Other people at the University helped test it out, and the system got better and better with their feedback," he recalls. Andrew Stead of NewSouth Innovations worked with Allon and his supervisor Eric Martin to have the invention patented. Along with Professor Paul Compton, head of school, Computer Science and Engineering, Stead leveraged industry contacts to set up meetings with some of the world's largest internet companies – Google, Yahoo! and MSN. While he can't disclose much about how Orion works, Allon insists it entails "a lot of boring maths and a lot of data mining", although this has its compensations. He's now finishing his PhD in Mountain View, California where he is working for Google. ■

PURIFIER-TO-GO

Determined to help people in her own country, Zimbabwe-born UNSW industrial design student Julie Frost created a water purifier with the aim of reducing disease among villagers in the African nation. Her design, Mvura (water), answers the need for a household purifier to collect water from any source, enabling people to carry and purify it in the same container. Holding 15 litres, the vessel uses soyabean wax and heat to kill bacteria and pasteurise dirty, salty well water, a common cause of illness among Zimbabwean villagers. Once purified the water can be sealed and stored in the container. With her studies now completed, Ms Frost who received a bronze medal at the recent Australian Design Award-Dyson Student Awards, has secured interest from international aid agencies in further exploring the purifier's potential. ■

NEWSPIX

CHRIS CRERAR

Urban Impact

The Director of the City Futures Research Centre, Bill Randolph, looks beyond the design of the built environment to the impact it has on our lives, discovers Dan Gaffney.

Bill Randolph reads cities in the way that a board rider studies the surf pounding a headland. He's alive to form, symmetry and dynamics, and the complex forces that create them. Professor Randolph joined UNSW's Faculty of the Built Environment 18 months ago to lead the Australian Housing and Urban Research Institute (AHURI) and develop the new City Futures Research Centre. His appointment followed 25 years as a professional researcher on urban policy issues in the academic, government, non-government and private sectors.

As he tells it, his fascination for the built environment, especially housing and transport systems, first revealed itself through his childhood fascination with maps. "As a boy growing up in a semi-rural housing estate in the Cotswolds of England, I loved to climb up to a high place somewhere in the surrounding area and pick out the landmarks on a map.

"Our town was built on the remains of a Roman settlement, which had been built over by the Anglo Saxons, who were followed by the Normans, and so on. I guess that's when I started to see how towns were created and formed, and how they affected the people who lived in them," he says.

At 18, Randolph's fascination for the built environment saw him ditch plans to attend art college and head to London to study urban geography at the London School of Economics, where he also took his doctorate. "It was an exciting time to be in London," he recalls. "There was a mood for change, gentrification was going on and I was exactly where I wanted to be."

Randolph's boyhood hobby of surveying the form and function of urban landscapes grew into a passion for map collecting. "I like maps. It's something about the way they spatially represent reality, and as an urban geographer I have spent a lot of time driving around places and simply looking at the built environment. It's a visual science in many ways, and you can tell a lot about a place and its people, just by looking.

"But I'm also interested in the political economy of cities, not just the design and physicality of them. I come from a family that has very strong social justice views, so I am interested in the processes that create cities, the people who live in them and what happens to them."

Randolph spent his early career as a research fellow at the Open University and then at the UK Department of the Environment. As head of research for the UK's peak body for non-profit social landlords, he led the development of national research into affordable housing provision.

He followed this by running a market research consultancy in London that advised government on housing, urban policy and neighbourhood renewal.

For six years prior to his UNSW post he was Professor and Director of the Urban Frontiers Program at the University of Western Sydney.

"My take on Sydney, for what it's worth, is that it's a very socially divided city," he says. "It's got these fantastic iconic bits to it – the harbour, the coastline and the beaches, which benefit half-a-million people, at most, out of a city of four million.

"Most of the rest of Sydney is near the bottom of the scale when it comes to urban design, housing, amenities and integrated transport. It's certainly not the picture that people overseas have in mind when they think of Sydney. However, I believe that cities can create their destiny, in spite of poor historical planning decisions, and I'm excited about what the City Futures Research Centre can do to make a positive difference." ■

PHOTOCASE

Water World

Resourcing the future

The day news broke about plans for Sydney's proposed desalination plant, Professor Nicholas Ashbolt and Associate Professor Greg Leslie became busy indeed. Members of the UNSW Water Research Group and founding members of the Kensington Group of sustainability specialists, they emerged as key spokespeople on the issue.

Arguing strongly for water recycling and demand management measures to be considered among a suite of options, they were able to draw on years of expertise: Professor Ashbolt, head of the School of Civil and Environmental Engineering, as a global expert on urban water systems; and Associate Professor Leslie, School of Chemical Science and Engineering, as a former industry consultant who has overseen some of the world's most successful water recycling projects.

UNSW's leadership on water issues has resulted in wide-ranging activities in the field, including the establishment of the Gary Johnston Chair in Water Management (see breakout box). On coastal water systems, Professor David Waite, director of the Centre of Water and Waste Technology (CWWT) in the School of Civil and Environmental Engineering, has several well-funded studies underway, including one with Science colleague Associate Professor Mike Melville developing innovative flood-plain management techniques to reduce the impacts on estuary and coastal water quality from acid sulfate soil drainage products. This work is expanding through collaboration with Dr Wil Glamore, of the Water Research Laboratory (WRL) in the School of Civil and Environmental Engineering, who has been studying wetland transport models.

With climate change and coastal storms impacting on sea levels, Dr Ian Turner of the WRL is using the latest video technology to monitor the state of eastern beaches. WRL researchers regularly map the shoreline to measure beach width and complete a "virtual" 3-D beach survey that enables the eroded or accumulated sand volume to be quantified. Dr Turner has combined with European collaborators to develop instrumentation to measure the movement of sand with every single wave – information crucial to predicting future coastal change.

Metropolitan water systems have been the focus of the CWWT, where Professor Ashbolt's team has developed the National Urban Water Sustainability Framework to aid in selecting more sustainable water options.

