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THE AUSTRALIAN NATIONAL UNIVERSITY

reporter

Look into my eyes

Computers and mental states

Road to somewhere

Art on the Canning Stock Route

Llewellyn Hall redux

Concert venue gets a makeover



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Steven, ANU Graduate Studies Select student

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reporter



Research 8

Brand identities



Outreach 18

Helping kids

ANU Reporter

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From the Vice-Chancellor's desk

The Australian Government is currently taking a close look at the nation's research and education policies through a review of the innovation system and a review of the tertiary education system. As this edition of *ANU Reporter* goes to print, both reviews will be in full swing, and ANU will be making its contribution.

Earlier this year I gave a speech to the Australia New Zealand School of Government in which I argued that it is time to put in place enlightened policies that will reinvigorate and advance the Australian higher education sector in a way that is coherent, intelligent and supportive. If policies meet these criteria, inevitably, they will reveal that universities perform differently. Recognizing differences and enabling each university to play to its strengths will result in a better range of quality options for students, and a more powerful research effort for Australia.

ANU occupies a unique place in the nation's research and education landscape. We were founded to advance the cause of learning and research for the nation, to enable Australia to take its place alongside the countries of the civilized world. That is a role we take seriously, and one we will seek to cement in the new policy framework.

Part of the unique role that ANU has is international. This year we have begun to see the International Alliance of Research Universities blossom. Global research programs are well underway, with ANU playing a leading role in the Security theme. Students from ANU will shortly be taking advantage of the first Global Summer Program, with the option to take courses in the Northern Summer at the Universities of Cambridge, Oxford, Tokyo, Yale or the National University of Singapore. In turn, ANU will be welcoming students from Alliance universities to Canberra for courses ranging from Artificial Intelligence, International Environment Policy through to Great Power Politics in Asia.

Exciting and interesting times lay ahead for ANU as we play a major role in national reforms while growing our international engagement.

A handwritten signature in black ink, reading "Ian Chubb AC". The signature is fluid and cursive.

Professor Ian Chubb AC
Vice-Chancellor and President



A snapshot of life at ANU



Dancer Michael Smith was one of a group of young artists that attended the Australian Talented Youth Project at ANU during the summer. The week-long program, coordinated by Jolanta Gallagher from the ANU School of Music, culminated in a performance at the Street Theatre. Photo: Martyn Pearce

LIFE SENTENCES: SIR ROBERT ASKIN

The Australian Dictionary of Biography is part of the History Program in the Research School of Social Sciences at ANU. The 17th edition covering Australians who died between 1981 and 1990 was launched late last year, and will soon be online at www.adb.online.anu.edu.au Below is an edited entry.

ASKIN, SIR ROBERT (ROBIN) WILLIAM (1907-1981), bank officer and premier, was born on 4 April 1907 in Sydney.

Askin enlisted in the Australian Imperial Force on 30 March 1942. In 1946 he returned to the Rural Bank to manage its travel department.

Known as 'Slippery Sam' – a nickname he had acquired in the army – he also ran an illegal starting price bookmaking operation.

Askin joined the Liberal Party of Australia in 1947. Preselected in 1949 from more than 20 candidates, he won the seat of Collaroy in the NSW Legislative Assembly in June 1950. He represented the newly created constituency until the seat was abolished in October 1973. From November 1973 until his retirement he represented the new and equally safe seat of Pittwater.

Askin was elected leader of the Liberal Part in NSW in 1959. He sold a printery that he had used to produce the *Manly-Warringah News* in 1953-57, thus becoming the first party leader devoted to the office full time. 'First, last and always', he declared, 'I am a politician – a professional politician!'

The party Askin now headed had been characterised by the *Sydney Morning Herald* as a 'self-seeking rabble'. He accepted the challenge. In 1961 he led the successful 'No' campaign in a referendum to abolish the Legislative Council; he argued for election by popular vote. He backed the drive by the extra-parliamentary party for 'new blood' in the legislature. And, above all, he strove to gain office. His first tilt, in March 1962, ended in failure.

His second attempt, on 1 May 1965, was to succeed. In November 1973 Askin became the first premier of NSW to win a fourth successive term.

The day before the re-election of the Whitlam government Askin embarked on a seven-week overseas tour, ostensibly to attract investment. A heart attack in June 1969 had kept him away from work for two months and in March 1971 he tried to ease the dual burden of premier and treasurer by appointing an assistant-treasurer. He suffered another heart attack in November 1974.

On 3 January 1975 he resigned as premier and treasurer and left the parliament. Although Sir Henry Parkes had served longer as premier, Askin had eclipsed the record of seven and a half years' continuous service set by J. J. Cahill.

Askin died on 9 September 1981 at Darlinghurst and was cremated.

The Sydney Opera House and the Eastern Suburbs Railway were the two landmarks for which Askin most wanted to be remembered.

JACKIE CHAN OPENS EDUCATION CENTRE



Prime Minister Kevin Rudd and Jackie Chan open the science centre. Photo: Karen Edwards, JCSMR

International movie star Jackie Chan opened the Jackie Chan Science Centre in March.

Part of the new John Curtin School of Medical Research (JCSMR) building, the Centre is designed to inspire the next generation of Australian scientists by giving them an insight into the past success stories and current research at JCSMR.

In 2006 Mr Chan made a generous donation to JCSMR that funded the eponymous centre. "Jackie has a strong commitment to the education of young people and to provide them with opportunities that were not available to him when he was a child," said JCSMR Director Professor Judith Whitworth.

"It was an easy call for us to use this donation to help establish a dedicated Jackie Chan Science Centre as part of the public area of the new JCSMR Building, which will showcase our history, current science, and provide viewing windows into laboratories."

Mr Chan's relationship with ANU extends back to 2002, when he made an initial donation for cancer research in memory of his mother and long-time Canberra resident Ms Lee Lee Chan.

Part of ANU, JCSMR is Australia's national medical research institute. It was created in 1948 as a result of the vision of Australian Nobel Laureate Howard Florey and Prime Minister John Curtin.

EARTHQUAKE THEORY STRETCHED IN ASIA STUDY

Geologists at ANU have suggested a new cause for the seismic instability that regularly rocks Central Asia.

Scientists from the Research School of Earth Sciences at ANU argue that the frequent and dramatic earthquakes in the Hindu Kush mountain range are likely to be the result of a slow, elastic stretching of a sub-surface feature called a boudin.

Their findings run contrary to the theory that earthquakes usually result from the abrasive collisions between tectonic plates.

"We've always thought of earthquakes as being brittle, but our research shows that the slow, ductile stretching of certain geological features can build up energy that is then suddenly released, causing major seismic upheaval," said Professor Gordon Lister.

Using computer modelling, the researchers were able to show that the long, hard boudin that sits vertically beneath the Hindu Kush is being stretched as its lower parts are pulled into the Earth's mantle, resulting in seismic disturbances.

WORD WATCH

Dr Bruce Moore is the Director of the Australian National Dictionary Centre, a joint venture between Oxford University Press and ANU. In this column, he takes a lexicographical look at our lingua franca.

The naming of a 'Word of the Year' is a relatively recent phenomenon, going back to the early 1990s, when the American Dialect Society began to announce its annual choice. The words chosen by the Dialect Society often have international significance or recognition: information superhighway (1993), millennium bug (1997), weapon of mass destruction (2002), metrosexual (2003). Some of their choices inevitably have an American bias, since a word that achieves prominence in one country does not necessarily do so in others. Thus, the Dialect Society's choice of soccer mum (1996), chad (2000) 'a piece of waste material removed from card or tape by punching' (and assuming some notoriety in the presidential election), and truthiness (2005).

At times the choice has seemed a bit eccentric, as when the verb pluto was chosen in 2006 in the sense 'to demote or devalue someone or something, as happened to the former planet Pluto when the General Assembly of the International Astronomical Union decided Pluto no longer met its definition of a planet'.

By 2007 there were other organisations joining the 'Word of the Year' game. Oxford University Press in the United States was first cab off the rank for the 2007 Word of the Year with locavore, a blend of local and the



-vore element of carnivore and so on, and meaning 'a person who buys and eats food grown in the local area'. The Merriam-Webster dictionary group chose w00t (note that the 'double o' is represented by 'double zero'), a term originally from online gambling, an exclamation functioning as an expression of joy and excitement. At the Dictionary Centre we started to wonder: where have we been in 2007? The Macquarie Dictionary group in Australia chose pod slurping 'the downloading of large quantities of data to an MP3 player or memory stick from a computer'. Had our collective lexicographical heads been in the sand? The American Dialect Society

restored some sense of credibility to the Word of the Year exercise with their choice of subprime, used as an adjective 'to describe a risky or less than ideal loan, mortgage, or investment'. This was certainly closer to the mark.

In 2006 the Australian National Dictionary Centre chose the verb and noun podcast as its word of the year, acknowledging the fact that this international word had spread with extraordinary speed and ubiquity. For 2007, subprime was on our list of favourites, but in Australia there was one word that gathered to itself immense local significance—me-tooism. This word first appeared in the United States in 1949, and the political meaning was strongly to the fore: 'The practice of adopting or imitating a policy successfully or popularly proposed by a rival person or party; the practice of following a popular trend'. Although me-tooism is not an exclusively Australian word, it certainly became a political buzzword in the election environment of 2007, and was clearly used much more intensively in Australia than in any other country. In Australia, it was closely followed by mortgage stress. Me-tooism is our 2007 Australian Word of the Year.

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AUSTRALIA AND CHINA JOIN FORCES IN BIRD FLU BATTLE

A team of ANU researchers will lead a new joint research centre with China conducting leading-edge research into treatments for Avian Influenza (Bird Flu).

The new Australia-China Centre for Phenomics Research, funded by the Chinese and Australian Governments, will be located in The John Curtin School of Medical Research.

The joint undertaking – thought to be the largest funded program in biosciences between China and Australia – was instigated by the University's Dr Edward Bertram following his involvement in a China-Australia exchange program supported by Australian Technological Sciences and Engineering and the Australian Academy of Science.

"The funding will be used to study alterations in the genome code that lead to increased resistance to Avian Influenza," said Dr Bertram. "It's hoped that this work will help us to identify targets for designing new treatments to boost the immune system against Avian Influenza."

The Australian funding of \$1,536,200 comes from the China-Australia International Scientific Linkages Fund from the Department of Education, Employment and Workplace Relations and matches funds from the Chinese Ministry of Science and Technology and support from the Australian Phenomics Facility.

SURGEONS, INTELLIGENCE AGENCIES TO GAIN FROM SCHOLARSHIP WINNERS

Allowing surgeons a real-time, high-resolution view of their patient's internal organs and sending unhackable information further than ever before are the goals of two ANU students who've won scholarships from the Fulbright Commission.

PhD students Ramtin Shams and Sarah Beavan will be able to continue their work at leading US research institutes later this year thanks to the scholarships.



Ramtin Shams

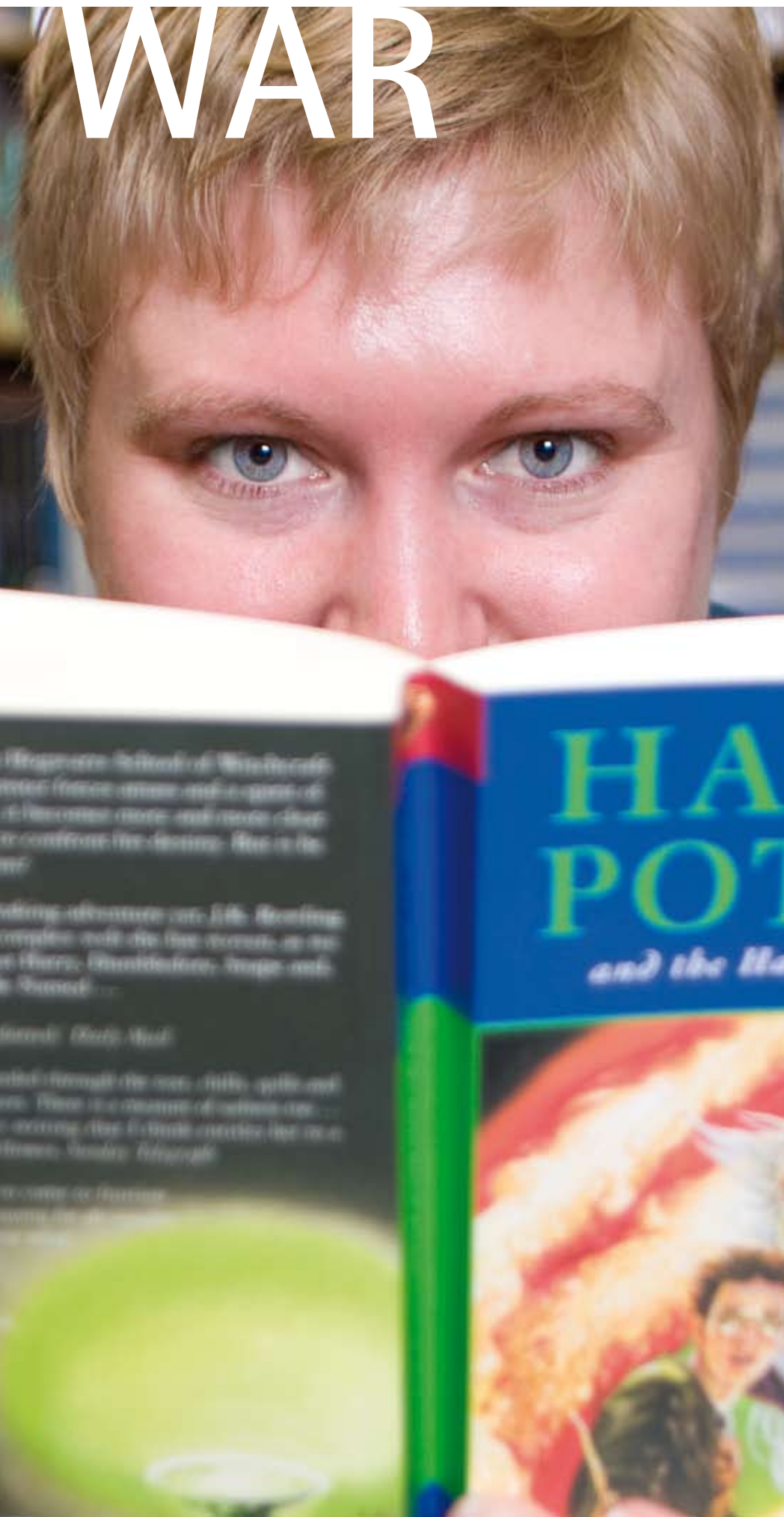
Ramtin is developing a new kind of medical scanner that would be able to create very detailed, three-dimensional images of the insides of humans.

