“I’ve always wanted to study arts/law at ANU. This place has a great reputation for influencing the nation’s future and I am surrounded by good friends studying diverse degrees. I want to make a real difference and I know that ANU graduates do.”

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In this edition, we feature three stories of lives devoted to public policy and research, from three leading lights at ANU working in very different areas.

Professor Stephen Dovers is one of the University’s newly appointed Public Policy Fellows, and he tells us of his big plans to launch ‘The Canberra Experiment’. He wants to turn the ACT into a science testing-ground for the nation. Because of the wealth of scientific knowledge on hand, with four universities and the CSIRO in the area, Stephen argues Canberra is the ideal place to learn how to run a sustainable and pleasant city. Along the way he hopes to convince people that public policy is not boring.

Dr Ken Henry, former Treasury chief, now Executive Chair of the ANU Institute of Public Policy at the Crawford School, also makes it clear public policy is anything but dull. He reminds us about the critical nature of good information and good public debate as the foundation of the best public policy. He says the community must have a clear idea of the big issues facing the nation, and at the moment they are far from having that. He argues that academics are critical players in this and must come down from ivory towers, bringing the best research into people’s lounge rooms.

New Deputy Vice-Chancellor (Research) Professor Margaret Harding has spent her career using chemistry to try and solve biological problems. Her current work focuses on the problem of re-freezing. From the icy crust that forms in the tub of half-eaten ice cream, to donated organs corrupted by these same ice-crystals, there are a broad range of important applications for this work.

Margaret says it is much harder for young researchers now than it was for her starting out, and top of her agenda is finding new ways to support our young stars.

Many other stories in this edition will give you a taste of the breadth and diversity of work that our staff and students devote their lives to in the pursuit of their dreams and the nation’s prosperity.

Professor Ian Young
Vice-Chancellor and President
Supercomputer to boost research

Professor Lawrence Cram has come to the end of his eight-year term as Deputy Vice-Chancellor (Research), stepping into a new role as Master of University and Graduate Houses. Vice-Chancellor Professor Ian Young has appointed Professor Cram as his outstanding service to ANU. Cram has been a national and international leader, both in his academic field of astronomy and in his executive role as Deputy Vice-Chancellor. In both areas he has excelled.

"He has been a strong leader in times of difficulty, particularly during the devastating 2007 Super-cell storm that caused significant damage to University buildings. As Acting Vice-Chancellor he ensured the University was quickly able to resume normal operations. I wish him all the best for the future." — Professor Ian Young, Acting Chancellor (Research), stepping into a new role as Master of University and Graduate Houses.

More than 5,000 people headed to Mount Stromlo Observatory to view the Transit of Venus on 6 June. The rare astronomical event, where the planet Venus passes between the Earth and the Sun, will not occur again until 2117. To celebrate the Transit, Mount Stromlo staff organised a day of seminars, demonstrations and shows by Questacon group The Excited Particles. Academics from the Research School of Astronomy and Astrophysics were on hand to answer questions and help visitors view Venus through telescopes and the newly repaired Heliostat, which was damaged in the 2003 bushfires.

"On behalf of the School, I would like to thank all those who volunteered their time and energy to make this a great day. A notable mention goes to Gary Hovey who, without a minute to spare, was able to get the Heliostat up and running again for the first time since the bushfires. It was a wonderful addition to the day, giving everyone the best view of the Transit. It was also a great day for promoting astronomy within the local community as well as science to the wider public."

Byrne to head ARC

Professor Adian Byrne, former Dean of Science and Director of the ANU College of Physical and Mathematical Sciences, has been appointed Chief Executive Officer of the Australian Research Council. Vice-Chancellor Professor Ian Young congratulated Professor Byrne on his new position, which commenced in July, and thanked him for his dedicated work during his time at ANU.

"Adrian has been part of the fabric of physics at ANU for more than two decades. He has been a leader who has displayed great passion for teaching as well as research and he will be greatly missed."

Farewell to Professor Lawrence Cram

"This state-of-the-art facility will support Australia through an internationally competitive capability that raises the nation’s position in high-impact research and innovation. "Research in climate modelling, advanced materials, astronomy and medicine is critically dependent on high performance computational modelling and data analysis. "Researchers in these areas are among the outstanding teams poised to benefit from the new facility as soon as it is available later this year," he said.

Thousands gather to glimpse Venus

The Transit of Venus has played a major historical role in furthering our astronomical knowledge. Captain James Cook sailed to Tahiti in 1769 on the Endeavour to observe and take measurements of the Transit in order to estimate the distance between the Earth and the Sun. The School of History’s Dr Alex Cook recreated the event. You can read more about his journey on page 33.

New Pro Vice-Chancellor

Dr Erik Lithander has joined the University as Pro Vice-Chancellor (International and Outreach). Dr Lithander joins ANU from Ireland, where he was Director of International Affairs at University College Dublin (UCD). Vice-Chancellor Professor Ian Young said Dr Lithander brings significant experience in international education to the University.

"Erik holds a BSc (Econ) from the London School of Economics and an MBA and PhD from the University of Cambridge. During his time at UCD he considerably expanded the University’s international student enrolments, built productive international relationships and repositioned UCD as Ireland’s most internationally engaged university," he said.
A major new project will trace the history of Aboriginal and Torres Strait Islander people in the defence of Australia.

The Australian Research Council has awarded more than $1 million to a major ANU project, serving our country: a history of Aboriginal and Torres Strait Islander people in the defence of Australia.

The project will be led by Professor Mick Dodson from the National Centre for Indigenous Studies at ANU and Professor Ann McGrath from the Australian Centre for Indigenous History in the ANU College of Arts and Social Sciences. Over the course of five years, it will aim to provide authoritative accounts of Aboriginal and Torres Strait Islander contributions to national defence.

Professor McGrath said the research will shed light on a little-known part of Australian history. “This is an untold part of Australian history,” she said. “[Defence service is] a source of deep pride for Aboriginal and Torres Strait Islander people, and they want their family and cross-generational story of achievement and courage to be told in a range of dynamic and accessible ways.

“This project will provide new insights into what it means to ‘serve the country’ and what it means to be Australian. Histories of ‘nation’ and ‘citizenship’ will be critiqued in new ways to provide new tellings of our national story.”

Professor Dodson welcomed the funding, saying the project would highlight the significant contribution made by Aboriginal and Torres Strait Islander people.

“This research is very much overdue, because there is little known by the public generally of the enormous contribution that Aboriginal and Torres Strait Islander people have made to Australian military engagement over three separate centuries,” he said.

“This contribution has largely gone unrecognised and, until now, this is why this grant is so significant.”

The project will be a partnership between ANU and the Department of Defence, Australian Institute of Aboriginal and Torres Strait Islander Studies, National Archives of Australia, Australian War Memorial and the Department of Veterans’ Affairs. The funding, announced in June, was awarded as part of the Australian Research Council’s Linkage Projects funding and was the second biggest grant in the round.

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Land locked

A world-first project led by ANU researchers is looking at whether pristine rainforest can be preserved from oil extraction, writes SARINA TALIP.

T he Yasuní-ITT area of Ecuador is as perfect a piece of the Amazonian rainforest as you could find. Densely green and humid, it teems with life: from parrots to monkeys, from anteaters to orchids. The area is so rich with biodiversity it is a refreshing demonstration of a pristine environment, or ‘black gold’, as the country’s reserves are known. These natural wonders above the oil present in the ground, in exchange for help with its economic development from richer countries.

Dr John Minns is a political economist and Director of the Australian National Centre for Latin American Studies (ANCLAS) at ANU. Minns and his colleagues at ANCLAS have been awarded a $292,000 grant from AusAID to study the feasibility of the groundbreaking idea.

Over three years, the research team will develop a cost-benefit analysis of leaving the oil in the ground versus taking it out, including an assessment of the potential damage to biodiversity and culture in the Amazon. The project will link ANU with Ecuadorian specialists at Ecuador's Instituto de Altos Estudios Nacionales (National Institute of Higher Studies).

Minns says the global nature of the project is what makes it so special. “It poses something of a new idea in international relations, which is that the responsibility to protect areas of particular environmental sensitivity should not be borne just by those countries within which those areas lie,” says Minns.

“Not every country has the same capacity to deal with environmental problems and cope with environmental protection – and so many important areas for biodiversity and carbon emissions abatement are in poorer countries.”