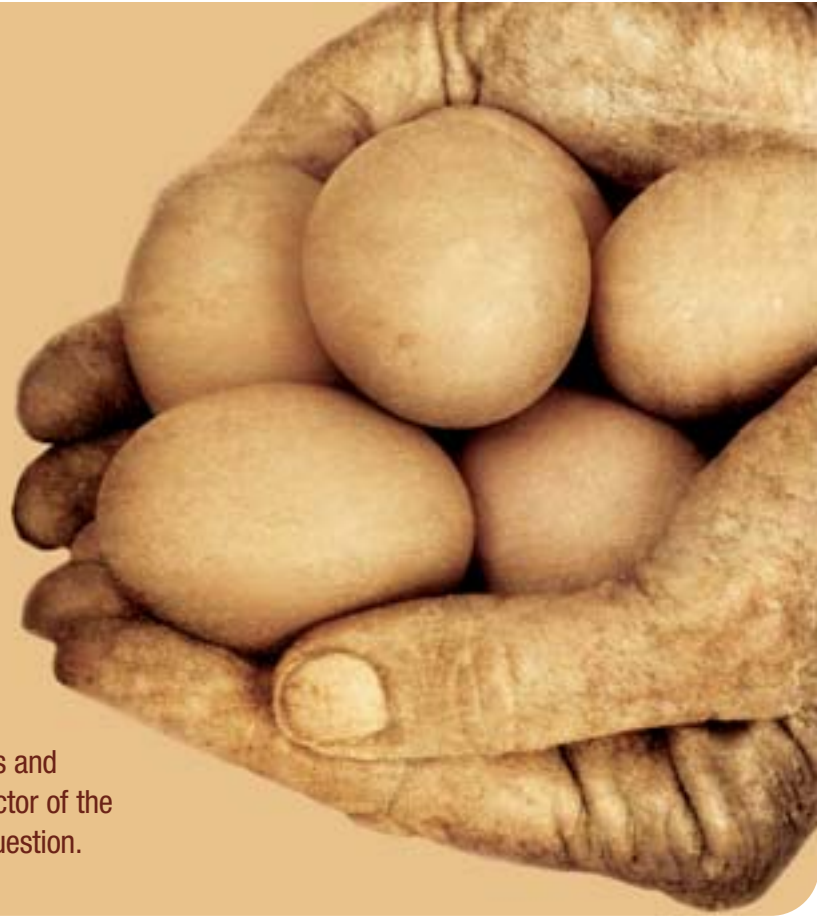
Internationally, the UNESCO Centre of Membrane Science and Technology at UNSW is participating in a €6 million European Union research project to accelerate the use of state-of-the-art membrane bioreactors (MBR) for urban sewage treatment.

In a related project, UNESCO Centre director Associate Professor Vicki Chen and Associate Professor Richard Stuetz, CWWT, are exploring fundamental mechanisms involved in the biofouling of MBR. The UNESCO Centre is also working on ways to remove natural organic matter to improve water quality.

Other CWWT projects are studying the fate of pharmaceutical compounds in wastewater treatment, while Professor Ian Acworth, based at the WRL, has a contract with the Cotton Catchment Communities for investigation of surface water and groundwater interconnectivity. Opportunities exist for water research Linkage projects with the private sector, government and NGOs. ■

GOING UNDERGROUND

Sydney business executive Gary Johnston has donated $1 million to help create the country's first Chair of Water Management at UNSW. Australians consume millions of bottles of mineral water annually with barely a thought that the water comes from beneath the Earth's surface. Groundwater reserves are vast but poorly understood. That is about to change, thanks to the philanthropic gift of alumnus Gary Johnston of Jaycar Electronics to the Faculty of Science which has helped to establish the new Chair in an innovative partnership with the Faculty of Engineering. One of Australia's most senior practitioners in groundwater research and Vice-President of the International Association of Hydrogeologists Professor Ian Acworth, of the School of Civil and Environmental Engineering, has been appointed to the new post. The Dean of Science, Professor Mike Archer, and the Dean of Engineering, Professor Brendon Parker, are supporting the initiative with both faculties providing a core team of researchers to work with Professor Acworth. Mr Johnston hopes the new Chair will not only shed light on groundwater issues but also set an example about the value of long-term strategic thinking on major public issues. There's a pressing need for more research into groundwater management, says Professor Acworth. "More than 95 percent of the world's accessible water is groundwater, yet we know precious little about it and how to manage it. Australia already pipes vast amounts of underground water for agriculture and inland cities and towns, and we've been using it as if it were a magic pudding that will never run out." – *Bob Beale*



Can we afford to grow old?

In the face of changing demographics, uncertain markets and short-sighted governments, Hazel Bateman, Deputy Director of the Centre for Pensions and Superannuation, poses a vital question.

Changing demographics: We are in the midst of demographic transition. Following the baby boom of the mid-20th century, the world's population is ageing. Over the past 50 years the life expectancy (at birth) of Australian men and women has increased by 10 years to 79 and 82 respectively. In the next 50 years life expectancies are anticipated to extend a further four to six years. Similar trends are evident around the world. Rapid economic development and improvements in public health in China and Korea has seen life expectancy at birth increase by almost 30 years since the 1950s.

Coupled with increasing longevity, has been a significant decrease in fertility. Over the past 50 years, the fertility rate in Australia has fallen from around 3.5 births per fertile woman in the 1950s to just 1.7 in recent years. Even greater falls have occurred elsewhere, such as Korea (from 5.4 to 1.5) and China (from 6.2 to 1.8) over the same period.

The net impact is both a growing number of older persons, and an increase in the age dependency ratio – the proportion of those of retirement age to those of working age. In Australia, the aged dependency ratio is projected to more than double from around 20 percent today to over 40 percent by the mid-2040s.

Following every boom is a bust – and the upcoming 'baby bust' will have significant impacts on economic, financial and labour markets slowing the growth of the labour force. The number of workers per aged dependant has fallen from over eight workers for each retired person, to just five workers for each retiree today. Forecasts suggest that in 50 years there will be less than three workers per retiree.

These demographic trends have been exacerbated by increasingly early retirement, as successive cohorts of workers reach their 50s and 60s with greater wealth.

In the absence of other changes, this 'baby bust' will translate into lower economic growth (and living standards), lower national saving, possibly falling asset prices, significant changes to international financial flows, and changing patterns of consumption, saving and production. Such scenarios will place considerable pressure on the future financing – of not only retirement incomes, but health expenses and aged care requirements.

Uncertain markets: As well, this global population ageing has been associated with a shift towards increased reliance on private provision for retirement – for example, in Australia, through the compulsory superannuation guarantee. Increasing private provision has tended to be in defined contributions and accumulated in privately managed individual accounts, and has grown at the expense of public and occupational defined benefit plans. Defined contribution plans leave retirement savers increasingly exposed to financial risks in retirement – including, for example, the risk that the underlying investments will perform poorly, that retirees will outlast their retirement incomes or that retirement incomes will be dissipated by high inflation. Under the previously prevalent defined benefit arrangements, governments or private employer sponsors bore these financial risks. In Australia in the early years of the 21st century only 3.5 percent of superannuation assets are held in strictly defined benefit superannuation funds.