Sarah is working towards a system that will allow unhackable quantum-encrypted information to be sent over large distances – something that has been previously impossible because of technological limitations.



Sarah Beavan

WHEN TWO TRIBES GO TO WAR



Can marketers reap the spoils from online battlegrounds?

Over the years there have been some classic battles of household name brands: the time when Michael Jackson grooved and moved for the benefit of Pepsi as it looked to topple Coca-Cola, or the ongoing polarising campaign between Apple computers and Microsoft.

But nobody could have predicted that one of the great brand battles, one fought on a whole new battleground, would be between rival groups of fans of fantasy literature.

When JK Rowling, best-selling author of the Harry Potter books gave an interview to the British *Sunday Times* in 2005, saying she was unaware she was writing fantasy when she began the series and gently mocking the genre her books inhabit, it started a fight that was to play out on Internet pages with combatants drawn from every region.

First to take up arms and enter the fray was fellow fantasy author Terry Pratchett. His 38 Discworld books – a series begun with *The Colour of Magic* in 1983 – proudly proclaim their fantasy roots in a world of elves, witches, trolls and dwarves.

Pratchett took exception to the words of Rowling and the reporter who had penned the *Sunday Times* story, and fired off a letter to the editor. He then followed that with a broadside 'snarky' statement that Rowling should have realised she was writing fantasy.

Next on the scene was BBC Online, which published a story with an edited version of Pratchett's statement under the headline 'Pratchett's anger at Rowling's rise'. The story – published on JK Rowling's birthday – was the accidental misfire that let loose the wrath of online community fans.

It was about this time that an intrepid war reporter – or in this case researcher – Toni Eagar caught up with the looming clash ahead. Eagar, at ANU doing her PhD research, had built a friendly relationship with Pratchett after the author had come to the University as part of the public lecture series.

She said that as soon as the BBC published the story, the army of Harry Potter fans online sounded the war cry.

"The Harry Potter fans found the story and went berserk," she says.

"They were angry at Terry Pratchett, particularly as it happened on JK Rowling's birthday. There were a lot of online attacks. It got very personal and went on for about three weeks.

"What complicated the issue was that the BBC later rewrote the story, changed the heading and wrote an apology to Terry Pratchett. But by then it was too late."

The accidental exchange prompted a flood of posts on the online noticeboards for fans of both Harry Potter

and Discworld. But, said Eagar, what was interesting from a marketing viewpoint was the different reactions from the opposing fans.

"Some Discworld fans said they found Terry Pratchett's letter disappointing, but that was a minority of responses. In general, they saw the whole issue as something against the reporter.

"For the Harry Potter fans, though, there was a lot of emotion, they took it very personally. One person said 'Harry Potter is my life, how dare he say that?' The fans wanted to defend JK Rowling.

"Then there were a third group of people who weren't fans of either, but were 'anti-fans' of JK Rowling and said things like 'it's about time someone told JK Rowling!' So you had all these different responses to the media," she says.

And on and on went the messages like missiles flying in all directions. At one point one of the bulletin boards being monitored by Eagar had 10 pages of posts, each containing 15 comments.

From her study of the bulletin boards, Eagar produced a paper analysing the interaction between the groups of fans – *When Brand Communities Collide: Moral Judgements and Pseudo-Relationships in Cross-Community Conflicts*.

In the paper, she breaks down the behaviour of the online fans into moral judgements, and what effect that had on the group. The differences were stark. In the Discworld community participants tended towards a positive moral judgement towards Pratchett's letter, leaping to his defence and uniting in disparaging the Harry Potter books. This, says Eagar, helped to reinforce group identity.

The Harry Potter community, however, saw a fracturing of views – with some fans fuming over Pratchett's actions, while others took a neutral standpoint.

Eagar said that those fans who felt the actions were 'bad' then applied attack behaviours and sanctions to people in the Discworld forums. Some even threatened to never read Pratchett's books.

She says the lessons for marketers from the whole episode is that the emotional attachment people form to brands can be much stronger than a preference for flavour in your fizzy drink.

One of the ways people define their allegiance to brands, she says, can be communities of opposition – such as the comparative advertising that saw the battle between Pepsi and Coca-Cola.

"The Pepsi taste challenge was classic comparative advertising. To counter that Coca-Cola introduced 'New Coke', which was a classic marketing disaster. The company lost market share through trying to taste better than Pepsi.

"The real problem with comparative marketing, though, is that you have to mention your competitor and studies show that people will mix up who the advertiser actually is. With the Panadol versus Herron ads, run by Herron, when people were asked who was being advertised a proportion said Panadol.

"The difference in the Discworld versus Harry Potter battle was that it was a particular argument at a particular time. The people on those forums didn't define themselves as being against each other – something happened and it was an all-in scrum," she said.

Once the dust had settled on the battlefield, however, it was the Discworld series of books that had won the war in a marketing sense.

"It left Discworld strangely positioned," Eagar says.

"The Harry Potter fans had heard about this new brand and wanted to know about it. All that negative stuff had encouraged people to find out about the opposition brand.

"For the Harry Potter brand the experience was probably more negative. The ones ranting had embarrassed the ones that weren't; there was a lot of telling people to calm down. Plus, Harry Potter was already such a huge brand that it had no effect of increased awareness."

But for those marketers thinking that provoking an online fight between fans might be a good way of generating publicity or purchases, Eagar warns that although you can start the battle, once it's happening there's little you can do to control it, or the eventual outcomes.

"There's only so much marketers can control and you don't know when these things are going to happen. They're opportunistic, so it's hard to study what the triggers are."

It's more important, she adds, that marketers have a clear idea of who buys their products and why.

"What happened throws up the issue that traditional segmentation methods, such as income, age and choice, aren't necessarily the only way to group people. Marketers need to go back and check their strategies and targeting," she says.



Tracking the conflict between two online communities was fruitful for Toni Eagar's research.

A HEATED EXCHANGE

– what they said:

"If Mr Pratchett calls her on it, and pretty mildly I'd say, it's immediately assumed his missive is awash in jealous spite."

– Robko_Ind, Harry Potter Forum

"Anyway – Pratchett's letter. How obviously jealous can you get? I'm sure his books are good and all, but I don't plan on bothering with reading any of them now that he's shown how petty and childish he is."

– Graylady, Harry Potter Forum

"I don't think you can say that a highly successful series of books in recent years outweighs a highly successful series from recent decades just because you read one Discworld book and didn't like it as much as Harry Potter."

– McLaren, Discworld Forum

ROAD TO SOMEWHERE

A new project to safeguard the future of Aboriginal rock art and contemporary sites along the Canning Stock Route is bringing together Indigenous Australians, researchers and government agencies.



A survey of images from the Canning Stock Route captured by the research team.



The Canning Stock Route in Western Australia might well be the longest art space on the planet. Its arid plains and gullies are a world away from the genteel vaults of the Louvre. Yet the 1700km track that meanders from Halls Creek to Wiluna is dotted with thousands of Aboriginal rock paintings and engravings, possibly dating back tens of thousands of years. This is a rich cultural and spiritual record created in increments by generations of Western Desert peoples. Next to it, the output of Europe's grand masters can seem as freshly daubed as graffiti at a railway station.

Most people would agree that you can't run art galleries like railway stations or public thoroughfares. It would be risible to suggest that Louvre should be open at all hours, its contents left unguarded, uncatalogued and without any cohesive plan of management. Great cultural artefacts should be protected, right? This idea is underscored each time a Vermeer or Munch or Picasso is stolen, and a flurry of media stories and accusations ensues. What few Australians appreciate is that a collection of works of immeasurable cultural value are at risk of theft, damage and neglect.

Over the last decade increasing numbers of adventure tourism operators and travellers have been steering their four-wheel drives to the nation's northwest, tracking along the dusty expanse of the Canning Stock Route. One expert estimates that there are now thousands of visitors driving through the area each year. As interest grows, operators have been pushing further and further out into the wilderness to get an edge over their competitors. An unintended consequence of this traffic is that many Indigenous sites of significance have been degraded. In the worst cases, whole sections of painting and engraving have been chiselled out of the rock and stolen. This has occurred in part because no single body is responsible for the region. Oversight has been shared on an ad hoc basis by Indigenous land councils and government departments at the state and federal levels. No-one has a comprehensive record of all the important cultural sites on or near the route. If this situation continued, Australia would be placing a substantial portion of its pre-European history in jeopardy.

In this context of uncertainty about the future of the Canning Stock Route, there is a renewed effort to safeguard it for all people – Indigenous or otherwise. ANU researchers are helping to lay the groundwork for the first comprehensive plan of management for the entire route. In 2007, a trio of researchers from the University led a successful bid to the Australian Research Council. They won more than \$927,000 over four years to chronicle, interpret and manage rock art and dreaming sites. These funds will be more than matched by ANU and the group's research partners, including representatives of Aboriginal land councils and various government departments. By 2010 they plan to develop a series of modules that can be used to inform detailed guides and signs for visitors, while also protecting sites that have special significance for Indigenous peoples.

Archaeologist Peter Veth, Deputy-Director of the National Centre for Indigenous Studies, is one of the lead ANU researchers working on the project. He's the former Research Director at the Australian Institute of Aboriginal and Torres Strait Islander

Studies, and a co-editor of the book *Desert Peoples*, which explored how early hunter-gatherer societies adapted as the landscapes in which they lived dried out across the globe. Veth has been visiting the Canning Stock Route for almost three decades, and says the momentum from the new project came from Western Desert traditional owners and pressing management issues.

"You can purchase a map [of the Canning Stock Route] that says exactly what spectacular paintings and engravings you must visit, and the GPS coordinates to get there," Veth says. "There are numerous websites now with similar information. There's no signage on the stock route, there is no management regime, there's no recognition that it's all Native Title-determined now. Quite a few of the sites being promoted to tourists are restricted. Indigenous people prefer not to see restricted images in the public domain.

"Lots of the camp sites along the stock routes have been raked and raked over; people have cleaned them up. Without knowing it, some people have raked up one thousand grindstones, or destroyed a site that might be up to 10,000 years old. And there has been removal of some of the most ancient engravings via angle grinding.

"[Indigenous] people are really happy for tourists coming to experience the stock route," Veth says. "But they're not happy for the people going to sites and places that are restricted for cultural reasons. They're not happy for resources to be used unsustainably, and they're extremely unhappy when they're confronted by some of the tourists and told that they have no right to be there. The desert has been 'recolonised' by some commercial operators and tourists."

Confrontations between tourism interests and Indigenous people along the Canning Stock Route hark back to the origins of the track, which is in its own way a story of conflict.

The route is named after Alfred Canning, a WA government surveyor. In 1906 he was tasked with finding a path for Kimberley graziers to drive their cattle south to the water and grasslands around Wiluna. To locate the wells and watering holes that would make the lengthy desert trek possible, Canning and his colleagues forcibly coopted Aborigines. Groups of Martu men were captured by the Europeans, chained at the neck, and then force fed salt until they could stand their thirst no longer. They then unwillingly led the surveying party to the next source of water. This cruel joining of the dots made for slow progress.

In the two years it took to plot the way from Hall's Creek to Wiluna there were a series of confrontations between the original owners and the newcomers. When the first graziers attempted to drive their cattle down the route in 1911 they were killed. Many of these incidents led to reprisals and misunderstandings on both sides.

