

Never Stand Still



BUSTING THE ANZAC MYTH

How a national obsession has hijacked centenary
commemorations of the Great War

RESOLUTION REVOLUTION

The super microscopes
uncovering the secrets of life

SEEING IS BELIEVING

Helping patients come to terms
with illness through 3D animation

THE BEAUTIFUL GAME

Is the 2022 Qatar World Cup
worth dying for?

WINTER 2014

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YOUR TIME STARTS NOW ...

HANK HAEUSLER, SCHOOL OF ARCHITECTURE

HANK HAEUSLER is fascinated by the power of light to transform buildings.

A senior lecturer in the Faculty of Built Environment, the German-born designer is a leader in the emerging area of media architecture – the use of building façades to communicate messages (think the neon-dominated city scapes in futuristic films like *Blade Runner*).

Hank has written five books on the subject, including his most recent, *New Media Façades – A Global Survey*, which took him on a global search for buildings that literally “light up”.

“I’ve seen media façades in every sort of setting from the desert to snow-covered Chicago. For me, media architecture isn’t just about putting a big screen on a building. It’s about activating materials in a controlled manner through light.”

Arriving in Australia for the first time as a backpacker in 1996, Hank returned to do an architecture internship while doing his MA in Stuttgart. He then enrolled at RMIT and UTS to complete his PhD and post doc. “By that stage I knew I was doomed to stay,” he laughs.

As President of the Sydney and Vienna-based Media Architecture Institute, Hank has watched as more architects choose to specialise in media architecture, taking advantage of cheaper materials and advances in technology.

The façades are ideal for messages about public events, the weather or public transport so it makes sense that we are seeing more of them.

“Access to mobile phones has taken people away from each other,” he says. “We need to find ways to use technology to bring people back together.”

Early ambitions? As a teenager I trained as an engineer but I didn’t like it. Now I find that experience invaluable to my work as an architect. The irony of life is that often you end up doing what you first learned.

What don’t people know about you? Now I wear colourful sneakers and belts, but previously the colour was in my hair. Only Dennis Rodman, a Chicago Bulls player in the mid-1990s, had as many hair colours as me.

What does the future hold? More digital technologies complementing the public transport system. Eventually community information will be displayed like a local Facebook in bus stops to bring us closer together.

Working at UNSW? Where else can you access so many ideas? UNSW students are very open to new knowledge – it’s enormously interesting and pleasing as a lecturer to see.

By Fran Strachan

GAME CHANGERS

An online game is lifting students' performance and proving that playing is one of the best ways to learn, writes Janine MacDonald.

SO ECONOMICS REALLY IS a game after all. Two economics lecturers have found that the fastest route to an undergraduate's brain is to use a computer game that plays out the theory of economics.

Called Playonomics, the online game sets up economic environments and allows students to interact with other agents, make economic decisions and analyse the outcomes. Students can play the game in their own time, on their own devices and can progress at their own speed.

Devised by lecturers Alberto Motta and Isabella Dobrescu from the Australian School of Business (ASB), the concept is learning by playing. "Think of it as an ebook, only gamified," says Dr Dobrescu.

With masterly understatement, Dr Motta says: "Textbooks are not really as exciting as they could be especially for students raised in an online world.

"Playonomics plays like a video game, but also teaches like a regular textbook. It puts the student into a vibrant, simulated world, but is also very academically accurate."

Around 2,500 students a year take Microeconomics 1, one of the largest courses at ASB, and a key subject in many degree programs crucial in attracting students to higher-level studies.

The lecturers first tested the learning potential of the game in a laboratory environment. Playing the game produced the same exam results as learning by textbook – and was, no doubt, more fun.

Confident in these results, they went on and deployed one full level of Playonomics to more than 1,200 students.

"In the first four weeks, we had more than 1,300 games played or roughly 2,000 hours of play," says Motta. But crucially, the corresponding students' scores increased by 25% and failure rates dropped by half.

"Generally, it is hard to motivate students to adopt extracurricular material," says Dobrescu. "But the optional Playonomics had a staggering 80% adoption rate."

"It is perfect for self-education and we really think it will change the way we teach economics," concludes Motta.



The pair was awarded the 2013 Vice-Chancellor's Award for Excellence in the use of Learning & Teaching Technologies and the Heinz Harant Award for Teaching Innovation.

Another ASB lecturer whose adaptation of technology for the classroom has won plaudits (a Vice-Chancellor's Award for Initiatives that Enhance Learning) is senior lecturer Dr Robert Tumarkin.

His innovation is credited with tackling one of the greatest threats to the integrity of university education – cheating in exams.

The logistics of exam preparation are a challenge for any lecturer. They can either deliver the tests during precious lecture time or during tutorials. But with the large class sizes for first-year students and multiple tutorials over the study week, "leakage" has meant that students tested on a Friday perform better than those tested on a Monday.

Tumarkin has created a program that generates a unique exam that enables each student to get a personally designed, but randomly generated, series of questions and answers, with the occasional red herring that highlights attempts to subvert the system.

It can be used for quantitative, qualitative, multiple choice and open-ended questions, and it is simple to use.

Tumarkin's motivation was to create a fairer system.

"This is a way of rewarding the 99% of students who do the right thing rather than the 1% who do the wrong thing."

▲ Motivators ...
(L-R) Drs Robert Tumarkin, Isabella Dobrescu and Alberto Motta. Photo: Grant Turner/Mediakoo

BRIEFS

FIRST FOR TRAUMA RESEARCH

Clinical psychologist Professor Zachary Steel has been appointed the inaugural St John of God Professorial Chair for Trauma and Mental Health, the first chair of its type in Australia. A partnership between St John of God hospital and UNSW, the Chair will bring together clinicians and academics to help determine best practice and evidence-based care for patients.

ALUMNI HONOURS

The success and leadership of seven of UNSW's most outstanding graduates was highlighted at the 2014 Alumni Awards. Recipients were: Ms Del Kathryn Barton, Ms Margaret O'Neill, Scientia Professor Deo Karan Prasad AO, Dr Daniel Petre AO, Mr Jeremy Balkin, Dr Aihua Wang and Dr Jianhua Zhao. UNSW Chancellor David Gonski presented the awards at a dinner held on the site of Alumni Park, which will be the largest space of its kind at an Australian university, designed to celebrate graduate achievements.

EXPERTS APPOINTED TO WHITE PAPER

Two UNSW academics have been appointed to the expert advisory panel of the federal government's 2015 Defence White Paper. Rory Medcalf, Senior Research Fellow, Indian Strategic Affairs in UNSW's Faculty of Arts and Social Sciences and Adjunct Professor James Goldrick, UNSW Canberra, are two of only six experts to be appointed to the panel. The White Paper, to be released next year, will underpin a costed, affordable plan to achieve Australia's defence and national security objectives.

YOUNG ENTREPRENEURS VIDEO LAUNCH

UNSW is the innovation capital of universities, with close to 200 new student start-ups collaborating with NewSouth Innovations, the School of Computer Science and Engineering and ASB. Watch the next generation get down to business as they pitch their ideas in the video series *Young Entrepreneurs*. Featured start-ups include Conscious Step – socks that walk the walk; Collaborate – a website that connects hungry friends to share a meal; and Foodbank Local – an app that helps food donors connect with local charities. To see all the videos go to unsw.edu.au/youngentrepreneurs



• FOWLERS GAP

CELEBRATING SCIENCE AND ART

It is the site of a remarkable rainfall record spanning more than 40 years, the only place where scientists study zebra finches – the bird equivalent of lab rats – in the wild, and the land

where much of what we know about kangaroos was discovered.