As a result, retirees are becoming increasingly vulnerable to the uncertainties of economic and financial markets, to labour markets and to public policy.

Short-sighted governments: Despite all good intentions, governments generally look little further than the next election. And, while retirement incomes will increasingly be privately provided, governments will continue to regulate and tax the retirement income provision. In recent times, governments around the world have reduced public pension promises (United Kingdom), reduced tax concessions for retirement saving (New Zealand) and expropriated pension fund assets (Argentina). In Australia one needs look no further than the introduction of the superannuation surcharge in the 1990s (removed in 2005) which imposed an additional 15 percent tax on the retirement savings of high-income earners, to observe the political risks associated with private retirement incomes.

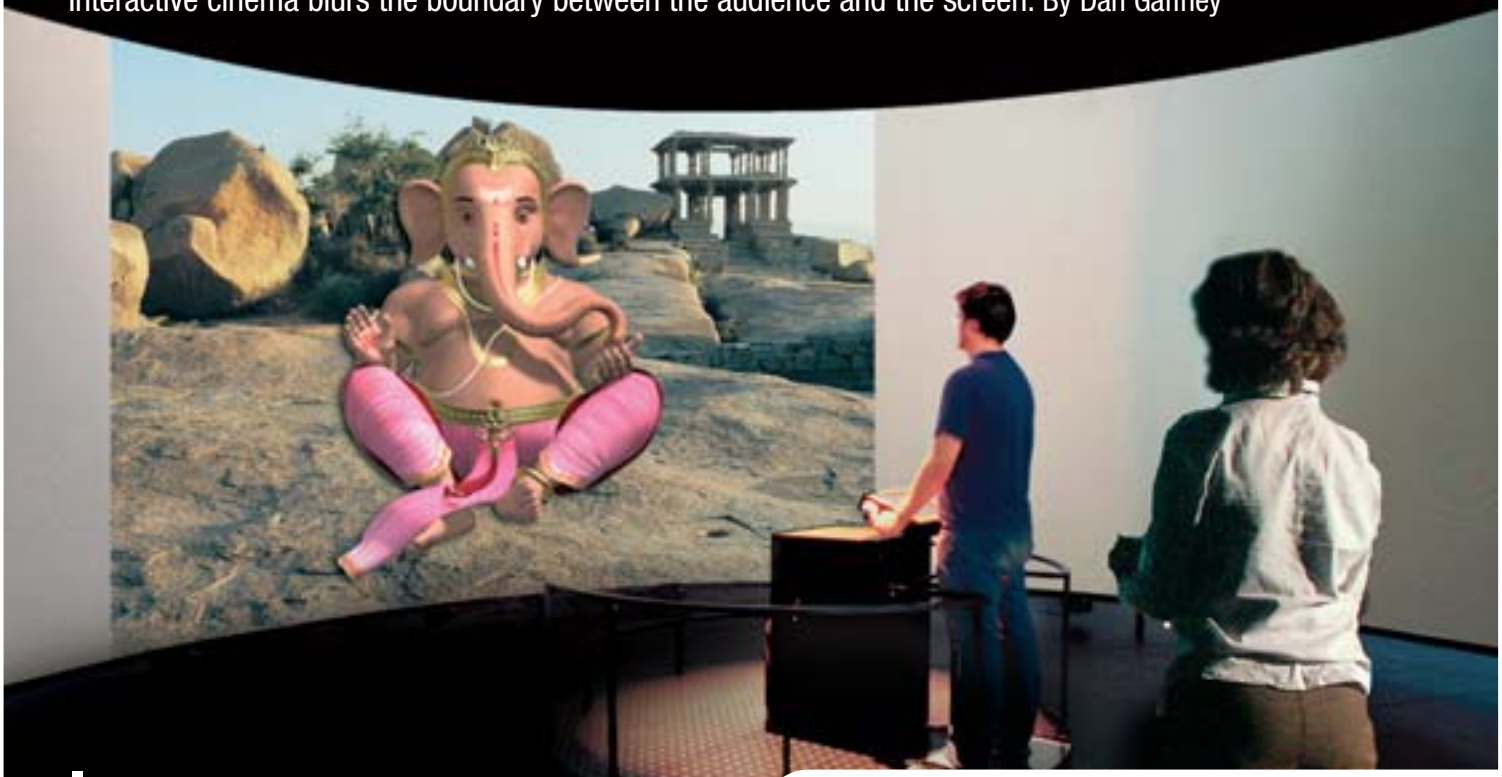
So, can we afford to grow old? While the current and future generations of retirement savers will be increasingly vulnerable to changing demographics, markets and governments, financing our old age is not as dismal it may appear. What is required are appropriately designed retirement saving and income products, workplace and social practices, and public policies.

At UNSW, an increasing number of researchers are engaged in the investigation of population ageing issues. A proposal to establish a cross-faculty, multi-disciplinary Australian Institute of Population Ageing Research at UNSW is currently in process, with the aim of providing constructive solutions to the global population ageing dilemma. ■

Dr Hazel Bateman is the Deputy Director, Centre for Pensions and Superannuation and Interim Director, Australian Institute of Population Ageing Research in the School of Economics.

Wrap-around Cinema

Interactive cinema blurs the boundary between the audience and the screen. By Dan Gaffney



iCINEMA

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 co-operatively."

Based in the lower ground floor of the UNSW's Scientia Building, iCinema contains an array of curious technological paraphernalia. In 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.

It's driven by six computers, 12 high-resolution digital video projectors and a 26-channel spatialised audio system.

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, multi-media search and retrieval and high-density video streaming. In this immersive environment 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.

> 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*

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 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 Ms Kenderdine.

Professor Shaw says interactive cinema isn't going to make traditional cinema obsolete. It's adding a new dimension. "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." ■

The Law on Terror

New legislation is a symbolic and potentially practical response to terrorism, but over-reaction and short-term thinking may actually make Australia more vulnerable, argues George Williams.

Until September 11, 2001, Australia had no national laws dealing with terrorism. Along with other forms of political violence, it was dealt with by the ordinary criminal law. Since March 2002 we have enacted 37 new terrorism laws, or a new law approximately every seven weeks. The pace of change has not slowed in 2006, with five new bills now before Parliament.

New laws were needed to deal with terrorism. A legal response was required to signal that as a society we reject such violence and to ensure that our police and other agencies have the powers they need to protect the community. Laws were also needed to fulfil our international obligations as a member of the United Nations.

Governments across Australia deserve credit for recognising this. In hindsight, our legal system prior to September 11 reflected complacency about the potential for political violence in Australia and the region. However, systemic issues must be addressed if we are to avoid repeating the errors of the past five years.