The recollections of one woman elder of that time have been recorded by Kanyirninpa Jukurpa – The Martu History and Archive Project on behalf of the Western Desert Lands Aboriginal Corporation. This group is one of the industry partners in the ARC research project. The oral history is a reminder of the time around first contact between Indigenous people and Europeans.



Nyangapa: "We would go and travel about Lipuru (Well 37) and stay there. We stayed there in the darkness. We saw them [Europeans]. We heard the tinkling of the bells as the horses came from the west, coming ahead for water ... right towards the water. No way would we stay there – we decided to return to the east ... so we got up and ran away very frightened. We ran and ran back to Pirrkili and after we drank we were staying there quietly. We went and still shaking from fear stayed there. They used to be spearing out there. They used to kill people. Our mothers used put us away when we were frightened. They would take a peep at us and ... off they'd run. They would run and run, this way and that. We were very frightened and would run away from those white people."

Why were the original inhabitants so disturbed by the arrival of the European descendants? It doesn't require much empathy or imagination to realise that Western Desert peoples probably felt threatened, as their relationship to the land they'd nurtured for millennia came under threat. And some of the proof of this lengthy relationship is in the rock art.

Researcher Dr Jo McDonald from ANU says that the team have already dated some of the art back to 1,200 years, but they believe that other sites could be as old as 25,000 years, dating to the initial settlement of the region.

"We're looking to tie down the material, but it's difficult to conclusively date the art on rock," McDonald says. For the last 25 years, she has worked as an independent archaeological consultant, with a special interest in Aboriginal rock art. Between 1985 and 1990 she was engaged by the NSW National Parks and Wildlife Service to devise a management strategy for the extensive shelter and engraved art of the Sydney basin, recording hundreds of sites in the process. She also has expertise writing plans of management, which will come in useful in the latter stages of the current project.

"The Canning Stock Route's significance to the Aboriginal people comes from its place in their cultural and social landscape," she says. "For us [non-Indigenous researchers] it's significant because its rock art was undescribed before the last five or six years. The rock art played a role in the whole Indigenous social sphere, but we can't – as archaeologists – always understand how. We're trying to understand how people used art to communicate ideas about themselves, but also record things important to them and the different things they were doing."

McDonald says that there is such a wealth of rock art sites along the route that it is sometimes difficult to evaluate the importance of particular motifs – sorting out those that were casual 'sketches', for example, from those that were central to the mythological beliefs and the practices of their creators. Some of the markings denote social affiliation and secular activities, while others relate myths and legends.

"We are only just beginning to collect the relevant cultural information, so it's impossible to understand at this stage what's important. Unless someone says to you 'that figure over there, that's the one about this legend', you're left without the whole picture. Often there will be hundreds of motifs, but of these only some will relate to a particular story. There is this incredible archaeological 'noise', if you like, resulting from the depiction of many different events and

mythologies over time, so we need to work with the Western Desert peoples to tell us what is significant in their time frame. This will allow us to understand how a near-contemporary art system operated and provide insight into art systems that operated in deeper time."

Anthropologist Professor Howard Morphy from ANU agrees that the task of chronicling and interpreting the art along the stock route will be challenging and that the input of the area's traditional owners will be invaluable.

"The richness of Aboriginal art systems is enormous," Morphy says. "Rock art exists as an aesthetic product in its own right, but it is also a record of part of a whole. You have to understand Aboriginal art as you would understand the richness of opera. It is produced through song, through dance, through body paintings, through head dresses etc., and with designs that would crosscut media. Designs on bodies, for example, would also be inscribed on rock surfaces. But it's the rock art that survives. As a result you have a partial record, and know that it connects to the overall richness. It is the most underused resource in exploring Indigenous prehistory, yet potentially one of the richest."

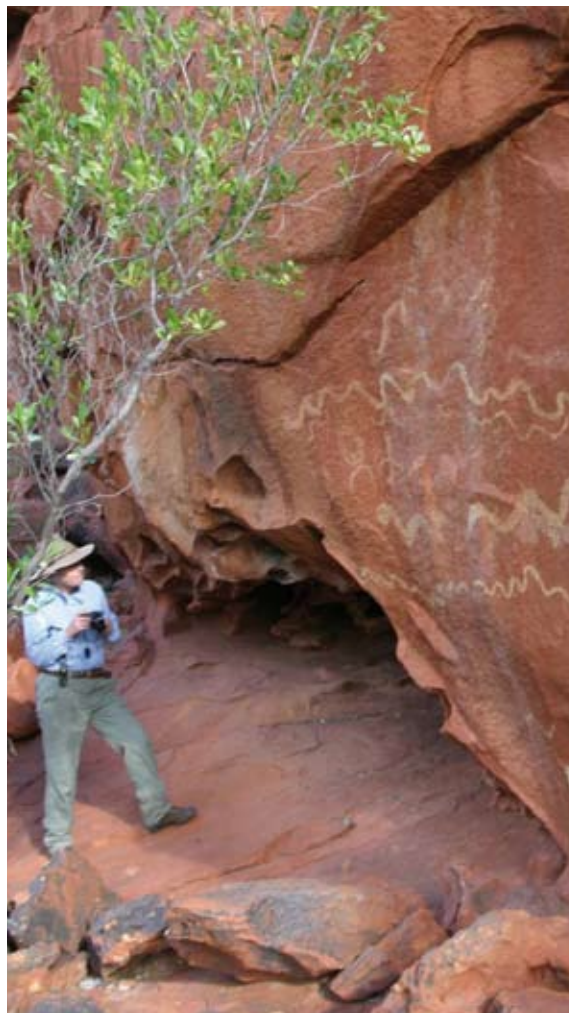
Morphy is one of the world's most respected experts on Australian Indigenous art, focusing much of his time on the relationships between art styles and their spatial distributions. He's interested in how the movements of peoples across landscapes intersect with current cultural practices, but also how art fits into the larger trajectory of Aboriginal history. In order to come to grips with the immensity of the stock route, he says that multiple perspectives will be required.

"What's so exciting about this project is that it's interdisciplinary. The only way you can gain a rich

understanding of the past is to actually have a whole team of people working together with the Indigenous communities who today are connected to that particular land. The fact that you're working in a team of people who have expertise in different kinds of knowledge – local knowledge, theoretical knowledge in archaeology and anthropology – will enable us to produce the fundamental research that can produce better plans of management. I believe this approach can bring great returns in the longer term for the survival of the Canning Stock Route, but also produce the resources that can be used by the Indigenous people in the development of cultural, educational and historical tourism."

Incorporating the perspectives of traditional owners in the project is also an important aspect for Dr Peter Kendrick from the WA Department of Environment and Conservation (DEC). Head of nature conservation in the Pilbara region for the DEC, Kendrick is also a representative for the department as an industry partner in the ARC project. He says he's been privileged to be one of the few non-Indigenous people to regularly visit remote parts of the Canning Stock Route during summer, when the temperature soars to hellish extremes.

"It can seem very lonely – because the track blows away, leaving wind-ripples instead of tyre tracks," Kendrick explains. "It's hideously hot. You spend the hot part of the days minimising your heat loss, and then work with the animals in the mornings and evenings. But if you're travelling with Martu people it's social, noisy even, and can seem very beautiful. There's lots of space. If you climb a hill and look back you realise how tiny you are, and begin to realise just how vast are the land claims are out there, and the country. You can drive for days and days and not go very far at all."



PROJECT PARTNERS

The ARC Linkage project to chronicle the rock art and dreaming sites on the Canning Stock Route involves:

ANU researchers Professor Howard Morphy, Professor Peter Veth and Dr Jo McDonald

Central Desert Native Title Services

Kimberley Land Council

WA Department of Environment and Conservation

Landgate (formerly WA Department of Land Information)

WA Department of Indigenous Affairs

Jo McDonald Cultural Heritage Management

Department of the Environment, Water, Heritage and the Arts

Beneficiaries working in collaboration on the project are:

Western Desert Lands Aboriginal Corporation

The Kimberley Land Council Land and Sea Management Unit.



But Kendrick says what can seem to be a vast emptiness to non-Indigenous people is still a varied and treasured place for its traditional owners. "Culturally it's densely populated with landmarks of all kinds – material culture, landforms, art works. If you go with the people who know the country, there's nothing that doesn't have a name. Even the sand dunes."

Kendrick's department has been working with traditional owners on fauna and flora management projects along and around the stock route, and says that this fits into the idea of a holistic approach to land found in Indigenous culture. He says 'back-to-country' visits will form a crucial part of the ARC project, allowing young Aboriginal people to reconnect with their traditional practices and regions.

Another industry partner representative, Dr Brian Prince, describes the ARC project as a "two-way opportunity" where the researchers learn from the traditional owners and vice versa. The head of Indigenous Heritage Management for the Federal Department of the Environment, Water, Heritage and the Arts, Prince says that this is the "kind of project we'd like to see more of."



"One of the really fantastic things about this is that it brings together different partners who have interests in the stock route – traditional partners, researchers, state and federal government agencies," he says. "These sort of partnerships are a really good way of getting good outcomes because you've got the key players involved and achieving outcomes better than you could acting individually. This is particularly the case for the interaction between the traditional owners and the heritage researchers, who can develop good ways of building the capacity of Indigenous people to bring together Indigenous and non-Indigenous knowledge systems."

Prince also believes that a proper plan of management will be a great way for more non-Indigenous Australians to become familiar with the nation's "big sky country".

"It really is like that – the great bowl of the sky over you, and these incredible stars at night. All you hear after dark is the movement of little animals and the wind through the Spinifex. The contrast of the red rock and the blue sky – it's just amazing stuff."

Professor Peter Veth couldn't agree more. After three decades of regular field work in and around the Canning Stock Route, the archaeologist says it feels like home. But he will never be complacent about going back, using the Durba Springs as an example of a site made special because of its millennia of use by Indigenous Australians.

"You drive possibly for several days through sand dunes, open Spinifex country, rocky jagged flats and minor rises," Veth says. "All of a sudden you come over a sand dune and there's a beautiful sprawling sandstone. It has native grass lawns, huge gum trees around the edge, up to 20 metres high, fringed by permanent spring-fed pools. As you throw out your swag or make a cup of tea or just sit there, you're surrounded by one of the most spectacular refuges that you could hope to find."

It's safe to say that all of the partners in the Canning Stock Route hope that it's a refuge that will endure because of their efforts.



LLEWELLYN HALL RESURGENT



Roof trusses being positioned in Llewellyn Hall in 1975. Photo: Stephen Berry, ACT Heritage Library.

The iconic ANU School of Music building at the edge of campus between Childers and Marcus Clarke streets was originally envisaged as a very different building. The home of the Llewellyn Hall – which fascinates visitors with its unusual shapes, unexpected angles and broad balconies – was never intended to become Canberra's premier concert hall, until a concertmaster named Ernest Llewellyn raised his hand.



The Canberra School of Music (CSM) was opened in 1965 under the direction of Llewellyn, who had recently retired as concertmaster of the Sydney Symphony Orchestra. The CSM was then based at the former Mothercraft Centre in Manuka, in the city's inner south. But this venue soon proved too small, prompting a need for expansion.

According to the original architect of the ANU School of Music, Daryl Jackson, he was briefed to design a building that would encompass teaching and administration rooms as well as a performance space similar to the style of a high school hall. "It was not meant to be Canberra's premier concert hall," Jackson says. "But Ernest Llewellyn was the principal of an emerging school of music and he drove the idea of it up to become a major hall, suitable for serious music."

The school's original Executive Officer, William Hoffmann, believes the change was a stroke of genius on the part of Llewellyn. "The Department of Education had approved plans for a theatre for students' performance practice," Hoffmann says. "But [Llewellyn] also talked the department into approving a 1,400 seat auditorium which was a bit big for a practice theatre. And of course when the building was finished it became, not only a teaching theatre, as it said on the plans, but it brought all the concert performers in and became the central concert hall of Canberra."

Jackson also argues that the people of Canberra owe Llewellyn a great debt. "The final space could be used for recording, used by ABC orchestras, and used as a performance space for music of all types from small group playing to major orchestral and large choir performances."

Throughout the design process Jackson worked closely with acoustic architect Gerald Riley to ensure that the interior of the hall would produce the best resonance from performers on the stage. "Gerald said that to get the acoustic performance right, a third of the seats needed to be in an upper gallery so we incorporated that," Jackson says.

Jackson has been living and travelling in Europe and the United States for five years prior to taking on the project and had attended performances at some of the great spaces in New York and London. He says this helped him understand what Llewellyn and Riley were trying to achieve. "I benefited simply from the fact that I had become an experienced listener," he says.

"In a performance hall that size, Ernest and Gerald wanted there to be a sea of faces to absorb the sound and to give a feeling of engagement between performer and spectator so we brought everyone closer to the stage on both the upper and lower levels. Since the building was opened people have enjoyed the intimacy of the hall with its fairly large size stage and its capability to have a large size orchestra and choir. The interpretation of music has been very well received."

Despite the care that went into crafting the interior of the hall, the highlight for Jackson is the building's exterior. "The sculptural form of it brings a lively exterior face to the building," he says.