Because of its position on the equator, the Yasuní-ITT rainforest enjoyed milder climatic conditions in the last Ice Age, and species that may not have survived elsewhere thrived. Just a single hectare of Yasuní-ITT boasts the same number of tree species as the whole of North America.

But with such biodiversity comes vulnerability to industry, like the rejection of oil extraction. “Even if the oil is handled responsibly, there are other problems,” says Minns.

“Oil extraction requires pipelines and roads to be built through the area, roads bring people and towns and settlements, which starts to disturb the balance of the area.”

Minns says that extraction of oil would almost certainly disrupt the indigenous groups that live in the area, in particular two groups who have decided to remain out of contact completely. “These peoples are largely hunter-gatherer societies and live a lifestyle which hasn’t changed much since European settlement, and they want to keep it that way. The Ecuadorian Government recognises these groups have a right to be there, and they’re right in the area where the oil would be extracted.”

Minns says the scheme is popular with the Ecuadorian Government. “The Yasuní-ITT project is what makes it so special. Established in 2003, ANU E Press was the conception of former Deputy Vice-Chancellor (Education) Professor Malcolm Gilles, former ANU University Librarian Colín Steel, former Director of the Research School of Pacific and Asian Studies Professor James Fox and Pro-Vice-Chancellor (Strategic) Professor Robin Stanton. They saw that the University was in need of a new method of distributing ANU scholarship and recommended a press be established since the previous one had ceased in 1984. They suggested that digitising publishing material via an electronic press was the best, and most economical, way forward. Since publishing its first book, Out of the Ashes: Destruction and Reconstruction of East Timor, in 2003, ANU E Press has grown at an extraordinary rate – from close to 400,000 downloads of its titles in 2005 to more than four million downloads in 2011.

Lorena Kanellopoulos, Manager of ANU E Press, says the creators were ahead of their time. “It was imperative for the researchers on campus to have a way of disseminating their intellectual output; given the crisis in scholarly monograph publishing – in particular in the Social Sciences and Humanities – and also to reveal a cost than traditional publishing, so they recommended an e-press,” says Kanellopoulos.

“Traditional publishers will often not take a book on board unless they’re able to sell at least 3,000 copies and some academic areas find it quite difficult to publish as their research has such a niche market.”

E publishing also allows for a much shorter production timeline in comparison to commercial publishers. “Many publishers can take up to three years to publish a book, but e-books take two to three months to turn around a publication,” says Kanellopoulos.

“Having academic work available so quickly promotes researchers whose work is excellent but lacks a significant commercial audience.”

Manuscript submissions to ANU E Press are considered by one of 25 editorial committees, which then refer approved documents for peer review. But even with the sometimes lengthy peer review process, the electronic medium allows for a large number of publications each year.

“The works available through ANU E Press are ‘open access’, meaning unrestricted access to information and ensuring that the reach and readership of material is maximised.”

All the E Press titles are available for free download in a number of different formats including PDF, HTML, ePUB and mobi, but for traditionalists, the E Press also provides an add-on service where you can purchase printed copies of a book on demand. In terms of the future, Kanellopoulos says she expects a lot of publishers will have to adapt to the way information is produced.

“See published manuscripts the same electronic integration that newspapers are currently going through and becoming ‘open access’. Readers will be able to download, view or print our books on demand whenever they want,” she says.

“Technology evolves so quickly and being an e-press we’re able to adapt with technology.”

Before the ink dries

PhD researcher Lorena Kanellopoulos tells KATHARINE PIERCE why getting published is no longer the expensive and lengthy process it used to be.

N ewspapers are undergoing a painful, and very public, reimagination. Around the world, including in Australia, they are struggling to find new business models as readership levels drop and people turn away from printed papers and towards their electronic equivalents. But newspapers are not the only businesses running into turbulence on the flight towards the future, because a similar, but much less public, revolution is happening in academic publishing.

Where once heavy and wasteful printing presses made information dissemination a long and expensive process, these days it’s online publishing that’s spreading the academic word.

Established in 2003, ANU E Press was the conception of former Deputy Vice-Chancellor (Education) Professor Malcolm Gilles, former ANU University Librarian Colín Steel, former Director of the Research School of Pacific and Asian Studies Professor James Fox and Pro-Vice-Chancellor (Strategic) Professor Robin Stanton. They saw that the University was in need of a new method of distributing ANU scholarship and recommended a press be established since the previous one had ceased in 1984. They suggested that digitising publishing material via an electronic press was the best, and most economical, way forward.
Dr Ken Henry is one of the country’s best-known public servants and a renowned economist. In his new role as Executive Chair of the ANU Institute of Public Policy at the Crawford School, he hopes to bring fresh thinking to the nation’s biggest challenges and opportunities, writes JAMES GIGGACHER.

I can’t remember a time in the last 25 years when the quality of public policy debate has been as bad as it is right now. “That’s worse than unfortunate; that’s a tragedy and we need to do something about it,” says Henry. “But, that’s only one side of it.”

“The other side is that the people at the coal face of policy development are working at such a pace that they find it difficult to find the time to sit back and reflect deeply about the policy issues that they are grappling with. They find it difficult even to know who they should be talking to in academics, and indeed elsewhere, about the sorts of challenges that they are confronting.

“So one of the things I do want to do in this role is build a much closer relationship between those senior policy advisers and developers of policy who are working at the coal face day to day, and academia. We need to bring these two sides together and bring them together. I am quite confident we can elevate the quality of public policy debate in Australia.”

Henry definitely knows how to fix things, his role in fighting the GFC in Australia is testament to that. When asked how to beat the monetary malaise, Henry is said to have remarked, “go hard, go early, go households”. Although the fodder of much oppositional politics, the Nobel Prize-winning economist Joseph Stiglitz labelled the resulting household stimulus package as one of the most impressive economic policies he’d ever seen. The smart move allowed Australia to hang on with the goods again.

The question for Australia looking ahead is how we make the most of the opportunities that this new pattern of global commerce opens up for us. But it’s not one-sided: there are wonderful opportunities out there, but there’s also a lot of challenges that Australia has to confront. For example, the impact of the high Australian dollar and what it means for the structure of the Australian economy and what it means for the future careers of our children and our grandchildren.

“Today the products that Australia is producing in volume because of its endowment in natural resources are highly valued and increasingly so, and that, of course, has a lot to do with the economic development of China and India and other countries in the region. Australia therefore finds itself with an abundance of products that the rest of the world values highly. But, Australia also finds itself in the right-geographic location, Australia, not because of anything we’ve done particularly, is much closer to the centre of gravity of world commerce.

“Let’s get to the root of the big issues. ‘so who gets the rest Dad?’, and he started asking me, ‘who gets the rest Dad?’, and he started asking me, ‘who gets the rest Dad?’, and he started asking me, ‘who gets the rest Dad?’, and he started asking me, ‘who gets the rest Dad?’, and he started asking me, ‘who gets the rest Dad?’, and he started asking me, ‘who gets the rest Dad?’, and he started asking me, ‘who gets the rest Dad?’, and he started asking me, ‘who gets the rest Dad?’

The Asian century is definitely a long-term challenge with no quick fix. But that won’t faze Henry. After all, he has been thinking about the challenges facing Australia for a long time. Henry’s passion for public policy was seeded by a tree chopped down by his father during his childhood. He says the story represents the impact of trickle-down economics, where the fruit of people’s labour falls far too far from the tree.

“I distinctly remember one day when I was about 10 years old, my father, who was a timber worker, showed me and my brother a tree he’d chopped down. I asked him how much he’d get for the tree and he said a few dollars, because that’s all he was paid at that time. I then asked him where the rest of the money from the tree went and he said that there were ‘royalties’, but they were only worth a few dollars as well. I then asked him, ‘so who gets the rest Dad?’, and he said that was the question. And it was a question that bugged me for a long, long time. My father was aware that this was a log that had been taken from a tree that belonged to the people of New South Wales – and, if you like, the people of Australia – and not just the present generation but future generations of Australians.

“By their reward, their return from this log, was no more than a few dollars. Of course, a lot of other people made a lot of money out of that log being felled but my father wasn’t one of them. I then remembered that there were some issues that one needed to explore and I guess I’ve been exploring those sorts of issues all my career.”