First, laws have been made without sufficient justification that the change is needed. New anti-terror laws should be passed only where the argument has been powerfully made and justifes this means of dealing with a specific identified problem.

It is not surprising that our political leaders, as members of Parliament and law-makers, have turned to new laws as a front-line response to terrorism. New legislation is at least within their control and is a symbolic and potentially practical response. However, while our political leaders may want to be seen to be acting in response to the attacks that have taken place, we need to be realistic about what new laws can achieve.

New laws cannot provide long-term solutions. Legislation is unlikely to tackle the causes of terrorism, nor to deter a terrorist from a premeditated course of action. Further, law-making may direct attention away from the debate over other, more effective, responses. As the drivers of change after a terrorist attack, grief, fear and political opportunity are some of the worst possible motivations.

Second, our response after September 11 has been essentially reactive. The rush to legislate after an attack has been a hallmark. Each new attack and set of disturbing images has meant one or often several new laws. However, by itself, an attack does not mean that the government needs new powers. This can only be determined after careful scrutiny of our existing laws in light of what can be learnt from the attack.

As the drivers of change after a terrorist attack, grief, fear and political opportunity are some of the worst possible motivations.

Unfortunately, new laws have been made with such haste that a careful assessment of where we already stand has been impossible. The laws passed after the London bombings were enacted so quickly that they have come into force before two ongoing inquiries have reported on the effectiveness of our existing laws.

The cycle of an attack followed by a new law is dangerous. Driven by fear and the need to act, we run the risk of an ongoing series of over-reactions. This is the dynamic that terrorists rely upon. What they cannot achieve by military might, they seek to achieve by stimulating our fears. By our own actions we may isolate and ostracise members of our community, who instead of assisting with intelligence gathering may be susceptible targets for terrorist recruitment. Through our over-reactions and short-term thinking, we may actually make ourselves more vulnerable to terrorist attack.

Third, we have lost sight of the need for balance between our national security and fundamental freedoms. The object of the laws cannot be national security at all costs. The goal should be to protect the community from terrorism while ensuring that we retain the freedoms that make Australia the country it is. This involves some give and take.

Some basic rights like privacy should be limited in appropriate circumstances to ensure that our police and intelligence services can deal with a threat. On the other hand, other changes cannot be justified because they disproportionately undermine democratic principles. The new sedition laws are an example. They imprison people for what they say rather than for what they do, arguably for little gain in preventing a terrorist attack. We should not damage our democracy and liberties in this way in the name of defending them against terrorism.

Australia is especially vulnerable to this. As the only democratic nation without a national bill of rights, we must rely upon the parliamentary process or the good sense of our political leaders. These are ineffective checks at a time of community fear and, in any event, are not safeguards that are now regarded as sufficient in any like nation. While it is encouraging that the ACT now has a Human Rights Act and Victoria has a Charter of Human Rights and Responsibilities, protection for our speech and other rights is also needed at the federal level.

Fourth, public debate on our laws is often not based upon a realistic assessment of the risk and an understanding of the limits of the law. There has always been and will always be a risk of a terrorist attack. If the goal is to eliminate that risk, we will fail.

The law, no matter how stringent, cannot guarantee our security. Moreover, as history shows, the more repressive or draconian the law, the more that some people will be likely to take extreme action. The law can thus also become part of the problem that we are seeking to mitigate.

It is natural that our fears will lead us to do all that we can to protect ourselves and our families, especially in response to a faceless and unknown threat like terrorism. With a recent poll finding that more than two-thirds of Australians believe that terrorists will strike 'before too long' and that a terrorist attack in this country is inevitable, it is not surprising that there is great pressure to enact new laws at any cost.

What we need is leaders who, rather than playing to our fears, help us to understand that we must accept a level of risk of terrorist attack. There is no other option. If we strive for the illusory goal of full protection from terrorism, we risk doing even greater damage to our society and its freedoms and values.

We risk repeating these same mistakes if we do not change course. Unfortunately, there is no sign that this will occur. New attacks will lead to new laws that will further erode our fundamental freedoms, increase fear and anger in parts of the community and make the problem more intractable.

It seems likely that in the last five years we have seen only the beginning of the 'war on terror'. The laws we have today were unthinkable prior to September 11. It is equally hard to imagine the laws that we will end up with in the event of future attacks. ■

George Williams is the Anthony Mason Professor and Director of the Gilbert + Tobin Centre of Public Law at UNSW. He is the co-author, with Dr Andrew Lynch, of *What Price Security? Taking Stock of Australia's Anti-Terror Laws* (UNSW Press, 2006). An earlier version of this article was published in *The Age* newspaper.

Some 300 volunteers have done the backbreaking splitting, bagging and hauling of rocks at Riversleigh.

Past Perfect

Anniversary celebrations are planned to mark three decades of trailblazing discovery by UNSW scientists at the world's most amazing fossil site. Bob Beale reports.

Mike Archer was standing atop a small boulder on a rugged limestone plateau deep in the heart of north-west Queensland's Gulf Country.

On a clear blue day in 1983, the young scientist watched as his colleagues fanned out purposefully through a maze of weathered rocks, dotted with spinifex grass and bauhinia trees, searching for fossils of prehistoric Australian animals. Archer was waiting while a zoology doctoral student, Sue Hand, retrieved some maps from their four-wheel-drive vehicle. Casually looking down at his feet he saw something that, in his words, "left me in a state of paleontological shock".

Jutting out all over this boulder were bones, jaws, teeth and whole skulls of animals. For someone long accustomed to expeditions that yielded as little as a single tooth or fragments of bone, this was astounding. "I just fell to my knees and I don't remember anything after that," Archer recalls. Soon the other scientists were scrambling around on their hands and knees. It was an astonishing find. "Within 10 minutes, we saw enough fossils to triple the number of Australian mammals known from the past 65 million years." These mammals had lived in a lush, moist rainforest environment – a landscape today that is now harsh, dry and time-worn. The boulder that first drew Archer's attention later yielded 34 species of animals. The place it came from was named Gag Site, after a practical joke the scientists played there. What followed was definitely no joke: some 40,000 specimens so far have been recovered from over 200 other sites, representing almost 300 species of molluscs, crustaceans, fishes, amphibians, reptiles, birds and mammals. The first indicator that Riversleigh was promising had been in 1976 when Henk Godthelp discovered Microsite, a rock bristling with millions of tiny bats' bones and teeth. Until then, only a single bat tooth of this age was known in Australia. Subsequently it has become recognised as one of the richest and most important fossil sites ever known.