"We populated it on the northern side with the offices and teaching spaces which wrap around the hall, so you see that wrap and windows and activity

of the people within. That makes for a pleasing building. What I'm pleased about is really that the exterior key faces are invitational. They invite entry and profess to say to people that this is for you, it's your building and you're welcome to come in."

The Canberra School of Music Hall officially opened in October 1976 with three days of gala concerts over a long weekend. Hoffmann recalls that some of the top orchestral performers in the country were on the School of Music staff, having followed Llewellyn to Canberra when he resigned from the Sydney Symphony Orchestra. "The staff performed on the Friday followed by the Canberra Symphony Orchestra and the choral society on the Saturday," Hoffman says. "The performances really showed off what the hall could do."

Four years after it originally opened, the hall was renamed in honour of Ernest Llewellyn when he retired from his position as Director of the Canberra School of Music. In 1988 the School amalgamated with the Canberra School of Art to become the Canberra Institute of the Arts and in 1992 both were fully integrated into the University.

For almost 32 years, the space now known as Llewellyn Hall hosted orchestras, choirs and operatic artists from around Australia and the world, including the Warsaw Symphony Orchestra, the Minneapolis Symphony Orchestra and the Symphony Orchestra of the former USSR Ministry of Culture. But on Tuesday 27 February 2007, Canberra was hit with a super-cell hailstorm, which damaged 60 buildings across the ANU campus including the School of Music and Llewellyn Hall.

As the slow process of repair began, the decision was taken to incorporate a refurbishment of the hall into the process. As well as aesthetic improvements, 30 years of advancements in acoustic engineering technology mean that clearer sounds can be obtained from a redeveloped performance space.

Daryl Jackson Architects were again engaged to oversee the refurbishment in partnership with current School of Music Director John Luxton and acoustic consultants Arup. "We all feel we could get a better listening performance if the tiering of the ground floor seats was steeper with better views of the stage," Jackson says. "In doing that we could also enhance the sound qualities by placing timber reflector panels.

"The hall will take on the feeling of it being a timber instrument. It's in honey-coloured natural Australian timbers. The floor will be a timber instrument. You get the idea of another form inside the existing masonry form.

"There's a new ceiling, offering a more handsome opportunity for the eye to focus on the players and we've painted the ceiling dark inside. That's bringing about a shift of ground to focus people in on the performance and to feel as if they're actually in the orchestra, as much as sitting apart from that. That's the feeling I've been getting when I've walked around there as the renovations have taken place."

As Canberra performers line up to test their skills in the new space, Llewellyn's legacy will once again live on as the revamped hall returns to its place as Canberra's premier performance venue.

more than one way to INNOVATE

In February this year the Minister for Innovation, Industry, Science and Research put forth his vision the future of research and innovation in the university sector. Senator Kim Carr was speaking at the ANU Executive Retreat. The following is an edited version of his speech.

Innovation and research flourish in an environment of freedom, openness, democracy and diversity. That's what I'm determined to create.

An environment that sustains a variety of research styles and outcomes. An environment in which curiosity-driven research, user-driven research and bespoke problem-solving all have an equal chance to thrive.

ANU is central to what I'm trying to achieve.

Its foundation marked the beginning of a new era in university research.

ANU was critical to the Chifley government's great nation-building project in the post-war years.

It was and remains a university dedicated to research and public service – not least by providing non-partisan advice to Parliament.

There are many ways research can improve people's lives. Contributing to our technical and material progress is only one of them.

Research can also reduce inequality, deepen cultural understanding, expand opportunities for the least fortunate, support human rights and promote public health.

It can foster social cohesion, improve the natural environment, increase psychological wellbeing, encourage tolerance and advance democracy.

Research that feeds directly into the work of industry will still be a vitally important part of the more diverse and pluralistic research environment I want to create.

Improving links between researchers and businesses will still be a priority.

But it won't be the whole story.

We are building a national innovation system that has room for all sorts of research with all sorts of pay-offs, a system that contributes creatively to every dimension of Australian life.

The beauty of the new Department of Innovation, Industry, Science and Research is that it brings responsibility for all aspects of the research function – projects, infrastructure and training – under one roof.

It also sharpens the policy focus on research by disentangling it from general educational concerns.

School, vocational and undergraduate education are vitally important, of course, but that's precisely

the problem – when research is coupled with these responsibilities, it tends to be marginalised.

The new portfolio puts research centre stage.

More than that, by linking it to industry and innovation, we are making it very clear that research – in universities, in public agencies, and in the private sector – is critical to the government's social and economic vision for Australia.

The deeply flawed Research Quality Framework is gone, but we still need information on what Australia's universities are doing and how well they are doing it.

A robust quality assurance process is a precondition of institutional autonomy and academic freedom.

Researchers and universities – like governments – must be accountable for how they spend public money. If you want to be in control of your own destiny, you have to be prepared to justify the choices you make. That's how it works.

We have a finite number of dollars for research, and we must be able to demonstrate that they're being used to best advantage.

That doesn't mean I'll be looking over every vice-chancellor's shoulder or standing at every researcher's elbow.

What it means is that quality is king. It means the whole university sector will be expected to measure up against a quality assurance regime which is rigorous, transparent and fair.

This regime will involve both metrics and peer review. It will certainly have a strong international dimension. There is absolutely no point measuring ourselves against each other; we have to measure ourselves against the world.

Because there is no agreement on metrics for the creative arts, humanities and social sciences, we will have to use proxies. And because there are different views on what the proxies should be, we will be consulting with the sector to identify the best model.

People should be aware, however, that we have no time to waste. I want the new QA system bedded down by the end of this year.

It is essential that our universities become more responsive to the needs of the community that sustains them, whether those needs be social or economic.

We will be developing mission-based funding compacts with our public universities. These compacts will be instrumental in bringing about structural reform and cultural change, and in concentrating people's minds on our international competitiveness.

They will enable us to manage the transition from the present centralised system to a more flexible environment in which each university can respond to the needs of its students, its community, the country and the global knowledge economy by exploiting its comparative advantages – by leading with its strongest suit.

The compacts – covering education, research and research training, community outreach and innovation – will give universities a greater say in priority-setting and establish a platform for future public and private investment.

And there will be future public investment. The inflationary legacy we've inherited limits what we can do in the short term, but it is a mistake to assume government funding will continue to decline.

Unlike our predecessors, we are not ideologically opposed to the public production and dissemination of knowledge. We actually believe in it.

A country of our size will never be able to fund every conceivable research interest at every institution. Each university will have concentrations of excellence in particular fields, and we would expect them to give those fields priority.

The idea is that a university with good infrastructure and a critical mass of expertise in a given discipline would become the national hub for that discipline. Extending from each hub would be spokes going out to researchers in other universities and linking them up with colleagues and resources at the centre.

I'm already attracting flack from people who assume that the current crop of research-intensive universities will automatically be the hubs in this model. They won't.

No university will be a hub. It is departments and research centres within universities that will be hubs. Any institution can become the national focus for a



Senator Kim Carr

"ANU was critical to the Chifley government's great nation-building project in the post-war years.

"It was and remains a university dedicated to research and public service – not least by providing non-partisan advice to Parliament."

particular discipline if that's where the best and most important work is being done.

You can't boost innovation and research without talented people. Australia's success in attracting its best and brightest into research careers has been mixed.

Between 1983 and 1996, the number of students starting a higher degree by research increased by 9 per cent annually. In the decade from 1997 to 2006, the increase was less than 1 per cent a year.

PhD commencements rose 43 per cent during the ten years to 2006, but this was largely cancelled out by the collapse in Masters by Research commencements, which fell 28 per cent.

The shift from smaller Masters projects to bigger Doctoral projects may mean we are getting more from each candidate, but there is no escaping the fact that the number of students signing up to do higher degrees by research has flatlined.

The net effect is that we've been treading water while the rest of the world has powered ahead. A decade of opportunities has been squandered.

Australia has eight PhDs per thousand in the workforce, comparable to Canada but below the United States with eleven, Germany with twenty and Switzerland with twenty-eight (OECD 2007).

That's why we are boosting research training by doubling the number of Australian Postgraduate Awards.

My objectives for the university sector are no different from my objectives for the rest of the innovation system.

I want to build innovation capacity by concentrating resources to maximise efficiency; by connecting sectors, institutions and individuals to promote collaboration and knowledge transfer; and by increasing investment when fiscal circumstances allow.

I want to forge an environment which inspires creativity and produces innovation outcomes of the highest impact and quality.

ANU will be an integral part of that environment. I look forward to working with you.

For more: <http://minister.innovation.gov.au/>
- click on Media Centre, then Speeches.



Cameron Sugden's photographs show the strength of spirit of street kids in the Philippines.

RESCUE OR RUIN IN MANILA?

Arts/Sciences student Cameron Sugden has been volunteering with the organization Bahay Tuluyan in Manila, The Philippines, which helps street children who would otherwise be locked up by authorities. He told *ANU Reporter* about the extent of the problem.

How did you find out about Bahay Tuluyan?

I volunteered with Australian Volunteers International in 2006. Along with three other Australian students, I conducted research into the situation of children in conflict with the law within Laguna Province [in the Philippines]. Children of all ages were being arrested – mostly because of minor crimes such as sniffing solvent, pick-pocketing, or breaking the curfew – and placed into jail cells for indefinite periods of time. These children were often subject to abuse, neglect and exploitation from the adult prisoners. The report we produced was used by Bahay Tuluyan to gain some insight into what services and facilities were available to children in conflict with the law.

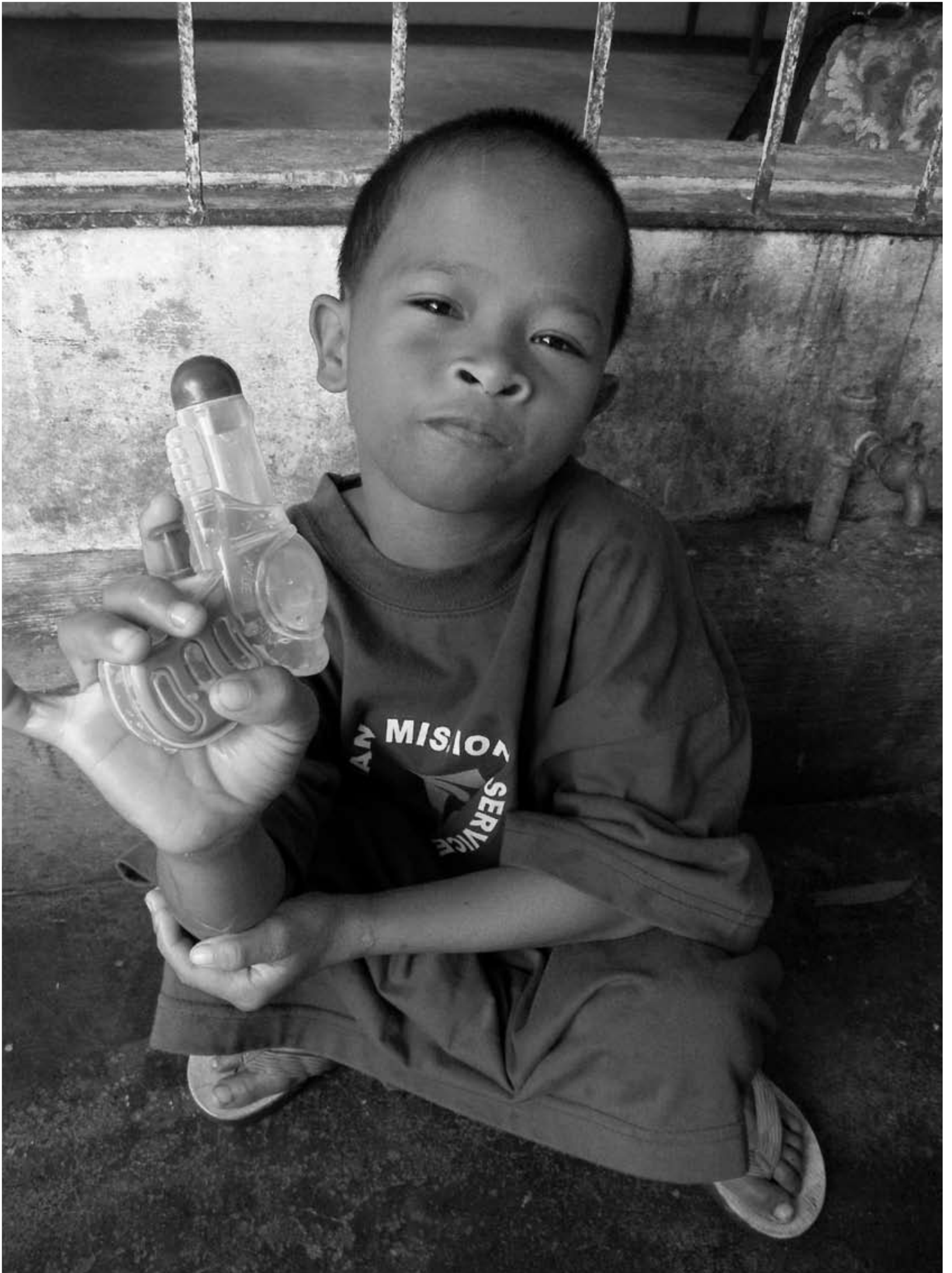
Why are street children treated so poorly in the Philippines?