And while the log may have left his father empty-handed, Henry took something away. His lifelong drive to get to the root of the big issues is testament to the man he is today: someone who is able to see the wood for the trees.


PHOTO BY BELINDA PRATTEN.
The steady creep of closed circuit television into our lives is raising big questions about privacy. TEGAN DOLSTRA reports.

A 14-year-old girl walks through a heavy wrought-iron gate and the microchip implanted in her jacket conducts an electronic conversation with a hidden receiver. She arrives at a door and places her index finger on one of the two sensors above it. She will not be turned away. As she navigates through the corridors, a line of closed circuit television (CCTV) cameras track her progress. They will follow her constantly, even when she enters the bathroom.

The girl is not in a state-of-the-art government building or a high-security laboratory, she is at school. The Big Brother-like scenario might sound like a scene from the future, but it's already happening every day in the UK. After criminals, school children are the most highly monitored group. And Australia is following in the mother country's footsteps.

“The level of surveillance that some pupils are subjected to on a daily basis rivals that of international airports and prisons,” says Dr Emmeline Taylor of the ANU School of Sociology, who is following in the mother country's footsteps. “In the late nineties, the UK was quite aggressively legally required. And parental knowledge and consent were not necessary. There was no public discussion whatsoever – people just weren't made aware that this radical change was taking place. It's scary to think that it almost slipped through the net unnoticed.”

The Manchester-born researcher became interested in CCTV and surveillance when she was an undergraduate student. When she discovered that schools were one of the main consumers of CCTV equipment, she was confused that nobody in the scientific community had asked the obvious questions.

“The political rhetoric at the time was that we needed CCTV coverage to prevent crime. But there was no research being done as to whether it worked and how it was going to be regulated.”

Taylor's PhD looked at how CCTV was being installed in schools and whether it was effective. What she uncovered was the unossified clash of two strongly opposing perspectives.

“The teachers saw the surveillance as largely positive. They were concerned about the growing litigation culture, that they might be sued if they made the wrong decisions or intervened in fights, and so CCTV was almost this guardian of truth in the corner of the classroom that they could use to defend their position.”

On the other hand, the pupils saw CCTV in a very negative light. The whole public discourse around CCTV was that it's used to catch offenders. So the pupils felt criminalised; they wanted to know why the cameras had been turned on them – what they were doing that warranted that continuous monitoring and scrutiny.

One of the main reasons given for the introduction of CCTV to schools was that it could tackle bullying. Ironically, the students felt that rather than enhancing their safety, the omnipresent cameras were actually undermining it.

“They told me that it doesn't prevent bullying, it simply moves it to a different location,” says Taylor.

“Tone no longer will they get their bag stolen in the corridors, where there might be a teacher who could intervene; it's now on the way home or at the bus stop.”

It wasn't just in schools that CCTV was proving to be less than had been promised. In an incredible surge, the UK Government had spent at least £500 million increasing the number of cameras monitoring the public from 100 in 1990 to an estimated 4.2 million in 2009. This figure equated to one camera for every 14 people. And yet, a report released by the UK police stated that for every 1,000 cameras, one criminal is solved each year.

“It's important to remember that the effectiveness of CCTV has never been proven,” says Taylor. “But it's not even questioned anymore.”

Despite the apparent inefficacy of CCTV, a new wave of sophisticated technology has invaded schools around the globe, including in Australia. “During my research, I became aware of other technologies creeping into schools – fingerprinting, iris scanning, microchips,” says Taylor.

“The impetus for the introduction of the fingerprinting and iris scanning technology was largely to automate library books loans. The idea was that a seven-year-old might lose their library card, but they can't lose their fingerprint!”

Taylor describes this argument as “horrors”. “Part of the school curriculum should be around teaching pupils to be responsible for their possessions, rather than having this very expensive, quick-fix, James Bond technology,” she says. “It was surprising to find students' very personal information gathered for something as simple as borrowing library books. However, it was much more worrying to consider the reasons behind the surveillance.

“The more cynical side of me thinks it's about big corporations trying to find a market for the sophisticated technology they've developed,” says Taylor.

“I believe these technologies were targeted at schools – which had quite a lot of autonomy – as a test bed to see how effective they were, with the view to then rolling them out to the rest of society.”

What really concerned Taylor was that the very early fingerprinting systems had been donated to schools by the manufacturers free of charge. “So the schools didn't have to pay for them; and there's this thinking that, ‘well, someone's going to offer us something worth £20,000, of course we'll take it’. But once 10 or 20 schools have it, the other schools think, ‘are we missing out on something here?’ Because they feel the need to demonstrate that they are very supportive of their pupils' advancement, of their safety.”

In the same way that CCTV had, these highly sophisticated, pioneering technologies also flew largely under the radar.

“I would say to parents, 'has your child been fingerprinted at school?' And they'd say, 'of course not, I would know' and I would reply, 'well, there's nothing in the laws to say that they have to inform you about it'. And this look of shock would suddenly come over their faces.’

When Taylor's findings on the prevalence of fingerprinting in schools were picked up by the media, the resulting public outcry culminated in the passing of tighter surveillance regulations in UK Parliament last year.

“The danger is that these technologies take hold very quickly and because legislation is so slow to catch up, this is often in the absence of public debate, or even awareness. There was always the possibility that by the time the law caught up, the public wouldn't challenge it because they were so used to it.”

But suddenly this public awareness really gathered momentum and now a child's fingerprints cannot be taken without parental consent, which is fantastic,” she says.

While the UK laws have finally caught up with technology, Australia is facing the same decisions the UK was confronted with 10 years ago.

Around 50 schools in NSW and half the public high schools in Perth have CCTV systems. Kurrajong High School in Sydney suspended their fingerprinting system in 2008 after reports that students had been intimidated into participating.

Close to home, millions of dollars have been funnelled into CCTV infrastructure in Coot and Manuka, and every ACTION box at least one camera.

So how do our laws stack up?

“From what I can determine, there’s nothing specifically relating to CCTV and certainly nothing relating to CCTV in schools in the Australian legislation at the moment,” says Taylor. “Australia is in quite a lucky position in that their UK counterparts have already gone down the surveillance route. They've wasted an incredible amount of money on something that’s turned out to be pretty ineffective.”

Does Taylor think Australia will learn from the UK's actions?

“I certainly hope Australia doesn’t follow the UK to the same extent. Involving money in CCTV comes at the expense of other solutions, so its appropriateness needs to be considered.”

But with 30 CCTV cameras in the main hubs, Cabrera seems to be heading down that road.
No sooner had the dust from New York’s crumbling Twin Towers settled than it was kicked up again, this time on the other side of the world. The shock of the 9/11 al-Qaeda terrorist attacks, the first assault on US soil since Pearl Harbor, mobilised President George W Bush to take the fight to Afghanistan and the Taliban – who he accused of harbouring al-Qaeda and its leader Osama Bin Laden. A month after the attack, the US military descended on the Central Asian state with backing from the United Kingdom and Australia. And so the ‘War on Terror’ began.

Almost 11 years later, the war has shifted from fighting terror to ousting the Taliban and building a democratic state. Bin Laden is dead and the war has spilled over into neighbouring Pakistan’s tribal belt. US President Barack Obama has announced the withdrawal of the majority of US forces by the end of 2012, with Australia’s Prime Minister Julia Gillard making similar promises; our 1,500 troops will be out by mid-2013. But, as the sounds of violence quieten down and the dust settles once more, crucial questions remain: why were we there and what have we achieved?

For Dr John Blaxland, a Senior Fellow and military historian at the ANU Strategic and Defence Studies Centre with 30 years’ experience with the Australian Army, Australia’s involvement in Afghanistan comes down largely to its military alliance with the US.

“Dr John Blaxland, Captain Paul Lushenko and Professor Daniel Marston. Photos by Darren Boyd.”

“Stuck in the mud

It’s the United States’ longest-running war and has been called Australia’s second Vietnam. Three military experts offer their insights on the war in Afghanistan, why Australia joined in and what the future may hold for the war-torn state. By JAMES GIGGACHER.”

“Australian forces...have played a pivotal role in disrupting the Taliban and denying sanctuary to al-Qaeda and other terrorist groups.”

“Australian forces...have played a pivotal role in disrupting the Taliban and denying sanctuary to al-Qaeda and other terrorist groups.”