"It was that turning point or epiphany you reach in your life," says Archer, "when you realise that you don't have to keep searching for that special something you've sought for so long – there you are, standing on it."

As Sir David Attenborough explained in 1991: "Only in one or two places on the surface of our planet, in the course of the last three thousand million years, have conditions been just right to preserve anything like a representative sample of the species living at any particular time. Riversleigh is one of them."

Indeed, Riversleigh is even more exceptional than the number and variety of animals so beautifully preserved in the limestone. It provides a continuous record of animals and plants that lived in northern Australia over a vast period.

The oldest fossil dates back 25 million years and the youngest is just 20,000 years. No other site offers such an extended insight into the processes of evolution and the story of life on Earth.

Also of great significance, says Dr Hand, is that the geological and biological processes that led to their formation are still at work today. Riversleigh's secret lies in the chemistry of its limestone rocks. As they erode away, waterways become highly enriched with calcium carbonate. Anything that falls into such water is quickly encrusted with the mineral compound, which gradually seeps into soft tissue as well, sometimes preserving


Nimbadon from the AL90 site

perfect casts of organs such as brains and even blood vessels. Teeth, in particular, are so intact that the shiny enamel looks as if it came from a freshly dead animal.

Riversleigh's profound global significance led to its 1994 inscription on the World Heritage Register.

Archer, now UNSW Dean of Science, says the discovery of Gag Site was pivotal in the careers of all those at the initial discovery. Remarkably, that core team from the early 1980s still makes annual pilgrimages to Riversleigh.

The UNSW team has not been alone in revealing Riversleigh's secrets. The research has been generously supported by the Australian Research Council and a wide variety of private, business and industrial sponsors, and by the Riversleigh Society. Over the years some 300 volunteers, have done the backbreaking work of splitting, bagging and hauling rocks. Scores of scientists from every major Australian museum and university – and many more internationally – have been involved in studying the fossils. Visiting documentary makers and high-profile Federal politicians also have happily swung a pick or hefted a rock.

There's evidence of much older human visitation around the Riversleigh region where archeologists have discovered indigenous Australians lived as far back as 30,000 years.

As Hand notes, the site will be yielding new fossils far into the future and the intriguing work of piecing together the larger story they collectively tell has only just begun.

Briefly, we now know that 25 million years ago northern Australia was draped in dense rainforest. The continent's northward drift, due to plate tectonics, gradually took it into warmer climate zones. By 12 to 14 million years ago, it had become much drier and by eight million years ago, the rainforests were well in retreat. Of direct relevance to today's climate-change concerns, Riversleigh's fossils record four "greenhouse" cycles of warming and cooling.

"They show that some species became extinct, some retreated to the coast and high country with the rainforests, and some adapted to the drier conditions," says Hand.

Among those that disappeared were several species of thylacine, pint-sized koalas and lumbering marsupials the size of cows. Kangaroos followed their lineages, and the Riversleigh fossils reveal how their chewing teeth adapted from those suited to soft leaves to hard dry grasses of the arid zone – evolution in action.

"That's just a tiny part of the story Riversleigh reveals," says Archer. "We've only scratched the surface so far." ■

THE DISCOVERY TRAIL

1900: W.E. Cameron collects marsupial bones; believed they were less than two million years old.
1963: Tedford and Lloyd collect more specimens and later conclude they are close to 15 million years old.
1973: Alan Bartholomai (Queensland Museum) reports seeing a marsupial fossil tooth and jawbone embedded in a massive rock.
1976: Mike Archer and Henk Godthelp (Queensland Museum) find the jaw – but can't extract it – giant bird bones, a crocodile skull and other mammal jaws. Godthelp discovers Microsite.
1983: It becomes clear that Riversleigh is truly exceptional when Archer's discovery of Gag Site reveals scores of mammals, frogs, lizards, birds and lungfish.
1994: Riversleigh receives World Heritage listing as an outstanding example of "major stages of the Earth's evolutionary history and significant ongoing ecological and biological evolution".


Platypus skull: Fossil (below) and modern


Bettongia (small kangaroo) skull and jaw

OUTSTANDING FINDS

Microsite (1976): Godthelp finds a boulder bristling with millions of tiny bats' bones and teeth. Species are surprisingly related to others in France, linking Australian fauna to the world.
Gag Site (1983): Archer finds 34 species of animals in a single boulder.
Elkaltadeta (1984): A meat-eating kangaroo, with huge sharp teeth to match.
Obdurodon (1985): The complete skull and brain cast of a toothed ancestor of the playtpus.
Thingodonta (1988): A mammal so bizarre that it is placed in its own taxonomic order.
AL90 (1990): A former cave site containing the skeletons of a trapped herd of 18 million-year-old diprotodontids (adults, juveniles and pouch young) and a thylacine that probably preyed on them.
Gondwanan snake (1999): The complete skull and skeleton of a Gondwanan madtsoid snake.
Demon Duck of Doom (2000): The preserved brain of a massive extinct carnivorous bird related to ducks.

PHOTOS BY BRITTA CAMPION

"These humorous and edgy works are intrinsic to the collection," says the curator of the UNSW Art Collection, Belinda Webb

MICHAEL KEMPSON & MATTHEW TOME, MR FUNBAGS 1996, SUITE OF NINE SCREENPRINTS, 56 X 75.5 CMS EACH UNSW PR 2005/091 7:1-9

For Art's Sake

Anabel Dean takes a tour through the UNSW art collection.

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.

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 on page 22.)

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.

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 the *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.

William Robinson, *near Tallanbanna* 1997, oil on linen, 137 x 183 cms UNSW P 1997/0792

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.

Bronwyn Oliver, *Globe* 2002, brazed copper rod, 300 cm diameter UNSW S 2002/0904

NAMES TO REMEMBER

Vale

ALEX BUZO 1944 – 2006

Renowned playwright and novelist Dr Alex Buzo, one of the University's most prominent alumni and supporters, died in August following a long battle with cancer.

A UNSW Arts graduate, Dr Buzo received acclaim in the late 1960s with a series of plays that challenged local attitudes to race, consumerism and the Australian lifestyle. His best-known works, including *Norm and Ahmed* (1968), *Rooted* (1969), and *Coralie Lansdowne Says No* (1974) have been performed widely across Australia and internationally. Dr Buzo also wrote journal and newspaper articles, reviews and books on an impressive array of topics including sport, language, travel, theatre, literature and social change. His gift for comic, sharply observed social comment was recognised with many awards. As a lecturer and playwright-in-residence, he contributed greatly to the development and education of writers in Australia and overseas. Dr Buzo was a UNSW Literary Fellow and a recipient of the UNSW Alumni Award and the Honorary Doctorate of Letters. ■

RICHARD CARLETON 1943 – 2006

One of UNSW's most outstanding alumni leaders, Richard Carleton, was famed as a television journalist who was not so much interested in winning friends as influencing people. He brought meaning and insight to many of the country's major issues in his early career at the ABC and later with the Nine Network's *60 Minutes*. On the way, he received five Penguin Awards for Outstanding Achievement in Current Affairs and three Reporter of the Year Logie Awards.