Because the very rich and the very poor often need to occupy the economic centres of the Philippines, poverty is very much in view of the more affluent residents of Manila. Like all the other mega-cities of Asia, it's common to see luxury residential quarters, office towers, hotels, and shopping malls sitting beside and above squatter settlements.

Generally, street children have refused to remain in neglected, hidden away areas of the city. We found that the majority of street children had staked out the most beautified areas of the city – squares, major highways, outside shopping centres, markets, fountains, tourist attractions, and near restaurants. These areas are rich in resources: people to beg from, tourists to sell small items to, restaurants that hand out free food, grass to sleep on, fountains to wash in, and plenty of areas to play. But they are also areas of the city that the wealthier residents of the city would prefer to claim as their own.

The wealthier residents of Manila seem to have engaged in a number of methods to remove unsightly poverty from view. Retreating to gated communities or spending great amounts of their time in one of Manila's mega-malls provide means if you have the money. Those who can't afford to go to these extreme lengths – and so continue to experience uncomfortable encounters with the poor on a daily basis – seem to be the ones that are placing much pressure on the government to remove unsightly street children, along with the uncomfortable emotions they evoke, from the urban landscape.





Until more recent years, the removal of homeless children from the streets of Manila has been conducted under the guise of 'arrest'. But over the past decade, the Philippine government has been the target of much international and domestic condemnation for its mistreatment of street children. So the arrest of street children has become less and less common. In 2006, the Juvenile Justice and Welfare Act was enacted, banning the arrest and detainment of children under the age of 15 for any reason.

Street children are still being indiscriminately, violently and involuntarily taken from the streets and detained in prison-like centres. The only difference is that this practice is now called 'rescue', making it more resilient to criticism from those less concerned with details beyond summarized tables and colourful graphs (this includes people and organizations in the international community too of course).

What are the conditions like on the street?

Terrible. Diseases such as pneumonia, cholera, hookworms, tuberculosis, gastroenteritis, bronchitis, typhoid, and tetanus are all common killers. I can't remember seeing one street child that didn't have some skin infection, and they just don't seem to heal. Inaccessibility to basic health facilities ensures many of these children die of preventable and treatable illnesses.

Rugby (a brand of glue) also inflicts great injuries upon street children. Rugby is often sniffed to quell hunger or pain. But it also produces irreversible brain damage and gives rise to violent and self-destructive behaviours. One of the boys that we've been working with as part of our research was recently stabbed to death by an older street child high on rugby.

What are the rescue centres like?

The majority of children are taken to the Reception and Action Centre (RAC). The conditions in there are horrendous.

It looks very much like a prison. There are high walls and barbed fences. A security guard sits at the entrance, pistol, capicum spray and handcuffs around his waist belt. Staff roam the courtyard, batons in hand.

During our visit, the rooms were very overcrowded, the boys had no toilet (and the girls only one), and there were no beds. Children lay sleeping on the wooden floor. In the corner of the girls room laid a mentally ill child, her head shaven. Staff did not know what her name was, so they called her "girl number 5". Through the wooden bars of the room a small boy whispered to me in English "help me". Next to him was one of the boys that we had interviewed the previous day. He wanted help to get out. Down in the courtyard, a mentally ill man was masturbating in full view of those around him.

Among other things, children that we interviewed (beyond earshot of staff) said that: the doors are locked each night after dinner; the food is terrible (and they are often hungry); abuses are common; they are afraid of 'psychotic' detainees; mentally ill children are neglected ("they eat the leftovers off the ground"); they want to sleep on mattresses; but none are provided; they are woken at 4am (often with a bucket of water); there are no activities or education offered; they sometimes have to urinate and defecate in buckets. One boy said to me during an interview: "If I were a Ninja, I would have jumped this fence a long time ago".

How will your research help?

The primary aim of our research was to provide evidence that indiscriminate 'rescues' are traumatic and ineffective for the children involved. We found plenty of evidence to demonstrate that rescues fail to take into account the unique needs, circumstances and experiences of street children. Our findings were based on interviews with over 160 street children, 140 people from the general public, numerous street families and former street children, and senior staff working for government agencies involved in the practice of rescue.

Currently, Bahay Tuluyan is holding meetings with senior staff from all the government agencies involved in rescue operations. Bahay Tuluyan, along with many other NGOs in Manila, are calling for an immediate suspension of all indiscriminate rescues in the city. There's been more and more publicity about indiscriminate 'rescues', including a recent article in Manila Times.



More: www.bahaytuluyan.org

Read an extended interview with Cameron Sugden at:
www.anu.edu.au/reporter



Professor Bob Wells

CONVERSATION: NATIONAL HEALTH

Health is a big ticket item for the Federal Government. It has made fixing funding and operational problems with the nation's public hospitals one of its top priorities. But is this enough? ANU Reporter spoke with two experts about what's really needed for Australia to get a good diagnosis for its health system. Associate Professor Kirsty Douglas is the Acting Director of the Australian Primary Health Care Research Institute and an educator in general practice at the ANU Medical School. Professor Bob Wells is the Director of the Menzies Centre for Health Policy and Executive Director of the ANU College of Medicine and Health Sciences.

ANU Reporter: The Rudd Government came to office promising to radically overhaul the nation's health system. It seems to be a big ask – where should they start?

Kirsty Douglas: I don't think you can reform the hospital system without really taking into account the primary health care system. They are very much interdependent. Unless you look at them together, any reform you try in isolation will ultimately fail.

Bob Wells: I think you're right. Nevertheless, I think the Government might not appreciate that point. It seems to me that politically their commitment is to overhaul the hospital system, because the public discontent is around the performance of public hospitals. You rarely see people getting excited about the performance of general practice or primary care. Yet far more people use primary care than ever use hospitals – something like 110 million visits each year to GPs in Australia, which is about five per head of population, versus about six or seven million visits to a hospital. Even if you count in emergency department attendance it only comes to about 40 million visits. Despite this, the Government's immediate focus will have to be on hospitals as they've committed to sort out the so-called 'blame game' between the Commonwealth and the states.

KD: Hopefully they'll look at both at the same time. But the public eye will be on the reform of hospitals. Rudd seems to be very dogmatic in his approach to fulfil those promises as a first step. But if the Government is canny, and they're looking at international experience, then of course they're going to review the primary health care sector as well, and how that interfaces with the hospitals.

BW: Australia has the highest hospital admission rates for its size and population profile in the world. Sooner or later the question will be: Why? Why are so many people going to hospital instead of being looked after in the ways they would be in other similar countries? Sooner or later you have to say, 'Why are we putting all these people into hospitals when maybe we could deal with it in better ways?' That's when you come to the whole-of-system questions.

KD: It keeps feeding out. Once you look at why some problems aren't being treated in general practice, why they're ending up in the hospital system, then you start coming up against workforce distribution and workforce numbers. Why can't we attract people to general practice? That feeds out into training and education issues. It ripples on and out – it's not a small problem to tackle.

ANU Reporter: The issue of shortages in the number of doctors and other health professionals in Australia crops up again and again. Should we be recruiting more people from overseas? Or training more people here?

KD: I think there are problems with both. If you just increase the numbers of university places here, do we have enough trained people to actually give them the high-quality education we want? And when we're training them, how do we direct graduates into the areas we need them in? At the moment there is evidence that many of our graduates are selecting the higher-paid specialties – even though the really critical shortages are in general practices, psychiatry – some of the lower-paying, community-based specialties. I'm not sure that the systems are in place for those increased numbers of students to move into those areas of need. Getting people from overseas raises issues like: are we stealing from other nations when they've invested huge amounts in training people? How can we ensure quality and appropriate care when we're taking people from different cultural contexts?

BW: The Productivity Commission looked at the Australian health care workforce a couple of years ago. It said there were shortages, but also that we don't use the workforce we have effectively – we're too demarcated across professions but also within professions. The Productivity Commission made some suggestions about how we could improve on that, but so far governments have not really taken them up. As for bringing in more doctors from overseas, that's also problematic. West of the Great Dividing Range, a high proportion of our doctors come from the Indian subcontinent. I'm receiving reports that interest in coming to Australia from those parts of the world have dried up markedly in the last six months. Even if you take a more cynical view that we can always bring in more doctors – maybe we can't. We're vulnerable to those shocks in the system.

KD: We're not the only ones experiencing the shortage. People from the Indian subcontinent can go anywhere in the world.

BW: And the Medicare funding doesn't help. Proportionally, procedural specialists are rewarded better than non-procedural specialists. If you're an ophthalmologist, because of changes in technology, you can get through the same amount of procedures in a number of days that once would have taken weeks. But the rebates haven't changed, so you're earning much more. If you're a young ambitious person, where would you go?

KD: When I went through medical school, I studied for free. I graduated at 24 with no debts and a good income earning potential. Today, medical students are graduating at an average age of 28 or 29 so more of them have got dependents, and they're graduating with a combined HECS and personal debt of about \$100,000. That gives you a lot of pressure about where you go and what you do.

ANU Reporter: Another election promise from the Federal Government was to create a raft of new GP super clinics around Australia? Are these a good idea?

KD: It is a good idea, but it's only going to be a small part of a greater solution, and it's got to be done thoughtfully. It's not a solution in itself. The first issue is how will you staff them? How will you maintain that staff?

BW: Keeping the staff there will be an issue. Also, some of the staff will be on fee-for-service, while some will be on salaries. You get the professional demarcations again, what's the hierarchy; will physiotherapists want to work alongside occupational therapists? There are models like this around, but to say that suddenly we're going to impose them in these strategic locations by fiat – that's optimistic.

KD: Some of the Aboriginal controlled medical services have exactly that sort of model, and the good ones work superbly well. We can take those good ideas forward. But even in these good centres it's not easy to recruit and maintain staff. Once you start putting centres out in regional places where it's not attractive to work for a variety of reasons, it gets harder.

BW: Also these centres will be placed in a context. There are already some GPs in place, whether in solo practice or from the local hospital. How are the super clinics going to fit in?

ANU Reporter: Do we need to break down the guild mentality in the health professions?

BW: Part of the problem is that people are trained in silos, so they don't really have an appreciation of how people can work in teams. It probably gets back to training. You can't impose by fiat that people will want to work together. You have to give them experience in training – and there's a long way to go in that regard.

KD: I'm not sure that the reasons behind the 'guild mentality' are all that valuable, apart from the fact that it's historical. It's incredibly hard to break down. People have been trying to break down those barriers for a long time. It's something that we need to work out but I don't know if we know how to do it yet.

ANU Reporter: Much of the political discussion around hospitals centres on funding. Will everything be fixed if we moved to a 50/50 state-federal funding split?

BW: It would be silly if the Commonwealth committed to fund 50/50, because it's an open-ended commitment. 50 per cent of what, for a start? But if the Commonwealth upped its funding to 50 per cent of what the current costs are, for example, the states would withdraw their extra funding. The hospitals might or might not benefit from that. If you want to put more money into hospitals, that's not the best way. I'm not sure that anyone knows how much more is required. All the estimates are based around the proportion that the Commonwealth is not paying, but we know the states are stepping in to fill that void. It seems quite circular to me.

ANU Reporter: Which leads to the question of jurisdiction. Would we have a more efficient system if the hospitals were completely under federal control?

BW: Why would the Federal Government be any better at running hospitals than the states? That's the first question. There might be funding problems that might be easier to solve, but would the Federal Government give more money to the hospitals? Why would it? How would it know how much extra to give?

KD: Would it be adaptable to local areas, or would it be a one-size-fits-all approach?

BW: Yes. How would you know what is appropriate for the Pilbara from Canberra? These are difficult questions. What you'd probably do is set up regional administrative entities. There is an attraction in regional administration of health, but if all they're doing is running the hospital part, without incorporating the primary health care, you're probably not better off.

KD: I agree – having the capacity for regional administration to allow adaptation to local needs is probably very important. That way you can probably better integrate local primary care and hospital services with local needs. Certainly the UK experience has been to move away from a national approach to regional Primary Care Trusts which provide primary and community care services as well as commissioning the majority of hospital care. It certainly isn't a perfect system but does allow local adaptation. In Australia we need a system that will allow the Pilbara region to prioritise health needs and health service expenditure differently to that in the Sydney suburbs – one size fits all doesn't work.



Associate Professor Kirsty Douglas

"If you just increase the numbers of university places here, do we have enough trained people to actually give them the high-quality education we want? And when we're training them, how do we direct graduates into the areas we need them in?"

BW: Looking at the current situation, why would you inject a lot more money into a system that is broken? Let's come back to the model of integrated Aboriginal medical services. They certainly have problems, because of where they are largely, but where they work they work very well. They have a comprehensive approach to care, and they fit the needs of their community. There's nowhere else you get that in Australia. It comes down to different pipelines to different sources, and people muddle through on the ground.