These unique scientific features of Fowlers Gap Arid Zone Research Station were showcased during a recent visit by senior staff to the remote UNSW property near Broken Hill in western NSW.

A studio was also launched for artists inspired by the station's dramatic landscape, with its rocky ranges, saltbush flats and creeks filled with red gums.

Deputy Vice-Chancellor (Academic) Professor Iain Martin, Deputy Vice-Chancellor (Research) Professor Les Field, Science Dean Professor Merlin Crossley and COFA Dean Professor Ross Harley, were among the visitors who toured the extensive property in May.

Professor Field officially opened Silcrete Lodge (pictured), which UNSW students helped design and build. He thanked philanthropists Julian and Annie Beaumont, who were present at the ceremony, for their generous gift that made its construction possible.

Mr Beaumont said he hoped it would be a place where artists can free their minds of European constraints and reflect deeply on the ancient landscape and Indigenous history of the site.

"Art and science have been unified here for many thousands of years and we're pleased to be contributing to this tradition," he said.



• QUANTUM HONOUR

PHYSICIST JOINS ELITE ACADEMY

Scientia Professor Michelle Simmons has joined the likes of Stephen Hawking, Albert Einstein and Alexander Graham Bell as an elected member of the American Academy of Arts and Sciences.

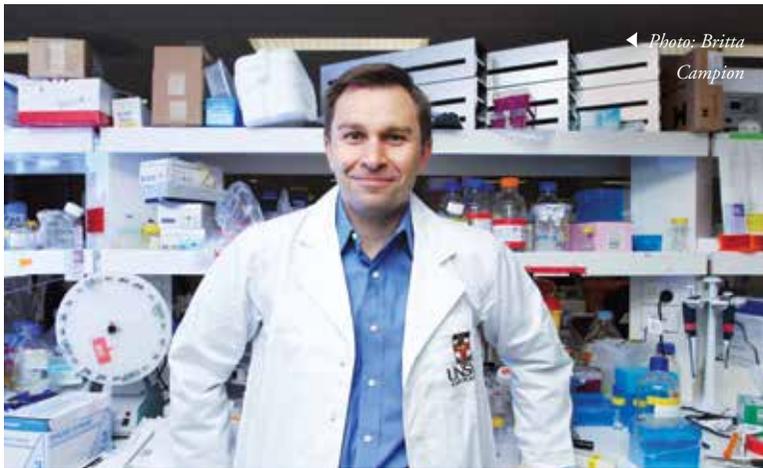
Simmons (pictured), described by her colleagues as "inspirational", is a world leader in the field of quantum computing. She is the director of the ARC Centre of Excellence for Quantum Computation & Communication Technology at UNSW and was last year awarded an ARC Laureate Fellowship.

Simmons will be one of only 11 Australian Foreign Honorary Members of the Academy, which is one of the oldest and most prestigious honorary societies in the United States and a leading centre for independent policy research.

Simmons said the rare distinction of being elected to join more than 250 Nobel laureates and leaders from academia, business, the humanities and the arts came as a "complete surprise".

"I am incredibly honoured to be elected to the American Academy of Arts and Sciences. This is an exciting time for quantum computing internationally and our research here at UNSW is at the forefront of this global effort," she said.





TIME'S TOP 100 MOST INFLUENTIAL

UNSW and Harvard geneticist David Sinclair has been named by *Time* magazine as one of the 100 most influential people in the world.

The magazine cites the 2013 study in which Professor Sinclair and colleagues identified a cause of ageing that is potentially reversible. *Time* notes that Sinclair's work makes possible the idea of "living more years with a body that's robust enough to make the most of them".

The Australian researcher, who has a PhD in Biochemistry and Molecular Genetics from UNSW, heads labs at Harvard and UNSW. His research has focused primarily on understanding the role of sirtuins in disease and ageing, with associated interests in energy metabolism, mitochondria, neurodegeneration and cancer.



• SENIOR APPOINTMENTS

NEW LEADERSHIP FOR ASB



The Australian School of Business has announced appointments to three of its most senior executive positions.

Deputy ASB Dean and AGSM director Professor Chris Styles has been named as the incoming Dean (see story page 7), following Professor Geoffrey Garrett's move to the Wharton School of Business.

Professor David Grant, an organisational studies scholar and business school leader who has worked

at King's College London and the University of Sydney, has been appointed Senior Deputy Dean.

And Professor Julie Cogin (pictured), a management scholar with more than 20 years' experience in executive education and leadership, and a consultant on organisational change to some of the world's biggest corporations, has been appointed to replace Styles at the AGSM. Cogin is currently Deputy Dean Engagement & Academic Development at ASB.

• ENGINEERING BOOST

MAJOR DONATION FROM LEN AINSWORTH

Construction of the new School of Mechanical and Manufacturing Engineering precinct is underway following a substantial philanthropic donation from businessman Len Ainsworth.

The major capital project will see the construction of a new building and renovation of two adjacent buildings, creating over 14,000 square metres of state-of-the-art floor space. The Ainsworth Building is expected to open in 2015.

Len Ainsworth is executive chairman of ASX-listed Ainsworth Game Technology and founder and director of The Ainsworth Foundation.

The successful businessman said he took "great satisfaction in being able to give a little bit away here and there".

Vice-Chancellor Professor Fred Hilmer said Mr Ainsworth's donation for the new School precinct "went right to the heart of the University and to Len's character".

Head of the School, Professor Anne Simmons, said the new precinct would equip the School with the right infrastructure for the next 50 years.

Dean of Engineering, Professor Graham Davies, noted his shared passion for design and manufacturing with Mr Ainsworth. "I believe that any vibrant country such as Australia needs a strong manufacturing base," Professor Davies said.

• COLOMBO PLAN

NEW PARTNERSHIP WITH SHANGHAI JIAO TONG

UNSW has signed a major student mobility agreement with China's prestigious Shanghai Jiao Tong University to capture opportunities for students to pursue studies in China under the New Colombo Plan.

In what will be the single largest partnership of its kind involving UNSW, the agreement provides reciprocal exchange places for 40 students every year from each institution over five years.

"This will position UNSW as one of the biggest potential contributors to the federal government's New Colombo Plan and will dramatically increase our mobility footprint in China," said UNSW's Pro-Vice-Chancellor (International) Ms Fiona Docherty.

UNSW students are already heading to Indonesia and Japan as part of the initial rollout of the New Colombo Plan. "We are excited to see our students embracing this dynamic part of the world. In the years to come, we know many will see studying and working in our region as an essential part of their university experience," Ms Docherty said.



◀ Photo:
Britta Campion

THE 'WRONG DEBATE' ON CLIMATE

AFTER MONTHS of build-up, the latest UN climate report lasted just one news cycle, but Fairfax's Scientist-in-Residence, Dr Fiona Johnson, says the experience of being embedded in a newsroom was an eye-opener.

Johnson (pictured) was stationed in the *Sydney Morning Herald* newsroom, under an Australian Science Media Centre initiative, ahead of the Intergovernmental Panel on Climate Change's (IPCC) second working group report on impacts, adaptation and vulnerability.

The scheme is aimed at bridging the gap between science and the public in an era where researchers have received death threats, and climate change routinely fails to make the front pages.

Johnson found it an instructive experience, both as a writer and scientist.

"It was really interesting going to their conferences and hearing that debate between the editors of what's going to go into tomorrow's paper. And also seeing how the news keeps moving on," she says.

"Clearly for climate scientists the IPCC report is a fairly big deal and it gives us a fantastic resource to refer to, one authoritative reference. But then the next day the whaling decision came out and that's where the news goes to."