For Dr John Blaxland, a Senior Fellow and military historian at the ANU Strategic and Defence Studies Centre with 30 years’ experience with the Australian Army, Australia’s involvement in Afghanistan comes down largely to its military alliance with the US.

“At the time of 9/11, the then Prime Minister John Howard was in Washington. The attacks really affected him. He invoked the ANZUS Treaty for the first time and committed Australian forces to go to war,” he says.

“But Australia was very careful not to overcommit in Afghanistan. Our experiences in the Vietnam War and the reluctance on both sides of politics and in the population to lose Australian lives meant that we wanted to make a contribution without taking too many casualties.”

Paul Lushenko, a captain and intelligence officer in the US Army who has been deployed to Afghanistan twice, agrees that Australia’s presence in Afghanistan highlights the importance of the US alliance.

“In my view – and in no way does it reflect the view of the US Department of the Army or the Department of Defense and Government – the alliance is going to be even more important in the near future,” says Lushenko, who recently graduated with dual masters degrees in diplomacy and international relations from the ANU College of Asia and the Pacific.

“While the US and Australia are playing a role in building regional peace and security, have they done the same in Afghanistan? Military studies and counterinsurgency expert Professor Daniel Marston says that there has been some success for the mission in Afghanistan, but not what the Western allies would consider a win.

“I think that part of the problem regarding this issue of whether the mission can be called a success or not, is that the narrative on the war has shifted over the last 11 years. The initial mission statements have shifted to where we are now,” says Marston, who is based at the ANU Strategic and Defence Studies Centre and is Head of the ANU military studies program.

“The reality on the ground is that there is progress being made, but progress in the eyes of the local community, which would not necessarily be seen as”
success in Canberra or Washington DC or the wider population in these countries. Western minds are a hindrance in this campaign.

“...you do see that in the Pashtun belt where there have been a lot of things that have happened in the last two years that nobody could have forecast; there has been actual progress. But it’s not progress in the sense of a top-down governance from Kabul, that’s not what it looks like, and that’s not Afghan reality or history.”

“So there’s definite stability, and local stability. But this idea that we can tell what the future of Afghanistan will look like or even get there by 2012, is an illusion in saying whether we have been successful or unsuccessful, as the gaol posts have been shifted many times since 2001.”

Lushenko agrees. “We have to be very careful about how we define success. If we mean success to be a capable, legitimate state, then I would have to say that we have not been successful. You can point to several indicators: a lack of transparency in the government, and the fact that we now have tribal leaders who are moving more towards the Afghan Taliban because they provide a sense of public good in terms of security and justice.

“On the other hand, if you define success in terms of disrupting the Taliban, denying sanctuary to al-Qaeda and others, and insulating the Afghan Government, then we’ve been cautiously or moderately successful.”

Blaxland adds that the mission’s overall success directly ties in to the grand strategic issues at stake in the war and why forces were sent to that part of the world in the first place.

“There’s one dimension which I think the Australian Government is not really wanting to talk about and this is the potential legitimisation or fragmentation of Pakistan,” says Blaxland. “It’s important that whatever happens in Afghanistan is not allowed to go completely to seed, because the knock-on consequences for Pakistan, with a large concentration of Afghanistan’s Pashtun population living there, are huge. This is a country with lots of hot spots and lots of areas which could potentially break away. It’s a nuclear-armed state and it has qualities that are worrying to many of its neighbours. Australia’s engaged there, we’ve got a defence cooperation program, so Australia’s invested. It’s invested in Afghanistan, it’s invested in Pakistan and we can only hope that they manage to muddle through and hold it together.”

Marston agrees that the question of Pakistan and its relationship with Afghanistan as well as with India is critical to future stability. But peace will also be reliant on building up locally recruited Afghan forces.

“But we need to do this without looking at it through the prism of Western minds,” says Marston. “We are still looking at the situation from the prism of our own armies when assessing the Afghan National Army or the Afghan National Police or other forces. At the end of the day, this is a force that needs to be capable of internal security in its own state in its own way. And they will probably be able to provide that at different levels as long as the power arrangements are set up above them.”

For Lushenko, who will redeploy to Afghanistan with the US Army in the next few months, it all comes back to the original reason the US and its allies went to war in Afghanistan.

“I would identify three things which make our efforts in Afghanistan important. First, in terms of terrorism it is certainly very important to be in Afghanistan to stem the tide of things that took place before 9/11. Second, if we consider Afghanistan is in Central Asia and the regional-global nexus which is unfolding before us, I think it is important that we are there to stem the type of threats and vulnerabilities that could come from Afghanistan, whether that’s the flow of people and refugees or the terrorist sanctuary Afghanistan could become. And finally, I think that, particularly for America, the mission in Afghanistan begins serious questions about standing and legitimacy in the world in the first place.

“But at the end of the day, it’s for the Afghan people. We have a moral duty to provide a better existence for them.”

And even though the dust is settling, it may be a few years yet before that task in the sand can be drawn.


If you define success in terms of disrupting the Taliban, denying sanctuary to al-Qaeda and others, and insulating the Afghan Government, then we’ve been moderately successful.

The role of artificial intelligence is not to create machines that are more ‘intelligent’ than humans, but to create machines that help humans in their day-to-day lives.

“A car drives along a road in downtown Newhaven. It slows down for the pedestrian who run out in front of it, trying to make their bus on the other side of the road. The car turns a corner and avoids roadworks in the middle of the street. It stops at a red traffic light. When the light goes green, the car takes off again, keeping a safe distance behind the truck in front of it. So far, so normal. Except that there is no-one in the driver’s seat.

Welcome to the world of artificial intelligence (AI), where virtually anything is possible. Helping to make it possible is Dr Stephen Gould from the Research School of Information Sciences in the ANU College of Engineering and Computer Science.

Gould’s research focuses on enabling computers to recognise videos and objects, while also programming the machines to teach themselves. He teaches computers what different objects look like and to recognise the same objects later on.

For Gould, the ultimate goal would be to take a photograph of any scene with a camera, and for a computer to inherently understand what it is.

“At the moment, when a computer or robot looks at an image, it’s got no idea what it is – it just looks like a bunch of pixels. All it knows is that there’s green in that corner and blue over there, but it doesn’t know what it is or even that the pixels are related to each other,” says Gould.

“An image is just this array of colours and from that array of colours the computer has to understand what things get grouped together and what the colours actually mean. So if it’s green, it’s probably grass or a tree. If it’s blue and it’s high up in the image, it’s probably sky. But if it’s low down in the image, then it’s probably water.”

He says the role of artificial intelligence is not to create machines that are more ‘intelligent’ than humans, but to create machines that help humans in their day-to-day lives.

“We like to talk about AI and the fact that these machines are somehow intelligent, but what ends up happening is these techniques that we develop end up just becoming technology,” says Gould.

“...there’s no intelligence behind voice recognition. It’s just a program that’s running on your phone. A machine doesn’t necessarily need to be humanlike or intelligent, just so long as it does the right thing.

“But with a driverless car, as long as it’s behaving rationally and intelligently it’s not hitting other cars or pedestrians – then that’s enough for me to call it AI, and it’s a very useful thing. It’s not replacing us. It’s just replacing the tasks that we do.”

“I think what will happen with AI is we’ll have more general appliances. So instead of a dishwasher just washing dishes, it’ll also clean the table, and a washing machine may go to our laundry basket and separate our laundry into colours and whites.”

So it seems the future more closely resembles The Jetsons’ robot maids and flying cars than Hal outwitting the humans in 2001: A Space Odyssey. Not so futuristic after all.
The University’s new Deputy Vice-Chancellor (Research) is not only stopping the big freeze; she’s helping to find cures to some of our worst diseases and mentoring the next wave of researchers, writes MARTYN PEARCE.

There’s nothing quite as disappointing as the bittersweet taste of ice cream which is a bit too much ice, and not enough cream. You go to the freezer to finish off that tub you started the night before. But when you open it, the exposed bit has become a frosty, tasteless clump of ice.

“Research has become significantly more difficult in the last two decades.”

Very disappointing.

Pleaseingly, scientists around the world are hard at work solving this and other refreezing problems, and the answer may lie in the fish of the Arctic and Antarctica. It’s because these chilled out fish seem around in sub-zero temperatures and survive quite happily.