KD: The demand for services is just going to keep growing. Our technology is going to keep getting better, and that's much more costly, and we've got this tsunami of chronic disease that's currently hitting us. The problem is going to get bigger and pouring money into the hospital system without standing back and looking at the health system as a whole is not the way to go.

WHEN LAW MEETS SCIENCE

What kind of science is being used by our political leaders and law makers when they assess things like environmental impact?

How could the seemingly disparate worlds of science and the law be better integrated?

Judith Jones, a senior lecturer in law from the ANU College of Law surveys the scene.



What happens when law and science meet in the context of public administration?

When our legal and policy decision-makers use science to assist with making a choice, they are informed by what might be called the 'best available science' or 'regulatory science'. But this is often not science as the scientific community would recognize it. The time frames for making decisions are legally constrained, so the information gathering process is not equivalent to the idealized process of scientific inquiry, which, in theory, is never finished. Once a legally binding decision is made, it is rarely open to revision or reinterpretation in light of new evidence, as scientific inquiry dictates. While there may be some avenues of appeal against some types of judicial decisions should new evidence come to light, the decisions of public administrators relating to environmental assessments are much harder to reverse. Once a development is approved and constructed, a license issued, a forest logged and biodiversity diminished, it is usually impossible to put things back the way they were.

The problem of grappling with science in regulatory, political and administrative contexts is not new. Typically, regulatory science is regarded as inadequate. For example, in September 2007 an expert panel chaired by Dr Jim Peacock, Chief Scientist to the Australian Government, assessed the documentation and public comment relating to the Gunns Limited proposal for a new pulp mill in Tasmania. The panel found that the mill "poses some residual risks and uncertainties" and that aspects of the assessments "were inadequate". This scientific assessment of regulatory science is typical and could be applied to almost any environmental or health risk assessment report in Australian regulatory affairs. Australian regulatory science is generally proponent-produced under short time frames, determined by commercially oriented budgets, with minimal scrutiny from scientific peers. This results in all kinds of inadequacies and uncertainties when judged against standards of science.

Juggling factors

Science may not be the only factor in an environmental approval. Neither the scientists who produce the information, nor the decision-makers who receive it, are immune from economic, social and political considerations. An important feature of Australian legislation governing environmental impact assessment is that it expressly authorizes decision-makers to take economic and social considerations into account when approving projects. Although environmental impact assessment is frequently perceived to be about evidence-based public administration, the reality is that a decision can legally be based on just about anything other than environmental considerations.

But while there may be public and policy debate on appropriate levels of environmental protection, there is more general agreement on the importance of transparency in public administration. In Australia, public administrators are not generally obliged by law to provide reasons for their environmental approvals. Although occasionally governments might volunteer reasons for approving a project, generally the public is kept in the dark as to the exact basis for an approval.

What kind of scientific information on predicted harm was accepted or rejected by the decision-maker? What level of uncertainty or risk of environmental and other harm is the government accepting when approving a project? These are important questions for opponents to a development and for an understanding of a government's environmental policy. Yet because there is no legal obligation to provide reasons, they usually have no clear answer. Further, there are limited avenues through the courts for appeal or review of the scientific or factual basis of the decisions – and there are many administrators, judges and legal academics who argue that judicial deference to fact finding and policy-driven decision-making by public administrators is entirely appropriate.

What is the role of science?

Whether regulatory science is indeed adequate for its purpose depends on what one sees as its regulatory role. A negative view of our environmental approvals legislation suggests that the law simply requires that the environment minister be fully informed about the harmful environmental consequences of a project before it is approved. A more positive approach recognizes that the scientific information within the environmental impact assessment process can be used to modify and develop proposals to the point where the environmental risks are adequately monitored and managed.

Regardless, if one assumes that governments do need to be adequately informed about the environmental consequences of risky proposals, and that they are looking to scientists for information to assist with assessing and minimizing those consequences, what then ought environmental regimes say about the quality of science that is to be relied upon? How can regulatory regimes be designed to enhance the quality of scientific information that public administrators receive?

Regulatory tools for scientific uncertainty

A number of regulatory tools and techniques adopted by parliaments for handling science and risks in regulatory contexts have been identified. The starting point is usually an express acknowledgement of the potential for scientific uncertainty. Here, more recently, 'precautionary' approaches have had limited success when combined with legislative attempts to shift the burden of scientific proof onto applicants – a legal concept more familiar in the criminal law than in public administration. Going against the trend and somewhat in denial about definitional difficulties and other practicalities, regulators in the US have also sought to mandate a 'sound science' approach within some regimes. Parliaments in Australia have also sought to avoid complexities with risk estimation by simply regulating 'worst things first', relying on a consensus approach or an estimation of risk. Finally, although underused, some types of developments lend themselves to an adaptive management approach, where activities can be progressively approved and subject to mandatory monitoring and reporting prior to expansion.

Interestingly, none of these diverse approaches dominate regulatory design, each having been used separately or in combination with each other, with varying degrees of appropriateness and success depending on the circumstances. When it comes to regulatory design, there has never been any conscious articulation of the role of science in public administration and environmental decision-making. Rather, the regulatory approaches that currently exist for informing decisions and addressing scientific uncertainty are the result of ad hoc legislative design. Nonetheless, we have sufficient regulatory mechanisms upon which to build to be able to respond not only to science but also to regulatory science.

Can science and law meet?

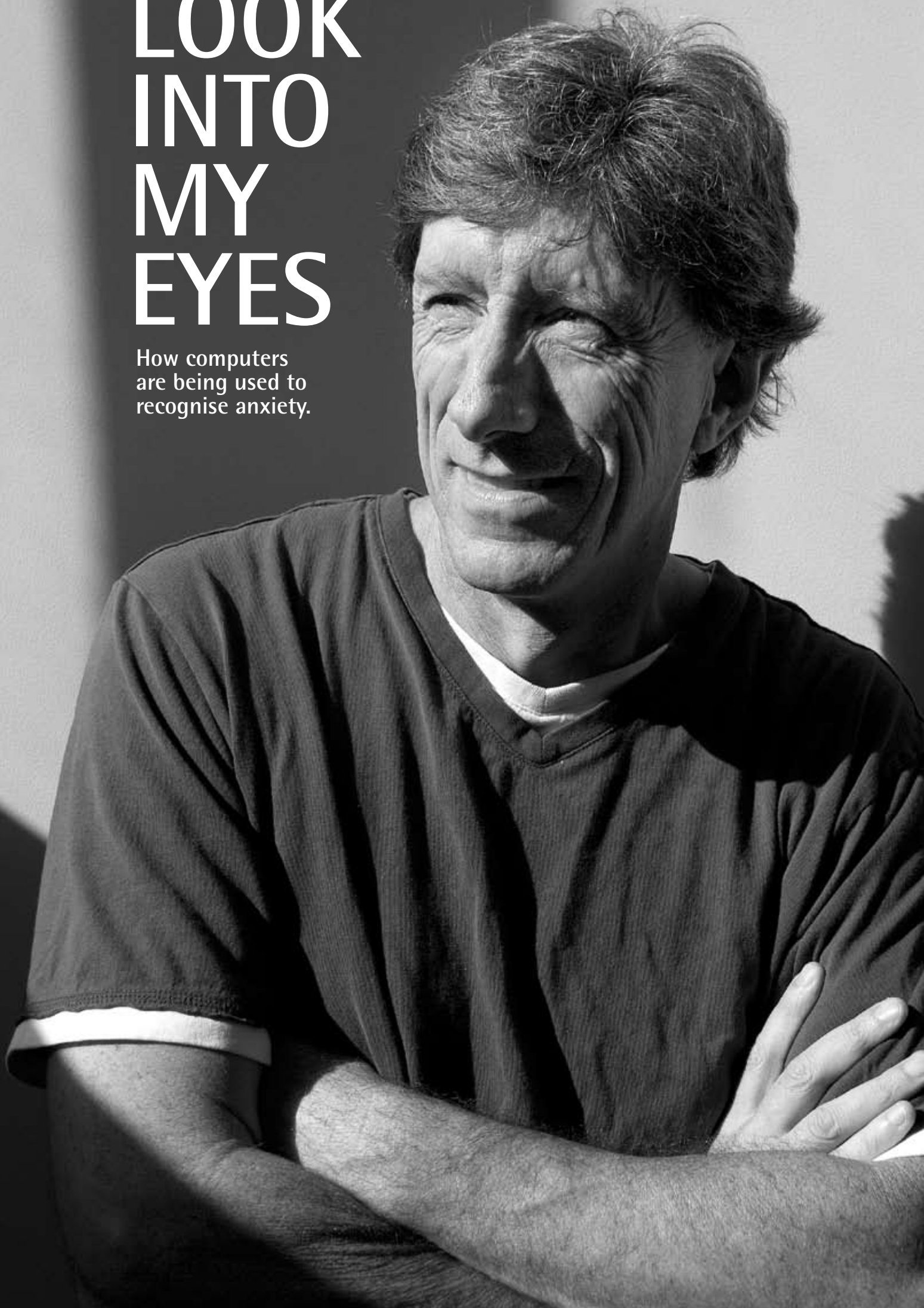
In the media, the scientific literature and IPCC reports, there are scientists who point to global and local environmental consequences associated with global warming that must be avoided. Whether this is called 'science' or 'regulatory science' is really of no importance. What must be recognized is that public administrators can only make decisions consistent with laws passed by parliament, and at present there is an enormous gulf between what this science is saying about the need for environmental protection and what the law requires public administrators to decide. If law and science are going to meet in the context of public administration, then one of them has to change. Somehow I don't think it is going to be the science.



Judith Jones

LOOK INTO MY EYES

How computers
are being used to
recognise anxiety.





Gordon McIntyre dreams of a time when computers can respond to the emotions of users.

It's a familiar scenario for many computer gamers: You're playing your favourite shoot-em-up game, working your way through a level you've already played and it all seems so ... familiar. Adversaries appear from the same old places. You have to negotiate your way around the thoroughly recognisable obstacles. In short, it's all a bit boring.

But in the not-too-distant future, according to one ANU researcher, computer games could come equipped with programs that sense the mood of the gamer. So if the game is becoming boring, it could ramp up the excitement, or if the pace of the action is bringing the gamer to the brink of seizure, it could slow it down to something more manageable.

That's one of the applications that Gordon McIntyre, a PhD student from the Research School of Information Services and Engineering, sees for this work into technology that can detect a person's emotional state by analysing their speech and facial expressions.

McIntyre has 20 years experience of working with computers and now uses all that knowledge in the area of 'affective computing'. This term was made famous by Rosalind Picard at Massachusetts Institute of Technology, meaning "computing that relates to, arises from, or deliberately influences emotion or other affective phenomena."

But where previous attempts to undertake similar tasks have involved people being wired to the computer, McIntyre's work will see their moods monitored without that level of attachment.

He says there are two major inputs: people's speech and their faces.

"From the speech signals we look at the rhythm and the pitch," he says.

"It's trying to measure the energy levels and comparing that to what could be seen as a typical energy level with the rhythm and pitch that someone would emit in a certain emotion.

"With facial expressions we're taking an average face and looking at how various expressions might deviate from that and then trying to sense what the person's emotional state is."


With the range of emotions that a person can feel and the huge deviations in how that can be represented in a person's speech or facial expressions, McIntyre has sharpened his focus to look for just one state – anxiety.

This one simple-sounding emotional state actually comprises many different things, as he explains.

"Anxiety disorder is an umbrella term that covers quite a few different conditions. There are the social and phobia type anxieties, general anxiety disorder – where people are anxious about something for more than six months – then there are anxieties like Obsessive Compulsive Disorder and panic attacks. There are a lot of terms included under the term 'anxiety'.

"Anxiety is basically like fear, but different because the threat is less tangible. With fear the threat is usually imminent, whereas anxiety tends to be less tangible and your response or reaction to the threat is usually out of proportion to the threat itself."

But the complexity of undertaking the project isn't just confined to many faces of anxiety. McIntyre's use of motion video to capture a person's emotional state has made the task a great deal trickier than previous attempts, which looked at static images.



"If, in the future, a computer can recognise your emotional state, it leaves the possibility open that the technology could be used in a variety of ways – including areas that could be considered obtrusive or even infringing on someone's civil rights."

"Motion video is a much harder task," he says.

"There's really a few different stages: one is the facial expressions of still images, then moving beyond that to try and look at a moving face – which is more difficult given the short durations and bursts a person might give in their emotional appearance. Finally there is the talking face, which is the ultimate. I'm trying to do it in steps."

McIntyre has had to be resourceful in finding the work of others and building it into his own model. This has included picking up work from other researchers at ANU who looked at how to map points with topical features on the face, software others have developed around facial expressions, getting help with some complicated mathematics and reading. Lots and lots of reading.

"When I did my degree 20 years ago I did it by correspondence," McIntyre says.

"If I wanted a book I'd have to get a microfiche, look up the book, send away a request and they'd send it on to me. These days it's the exact opposite – I get on the Internet and there's so much information available and so much software. It's a huge challenge to understand it all. You can start reading all the references to something and several hours later you've realised it's not really what you wanted in the first place."