Mr Carleton completed a Bachelor of Commerce degree majoring in Economics at UNSW graduating in 1968. At 22, he was Canberra political correspondent for ABC TV's ground-breaking *This Day Tonight*. He also worked for the BBC in London, returning to the ABC in Canberra where he co-hosted the *Carleton/Walsh Report* in the mid-'80s.

When he joined *60 Minutes* in 1987, Mr Carleton sealed his national identity with reports on the fall of communism in Europe, the rise of Thatcherism in Britain and the end of apartheid in South Africa. He was on-the-spot for the Gulf War, the Bosnian War, the sectarian war in Northern Ireland, the wars of the Middle East and Central America. Mr Carleton died on assignment at the mine collapse in Beaconsfield, Tasmania, in May. ■

JACK BEALE 1917 – 2006

Pioneering environmentalist Jack Beale worked internationally as a consulting engineer for 20 years before rising to prominence as the NSW Minister for Conservation, a role in which he initiated legislation in air and noise pollution, waste disposal, water conservation and national parks and wildlife. He also instigated the State Pollution Control Commission (renamed the Environment Protection Authority) and became the state's first Environment Minister in 1971. Dr Beale helped establish environmental control systems for the whole of the Australian continent and contributed towards the development of the United Nations Environment Programme. His text, *The Manager and the Environment*, was the first authoritative work on environmental management and remains an important reference 26 years later. Dr Beale who held a Master of Engineering and Honorary Doctorate from UNSW died in June. The annual UNSW Jack Beale Lecture on the Global Environment is just one legacy of his commitment to environmental change. ■

JOHN HIRSHMAN 1921 – 2006

John Hirshman's life, dedicated to public health and social justice, culminated in 23 years as a Visiting Fellow at UNSW, although he insisted he wasn't an academic.

Dr Hirshman who died in June taught a course about health in developing countries as part of the Master of Public Health and also worked with the Gifted Education Research Resource and Information Centre.

Arriving in Australia in 1938 as a refugee from Austria, he graduated with first-class honours in medicine, working in several hospitals and universities before becoming the Medical Officer for the City of Sydney in the mid-1950s. In the April issue of *UNSWorld*, he explained: "Preventative medicine was really my idea of what a doctor should do." Many publications and accolades came during Dr Hirshman's career with the World Health Organization (WHO). He was based in The Philippines from 1964 to 1980, where he rose from a public health advisory position to become deputy regional director.

Shortly after retiring from the WHO, Dr Hirshman started his long association with UNSW, while maintaining consultancies with several international aid organisations.

Dr Hirshman's many contributions to UNSW include the sponsorship of several prizes through the John Hirshman International Health and Population Studies Fund. ■

From the President

of the Alumni Association

At the end of June, the Board farewelled former Vice-Chancellor Emeritus Professor Mark Wainwright, thanking him for his many years of support for and involvement with alumni activities. We now welcome our new Vice-Chancellor, Professor Fred Hilmer, and look forward to a strong and co-operative partnership with him in furthering our mission to facilitate the most positive and beneficial links between the University and its graduate community. Professor Hilmer has moved quickly to implement changes he believes will further enhance the quality and reputation of research, teaching and learning, and the overall student experience at UNSW. Community engagement, and especially with alumni, has been identified as a significant part of that process.

Such engagement has been seen in the highly successful 2006 Brain Food speaker series which concludes with a presentation on October 25 by Professor George Williams, Faculty of Law, on the topic of terrorism. Our previous speakers this year have all been excellent, each showcasing the great depth and diversity of research at UNSW.

Diversity, strength in relationships as well as in research, and involvement are such key elements of a great university and of its alumni. We welcome, for example, Atax alumni into the Law Alumni Chapter, and we look forward to the formation of new overseas Chapters as well as locally the affiliation of particular groups of current students and alumni. A faithful and committed group of volunteers continues to assist the Alumni Relations office and, with an increasing number of graduations, I would encourage more alumni to consider helping the University at these most important occasions.

As the late distinguished alumnus and playwright, Alex Buzo, wrote in his *Memoirs of an Unswonian* (extract printed in the April 2006 *UNSWorld*) he came to realise how much he had learned at UNSW, and that he became more involved in alumni affairs. “However long it takes to assimilate what has been confidence-building in the tertiary education today's graduates have received”, he said, “it is hoped that the grateful eventually return to help out the alma mater.”

With best wishes,
Dr Ian Walker, President

Fresh Pickings

Alumni Cathy and David Harris discovered salutary lessons on the path to entrepreneurial success

There's no real farm to speak of in the Harris Farm Markets story, more a heroic tale of how Cathy and David Harris stood firm against harrowing winds that uprooted and laid bare their business dreams. Instead of battling the elements, the couple fought one of man's greatest foes – debt – and won. Theirs is the story of a business and personal relationship through which two people have married complementary strengths – although it was a union that began with youthful naivety. "Unlike the students of today I didn't take life so seriously," Cathy admits of her experience at UNSW. She was originally intent on enrolling in Architecture but "all the blokes in Architecture had grey cardigans and beards and all the blokes in Commerce looked really cool", so she changed her mind. "It's been the story of my life – opportunities come up and I take them," she reflects.

The pair met at UNSW and were married in 1971 straight out of university, before David's father made a decision that changed their lives. "When David was at uni, he was always going to go into his father's business," Cathy says. "His father sold his business – a company called Table Talk chicken – and David said, 'What am I going to do?' and his father offered some guidelines: 'Make it something that the big fellas don't do well; and make it something that you can get into with limited capital so I can help you'." Two possible options emerged. When David announced he would either be a fruiterer or a funeral director, Cathy insisted: "It's a choice of one!"

Initially, Cathy found the decision to run a fruit business confronting. "All our friends were doing the 'smart things'… and we were planning to run a fruit shop!"

However, their academic-inspired planning would redefine the way fruit and vegetables are sold in this country. David developed a business model based on a fabulous fruit business that had been one of Table Talk's customers, and Cathy worked at a department

Successful entrepreneurs Cathy and David Harris take time out.

ANTHONY GEERNAERT

store to learn the tricks of the retailing trade.