What keeps them alive are “antifreeze proteins.” Professor Margaret Harding, the new Deputy Vice-Chancellor (Research) at ANU, is part of a team of researchers around the world unlocking the mysteries of these proteins and trying to replicate them.

If she and the researchers succeed, the applications could be much greater than your bucket of mint choc chip.

“The food industry is very interested in additives that stop ice crystals growing, but another application might be in organ transplantation, for the storage of organs,” she says.

“Ice crystals that grow in tissue samples damage the cells. Take human blood platelets – when you take blood it has a finite shelf life. They are stored at about four degrees, but you can’t freeze them because the crystal growth damages the cells.

“My research is trying to isolate and synthesise the natural antifreeze compounds and understand how they manage to inhibit ice growth.”

Harding began her academic career looking at how the crystal growth damages the cells. Take human blood platelets – when you take blood it has a finite shelf life. They are stored at about four degrees, but you can’t freeze them because the crystal growth damages the cells.

“I’m very optimistic that in the next few decades there will be very significant breakthroughs, not only for cancer, but for a lot of diseases. The trials and results coming out, which I stress are pre-clinical and not in humans yet, are not ones that I could have anticipated 10 years ago. These are exciting times.”

But advancing science is an impressive art requiring long-term funding and vision. And while researchers of Harding’s calibre may have carved out a niche for themselves, she as an early-career researcher presents a unique set of challenges.

“Research has become significantly more difficult in the last two decades and for early-career researchers it’s a much more challenging environment to enter than when I started in the early 1990s,” says Harding.

“There is a lot of research funding available, but it’s nothing to dampen her passion for science; especially as another of her research projects looking at potential new classes of anti-cancer treatment offers such promise.

“One of the great breakthroughs in cancer treatment was an inorganic compound based on platinum, discovered in the 1960s, that is now used to treat testicular cancer. For men, testicular cancer used to be a death sentence. Now, through treatment with that simple molecule, there is an excellent survival rate,” she says.

“That really opened the field for what you can do with a metal and an organic compound. The research I’m involved in is looking at some unusual molecules based on lanthanum that have shown some promising properties.”

Harding’s research may or may not end up helping in the battle against cancer, but she says a bright future for treatment more generally and she’s happy that her work may play a part in that.

“For me, what’s interesting is being able to contribute one small part of a big and complex puzzle,” she says.

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“There is a lot of research funding available, but it’s much more competitive now. It can be very demoralising at an early stage of your career to miss out on funding to pursue your research interests.”

At UNSW, Harding gained a reputation as a mentor to young researchers, something she’s eager to build on at ANU.

“But another looming challenge all universities face is how we build a sustainable plan to serve research needs for the next five, 10 or 20 years. And what level of investment is appropriate? That means everything from high-quality labs and research facilities, to big telescopes, to access to digital libraries and data sets. They’re quite challenging questions.”

But don’t bet against her coming up with some answers. Harding has a scientist’s mind for searching for solutions, even if the chemist has allowed her career to develop organically.

She says that, in those early days of her academic career, she would never have expected to eventually be a Deputy Vice-Chancellor.

“Never!” she laughs. “I probably would have bet you $10 million dollars it wouldn’t happen.

“But my career – and I tell research students this – has not been planned at any stage. My philosophy is that life presents opportunities and each of us needs to make a decision about whether that opportunity is something you wish to take or not.

“I had a passion. I felt that I could improve support for and make a difference to higher degree research students. That’s how I started on this path, opportunities presented themselves and I took them.”

Harding says she’s looking forward to helping develop opportunities for other researchers at ANU, and that she is already seeing the potential at the University.

“The University, ultimately, is not the bricks and mortar, it’s the staff and students; it’s the culture and the work environment. At ANU, that quality is very different to other universities I’ve worked in.”

And unlike that refrozen ice cream, it’s a case of the cream rising to the top. And there’s nothing disappointing about that.
Professor Michael Martin.

PHOTO BY TEGAN DOLSTRA.

Professor Michael Martin, statistician at ANU College of Business and Economics, says ‘words and numbers probably are too, but you’ve got to extract them.’

But if humans are inherently better at understanding graphics than words on a page, why – in schools, in business, workplaces and newspapers – is the world so text-heavy?

“Shapes and colours – these things are built in,” says statistician Professor Michael Martin of the ANU College of Business and Economics. “Words and numbers probably are too, but you’ve got to extract them.”

But when it comes to our eyes being vulnerable to trickery, accidental data misrepresentation is the least of our worries, says Martin.

“People are absolutely manipulating graphics for their own agenda. You see it in advertising all the time. I recently saw a telecommunications company comparing their call completion rate with that of its competitor. They were comparing 99 per cent to 98.7 per cent. So the difference was actually tiny, but they made it look massive by starting the bars at 98.5.”

“And it’s tricky because it’s a lie and it’s not a lie. But it’s not accidental. If the comparison went the other way, you can be darn sure they wouldn’t use broken bars.”

An awareness of the hidden agendas behind graphics is something Martin aims to instil in the many undergraduates who flock to his lectures.

“I want people to come out of my courses thinking: ‘Not only can I produce good graphics, but I can tell when I’m being lied to,’” he says.

A born raconteur, Martin’s fun and analogy-filled teaching style is a hit with students. He regularly get the hang of language.

compared with drawings, the written word becomes the headliner of the information revolution. And so, through a technological twist of fate, text view to put lines of text on a page.”

“Back when I was doing my PhD at ANU in the 1980s, if I wanted to produce a simple graph with a diagonal line, it was impossible. It would come out looking like a staircase,” says Martin.

“So it was much easier from a mechanical point of view to put lines of text on a page.” And so, through a technological twist of fate, text became the headliner of the information revolution.

“If technology had evolved differently and drawings could be sent easily around the planet, then graphics would have been the tool of choice,” says Martin.

“With graphics the communication is instant. A lot of people won’t stick with a paragraph, but graphics can be absorbed in a single eyeful.

And they’re universal – they transcend language and education.”

Now that we have the technology to create and share graphics on a global scale, will we see a ‘backwards’ revolution, as graphics regain their former glory and writing is slowly edged out?

“I think it’s happening already,” says Martin. “Look at the interface on a smart phone – it’s all about icons. People don’t use pens or keyboards anymore, they use their fingers. We’re entering a world where a graphical interface is going to dominate.”

One quality of text that wins out over graphics, however, is that it’s pretty straightforward.

“When Excel first came out, people started producing the most lavish and ornate graphics, just because they could. You just click a button and your data is transformed into this word shape. And that’s when the problems begin.”

When it comes to making graphics, it’s best to keep things simple. The weird and wacky graphics offered by modern software may look spectacular, but they often defy knowledge of the way our eyes and brains work, forcing the viewer to make comparisons that they’re not particularly good at.

“If I draw two lines, one two centimetres long, the other three centimetres, it’s pretty clear which one’s longer and by how much. Comparing lengths of straight lines is something your brain does really easily,” Martin explains.

“But your brain’s not so good at working out whether the sides of a triangle are the same length. And that’s a comparison that a graphic might force you to make. A classic example is a pie chart. They look pretty, but communication is a victim. I think pie charts should be declared illegal.”

But when it comes to our eyes being vulnerable to trickery, accidental data misrepresentation is the least of our worries, says Martin.

“People are absolutely manipulating graphics for their own agenda. You see it in advertising all the time. I recently saw a telecommunications company comparing their call completion rate with that of its competitor. They were comparing 99 per cent to 98.7 per cent. So the difference was actually tiny, but they made it look massive by starting the bars at 98.5.”

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A born raconteur, Martin’s fun and analogy-filled teaching style is a hit with students. He regularly receives emails from former pupils alerting his attention to laughable, and sometimes downright deceitful, graphics.

“It’s great to have that feedback years later. I have a big folder full of good, bad and ugly graphics that students have sent me,” he says.

During his 20-year career, Martin has received four teaching awards, including the national Carrick Award (now the Australian Learning and Teaching Council Award) in 2007. But national recognition takes a backseat compared to the buzz he gets when the light goes on above a student’s head.

“The most gratifying thing in my entire career has been when students have come up to me and said, ‘I thought stats would suck, but now I think it’s kind of fun’. That, to me, is the biggest win.”

So as you navigate through the coming graphics revolution, just remember to keep your eyes peeled – seeing shouldn’t always mean believing.
Man vs mosquito

Researchers are locked in a battle to beat a global killer, but the malaria parasite has been around for millennia and still has some deadly tricks up its sleeve, writes CASEY HAMILTON.