But researching dead-ends hasn't been the only thing that might bring a furrowed brow. With the huge demands on computers needed to pull off something like facial expression recognition, McIntyre's research is something that can only be achieved by modern, super-fast PCs.

"Computer performance is ever-increasing, but it has only been in the last few years that the performance

of the everyday workstation computer has become adequate to run some of this software.

"Then there is the challenge getting the different pieces of software to integrate – that's been one of the bigger challenges. There is a large amount of software available from different universities with different levels of documentation, plus commercial software," he said.

According to McIntyre, however, the challenges are worth it for the potential outcomes. One of the ways he sees his software being applied is helping with the care of patients with dementia.

"One way it could work is sensing the emotional state of people with dementia when they can't tell you themselves.

"It could look at the effectiveness of medicine in those cases by giving you an idea of their emotional state before and after – so you use a computer to measure a person's emotional state and then check it again after medication."

McIntyre says his work is just a small example of how computers will play a more significant role in peoples' lives in the future.

"Computers of the future will be much more pervasive," he says.

"Bill Gates talks of robots for things like minding the kids and taking the washing out and so on. I think beyond the gimmickry there's certainly an opportunity.

"I went to a conference last year where one of the world's foremost computer visionaries talked about some of the projects he's looking at. Where he sees the

use of computers is not to substitute human contact, it's to fill the gap between what a person wants to do and what they're capability is. You don't want computers to take over what you do, you want them to assist you."

But if, in the future, a computer can recognise your emotional state, it leaves the possibility open that the technology could be used in a variety of ways – including areas that could be considered obtrusive or even infringing on someone's civil rights.

It's a possibility that McIntyre acknowledges, but thinks that is less likely to happen.

"Fortunately in Australia people are quite cognisant about the need for privacy and one would hope that those privacy principles would be extended and equally applicable to this.

"But it's not just about privacy; it's also that you don't want to take over human interaction from people. People can relate to computers, but they're still no substitute for human interaction.

"You do hear about applications that people use for marketing. One of the cornier examples is billboards that are used to advertise perfume which judge viewer's facial expression to determine if they like what they're seeing, but that isn't the focus of my project."

Those concerns are still some time away, so for now it's on with developing the complicated software necessary to recognise anxiety – and dealing with how people react when McIntyre tells them what he's researching.

"Usually people start talking about their phobias – such as their fear of snakes, spider or aeroplanes," he laughs.

THE **double** LIFE OF DAN THE **people** FILE OF DAN

An ANU student and Rhodes scholarship winner shows that it is possible to mix academic and sporting lives.



Dan Guinness, centre, trains with the Brumbies.

What is a good measure of success? Is it setting goals and reaching them? Milestones along the road to one ultimate aim? Perhaps it's just about deciding what you want to do and achieving the best that you can.

By any of those measures, even at the age of just 23, Dan Guinness has already achieved the extraordinary.

Guinness, at ANU completing Honours in Anthropology, has another talent beyond his studies – he forms part of the Brumbies Academy and even spent a year in Italy playing professional rugby.

But his achievements don't stop there. In December last year this future sporting star added a great victory to the scoreboard by securing one of the much-coveted Australia at Large Rhodes Scholarships.

It was, he says, an unnerving moment.

"After the last interview all 15 candidates were brought before the panel. That was a daunting moment, we were all stood there in front of the committee and they announced who the three recipients were," he says.

"The people that weren't successful were stood right beside you – I found it a really socially awkward situation."

Competition for the scholarships is fierce and winning one of the prize spots offers the opportunity to follow in some famous footsteps. Among the famous Rhodes Scholars around the world are Kim Beazley, Naomi Wolf, Geoffrey Robertson and Bill Clinton.

The scholarships are handed out on an annual basis to students who not only demonstrate exceptional

academic prowess, but also live up to scholarship founder Cecil Rhodes' daunting ideals, including truthfulness, protection for the weak, devotion to duty and – especially true in Guinness' case – physical vigour.

Securing the scholarship means Guinness will set off later this year to study at Oxford University where he has applied to do a Masters of Migration Studies.

Guinness says that after finding out he had won the scholarship he was initially nervous.

"I felt the weight of expectations weighing down upon me even before I'd accepted the scholarship," he says.

"It took a week or two to really sink in and get to a point where I saw it as a great opportunity rather than something that carries with it these huge expectations."

You would think, however, that if anyone can carry the weight of expectation on their shoulders it would be Guinness. In addition to his role in the Brumbies Academy and his year in Italy, he has also represented his country at both Universities and Under 21 level with his chosen sport.

The Italian experience, he says, gave him some great life lessons that he hopes to take to Oxford.

"I gained a lot of experience of playing professional rugby in Italy, but it's a much harder environment.

"Firstly Italy isn't as developed in terms of coaching and secondly living away from your own culture – at least for the initial period – is a struggle. Eventually I became quite proficient in Italian, but for the first few months it was very difficult.

"I think Oxford will be similar. But I'm sure there will be a small network of people that I can instantly tap into. In Italy that was some of my teammates, at Oxford it could be the people I'm living around in the college or people I'm in class with."

For most people, excelling in one field would be testing enough, so how does Guinness manage his time and maintain the motivation to stay on top? He says getting there has meant sacrifices along the way.

"When I came back from Italy my training was heavy during the day, so when I went to study I was often physically tired. There were two months at the end of the year when I was playing or training from 9am to 2pm, then studying from 3pm until two in the morning, then getting it up and doing it all again. By the end I was just wrecked – I was almost physically ill.

"But I've always thought there's no point doing things if you don't want to do them well. When something matters enough to put the time and effort in – and both university and rugby for me required huge sacrifices in terms of time – there's no point doing that if you're not holding yourself to high standards," he says.

And while his two worlds may seem poles apart, the second-rower thinks that diversity is one of the keys to happiness in life.

"It's so important to value a diversity of interests, whether that's sport, academia, music, running your own business or making art. As human beings you lead a better life if you're engaged in multiple areas and the fact that the Rhodes Scholarship rewarded that really appealed to me."

日本語

SILVER TONGUES, SECOND LANGUAGE



ANU law students prove they can hold their own in an international competition, even when the odds are against them.

Above, Team Australia celebrate their win.

Speaking in public regularly tops the list of things people would rather die than have to do. Death seems to be an overly dramatic alternative, but is an indication of the common terror that results from having to stand in front of a group of people and hold their attention while saying something cogent.

But what if the stakes were higher? What if you had to address a group of people in a language that was not your native tongue? Not only that, but you had to recall and convey a veritable *War and Peace* of legal facts, think on your feet in a tough competitive setting, and manage all of this while trying to beat opponents for whom the language of choice is native? How would you cope?

For one group of ANU students, the answer is: very well thanks. Five undergraduates went to Tokyo in December to compete in the sixth annual Intercollegiate Negotiation and Arbitration Competition. They were representing the nation as part of the Australian Network for Japanese Law (ANJeL) team. This includes students from the universities of Sydney and New South Wales, who competed in the English-speaking side of the competition. The ANU students made up the Japanese-speaking half of Team Australia.

Together, they faced a formidable legacy. A different Australian team in 2006, which included four ANU students in the Japanese-language component, had surprised everyone by defeating the Japanese-dominated competition, bringing the trophy back to Australia for the first time. In 2007, the new members of Team Australia didn't think they could replicate their predecessor's success. At best, they hoped to return from Tokyo without having disgraced themselves. Avoiding embarrassment would be success enough.

In the weeks leading up to the event, the Australian students had no idea that they would repeat the feat of 12 months earlier, once again blitzing the field in a contest that, by all expectations, should not be won by non-native Japanese speakers. Yes, the 2007 Team Australia did very well indeed. Yet if you'd asked them how they would perform in the weeks prior to departure for Japan, the reply would have been much less optimistic.

The ringleader of the competitors from ANU was team captain Adrian Wong, an Arts/Law student who had already had a taste of the competition in 2006 while on exchange at Gakushuin University in Tokyo. He competed as part of that institution's inaugural team, and witnessed the inaugural success of Team Australia.

When he returned to Canberra the following year, Adrian was intent on leading another Australian team to compete. He initiated a course in the second semester of last year that introduced interested

students to the principles of international arbitration and negotiation. Each participant was responsible for collecting materials in Japanese for study. The group would stage practice negotiations a few times each fortnight. Of those that took part in this boot camp, only a few could be selected to go to Tokyo. Twenty-three students put their names into contention, but only five would make up the Japanese-speaking half of Team Australia.

Apart from Adrian, the final line-up included Claire Hazlett, James McCombe and Kareem Moustafa. Like the team captain, were all Arts/Law students specialising in Japanese studies. The team was rounded out by Hyun-Jung Elli Kim, an Asian Studies/Arts student who was also studying Japanese and wanted to develop her skills in negotiation, reasoning that the legal competition was as good a place to start as any.

Adrian says the team was initially daunted at the prospect of following in the footsteps of the successful Australian team from the previous year. "But at the same time, having an initial mindset that we had no chance of winning was surprisingly liberating, as it allowed us to concentrate on learning through the process and doing our best, as opposed to being overly concerned with the final result or being burdened with the expectation of having to deliver a repeat victory."

Sponsored by Sumitomo Group, White and Case law firm and the Arbitration Society of Japan, the International Negotiation and Arbitration Competition was initially designed to foster greater understanding about arbitration among Japanese university students. From a modest start involving six universities, the contest now involves 16 university teams, including the combined might of Team Australia. Each university submits at least two teams: one that competes in Japanese, the other in English.

Each team is given one half of a hypothetical international trade dilemma, which it must try and resolve in two rounds. The first part is an arbitration round, in which the judges act as arbitrators, pressuring the two teams to arrive at a resolution without the need of going to trial. In the second part of the competition, the same two teams attempt to negotiate with one another unaided to arrive at a mutually agreeable result.

In 2007, the hypothetical problem pitted two imaginary countries against one another in a case of trading gone terribly wrong. One of the countries inadvertently sold genetically modified beef to the other, breaching its strict quarantine laws. Working out where to stick the blame for this mess was only the start of the problem. The failure of the system was to be resolved when a third imaginary country agreed to buy the beef in question. Agreed, that is, until a freak lightning storm

barbecued the warehouse in which the meat was being stored. For the students, this trade tragedy involved more complications and legal aspects, meaning that arriving at arbitrated and negotiated outcomes would prove very difficult.

To make things even more complicated for Team Australia, its Japanese and English speaking halves had no face-to-face contact before arriving in Tokyo a week out from the competition. For a few days the two halves got to know one another while sounding out one another's take on the general facts. Although neither side would be in contact during the competition itself – being separated into the two language streams – being able to workshop the same problem allowed them to better prepare for the first day of competition.

Just adjusting to the pace of life in Tokyo was enough of a challenge. "You're in Japan, and that always takes a couple of days to get over," Claire explains. "You have to get used to the canned coffee, the crazy subways lines, having rice balls for breakfast. Then there was the realisation that we were actually there, doing the competition, and we've only got six, five, four, three, two days until it starts."

"The atmosphere preparing with the other half of Team Australia was pressurised, but also very positive," she says. "Meeting them and being able to throw ideas around with other people who were familiar with the facts really strengthened our ideas."

Adrian says the team went through a whole gamut of emotions, ranging from "anticipation and excitement tempered by stress, restlessness, nervousness, and the occasional bout of dread and frustration".

Day one of the competition soon dawned. Competing against a team from Waseda University, the ANU students needed to convince the arbitrators/ adjudicators that they were polished operatives in a Japanese legal context. All nerves soon flew out the window as the team buckled down to the challenge of staging a legal contest in Japanese. Claire says that any arbitration requires 150 per cent concentration. Adrian says they picked up momentum as the arbitration progressed. Before anyone knew it, the session was over. The team thought they had performed well after a shaky start. They returned to their hotel to recover and prepare for the negotiation session on the following day.

"The arbitration round was mentally exhausting," Adrian says. "Combined with a week of irregular sleeping patterns and working from morning until late into the night we were all fairly tired." Despite their exhaustion, the students divided their preliminary work on the negotiation round into a number of shifts. Some went out to web cafes until late at night for further

research, others woke in the wee small hours to finalise their case.

"We were less well prepared for the negotiation round than the arbitration, and I think this was evident in our performance," Adrian says. "We were up against an impressive team from Doshisha University who had some excellent speakers. On our side, Elli Kim stood out as a star performer in her role of vice-president. At the end of it, I think we were all feeling exhausted, with a huge sense of satisfaction that the journey was over and that we had learnt a lot along the way."

Once the negotiation round was completed, the ANU students were relieved, hoping only to make it into the top five universities at the completion. After lunch and speeches from the officials, the winners were announced in reverse order. When the announcer listed the fifth, fourth and third placed universities, the members of Team Australia were of the opinion that they hadn't made the cut. But then Tokyo University, supposedly the best, were called in second place. Finally, the winner was announced: Team Australia.

"I was just beside myself," Claire says. "It would have been one of those scenes out of a movie. I was screaming, hugging my teammates, just in shock. I couldn't believe we'd done it."