There had been some talk that she would stay on for another week but very quickly it became apparent that "the news had moved on".

SMH Science Editor Nicky Phillips agrees that climate change science and policy has "fallen off the daily news agenda".

"There are probably many reasons why, but partly it's because it's a long-term issue with no easy solutions," she says.

The lesson for Johnson was "for science particularly, you need controversy to keep stuff in the papers, and the science is reasonably settled".

While this may be the consensus of the scientific community, a credibility gap exists with sections of the public. Much of the feedback on the report was negative.

Johnson puts that down to Australians having the "wrong debate".

"What communities need to decide is what do we value and what do we want to protect. If you don't want to have a carbon tax that's a completely rational position to have, but you can't say it's because the science is changing," she says.

"Maybe we have a responsibility to do that as scientists: keep issues in the media and keep advocating for people to think more about it."

• FIRST MOOC

30,000 STUDENTS ENROL

UNSW's first Massive Open Online Course (MOOC) to be offered via the education platform Coursera went live in April with close to 30,000 students now enrolled.

The MOOC was developed at UNSW Canberra by systems engineers Dr Mike Ryan and Dr Ian Faulconbridge.

The nine-week course is believed to be the first MOOC to cover systems engineering in a comprehensive way.

UNSW's next two MOOCs – "Learning to Teach Online" and "Mechanics: Motion, Forces, Energy and Gravity, from Particles to Planets" – launch in July and August respectively.

"We have learnt a great deal from the development of our first Coursera MOOC," Deputy Vice-Chancellor (Academic) Professor Iain Martin said. "This knowledge will not only inform future open courses but will also help us to enhance the educational experience of our own on-campus students."

• WRITERS' WRAP

SHARP MINDS, GREAT FESTIVAL

UNSW has once again contributed some of its sharpest minds to Sydney's iconic literary festival.

Environmental Humanities lecturers Dr Thom Van Dooren and Dr Eben Kirksey discussed our emotional attachment to species on the edge of extinction in the panel event 'Waves of Extinction' with UNSW Adjunct Professor Deborah Bird Rose, and Professor Mary Zournazi from the School of Social Sciences talked about the loss of social time in the 'Curiosity Lecture Series: On the Loss of Sunday'.

UNSW Adjunct Professor, alumnus and former Minister for Foreign Affairs Bob Carr launched his book *Diary of a Foreign Minister*, published by NewSouth Publishing, and three Arts and Social Sciences students secured competitive internships, gaining behind-the-scenes festival experience over a 10-week period.

UNSW Arts and Social Sciences has been a major partner of the Sydney Writers' Festival for the past three years, and UNSW was the first university to partner with the literary event in 2010.

Artistic Director Jemma Birrell said the festival is proud to have the continuing support of UNSW.

"The quality and diversity within UNSW Arts and Social Sciences has formed the perfect basis for our partnership – one focused on the exploration of pertinent themes, groundbreaking research and a community forum of engaging discussion," she said.



MARKET LEADER

New Business School Dean Chris Styles believes innovation will be critical in the era of higher education deregulation. Janine MacDonald reports.

CHRIS STYLES will be drawing on all his academic expertise as he finds himself heading the Australian School of Business just as the federal government opens the higher education sector to market forces.

A marketing scholar with an impressive list of publications, Professor Styles has a keen understanding of what's needed to compete in the higher education landscape.

In what seems a serendipitous appointment, Styles has taken up the role of Dean after the departure of Professor Geoffrey Garrett who is heading to the US.

Fee deregulation and greater competition in the business-school sector – some of which is coming from non-traditional sources – means there will be an even greater need to be externally focused.

“There is a greater onus on us to be market responsive,” says Styles of the changes proposed in the federal budget. “If students have to contribute more to their degree they will be more discerning of what is on offer.

“In this environment we need to not only do what we do well, but innovate

and take an entrepreneurial approach. We have to do some things differently.”

One of those things is more creative, consistent use of technology.

The Business School is already adapting technology to its teaching methods, from computer games that teach the fundamentals of economics, to the flipped classroom project and two online degrees at the Australian Graduate School of Management (AGSM). But the ubiquitous use of computer technology and the exponential rate at which it is being taken up means universities need to get ahead of the game.

“I question whether my teenage daughter, who is already using technology in class, is going to get the best learning experience listening to a 90-minute lecture in a large theatre of 500 people,” he says.

“Our children are growing up with the seamless integration of technology into all parts of their lives, including education.”

For the past three years Styles, a West Australian, has worked in Europe, China and the Middle East and has been Deputy Dean and Director of the AGSM.

His legacy at the AGSM is evident. Full-time MBA numbers in 2014 are higher than they have been for many years and executive education revenue was up 18% in 2013.

The AGSM approach of a close nexus with industry is something he will carry into the Dean's role.

His experience there also sharpened his appreciation of the value of alumni. “UNSW and the Business School in particular, has a very powerful alumni network, and not just in Australia. The response from our alumni across the globe – many of whom are industry leaders – has been terrific. But there is more we can do.”

Styles has a BComm (Hons) from the University of Western Australia and spent several years working for Procter and Gamble in Geneva, travelling throughout the Middle East. He was awarded a PhD scholarship to the London Business School where he met fellow marketing scholar, now Business School Deputy Dean (Education), Mark Uncles.

Uncles was instrumental in luring Styles to UNSW.

Styles' expertise in strategic and international marketing, international entrepreneurship and corporate strategy make him a good fit to be leading a business school with a strong focus on the Asia-Pacific region.

He has also taught at the China Europe International Business School in Shanghai, London Business School, Duke Corporate Education, Trinity College (Dublin) and the University of Sydney.

As Dean, Styles sees his mission as engaging with the region, with high-impact research and an academically rigorous business school that improves how businesses operate.

“Australia is an important part of the Asia-Pacific. And its teaching and research must be relevant to the region.”



Resolution REVOLUTION

UNSW researchers are pioneering the development of a new generation of microscopes with the power to unravel the molecular chaos of life. By Amy Coopes.

MORE THAN 50 years ago, Nobel Prize-winning physicist Erwin Schrödinger famously asked the question: What is life? By way of answer, he postulated that biology somehow emerges from molecular chaos.

Half a century later, Professor Katharina Gaus believes Schrödinger's question is on the brink of being answered by the nascent field of molecular imaging.

A new generation of "super" microscopes is allowing scientists to peer into the molecular "chaos" of living cells. By doing so, they are slowly deciphering the rules behind this chaos.

"We are right now at the beginning of a molecular revolution," says Gaus, an NHMRC Senior Research Fellow and deputy director of the recently funded ARC Centre of Excellence in Advanced Molecular Imaging.

One of these super-resolution fluorescent microscopes sits below Gaus' lab within the University's BioMedical Imaging Facility. Through its lens, the interior of a single cell gleams like a constellation, each twinkle a single molecule with the potential to affect life or death.

UNSW was the first institution in Australia to secure the hyper-powered microscope, which can capture images of objects 10 nanometers (or 10 billionths of a metre) in size. A decade ago these images would have been the realm of science fiction.

"To understand how molecules behave and how cells use those behaviours to make life and death decisions ... this is

not just a road less travelled, it's a road not travelled at all in terms of scientific discovery," says Gaus. "It is a game-changing technology and in terms of how far we can take it, the limitation is really our imagination."

Focusing on T-cells, Gaus is leading her field in establishing what causes these front line soldiers of our immune system to switch on and fight disease, or remain dormant and 'overlook' a proliferating tumour.

The powerful microscope allows her to pinpoint and view the workings of individual components within the fully functioning T-cell, without having to take the cell apart.