Mankind has been trying to find a cure for hundreds of years – you can even find the parasites in Egyptian mummies, he says.

One of the biggest factors thwarting researchers’ best efforts to beat the parasite is its ability to develop drug resistance quickly. An individual infected with malaria carries about a billion parasites in their bloodstream and liver, each bearing a slight genetic difference to its microscopic brethren, resulting in incredible evolutionary flexibility.

“It’s a numbers game,” explains Maier. “Imagine how different a billion humans would look and you can have different the parasite population within just one body. Multiply that by the hundreds of millions of malaria cases each year and you can understand the potential for the parasite to find a way to evade treatment.”

Finding ways to reduce the number of people affected by malaria each year is a global health priority. But doing so in a double-vaginal world – less exposure to the disease means less chance of developing natural immunity, making any case of malaria quite broad and that adds so much to the control. “It’s the same way that you or I might take aspirin for the sniffles. But unlike taking aspirin, taking anti-malarials unnecessarily means the drugs aren’t as effective and we end up with drug resistance.”

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Australians are facing a mental health crisis. Around one in five Australians suffer some form of mental disorder each year and mental disorders now account for 13 per cent of the total disease burden in Australia. Despite this, many people are still not getting the treatment they need.

“Tackling malaria is really a team effort,” says Maier. “Our team comes from the perspective that we want to get mental health help to as many people as we can. The Internet is a way to overcome those barriers. It’s convenient and free and research shows that it works.”

Farrer trialled the use of two online depression treatment tools developed at ANU – BluePages and MoodGym – incorporated with the established services provided by Lifeline Australia.

“We worked with Lifeline centres in Melbourne, Sydney, Brisbane and the Sunshine Coast. The Lifeline counsellors identified callers who seemed to be experiencing symptoms of depression or anxiety. We then split these callers up into groups. Some were asked to complete MoodGym and BluePages on their own; others were given these programs as well as weekly phone calls to see how they were progressing. Another group received weekly phone calls without using the online programs and the final group received the standard Lifeline service of on-the-spot telephone counselling.”

“We found what was surprising was the groups who had used MoodGym and BluePages had a significant, immediate drop in symptoms of depression. What is really exciting is that the symptoms of people who used the online programs stayed reduced for at least six months after the intervention was finished. So, the online programs not only had an effect, but the effects lasted.”

Help online

The Internet is the latest battleground in the fight against the nation’s looming crisis of mental disorders, writes SIMON COPLAND.

“Working in e-health, I’m continually trying to find ways to apply my clinical skills in the research we are doing. It’s a nice marriage for me,” says Farrer.

MoodGym can be accessed at moodgyan.edu.au

BluePages can be accessed at bluepages.anu.edu.au

Contrary to what you may believe or have heard, Canberra is ordinary. It’s unexceptional. It’s just like everywhere else. The grand vision of Walter Burley Griffin is a hazy speck in the distant past and it’s hard to see any echoes of the big ideas of nationhood the city was built on in the territory’s ever-expanding suburban waistline.

But for Professor Stephen Dovers, Director of the ANU Fenner School of Environment and Society, and a recently appointed ANU Public Policy Fellow, Canberra has a golden opportunity to shake off its ordinary status by doing something exceptional. Dovers would like to see Canberra become the country’s full-scale science laboratory. He calls it ‘The Canberra Experiment’.

“Canberra is sometimes seen as a weird place,” he says. “It’s a new city; it was designed, and run, by the Commonwealth. It’s viewed as not being like the rest of Australia. “But in recent times, the diversity of employment, housing and urban form in Canberra hasn’t been extraordinary. Its new suburbs are not that different from new suburbs in other Australian cities.”

But where it is different, he says, is in its unique concentration of institutions and knowledge. “It’s hard to think of any other city state that has the research capacity of four universities and CSIRO. And because the ACT Government has both state and local functions, Canberra is as good a laboratory as one could find to learn how to run a sustainable and pleasant city.”

Indeed, the laboratory is already open for business. The Fenner School, in partnership with CSIRO and the ACT Government, has created the Mulligans Flat Experiment. This unique undertaking has seen a small corner of the ACT fenced off from predators and freed of invasive weeds. Inside, scientists from all ACT institutions are exploring, in situ, what works, and what doesn’t, in land management. The team recently re-introduced Bettongs into the sanctuary – the first time that the tiny marsupial has made an appearance on mainland Australia in more than 80 years.

Dovers says the partnership model has potential application throughout the ACT. Under The Canberra Experiment, the potential would be much wider than simply the natural environment.

“The first application should be urban management,” he says. “Managing our urban settlements is about many things – society, environment, economics and infrastructure. But it’s not at all clear that current policy debates appreciate Australian urban research or strong empirical evidence. We’re attempting to use simplistic notions about what cities might be like. It’s unfortunate that major public issues are debated with little apparent regard to Australian urban research and the evidence that provides,” he says.

The experiment that Dovers proposes – to turn the ACT into a laboratory for empirical research – is a big idea in a city that was conceived by a big idea. But it doesn’t take research to know that unless there is cross-community, and bi-partisan political agreements, it’s likely to founder on the steps of short-term politics. Dovers acknowledges this is a significant hurdle for what is a long-term project, one exacerbated by systems of research funding and policy making that are geared towards the short term. The reception the idea has received makes him quietly confident.

“The reception is almost universally positive. People think it would be a good thing to do, for different reasons, and with different visions of what it might look like. “But while everyone thinks it’s a good idea, it’s not quite their mandate. It’s everyone’s business, but nobody’s responsibility. “So at the moment I’m putting the idea out, seeing how much support there is. Anything like this starts

The Canberra Experiment

Professor Stephen Dovers is on a mission to show that Canberra has something unusual to offer and that public policy isn’t as dull as it sounds. By MARTYN PEARCE.

Policy, to most people, is utterly boring.
It’s apparent by the way Canberra is discussed around the country that it’s no longer seen as a shared symbol of nationhood.

with a vague notion somewhere, so here’s that vague notion.

Dovers argues that it is essential that any research outcomes generated by the experiment feed into public policy. The researcher already has a long record of applying his academic expertise to some tricky areas of public policy. Even now, while running one of the University’s bigger schools, he juggles a fierce policy workload as the co-convenor of the National Institute for Rural and Regional Australia, co-convenor of the State of Australian Cities Research Network, a board member of the Australian Urban Research Infrastructure Network, an associate editor of two journals and an adviser to government on the establishment of national wildlife corridors.

This breadth of experience was recently acknowledged when he was made one of the University’s First Public Policy Fellows. The Public Policy Fellowship program recognises those whose work has a significant impact on policy. Dovers is one of a group of academics selected by the ANU Institute of Public Policy, headed by Dr Ken Henry (read more on page 12).

Dovers says he hopes the new program will go some way to encouraging other academics to engage with policy.

“Spending a long time engaged in the policy process is something that many academics would appreciate. It’s made by boring people, it’s written about in a boring way. The documents are boring. “But policy is what creates changes in a society. It is the mechanism by which we seek to achieve change for the better. We can argue that we don’t agree with one or the other policy, but it’s only through policy processes that we achieve common goals, reconcile differences and take advantage of opportunities.”

Of course, not all policy is successful. But as Dovers explains, even policy which is regarded as a failure potentially offers valuable lessons.

“The home insulation program is generally seen as a disaster,” he says. “But there’s no such thing as complete policy success or failure. Even policy which is world class usually has some problems with it.

“With the home insulation program tens of thousands of houses – many of which were old housing stock – were insulated. We do not yet know the impact of that on energy use, human comfort and heat induced mortality – that relies on long-term data, with rigorous research.”

And long-term data is exactly what Dovers hopes his Canberra Experiment idea might eventually yield. That, and changing the way the city is thought of around Australia.

“Canberra used to be seen as an experiment in careful design and balancing different imperatives in creating a city. It was also seen as an expression of nationhood.

“It’s apparent by the way Canberra is discussed around the country that it’s no longer seen as that shared symbol of nationhood. That has run aground on the use of Canberra as a word of insult, or a conflation of the city and the parliament. “The future of Canberra as a shared expression may lie, in part, as an acknowledged location of interesting experiments on how to live well in the Australian environment.”