After about six months during which David went without an income, the couple opened their first site in 1972 on the main road in Villawood in southwest Sydney. Life was hectic. Their 'normal' existence involved David being at the markets by 2am while Cathy worked at Grace Bros during the week and pitched in at Harris Farm Markets on weekends. Nonetheless, their business model was working, and soon they went from one to three stores.

As it grew, the business led from the front. For example, it was an early adopter of technology, quick to follow the US in introducing computers into retailing, and in terms of produce on sale it was an innovator – the first fruit and vegetable business to diversify by opening a supermarket-style operation, introducing cutting-edge goods such as squeezed juices, a range of Chinese vegetables and deli goods.

The business grew big, really big. By the late 1980s, it was on a huge roll and a publicly listed cashbox company, Panfida Foods, that was buying businesses willy-nilly with other people's money, convinced the Harrises to give up equity in the company.

Suddenly, there were 17 stores, which rocketed to 37 within two years … and then there were three. "Panfida was in trouble," Cathy explains. "However, the bank supported us, so we ended up running three stores for family and friends who put up their money on the understanding we would buy them back when the time was right." Today, they have 19 stores.

Looking back on their success, David always knew he was programmed to be an entrepreneur and Cathy suspects she was too, although she took to the corporate world when times turned tough. Her mother Mary Rossi had been a high-profile businesswoman, and her father had a manufacturing company, Tapex Pty Ltd, which her brother now runs.

They never had a clear plan for Harris Farm Markets, more of a rough one. Planning on the hop has become a habit. For example, within weeks of a board meeting to discuss strategy – at which they determined not to go into regional areas – they had opened a store in Orange, NSW.

> Often people become so focused on one path they don't see the opportunities on the sidelines.

Unable to ignore the sound of opportunity knocking, Cathy believes it's important to have flexible plans. Often people become so focused on one path they don't see the opportunities on the sidelines, she says.

On mistakes, the Harrises believe with the benefit of hindsight they should have spent more consulting outside experts. Entrepreneurs often are A-type personalities, observes Cathy. "You have to have so much guts to do these things – open 37 stores – that is really putting yourself on the line every single day and you have to be a certain personality type to do that."

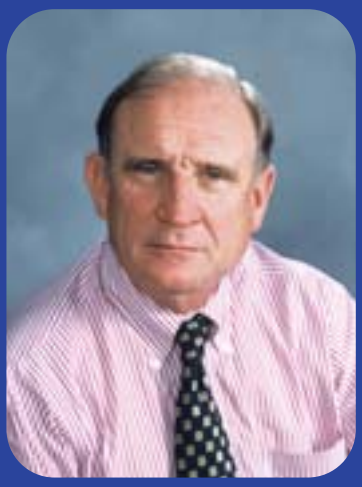
Cathy thanks Dexter Dunphy, then with the Australian Graduate School of Management, for helping with management structures, while David says university training paid off as the business grew by teaching "structures and systems that help you to do that". "When I got to seven [shops], my university training came into swing because I was earning less money than when we had four…I said: 'Let's talk to IBM, let's hook up our computer to all these scales everywhere and let's see if we can get some margin.'"

As true entrepreneurs, they used their own money, sinking a couple of million dollars into developing a package that enabled them to run fruit markets in a revolutionary way. The business journey delivered the trappings of a successful life for the Harrises and their five children, and opened the couple's eyes and minds. "I learnt that you really don't know it all. It sounds glib, but every day I live business, I realise how valuable everyone in it is," Cathy says. "You're out there running the business, but it's all those people who are doing the hard yards and not for a lot of money…that's humbling in a way when you realise that." ■

This is an edited extract from an interview by alumnus Peter Switzer, first printed in *Savvy: Understanding The Entrepreneur*, a book published for the 50th anniversary of the UNSW's Faculty of Commerce and Economics and available from the Switzer Group (www.switzer.com.au).

Distinguished by Excellence

The 2006 UNSW Alumni Award recipients represent diverse fields, but they are unified by their outstanding achievements.



POWERING INNOVATION

As the Alumni Award recipient in the category of Business & Commerce, Dr Peter Farrell, founder and Chairman of medical devices company ResMed, is recognised for his international success in commercialising technology and as a long-term supporter of UNSW. Dr Farrell has built ResMed, with dual bases in Sydney and San Diego, into a business with $4.5 billion market capitalisation. His career exemplifies how research through innovation can become a commercial reality. Originally a chemical engineer, Dr Farrell spent a decade working in industry and academia overseas before taking up a position as a lecturer and later Associate Professor at UNSW between 1972 and 1984. During this time he completed a PhD and founded the Centre of Biomedical Engineering (now the Graduate School of Biomedical Engineering), a joint project of the faculties of Engineering and Medicine. While on sabbatical from UNSW, he took on the role of Vice-President of hospital and medical supplies company Baxter Healthcare which led him to the sleep apnea technology developed by Professor Colin Sullivan – this technology provided the initial basis for ResMed's products. Dr Farrell's passion for health and education is seen in his active support of UNSW over two decades, and is reflected in the naming of the Peter Farrell Room in The Scientia. The Samuels Building was also his initiative in the 1980s. More recently he committed $500,000 over five years to an Innovation and Commercialisation Initiative through AGSM which has named the business plan competition, the Peter C. Farrell Cup, in his honour. Innovation is proven only "when someone writes a cheque", Dr Farrell insists. *UNSWorld* invited him to share his ideas.

What are the most important drivers of Australia's future innovation?

Currently Australia relies on opportunistic innovation. We need to establish the right socioeconomic environment for more proactive innovation to take place. This requires acceptance that failures will occur in up to 80 percent of cases – they are part of the learning process before success is ultimately achieved. The fuel for innovation is money. Australians need far greater access to capital directed at high-risk, high-return initiatives. I believe the most logical source of venture funding is to

COMMUNITY: SIMON RICE

BA '81, LLB '83, MEd '91 UNSW

Simon Rice has dedicated his entire career – and his prior university life – towards making the Australian justice system fairer and more accessible to the community. The current President of Australian Lawyers for Human Rights, his dedication to the ideals of justice for all began as a UNSW law student serving as a volunteer at the Redfern Legal Centre where he ran the Schools Legal Education Group teaching "street law" in inner-city high schools. Subsequently he became an employed solicitor at the Centre undertaking casework and establishing the Campbelltown Legal Centre, a much-needed resource in western Sydney. Between 1989 and 1995, he was Director of the Kingsford Legal Centre and was a tenured lecturer in law at UNSW. For five of those years, he also served as a part-time NSW Legal Aid Commissioner.