"Every second of every minute T-cells are making 'fate decisions' to activate or not, triggered by traces of pathogens or the altered proteins of a cancer," Gaus explains. They are so sensitive that a single peptide from a virus is enough to swing the immune system into action, and the activation of a single T-cell can trigger a full-blown response. An overactive T-cell response can cause crippling autoimmune disease while underactive T-cells can leave the immune system vulnerable to illness.

The work has won Gaus the prestigious Elizabeth Blackburn Fellowship, given by the NHMRC to the top-ranked female research fellowship applicant in biomedical science in 2013.

Gaus says rather than a simple on and off switch or a "CEO molecule" that orchestrates the action, T-cells appear to respond to the frequency of certain activity.

▲ A road less travelled ... Professor Kat Gaus (right) with post-doctoral student Dr Elvis Pandžić.
Photo: Grant Turner/Mediakoo

In a pair of papers published in *Nature Communications* in 2012 and *Nature Immunology* in 2013, Gaus and her team demonstrated a kinase protein called *Lck* ‘yo-yos’ in and out of clusters providing a central role in the cell’s signalling and activation machinery.

The team has also found that lipids – or fats – in the membrane of cells contribute to communication within the T-cell structure. T-cells removed from mice that had been fed a high-fat diet showed impaired signalling function, which may help explain why immune function can be compromised in obese people.

Progress is painstaking – it takes 20,000 individual frames to examine a single cell, using fluorescent protein markers to track individual molecules. But the rewards, when they come, will be immense.

“One of the things that could come from understanding how cells make decisions is the ability to give our own immune cells a man-made tool to fight cancer,” Gaus says.

Harnessing the body’s defences in this way is an attractive prospect but not just for its immediate potential in combating diseases like cancer. Because the immune system is self-regulating, its defensive action will shut down once the cancer is gone, but it will store memory cells allowing it to swing back into action if a recurrence is detected, even in minuscule amounts.

“This is the ultimate cancer-fighting tool,” says Gaus.

Drug companies, including the California-based biotech giant Genentech, are following her work with interest.

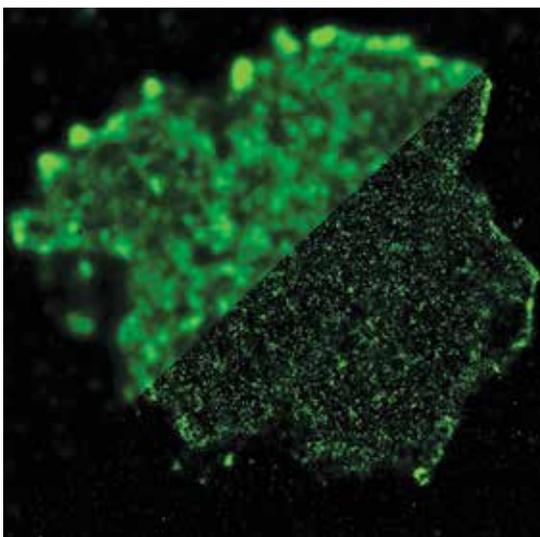
A pharmaceutical inhibitor already exists for the *Lck* protein shown by Gaus to be so vital in cell signalling but at present “you can’t give it to patients because then you don’t have any T-cell-mediated immunity anymore”. Essentially

the immune system’s decision-making machinery is knocked out.

But if new knowledge about the cell’s function could be used to develop a drug that alters the molecule’s behaviour rather than switching it off completely, science would have a powerful new anti-cancer therapy.

And in the case of autoimmune disease, an overactive T-cell attacking the body’s tissues could similarly be reset so its activation threshold was less sensitive.

German-born Gaus has blazed a trail



since landing at UNSW in 2002. In 2005 she was awarded an NHMRC grant to establish her own laboratory. That same year she also won a NSW Young Tall Poppy Award, an ARC Research Fellowship and was awarded the Alexander von Humboldt Fellowship, which allowed her to spend six months at Germany’s Max Planck Institute of Molecular Cell Biology and Genetics.

Back then the University had no advanced microscopes and Gaus was largely on her own. Today her lab boasts 18 staff and she was recently awarded seven years’ funding to establish the ARC Centre for Excellence in Advanced Molecular Imaging.

Gaus originally trained in physics and mathematics in Heidelberg but reinvented herself as a cell biologist as a PhD student at Cambridge. It was during this time she met her husband Professor Justin Gooding – a surface chemist who went on to found the Australian Centre for NanoMedicine at UNSW – and decided to give his country a go.

They work together on a range of projects and co-supervise a number of students, even applying for joint grants. In 2013 they became the first husband and wife team to win NSW Science and Engineering Awards.

“Australia has been good to me – I managed to get funding early on and then build up my own group,” says Gaus. “I guess I always knew I wanted to do my own thing.”

Though she is no longer in physics her earlier training continues to exert an influence. Half her laboratory consists of cellular biologists and immunologists while the other half are physicists who build the microscopes and write analysis tools.

“There are very few labs right now that can do both as well as we can,” she says. “It’s important that we have both these sides together.”

The first “universal rules” governing cell function are beginning to take shape. Each discovery brings new knowledge on experimental methods and reveals the next molecule to be explored.

Though the focus is on T-cells, Gaus says the molecular rules she is beginning to uncover will apply to any number of processes from DNA repair and cancerous growth through to neuroscience.

“In life nothing stands still, so molecular rules are the basis for everything. And what’s most exciting is that we are now beginning to discover these fundamental aspects of life.”

► Seeing clearly ... a standard image of the interior of a T-cell (upper left) versus the super resolution image (bottom right).
Image supplied



◀ Building a community ...
Professor Chihiro Thomson. Photo: Grant Turner/Mediakoo

CLASS ACT

Inspired teaching and a love of culture are at the heart of the success of UNSW's Japanese Studies program, writes Cassie Chorn.

A BEAUTIFUL BLACK silk kimono hangs discreetly behind Chihiro Thomson's office door.

The fabric is delicately embroidered with her family crest: "It was my grandmother's. A colleague once scolded me for storing it there, he thought it should be in a glass case."

A School of Humanities and Languages professor, Thomson wears a summer kimono to her first undergraduate lecture each year, upholding a decade-long tradition followed by some of the Japanese Studies team.

"There's nothing symbolic about it, it simply makes students take more notice," she laughs. "We do it to get our students excited about learning Japanese."

It seems to have worked. UNSW is home to one of the largest Japanese programs in Australia, with more than 1,000 students enrolled each year. Thomson has been an integral part of the success, having worked at UNSW for more than 20 years.

Her commitment hasn't escaped the notice of the federal government, which honoured Thomson and her six-member team with an award in 2012

for being some of the "most inspiring" teachers in Australia.

And the students' results reflect the teaching prowess. UNSW won two national titles in the Japanese speech contests in 2011, followed by three in 2012.

"There is a great sense of support within our program," says Thomson. "I think our strength lies in the fact we have always focused on building a community."

Thomson has long wondered why Australia has failed to produce more proficient speakers of all Asian languages.

"It's the system itself that is against language learning," she says. "Students are offered little incentive to continue beyond high school and often drop their language subject for the HSC. What is needed are better pathways for study from school to university."

Federal education minister Christopher Pyne recently suggested the country aim for an ambitious target of 40% of Year 12 students taking a language within a decade.

While this would ensure plenty of learners, "I still wouldn't advocate

that language learning be enforced. Proficiency comes when students have a genuine interest," says Thomson, who herself was made to learn English at high school in Japan.