It’s a big idea for a small city, but a small city built on a big idea. It’s also anything but ordinary, and that’s surely something the city’s original architects would appreciate.

Two ANU political experts have helped the Northern Territory Government replace an unfair electoral system. By TEGAN DOLSTRA.

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Will Sanders was working with a local government in rural Northern Territory when the drama began.

“In 2008, a local government I had been advising was amalgamated into a much bigger shire. The 18 councillors were suddenly pushed into competition for just four positions. I thought, there’s going to be an interesting tussle,” he says.

Sanders monitored the next local election with considerable interest. But what he happened upon was more dramatic than anything he had expected.

What had not been apparent in the smaller electorates of pre-2008 was suddenly magnified, made stark by the upheaval: the electoral system was deeply unfair.

“The system they had in place required each councillor to attract a majority of the total votes,” explains Sanders, a Fellow at the Centre for Aboriginal Economic Policy Research, part of the ANU College of Arts and Social Sciences.

“The system had in place required each councillor to attract a majority of the total votes,” explains Sanders, a Fellow at the Centre for Aboriginal Economic Policy Research, part of the ANU College of Arts and Social Sciences.

“On the surface this sounds fair, but it means you can have up to 49 per cent of the population being represented by a candidate they have not voted for.”

To ensure every councillor has a majority vote, the candidate with the least number of votes is eliminated and their votes are transferred to another candidate based on second preferences.

This process is repeated until someone has more than 50 per cent of the votes.

In electorates with more than one position to fill, the vote counting then begins again and the newly-elected candidate’s votes are reallocated. This is where the system becomes unfair, says Sanders.

“What they’re doing is gifting the people who already got who they wanted a second vote, while everyone else only has one! And, because the large majority of people give their first and second preferences to similar candidates, it’s very likely that a similar majority will emerge again.

“I was amazed that anyone thought this was a good electoral system. What you really want are councillors who represent different portions of the electorate, not a very similar portion of the electorate over and over again.”

Sanders first realised the folly of the system in a ward that encompassed a large town and two smaller towns who had to share four councillors between them.

All four positions were won by the large town candidates.

“The big town won the first two positions, and it looked pretty convincing because they represented most of the votes,” explains Sanders.

“But the third person to be elected was way, way down the bottom in the initial count – through the inheritance of votes from the candidates who had already been elected, they had overtaken the two smaller town candidates.

“It was just a crazy electoral system that concentrated all the representation among the same voters. And I thought, this is just ridiculous. It’s got to change.”

Sanders wrote a critique of the system, which prompted the Northern Territory Government to consult an independent expert, Professor Ben Reilly of the ANU Crawford School of Public Policy. Reilly’s report concluded that the system was “patently unfair and must be changed immediately”.

“The Government took the advice,” says Sanders. “Last year they switched to a very fair system, which is the same one used for the Australian Senate.”

In March this year, he travelled to the Northern Territory to witness the first election since the new system was introduced.

Where the former system had failed its voters, the new system was a triumph – the small town candidates joined three of the large town candidates as the electorate’s representatives.

Sanders is quietly satisfied with such a rewarding result.

“Mission accomplished,” he says.■
ANU Reporter Spring 2012

Farming futures

A PhD researcher’s work is revealing that Australia’s farmers don’t have their tractor wheels stuck in the mud of progress, but are sowing the seeds for future prosperity. By SIMON COPLAND.

The story of the farmer is often seen as synonymous with the story of Australia. Australian history is dominated by farming heroes, from the tale of The Mon from Snowy River to the story of the 1891 sheep shearer’s strike.

But today, the public view of farming is often of an industry dominated by outdated industrial techniques and thinking from the 1950s. The stereotypical farmer is conservative, backward and reluctant to change their ways to adapt to the realities of the 21st century.

But Charles Massy, author of the recently released book, Breaking the Sheep’s Back, which charts the collapse of the Australian wool industry, and a PhD student at the Fenner School of Environment and Society, says that farmers across Australia are challenging this view. For Massy, Australian farmers are at the forefront of using innovative techniques that are revolutionising the way they work.

“Everyone knows that land degradation is a major issue in Australia, but there has been so much media attention on the issue and the health of their land. For example, some of the most basic techniques include reducing overgrazing, improving soil health, increasing biodiversity, and planting trees and edible shrubs in the landscape. Beyond this, many are now using animal energy, through planned animal grazing and animal grazing of crops, to significantly reduce or eliminate the use of fossil fuels or chemicals on their land.”

“Second, some of the groups that are involved in these techniques have their tractor wheels stuck in the mud of progress, but are sowing the seeds for future prosperity. By SIMON COPLAND.

One of the most interesting cases I’m looking at is called holistic grazing management. Rather than animals being left in one paddock, they are moved frequently around different paddocks in a flexible but planned manner. This allows the land and plants to get a lot of rest and recovery, which increases ground cover and soil water absorption. I’ve seen farmers pretty much drought-proof themselves and increase productivity with this approach. It is revolutionary.

“These changes are about farming that suits the Australian landscape rather than trying to do it the other way around. It’s about ensuring that we have healthy soils and functioning landscapes.”

Massy says that these techniques are also highly profitable, and could have a huge impact on Australian farming.

“Farmers have been increasingly using fossil fuels and chemicals since the industrial revolution. Removing or greatly eliminating fossil fuels and chemicals would therefore be revolutionary in terms of agricultural practice.

“There are also a range of other benefits to these practices. For example, this sort of grazing and cropping would have the ability to rehydrate the Murray-Darling Basin through increasing the soil health in the region. There are also implications for human health, with the reduction of chemicals making soils and food much healthier. This would have big knock-on effects for society.”

As part of his PhD, Massy is investigating what is driving these farming innovators to change their practices.

“I’ve interviewed more than 80 leading innovators in what I call transformative agriculture. The aim was to look at how and why they changed their personal psychological constructs and why they decided to challenge the dominant industrial agricultural paradigm,” he says.

The results suggest a wide variety of reasons for changing practices.

“About 60 per cent of the farmers I interviewed changed their techniques because they had some sort of major life shock. They were burnt in a bushfire, had a marriage break up, or suffered chemical poisoning.

“Second, some of the groups that are involved in these techniques have their tractor wheels stuck in the mud of progress, but are sowing the seeds for future prosperity. By SIMON COPLAND.

One of the most interesting cases I’m looking at is called holistic grazing management. Rather than animals being left in one paddock, they are moved frequently around different paddocks in a flexible but planned manner. This allows the land and plants to get a lot of rest and recovery, which increases ground cover and soil water absorption. I’ve seen farmers pretty much drought-proof themselves and increase productivity with this approach. It is revolutionary.

“These changes are about farming that suits the Australian landscape rather than trying to do it the other way around. It’s about ensuring that we have healthy soils and functioning landscapes.”

Massy says that these techniques are also highly profitable, and could have a huge impact on Australian farming.

“Farmers have been increasingly using fossil fuels and chemicals since the industrial revolution. Removing or greatly eliminating fossil fuels and chemicals would therefore be revolutionary in terms of agricultural practice.

“There are also a range of other benefits to these practices. For example, this sort of grazing and cropping would have the ability to rehydrate the Murray-Darling Basin through increasing the soil health in the region. There are also implications for human health, with the reduction of chemicals making soils and food much healthier. This would have big knock-on effects for society.”

As part of his PhD, Massy is investigating what is driving these farming innovators to change their practices.

“I’ve interviewed more than 80 leading innovators in what I call transformative agriculture. The aim was to look at how and why they changed their personal psychological constructs and why they decided to challenge the dominant industrial agricultural paradigm,” he says.

The results suggest a wide variety of reasons for changing practices.

“About 60 per cent of the farmers I interviewed changed their techniques because they had some sort of major life shock. They were burnt in a bushfire, had a marriage break up, or suffered chemical poisoning.

“First of all, we need good science. There are some first-rate scientists at ANU and elsewhere looking at what’s going on in the farming world and we need to move science from research to action. The research needs to be applied to farmers and we need to work out how we can help them. It should be a bottom-up, not a top-down approach.

“Second, some of the groups that are involved in these techniques have already got their own education diffusion systems and that’s starting to snowball. They’re the ones that should be empowered and celebrated, and we need to work out how we can help them. It should be a bottom-up, not a top-down approach.”