In 1995 Mr Rice became a judicial member of the Equal Opportunity Tribunal and was appointed the Director of the Law Foundation of UNSW where he introduced a range of initiatives facilitating access to legislation, cases and legal resources for all Australians.

He later served as Associate Professor in the Faculty of Law UNSW working at the Australian Human Rights Centre and co-authored a book, *Retreat from Injustice – Human Rights Law in Australia* (Federation Press). Since 2005, he has been employed as a Senior Lecturer in the Department of Law at Macquarie University.

SCIENCE AND TECHNOLOGY: ALAN TROUNSON

BSc '68, MSc '71 UNSW, PhD '74(Syd)

A pioneer in assisted reproductive technology, Professor Alan Trounson's early studies in veterinary science were a logical precursor to his world-leading research in the late 1970s which established in vitro fertilisation (IVF) as a practical treatment of human infertility. The process has since resulted in the births of millions of healthy babies worldwide with IVF clinics now established in every country. Professor Trounson's work in devising culture methods for fertilisation and the early development of the IVF embryo led him to discover embryo freezing techniques – cryopreservation – that would avoid discarding any embryos or transferring too many embryos to one woman. He also

loosen the strings attached to a small portion of the funds pouring into superannuation. Implementing such an initiative would change the face of this country within a decade. Good examples of how this can work are coming from fund managers at Harvard, Yale and MIT, who for many years have been spending up to 30 percent of their endowment monies and generating returns of over 15 percent per annum. To wake up to the power of innovation, we need to understand the concomitant creation of wealth.

What role can education play in this process?
I believe innovation and entrepreneurship can be taught, nurtured initially at the undergraduate level and then at the post-graduate level. All undergraduates should be taught how to earn a living and one way is to become an entrepreneur and engage in innovation. However, it is better to have had exposure to the real world beforehand, by gaining a theoretical understanding of what earning a living means and then getting practical experience by working. They need to learn the importance of managing cash flow, how to satisfy customers; and what it means to get work satisfaction by achieving defined outcomes. After these elements have been understood, exposure to what constitutes being an entrepreneur and an innovator can be taught at a post-graduate level by theory and mentoring, where practical examples are thoroughly canvassed by people who have been there and done it. That is one reason I'm putting my money where my mouth is to initiate a post-graduate program in innovation and entrepreneurship at UNSW.

How important are the links between education and industry in promoting innovation?
Both ResMed and Cochlear [the artificial hearing device company] were based on research generated from within our tertiary sector. No doubt many more such possibilities exist; we just need to start trolling efficiently for comparable low-hanging fruit. Hence, connecting the campus to the real world is one vital way to enhance innovation.

Why has ResMed succeeded where many other (biotech or biomedical device) companies have not?
Over the years we have developed a robust checklist to help us allocate our scarce resources. First, we examine the market potential for the product or process; and this involves examining both market size and accessibility. The last place you want to be is late into a small market; getting early into a small market can work, as can getting late into a big market but the ideal place to be is early into a monster market. And, of course, a vital component of success is the ability to execute. Without it, a plan is just a pipe dream.

developed methods enabling women without functioning ovaries and older women to successfully give birth. Subsequently, he has received numerous medals and awards for his work but remains firm in his conviction that IVF can still be improved and made more successful for patients, describing his role in developing medical applications that solve the dilemma of infertility, ease the burden of genetic disease and promote safe parenthood as “a privilege”. Professor Trounson is both the scientific director of Monash IVF and a director of Monash University’s Immunology and Stem Cell Laboratories. As a world leader in embryonic stem cell research, he continues to be an active participant in the ongoing debate over the use of embryonic stem cells for the treatment of disease.

ARTS/LAW: DAGMAR SCHMIDMAIER
BA Syd., DipLib ’68, MLib ’85, Hon.DLitt ’99 UNSW, FALIA
After 11 years as NSW State Librarian and Chief Executive, Dagmar Schmidmaier retired in April this year with plans to continue an active involvement in the library industry, most notably as President of the Australian Library and Information Association and as Chair of the Aurora Foundation Board. Mrs Schmidmaier has held senior academic and management positions in the fields of technology, information systems, management and librarianship in the university, government and private sectors.

Most recently, she is credited with developing new strategic goals for the State Library of NSW by promoting the role the public library network plays in the commercial, educational and social life of communities including providing an innovative range of products and services to clients, both on and off site. Along the way, Mrs Schmidmaier travelled thousands of kilometres visiting public libraries throughout the state. Many of her initiatives resulted in generous public donations through the Capital Campaign towards the purchase of new material and the preservation of old material. She also established the ongoing Heritage Collection exhibition with the support of the Nelson Meers Foundation.

Among her other achievements are the establishment of the Public Libraries Consultative Committee and the development of NSW.net which has provided councils and libraries with a permanent high-bandwidth Internet connection and access to online databases. A Fullbright scholar, Mrs Schmidmaier has also been influential in policy making, providing frameworks and guidelines defining the important functions libraries perform in society. Last year she completed a review of the Library Act 1939.

A tribute to 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, 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 the shadow would be more powerful than the object, become the work itself. One wonders if her extraordinary industriousness was a way of warding off the shadows that finally engulfed her.

An extremely guarded person, she gave an unusually candid interview a few months before her death, revealing insights into a painful childhood and complex feelings about parenthood. She had no children, and several of her works referred to barrenness in some way – the suggestion of a shrivelled pod inside the lacy carapace of the larger shape, for example. She loved her years of teaching art to small children at Cranbrook – a career she could afford to retire from a couple of years ago – and one wonders whether the responsibilities and human contact of this job helped to keep her aloft. Although she had an angular sort of personality and could be brusque at times, she had a touching nature, and a surprising, almost old-fashioned unworldliness. At the same time the covert aggression and defensiveness of some of the works hinted at an inner darkness: as she said, 'I haven't made an innocent work in a long time.'

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 brought to her life and her work. Graduating from COFA (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, prizes, awards and accolades accrued to her outstanding career right up until her untimely death.

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

If the loss wasn't so grave, the inspirational person and career so clearly only at half way point, one might feel, at rest, to just let it be, recognising the enormous body of work (over 200 pieces) as a bountiful legacy. She is already a hero of Australian art, but this alone sells Bronwyn Oliver and those with similar sensitivities and vulnerabilities, passions and convictions, insights, contradictions and afflictions, 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?

Bronwyn was one of COFA's own, one of our very best. And much earlier, she was the brilliant 10-year-old I taught in Saturday morning art classes in rural NSW, already clearly destined for great successes, but not this singular failure. ■

– Professor Ian Howard is the Dean of COFA.

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

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