She is also sceptical about government attempts to breathe life back into Asian languages. Past attempts including Paul Keating's National Asian Languages and Studies in Australian Schools Strategy (later shunned by the Howard Government) and Julia Gillard's Asian Century White Paper in 2012, all lacked long-term vision, she says.

"Everyone wants to link language learning to economics, but if you ask our students, they are hooked into Japanese because they are interested in the culture; they've built a connection through Japanese music, anime and manga."

Thomson predicts Korean and Chinese language enrolments will continue to grow for the same reasons. Almost 1,000 students enrolled in Mandarin classes last year and more than 400 students are studying Korean at UNSW.

Travel is also a big factor. "Research shows that visiting a destination is the biggest motivator for young people to learn a foreign language," she says.

Thomson says a positive development is the New Colombo Plan, which allows university students to travel overseas to live and study in the Indo-Pacific region. A recent deal between UNSW and Shanghai Jiao Tong University will allow 40 student exchanges per year.

UNSW's Director of China Strategy & Development Laurie Pearcey, who helped broker the Shanghai Jiao Tong deal, says universities need to "do a lot more" to meet the Colombo challenge.

Thomson agrees, adding that learning a second language teaches invaluable skills, including the empathy to establish and maintain cross-cultural relationships.

"No matter which language you learn, it will always teach you to cope with difference, ambiguity and to sympathise with others," she says.

– with Fran Strachan

FIGHTING FIRE WITH FIRE



An explosive approach to extinguishing flames could become the future of firefighting. Ry Crozier reports.

DR GRAHAM DOIG is on the cusp of showing it is literally possible to fight fire with fire.

Against a backdrop of the barren hills of central New Mexico, the lecturer from UNSW's School of Mechanical and Manufacturing Engineering is putting his concept to the test.

Following in the footsteps of the TV show *Mythbusters*, Doig is at the Energetic Materials Research and Testing Center, a patch of dirt on the outskirts of the small town of Socorro, that is a testing site for all manner of bomb, rocket and incendiary devices.

His aim is to demonstrate that a bushfire can be put out not only with water but also with dynamite. It might sound far-fetched, but for Doig it represents the future of bush firefighting.

The idea is very similar to blowing out a candle, but on a much larger scale. Explosives are used to create a supersonic shock wave followed by a rush of air that blows the flame off its fuel source, causing it to stop burning.

The idea isn't new – it has been used in the oil and gas industry for more than 90 years to put out well fires. But it has never been used in other settings.

One reason is that until now, no one has really understood the science behind how or why explosives are effective in putting out fires.

"This is the first time the technique has really been described properly in the public domain," Doig says.

"Now that we understand the mechanisms, we are looking at whether or not we can scale this up one step further.

"We want to see if we can take the flame front of a bushfire and use explosives to extinguish it, or even just knock the fire out of the treetops to the forest floor, where it burns more slowly, buying time for firefighters and evacuees."

Doig began research on the technique almost four years ago, initially with a small team of undergraduate and exchange students.

The first tests were conducted in UNSW's heat transfer and aerodynamics laboratory, using a high-speed camera, a Bunsen burner, and some compressed air to blow out the flame.

"We were slamming the flame with compressed air, so of course it was going to go out," Doig says. "It was an overkill way of blowing out a candle. But the physics we uncovered suggested it might scale up nicely."

He progressed to a bigger lab set-up at UNSW before eventually shifting testing

to the United States in January.

The New Mexico set-up is far less modest. The test flame is about one metre high and fuelled by propane. A four-metre-long steel tube is aimed at the flame; inside the tube is a cardboard cylinder wrapped in detonation cord, a type of high-explosive charge that is often used to demolish condemned buildings. When lit, it produces a concentrated shock wave and rush of air that disrupts and kills the flame in almost all cases, even at considerable distances from the original blast.

Travel to New Mexico was made

possible by funding from an American Australian Association Fellowship. Doig hopes his successes in the US will help attract more funding for a new round of tests, where he plans

to set fire to trees and establish finally that his concept is sound.

Doig acknowledges the technique – if effective – is unlikely to be much use near populated areas. His focus, to begin with, will be on fires burning in remote and inaccessible parts of the world, where water availability is often limited.

"I'm confident the technique will one day be used by firefighters in the field," he says.

"It was an overkill way of blowing out a candle. But the physics suggests it might scale up nicely."



▲ Shock waves ...
Dr Graham Doig on location in New Mexico. Photo: Rana Weaver, Energetic Materials Research and Testing Center, New Mexico.

NOW HEAR THIS



Researchers have combined cochlear implants and innovative gene therapy to regrow auditory nerves and restore hearing. By Susi Hamilton.

AS THE NEWS became public, emails and phone calls flooded in.

The scientific, business and general community were excited about a UNSW study suggesting people with hearing loss might one day have a bionic ear implanted that not only improved their hearing, but would actually regrow their auditory nerve.

The work centres around the cochlear implant – a device that has already revolutionised auditory medicine – but utilises the existing technology in an innovative way.

UNSW scientists from the Translational Neuroscience Facility (TNF) found that when the tiny cochlear devices were inserted into animals with hearing loss, small electrical charges allowed DNA for a nerve growth stimulus factor to be delivered to the inner ear.

The process saw the auditory nerve regrow within a few days, while animals that received the gene therapy had more than twice the hearing sensitivity.

“The result was so good, that hearing sensitivity was indistinguishable from having no nerve damage at all,” says TNF Director Professor Gary Housley.

If the results can be reproduced in humans born with profound hearing loss, or with age-related, or environmental hearing loss, it would be a major advance on current treatments, in which patients have to “learn” to use the bionic ear and which can leave some inputs sounding “robotic”.

“People with cochlear implants do well with understanding speech, but their perception of pitch can be poor, so they often miss out on the joy of music, for example,” Housley explains.

“Ultimately, we hope people who depend on cochlear implant devices will be able to enjoy a broader dynamic and tonal range of sound, which is particularly important for our sense of the world around us.”

The study, featured on the cover of *Science Translational Medicine*, has the

support of Cochlear Limited through an Australian Research Council Linkage Project grant.

One of the most attractive features of the technique is its simplicity.

“We think it’s possible this gene delivery would only add a few minutes to the implant procedure,” says the study’s first author, Jeremy Pinyon, whose PhD is based on the work. “The surgeon who installs the device would inject the DNA solution into the cochlea and then fire electrical impulses to trigger the DNA transfer once the implant is inserted.”

Using a high-performance surgical microscope, Pinyon routinely undertakes the cochlear implantation in the guinea pig model, where it takes him very little time to deftly place the small eight-electrode array into the “snail shell-like” cochlea.

It has long been established that the auditory nerve endings regenerate if neurotrophins – a naturally occurring family of proteins crucial for the development, function and survival of neurons – are delivered to the auditory portion of the inner ear, the cochlea.



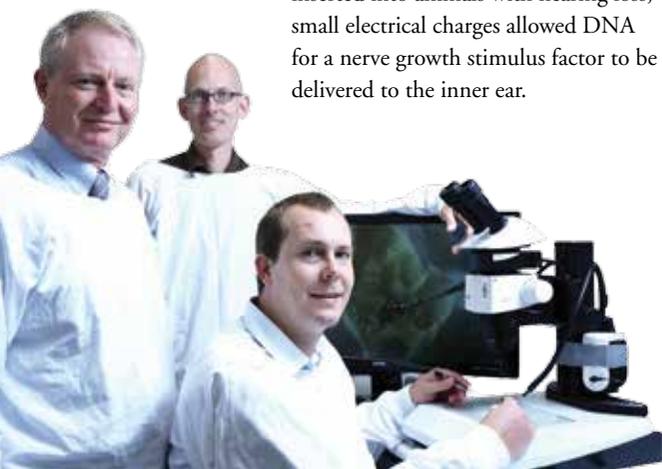
▲ An MRI showing the device in the guinea pig model.