“Most importantly however, we need to start thinking differently about agriculture in Australia. As the benefits of transformative agriculture become more apparent, I hope we will be able to challenge the dominant farming paradigm, and that will trigger government and research policy to encourage these changes,” says Massy.

“Perhaps those changes will mean Australia’s future, as well as its past, will be illustrated with farming heroes.”

Video: Charles Massy discusses innovative farming.
Kings of karaoke

Lyrebirds are mimicry masters, perfecting dozens of cover songs in their bid to woo the ladies. Unfortunately, they often leave a trail of broken hearts behind them, as CASEY HAMILTON reports.

Somewhere in the distance, she hears his true love calling. Racing eagerly towards the melodic sound, she reaches the clearing, only to find that there are no eligible young bachelors to be seen, only a dab bluish-grey lyrebird. She searches high and low for her new beau, but only the lyrebird can be seen. She leaves the clearing sad and simple.

This heartbreaking story is one Anastasia Dalziell of the Research School of Biology at the ANU College of Medicine, Biology and Environment, saw play out time and time again while carrying out her PhD research in the romantic surroundings of the Victorian forests.

Dalziell was studying the extraordinary karaoke abilities of the male lyrebird. These talented vocalists rarely sing their own song, instead swapping seamlessly between perfect imitations of other species instead.

“Lyrebirds are amazing mimics of other birds’ songs,” says Dalziell.

“During the breeding season, males imitate the calls of around 25 species of birds. This mimicry is the accomplishment of years of practice and is probably used to show female lyrebirds the quality of the singer.”

To test just how accurate these lovebirds are, Dalziell compared the acoustics of the call of the grey shrike-thrush – a small native bird also known as the harmonica bird because of its complex and beautiful song – with the lyrebird’s cover version. She found the replica was spot on.

“Lyrebirds are great at imitating the structure and notes of shrike-thrush songs. However, they sing an abridged version containing fewer repeated notes than the songs sung by real shrike-thrushes.”

Trimming the song allows the honey-tongued lusthophili to quickly showcase their impressive repertoire when trying to impress the ladies, says Dalziell.

“Singing an abridged version means that they can demonstrate both the accuracy and versatility of their mimicry in a shorter period of time than if they mimicked the whole shrike-thrush song. Their audience probably has better things to do than listen to males singing all day long.”

With the lyrebirds singing such an accurate version, Dalziell wondered if shrike-thrushes could tell the difference between a mimic and the real thing once they were given a clue.

“Until the feathered females of the forest learn to tell the difference, it seems they are doomed to be diseases and disappointed.”

Dr Alex Cook tells KATHARINE PIERCE how he braved wind, rain and sea sickness to retrace the steps of Captain Cook.

The next time you’re having a bad day, spare a thought for the 18th century French astronomer, Guillaume Le Gentil, who spent 11 painstaking years sailing the Indian Ocean in an attempt to get observations of the Transit of Venus.

His first trip was hindered due to the outbreak of the Seven Years War. His second was ruined by a particularly cloudy day at sea. To top it all off, he caught dysentery on the trip home.

Finally, when he eventually made it back to France in 1771, he discovered he had been declared legally dead, his wife had remarried and his relatives were fighting over his estate.

It was this story of the unfortunate Monsieur Le Gentil that reminded Dr Alex Cook from the ANU School of History not to give up when the going got rough on his voyage from Sydney to Lord Howe Island to recreate Captain James Cook’s famed 1769 journey to see the Transit of Venus.

“After we transferred to sail power, the skipper gave us the opportunity to observe the Transit of Venus from Lord Howe Island, off the coast of New Zealand, says Dr Cook.

“For some, it was the lift in crew morale once we transferred to sail power, many were ready for the tropical lagoon after the dreary winters and the Odyssey of the Endeavour.”

Dr Cook, no relation to his namesake, set sail on an exact replica of the Endeavour to arrive at Lord Howe Island in time for the passage of Venus across the face of the sun – a rare event not due to happen again for 105 years.

The voyage was organised by the Australian National Maritime Museum to commemorate the role of the Transit in motivating Cook’s first Pacific voyage and thus shaping modern Australia.

Along the way, Dr Cook gave a series of lectures about the history of Captain Cook’s original voyage and kept a blog describing what it was like jagging through storm and sleet. But I take some pleasure in the discipline and routine.”

Fortunately the weather began to improve and on 4 June they were finally able to turn the engines off and hoist the ship’s sails.

“We have been relying on diesel engines, discreetly burying the bowels of the ship. To keep us on track.”

Everyone is tired. My watch was up at 4am this morning, steering the ship into the wind and
deed. But I take some pleasure in the discipline and routine.”

Fortunately the weather began to improve and on 4 June they were finally able to turn the engines off and hoist the ship’s sails.

“The lift in crew morale once we transferred to sail power was quite extraordinary,” says Dr Cook.

Dr Cook says that being out at sea in the Endeavour gave him a taste of the ingenuity and courage associated with Captain Cook’s voyage.

“Dr Alex Cook. PHOTO BY CARLOS BACIGALUPO.

“It gave him a taste of the ingenuity and courage associated with Captain Cook’s voyage.”

There was a real chance we weren’t going to make it.”

“We have been relying on diesel engines, discreetly burying the bowels of the ship. To keep us on track.”

Everyone is tired. My watch was up at 4am this morning, steering the ship into the wind and
Been a while since you visited the ANU campus? That doesn’t mean you should miss out on the many events taking place at the University.

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Deng Xiaoping and the transformation of China
Professor Ezra Vogel
Harvard University

Deng Xiaoping was instrumental in reforming China, opening it up to the outside world following the death of Chairman Mao. During his time as leader of the People’s Republic of China from 1978 to 1990, Xiaoping established strong relationships with western countries, opening China to foreign science and technology and enabling Chinese students to study overseas. In this video, world-renowned China expert Professor Ezra Vogel of Harvard University talks to Dr Graeme Smith from the ANU College of Asia and the Pacific about how China, under the leadership of Xiaoping, three off its poor, rural past to emerge as the world’s second largest economy.

Third Annual Address on Immigration and Citizenship
Professor Fiona Wood AM
Burn Service of Western Australia

Professor Fiona Wood is a plastic surgeon and Director of the Burn Service of Western Australia. In 2003 she was awarded the Order of Australia for her work with Bali bombing victims. She was named West Australian of the Year in 2004 and Australian of the Year in 2005. In this video, Professor Wood delivers the third Annual Address on Immigration and Citizenship at Old Parliament House. She speaks about her own experience of emigrating to Australia from Yorkshire in 1987.

Are we alone in the Universe?
Professor Paul Davies and Dr Charley Lineweaver

Professor Paul Davies, Director of the Beyond Center for Fundamental Concepts in Science at Arizona State University, chats to Dr Charley Lineweaver of the ANU College of Physical and Mathematical Sciences about some of the big questions of existence. Professor Davies is a theoretical physicist, cosmologist, astrobiologist and best-selling author. His championing of bold new ideas earned him the nickname ‘The Disruptor’ in a recent profile in Nature magazine. His most recent book, The eerie silence, contemplates whether humankind is alone in the Universe.

Experiments in modern living
Scientists’ houses in Canberra 1950-1970

When a group of brilliant young scientists arrived in Canberra after the Second World War to take up leading roles at ANU and CSIRO, they commissioned Australia’s leading architects to design their homes. The houses that resulted from these unique collaborations rejected previous Canberran styles and wholeheartedly embraced modernist ideologies and aesthetics.

Canberra-based writer, heritage consultant and artist Dr Milton Cameron charts the story of how these progressive clients contributed to the innovative designs of their houses, bringing fresh insight to Canberra’s rich architectural and cultural history.

A former practising architect, Dr Cameron has designed buildings in Australia, England and New Zealand. He is currently a Visiting Fellow at the Fenner School of Environment and Society in the ANU College of Medicine, Biology and Environment.

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THE LOADED GROUND: IMANTS TILLERS & MICHAEL NELSON JAGAMARA

16 August – 23 September 2012

Image (detail) Imants Tillers & Michael Nelson Jagamara, Fatherland, 2008, acrylic + gouache on 90 canvas boards, 228 x 356 cm overall. Courtesy the artists and Fireworks Gallery, Brisbane. CRICOS #00120C | 030712ANUR