She wasn't alone in her disbelief. Adrian agrees that the victory took some minutes to sink in, not seeming real until the group gathered in the hallways after the ceremony to perform an "Aussie Aussie Aussie, Oi Oi Oi!" celebratory chant.

Now, some months later, Adrian says the stress and hard work were all worthwhile. "We were faced with a steep learning curve, and in the very beginning, what seemed like an impossible task of taking an inexperienced team to compete in Japanese. But we committed ourselves to preparing for the competition throughout the semester, and with the support of Professor Kent Anderson, the Japan Centre, the ANU College of Law, ANJEL, and a lot of teamwork, we managed to bring the trophy back home for a second time."

More: <http://www.law.usyd.edu.au/anjel/>

ANU plans to defend the trophy in December, so any interested students should contact Professor Kent Anderson: kent.anderson@anu.edu.au

Team Australia was sponsored by: ANU, Australia Japan Business Association, Australia Japan Society of NSW, Blake Dawson, Chartered Institute of Arbitrators – Australian Branch, Mr Percy Lam, Nagashima Ohno, and the Universities of Sydney and New South Wales. The team coaches were Kent Anderson, Luke Nottage and Leon Wolff

SIX EASY LESSONS IN: SEA SPONGES

While not the most attractive of ocean creatures, sea sponges have both a history and a future in scientific research. Dr Michael Ellwood from the Research School of Earth Sciences takes us through the basics of these simple animals, assisted by PhD students Jill Sutton and Andrea De Leon.

Are sponges animals or plants?

Despite looking like a plant growing from the ocean floor, sea sponges do not photosynthesise, but rather consume organic matter from the ocean around them, which makes them an animal. Sponges are classified into three species based on their skeleton, whether its made from glass (silicon), calcium carbonate or organic matter. In the Research School of Earth Sciences, research is focused specifically on silicon skeleton sponges that can be found in fresh or saltwater at any depth, anywhere in the world.

How long have these multi-cellular organisms been around?

Sponges evolved somewhere between 540 and 600 million years ago, and that's just the ones we know about. "One of the difficult aspects with dating these organisms is that is you can only date the ones that leave fossil skeletons," Ellwood says. "And plenty of species, particularly the organic ones, don't leave a fossil record so we don't know for sure if they were there." Here in Australia we have existing species dating back more than 35 million years.

Some sponges still retain exactly the same morphology as they did hundreds of thousands of years ago because there haven't been any pressures on them to change, with a simplistic cellular structure and glass skeleton that acts as a deterrent for predators.

Would a sponge survive being put through a blender?

The simplistic structure of sponges means that each cell is autonomous and is able to perform all the cellular functions common to the sponge. "In humans, once you've laid down a liver cell, that's all it knows how to be. But in a sponge, each cell knows how to do everything that a sponge does," Ellwood says.

Thanks to the autonomy of the cells, you can cut a single sponge into three, eight or 20 pieces and have three, eight or 20 smaller sponges in its place. The researchers have even heard of experiments that have seen sponges added to blenders, only to have the cells join together in a new formation to make a new sponge.

A sponge can be as small as a single cell and, theoretically, as large as a building. And while they



A diver gets up close with a yellow tube sponge.

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have what's called indeterminate growth (no set point where they stop growing or die) most sponges don't grow more than half a metre in height, the size where it becomes difficult to get enough food to maintain their size.

How do they eat?

Sponges feed on organic matter that floats through the water around them, remnants of plankton or small algae. Their sides are porous and they draw in water, process the organic matter it contains and push the clean water back out, similar to the filter in a fish tank. Whereas a plant can fix carbon and nutrients, via photosynthetic processes, into individual molecules, sponges must source their food from the material that they filter from water. They (sponges) can be discerning feeds with the ability to discard anything that they can't feed on, rocks and the like.

What can sponges tell us about the climate of the ocean?

Through sponges we can look at the interactions between the ocean, the atmosphere and climate over long periods of time. As the sponge grows over time, the various chemical signatures from the ocean, such as pH levels or oceanic silicon, are recorded in the skeleton. With a focus on ice ages, the researchers can look at those chemical signatures during the glacial and interglacial periods and understand how the ocean changes through these warm and colds periods. And if we understand how ocean cycles work and how they change over those climate periods, we can also look at how they might influence or react to climate now and in the future.

What can we learn from sponges?

Because sponges are generally soft, non-moving, one might expect them to be easy prey for other organisms to feed on. However, based on that knowledge and the fact that sponges are ubiquitous, we can assume that they possess physical or chemical protection from predators. Physically, their skeleton provides a good defence against predators however it does not offer complete protection. Subsequently, sponges have developed chemical defence mechanisms to deter predators.

Like the human liver, sponges have chemical defence mechanisms to convert toxins into less harmful materials but there are vast differences in these defences. It's hoped that further study of their biochemistry will find an interesting biomedical compound that can help cure a human disease. Already, the compound Spongistatin 1 has been found to stunt the growth of cancerous tumours.

MAKING A SPECTACLE OF THE OLYMPICS

Professor Geremie Barme is a leading expert on Chinese culture and history at ANU. In a recent speech he explored how Beijing's history of spectacular events would infuse the impending Olympic Games. This is an edited extract.

We have all been witness to the international media frisson resulting from the relaunching of Beijing. It is now celebrated metropole of the East; its veiled politics and conflicting histories are nothing compared to the hype-driven commercial possibilities of a rising China.

Now Beijing is witness to the stand-alone office monument; edifice as advertisement. The signature structures of recent hyper-development distract from the vast, new gated communities, the battery housing estates and the faceless sprawl of post-rural conurbation.

Forgotten in the recent built ebullience is the history of the spectacles of Beijing, stories in which power and politics lurk behind the built.

In April 2006, it was announced that Zhang Yimou, the internationally popular Chinese film director, will lead the group designing the opening and closing ceremonies of the 2008 Beijing Olympics.

Of course, Zhang has now quite a portfolio of extravagant staged triumphs to his name, both on screen and stage. One that is particularly relevant here is the 1998 Beijing production of Puccini's opera *Turandot* which he designed. It was staged in the once-sacred courtyard of the Ancestral Temple (Taimiao), the symbolic graveyard in the heart of the imperial city.

Zhang Yimou's production of *Turandot* was grandiose, a confection that was totally in keeping with the brash and mass style of contemporary Chinese culture. Over the years other artists have also designed *Turandot*, including Adolf Hitler.

During his early years as a struggling artist, Hitler had an oriental vision of his own. It was a stage design for *Turandot*. Although the opera was never stage according to Hitler's design, the Führer did collaborate on a far more exaggerated show on the German national stage: the 1936 Berlin Olympics. That set was designed by Hitler's architect of choice, Albert Speer.

Hitler and Speer would go on from the Berlin spectacle to formulate ever-grander plans for Berlin. Together they created a monumental design for a refashioned city to be called Germania, the new capital of a victorious German Reich. While the Second World War left Berlin a ruin and the plans for Germania unrealized, Albert Speer's son, Speer Jnr, would over half a century later propose a similar grand scheme to China's urban planners. Journalists would mock it as Speer's plan for a 'Super Beijing'. And, today, in the revived central axis of the Chinese capital, which stretches from a rebuilt Yongdingmen in the south, to the dragon lake of the Olympic park



far to the north, perhaps we can detect vestiges of the Speer-family vision.

As for the grand designer Zhang Yimou, his film, *The Curse of the Golden Flower*, was also something of a lame duck. However, in China it was derided not for its eggs, but for showing too many 'steamed breads' or mantou on screen.

In the enterprise of designing the opening and closing ceremonies of the 2008 Beijing Olympics, Zhang Yimou has been joined by a consortium of non-Chinese 'imagineers'. All of them have created successful public entertainments in recent years, but there is little doubt that Hollywood is Beijing's greatest inspiration. Indeed, China and its Communist Party rulers have been enmeshed with Hollywood and its culture of spectacle for decades.

Anyone who has seen the 1964 Maoist song and dance extravaganza *The East is Red*, for example, will be aware that communist choreographers had carefully studied the best the West could offer.

And let's not forget that nearly 50 years ago, Tiananmen Square was purpose built for grandiose (and, given the ugly politics of the day, chilling) displays of upwards of a million participants. A

recent example of such self-congratulatory socialist pageantry was the big parade of 1 October 1999 that marked the fiftieth anniversary of the People's Republic. Every province and interest group had a float and a group of marchers in the show.

The 2008 Olympics will provide a unique opportunity for China to show the world a vision of itself, and what it has to offer as a nascent global power.

There is no doubt that the 'imagineers', both Chinese and foreign, will wend a sprightly way through a lot of history and culture that is, well, pretty much unpalatable. Okay, so those once-hallowed ancient customs of concubinage, foot binding for young girls, or the castration of boys being sent into imperial service, lack a modern feel-good factor, but inevitably there will be a phalanx or two of entombed warriors from the Qin dynasty.

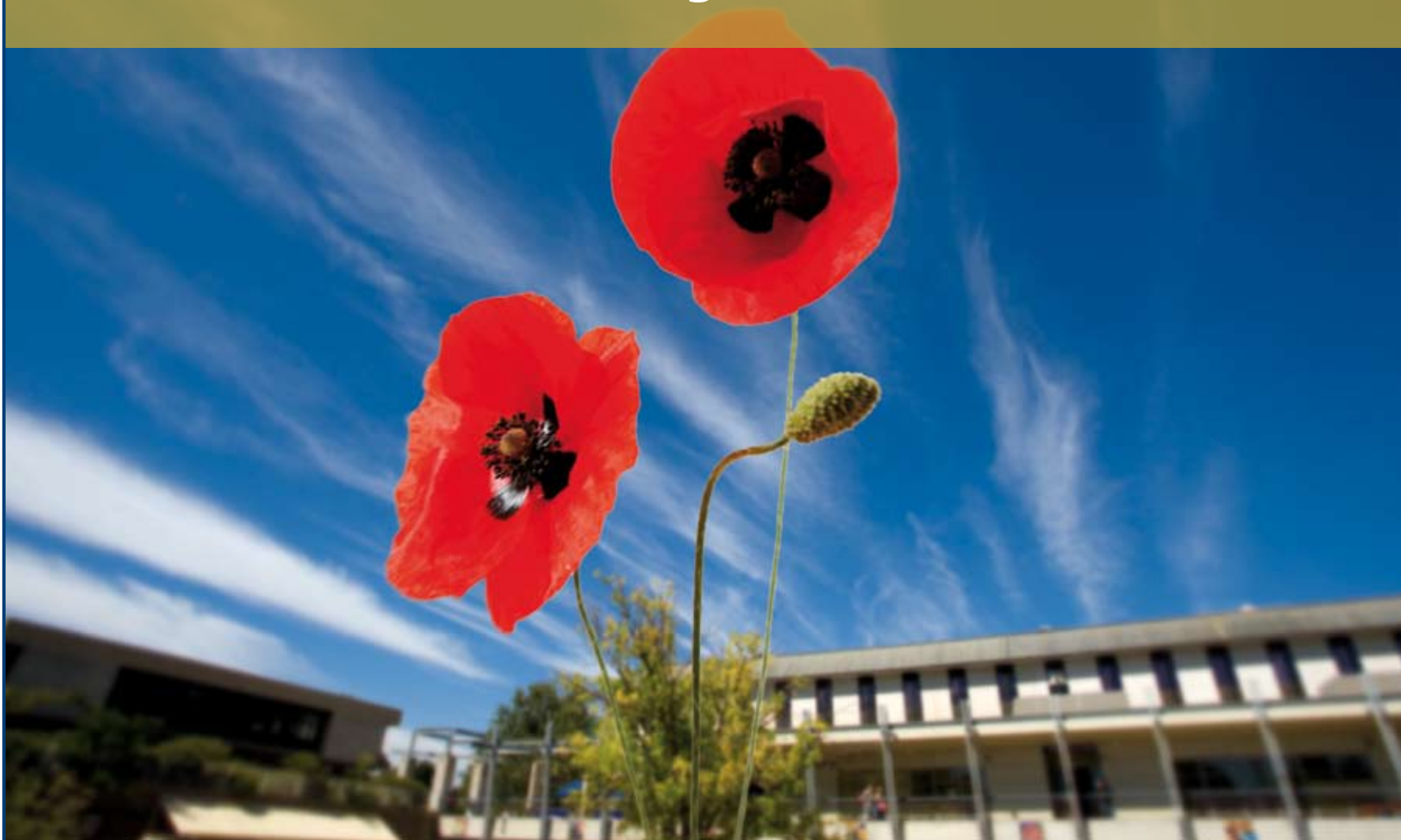
Zhang Yimou has already declared that he is determined to showcase *recherché* elements of regional culture in his show. So, inevitably, once subjugated peoples—those that some Han Chinese derisively call the 'singing and dancing minorities'—that is Mongols, Tibetans, Uyghurs, Dai, Zhuang, to name but a few, will be prevailed upon to add exotic colour, and a sense of rhythm, to the proceedings.



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