Image supplied

▼ (L-R) Professor Gary Housley, Associate Professor Matthias Klugmann and Jeremy Pinyon.

Photo: Grant

Turner/Mediakoo



... AND NOW SEE THIS



But until now, progress has stalled because safe, localised delivery of the neurotrophins was difficult to achieve. Finding an effective pathway for the therapy has been described as a “holy grail” for medical researchers.

“No one had tried to use the cochlear implant or other bionic devices to deliver gene therapy,” says Housley. “Our technique shows the cochlear implant can be very effective for this.”

Choosing the right site for the gene delivery is also crucial. “There is no advantage to having those auditory nerve fibres growing everywhere. You want them as close as you can get them to the electrodes in the bionic ear,” Housley says.

With the new technique, the highest concentration of the active agent was delivered alongside the 22 electrodes of the device.

In the study, the neurotrophin production dropped away after a couple of months. But the researchers believe ultimately the nerve growth may be maintained by the ongoing neural activity generated by the cochlear implant.

Cochlear Limited’s chief scientist and senior vice-president, Jim Patrick, welcomed the breakthrough: “This is important because, while we have had very good outcomes with our cochlear implants so far, if we can get the nerves to grow close to the electrodes and improve the connections between them, then we’ll be able to have even better outcomes in the future.”

The next challenge is to get the technology into a human trial, which is at least another two years away.

Meanwhile, Housley admits the external interest has been “overwhelming”.

“We’ve had a lot of inquiries from people who are very burdened by their disability and desperate for relief. That’s difficult for us because we are at the basic, pre-clinical level,” he says.

The research also has wider implications. The novel way of delivering gene therapy could represent a new way of treating a range of neurological disorders, such as Parkinson’s disease, and psychiatric conditions like depression, which is sometimes treated using deep brain stimulation, whereby electrodes like the cochlear implant are placed on the brain itself.

“It may be possible to put DNA into the region of those electrodes, pass electrical pulses through it, and cause the nearby cells to take up the DNA,” suggests the study’s co-author Associate Professor Matthias Klugmann.

The team is now working with UNSW Scientia Professor Nigel Lovell and Professor Gregg Suaning, biomedical engineers best known for their work on the bionic eye (see breakout box).

They hope to make a more sensitive bionic ear, which is able to deliver the gene therapy more effectively and provide a more intimate interface with the nerve fibres.

ANOTHER FIELD of bionics enjoying early clinical success is the bionic eye, led in part by UNSW biomedical engineers Nigel Lovell and Gregg Suaning (pictured).

The trial of an early prototype in Melbourne has resulted in three blind people being able to see spots of light called phosphenes for the first time. The trial was conducted by the Bionic Vision Australia (BVA) consortium, of which UNSW is a member.

A stimulation strategy pioneered by the BVA partner NICTA allows patients to get a sense of distance, with the electrical signals getting brighter as they get closer to a still object.

“It’s been amazing,” patient Dianne Ashworth told the *Sydney Morning Herald*. “The more I’ve been doing it, the more natural it feels.”

The patients underwent surgery using a method of implantation that was developed in part by the UNSW engineers.

The technique allows the bionic eye to be implanted in the suprachoroidal space at the back of the eye.

Like the bionic ear breakthrough, part of the advantage of the approach is the simplicity of the surgery. “It takes just two to three hours to implant. Other techniques can take up to 14 hours,” says Professor Suaning, from the Graduate School of Biomedical Engineering.

The UNSW researchers are working on an even more sophisticated device,

with 99 electrodes, which should allow for vision which is four times as good as the technology currently being trialled.

“The idea is patients would be able to navigate better, as they would have electrodes at the periphery of their vision, helping them avoid obstacles,” Suaning explains.

Clinical trials for the more sophisticated device are still some time off, but the experience in developing appropriate technologies is already being applied to the next generation of bionic ear, led by Professor Gary Housley (see main story).

“We feel we can adapt the technology to make a more appropriate array that matches exactly what Gary needs,” says Scientia Professor Lovell. “If we tailor something more precisely to the ear, it will allow the DNA to be delivered more effectively and improve the nuance of sounds.”

The biomedical engineers are excited by the potential of gene therapy.

“Being able to locally deliver gene therapy using modified versions of the existing cochlear array and electronics will herald the next generation of bionic interfaces,” says Lovell.

As for applications for the eye, well, that’s some way off, adds Suaning: “It would put me out of business, but I could live with that.”

– Susi Hamilton



BUSTING THE ANZAC MYTH

Has a national obsession hijacked centenary commemorations of the Great War? Chris Sheedy and Steve Offner report.

AT A RECENT CONFERENCE in the United States, UNSW Canberra military historian Professor Jeffrey Grey found himself at a roundtable discussion in the company of some of the world's most respected Great War scholars.

As they discussed the centenary of World War I and the commemorations that will begin rolling out on 28 July this year, the panel Chair noted "Australia is without doubt the most *aggressive* of the centenary commemorators", Grey recalls.

He was immediately struck by the comment.

"I said to her afterwards that I thought 'aggressive' was exactly the right word. We Australians have taken the opportunity of the centenary and are spending something in the vicinity of half a billion dollars on the commemoration," he says.

That price tag was calculated by former Australian Army officer and UNSW alumnus James Brown in his book *Anzac's Long Shadow*. Brown, who has tours of duty in Afghanistan and Iraq, and is a Military Fellow at the Lowy Institute for International Policy, is a vocal critic of the Australian approach to the centenary.

"At the War Memorial in Sydney's Hyde Park, inscribed words decree: 'Let silent contemplation be your offering'," Brown writes in his book. "Instead,

Australians are embarking on a discordant, lengthy and exorbitant four-year festival for the dead."

Brown estimates \$325 million is being forked out by the Australian taxpayer for the string of "festivals". Add more than \$300 million expected in private donations and what we will have, Brown predicts, is an Anzac centenary that risks fetishising war.

The national enthusiasm for the centenary project is all the more perplexing when Australia's part in the war is analysed, says Grey, who is one of Australia's leading WWI experts. Based at UNSW Canberra's Australian Centre for the Study of Armed Conflict and Society (ACSACS) Grey has undertaken the writing and editing of Oxford University Press' new five-volume history of the war to commemorate the centenary – the first since Australia's official war historian Charles Bean penned his six-volume *Official History of Australia in the War of 1914–1918* from the 1920s to '40s.

Unlike other countries in the Great War, Australia was never under serious threat of invasion, Grey says. Even the number of Australians killed – around 60,000 – represents a tragic but small figure, compared with the 600,000 British deaths, more than one million Austro-Hungarian fatalities and almost 1.4 million French lives lost.

In commemoration of the centenary, Australia is not only spending more than twice what Britain is, we're even outspending the French. "And the French, you might think, have more reason than most to remember the Great War," Grey says.

Grey set out his reservations in an opinion piece published in *The Australian*. "If Australia's centenary observance is little more than a four-year long Dawn Service, replete with all the hackneyed clichés and self-serving a-historical mythology trotted out each Anzac Day, it will be a monumental waste of time and money," he wrote.

He adds: "I wonder about the commemorations at Anzac Cove next year. I don't know that I necessarily want to scratch too hard to find out what is below the surface and why all those people will be there."

THE POWER OF MYTH

According to Grey and his colleagues in ACSACS – Professor Peter Stanley and Associate Professor Craig Stockings – you don't have to dig too deep to uncover the reasons behind Australia's obsession.

Anzac Day has arguably replaced Australia Day as our de facto national day and the events surrounding Gallipoli have established themselves as our national story. In particular, our soldiers' bravery at Gallipoli is seen to exemplify idealised virtues that lie at the heart of our self-identity.

"The driving need to celebrate the deeds of past servicemen and promote conceptions of national identity wrapped in the imagery of war have come to dominate our national discourse," Stockings writes in the introduction to his book *Anzac's Dirty Dozen – 12 Myths of Australian Military History*.

From this foundation myth a whole host of historical misunderstandings has been spawned – and these are not harmless, says Stockings, whose earlier book *Zombie Myths* also sought to dispel some of the more stubborn misconceptions around Anzac. "These misunderstandings shape our picture of ourselves in obscuring and inaccurate ways ... they situate our attitudes to the past falsely, distort our reading of the present and our expectations of the future. They are monsters of the mind."

With the centenary celebrations it stands to get a lot worse, Stockings predicts.

► The myth busters
... Associate Professor Craig Stockings, Professor Jeffrey Grey and Professor Peter Stanley. Photo: John Carroll



"These myths are aided as never before by blogs, Wikipedia, Anzac supplements in the weekend papers, and bestselling popular histories not always based on archival research."

SETTING THE RECORD STRAIGHT

One of our most cherished and enduring myths is the idea Australia's military history – and by association our national identity – began at Gallipoli in 1915, despite Australia's military involvement in conflict extending at least to the 1899 Boer War, if not to colonial times.

Other myths "that will not die" include the boast that the Australian Imperial Force was the only all-volunteer army in WWI (it wasn't), that its volunteer status made Australian soldiers inherently superior to their conscripted counterparts (there is no evidence their skills were inherent), and that Australian soldiers had higher ethics and morality (they demonstrably didn't).

Another oft-repeated misconception is that Australia has only ever fought in other people's wars as a consequence of misplaced loyalties or sentiment – a claim particularly levelled at WWI. While this view has obvious appeal, Stockings says, it fails to stack up. "Australia's wars have been her own," he writes. "For better or worse, successive Australian governments have chosen to fight. They have done so in the main for cold, calculating, *realpolitik* reasons."

Stanley, one of Australia's most active military

historians and author of a number of books including *Lost Boys of Anzac*, and *Digger Smith and Australia's Great War*, says what's seductive is the emotional appeal of military history – especially Gallipoli.

"Many Australians believe the landing at Gallipoli was in the wrong place, that the British put us down in the wrong place," he says. "These beliefs have been around for decades. But if you look at the documents, as historians do, then you will challenge those popular beliefs."

Stanley, who headed the Australian War Memorial's Historical Research Section from 1987 to 2007, says it has become clear through generations of scholarship that Britain's Royal Navy could not have navigated to a more exact point than it did, in the dark, using the navigational aids available a century ago.

"The spot they put ashore was actually a better place because it was less heavily defended," Stanley says. "Everyone at the time, including all of the officers, agreed it was a reasonable place to land. So you can't attribute the failure of the operation to that."

If blame must be apportioned, he says, it might be better to focus on what happened once the troops made it to shore on 25 April 1915. The Australian commanders simply didn't follow their orders, he says.

"They didn't push on to the objective, to get to the other side of the peninsula. Instead they



told their troops to dig in and that was where the line stopped. The Turks certainly played their part, but so did the Australian commanders. That's not something most Australians would understand or believe or accept, but it's true."

For many Australians, facts like these are at odds with the legend that was born that day. Prior to 1915, Australian identity was largely centred on the myth of the pioneering bushman. Thanks to Gallipoli, that image was replaced by the bronzed warrior – the ultimate fighter and larrikin prepared to die for his mates.

But look more closely and a different picture emerges. It is a picture of ordinary men coping as well as they could in terrifying conditions, says Stanley. He wrote *Lost Boys of Anzac*, using soldiers' personal letters and previously unresearched Red Cross records, because he felt a "human gap" existed in the conventional historiography.

"They are very candid records and quite destroy the idea that the landing on Gallipoli was in any way glorious," he tells *Uniken*. "I wanted to show that the Anzacs were ordinary young men – if we can understand that we can keep Anzac in perspective and understand Australia's military history realistically and maturely."

The ordinariness of the Diggers is reflected in records that show the Australian Imperial Force had a higher rate of desertion than any other force on the Western front and that one in 10 Australian soldiers had some form of venereal disease. The honest accounts of the soldiers' lives are included in Stanley's book *Bad Characters: Sex, Crime, Mutiny, Murder and the Australian Imperial Force*, which was jointly awarded the Prime Minister's Prize for Australian History in 2011.

"That book was made feasible by the release of the AIF's court martial files," Stanley says of *Bad Characters*. Getting the tone right was critical. "I needed to be honest – this story had largely not been told – but also sympathetic to the situation of young men who in many cases suffered death and wounds in circumstances that none of us experienced. I remembered Madame de Staël's aphorism 'to know all is to forgive all', and that became the book's epigram."

The reviews of the book demonstrated the validity of this approach. "To my secret disappointment no one burned the book, and it sold reasonably well," Stanley says.

Despite the warts-and-all stories, one of the things that emerged from the historical accounts was that these ordinary people, when they entered battles and performed their duties in war zones, had a superb reputation.

"New Zealand soldiers were good. Canadians were good. Many Brit divisions were good but Australian divisions were very good and remarkably consistent," Stanley says. "Were they among the best fighting forces? Everybody at the time seems to agree they were."

BACKLASH

Predictably, attempts to set the historical record straight have attracted criticism and angered some.

Former James Cook University academic Dr Mervyn Bendle, writing in the conservative journal *Quadrant*, distilled the criticism, accusing the UNSW historians and the Lowy Institute's James Brown, of declaring "a war on the Anzac legend", an accusation also seized on by *The Australian*.

According to Bendle, they have embarked on an "elitist project explicitly dedicated to destroying the popular view of these traditions". Ensnared in elite institutions (located mostly in Canberra, he adds), they exhibit a disdain for ordinary Australians and their beliefs.

"[Australians] should be allowed to honour the centenary without constant sniping from an anti-Anzac elite of obsessive academic leftists and disgruntled ex-officers," he concludes.

It's a cheap criticism but not entirely unexpected. After all, no one

likes to have closely held beliefs challenged.

Nevertheless, Grey, Stanley and Stockings believe it is essential to continue to make the distinction between historical inquiry and mythology.

The military is a reflection of Australian society and an agent of government policy, Grey stresses.

"For the vast majority of Australians their understanding of war and of our defence forces is refracted through

"I wanted to show that the Anzacs were ordinary young men – if we can understand that we can keep Anzac in perspective."



▲ Gallipoli will be the focus of centenary commemorations, starting this year.
Photo: Sam Mooy/
News Ltd/Newspix

their knowledge of the Great War. If that understanding is partial at best, by the time it is applied to today's defence force – one that bears no relation to the army of 1914 – it is going to be so skewed as to be deeply misleading.”

Stockings agrees. “I have no problem with the Anzac myth and sentimentality around that. As far as national foundation stories go, it's a reasonably positive one. My problem is when that type of mythology or sentimentality

is mistaken as a substitute for history.

“It's one thing to believe in the idea of an invincible, seven-foot-tall Anzac soldier. It's another thing to understand these guys as normal people in harrowing circumstances who still achieved amazing things.

“They were human beings with human frailties. That's the reality; it's evidence from the source. Their legacy is far greater in truth than it is in myth,” Stockings says.

What, then, of the upcoming centenary commemorations? “It's not the worst thing to happen,” Stockings says. “I have friends who were wounded in places like Afghanistan. I have no problem with commemorating loss, but I have no interest in carnival-like, almost joyful celebrations.

“A very large proportion of the first Australian Imperial Force was not interested in marches or the like – they just wanted to get on with their lives.”

MEET OUR OTTOMAN FELLOW

MESUT UYAR was a young Turkish army officer on a tour of duty in his country's east when a Kalashnikov bullet fired by a Kurdish rebel pierced his upper thigh.

“My hip bones were fractured. And I spent a month in hospital with a kind of paralysis with my right leg. But I survived,” he says.

A leading expert on Turkey's role in WWI, Uyar (pictured) retired from the army as a colonel in 2012 to devote more time to his research. He became UNSW Canberra's Ottoman Fellow last year.

As a former curator of the Turkish Military Academy's Archives and Museum Division, Associate Professor Uyar is one of the few historians who can read both the Ottoman script and the unique abbreviations, phrases and codes of the Ottoman military.

Those accounts provide many insights into the events of WWI, Uyar says, but rarely have Western scholars made use of them.

“The bureaucrats of that period produced the documents for their own use, so they have a peculiar style and their own acronyms. If you are not able to put yourself into their skin, you will have difficulty,” he says.

The records became personal for Uyar when he discovered during recent research that his own great-grandfather and a great uncle were killed at Gallipoli, fighting the Australians at Lone Pine.

The records also shed light on contentious issues around the Gallipoli landing. Popular



► Photo:
John Carroll

accounts say the Anzacs were set ashore at the wrong place and thousands were mown down by Turkish machine guns.

But the machine guns at Anzac Cove on that first day are a fiction, Uyar says. In fact, a single platoon of Turkish infantry armed with rifles was in place that morning.

“In modern terms that would be 20 or 30 soldiers,” Uyar says. “But an Ottoman platoon had 83 soldiers. That's 83 experienced soldiers, with Mauser rifles, able to fire

10 bullets per minute – if you think about the effect on the Anzacs below, of course they would think they were facing machine guns.”

Another inaccuracy is the belief that the Turkish army took no prisoners. “Because the Allied forces at Gallipoli had this policy themselves, historians automatically assumed the Turks did too,” Uyar says.

The archives report around 200 Anzac prisoners, but the real figure is likely to be much higher.

“Many of the heavily wounded prisoners passed away in field hospitals during the initial phases of their capture – often due to bombardment from their own side – so they never made it to the mainland to be listed as prisoners of war,” Uyar explains.

The no-prisoner myth was fuelled by beliefs the Ottomans were an unruly rabble. But the records show their military was organised and well commanded in 1915.

As a former officer, Uyar says he understands the feelings of the soldiers and commanders on the ground.

“I passed through that process also. But I try to put a safe ground between my research and my previous experiences.

“I am not trying to whitewash the Ottomans. I want to help a younger generation of scholars get into the records, and bring Ottoman military history into the mainstream.”

– Steve Offner

WITHOUT THE FACES OF MEN

The facial disfigurement of Great War veterans led Kerry Neale to uncover stories that challenge our ideas of the sacrifice of war.

RESEARCH INSPIRATION can come from anywhere. For Kerry Neale it came during a 2006 talkback radio program on World War I, when people rang in to tell stories of relatives who had fought in the Battle of the Somme.

“One man talked about his grandfather, who had suffered horrible facial injuries and lost his nose,” Neale says. “He had endured various reconstructive operations during which close-up photos were taken of his face. The man said, as the operations progressed, you could see in the photos how his grandfather’s eyes began to lose their spark for life.”

At the time Neale found the account difficult to understand. After all, the man’s face was being repaired, so why the gloomy reaction?

Drawn to discover more about the experiences of disfigured Great War veterans, Neale made it the focus of her PhD within UNSW Canberra’s School of Humanities and Social Sciences. She began with medical records of more than 4,000 Allied soldiers treated for facial wounds at the Queen’s Hospital in Kent.

“Some of the photos are quite confronting. But the more I looked at them, the more I wanted to know the story behind them,” she says.

The veterans’ homecoming experiences have been significantly overlooked, says Neale, who is now an assistant curator at the Australian War Memorial.

“Most people associate war wounds with amputees or shellshock, but the idea of facial disfigurement rarely comes up. It’s one thing to fight and even die in war. It’s another to come back with no face,” she says.

Often the medical treatments the men endured were as confronting as the wounds themselves. “Some of the techniques are still used today in plastic surgery, but the expertise and tools back then were very basic,” she says.

The social stigma of disfigurement was profound.

“The repatriation department suggested using the word ‘repulsive’ to describe the men and some of the men referred to themselves as monsters, broken gargoyles, and as being no longer human,” Neale says. “The face is where our identity and our personality is conveyed. To be disfigured in this way was a major challenge to perceptions of manhood and the notion of the ‘patriotic sacrifice’.”

Neale suggests knowledge of veterans’ experiences is important to our understanding of the effects of today’s military conflicts.

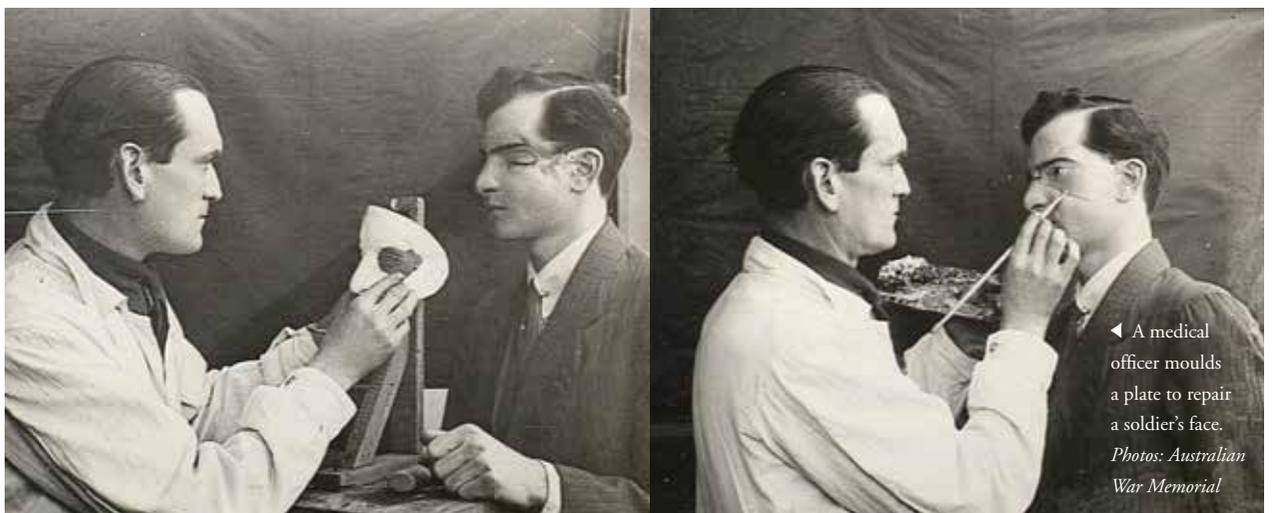
While providing far better protection than the battlefield clothing of 100 years ago, modern body armour still leaves the face exposed to shrapnel from improvised explosive devices.

“Between 17% and 20% of all wounds in Iraq and Afghanistan were facial wounds, which is actually more than the 12% to 15% in the First World War,” Neale says.

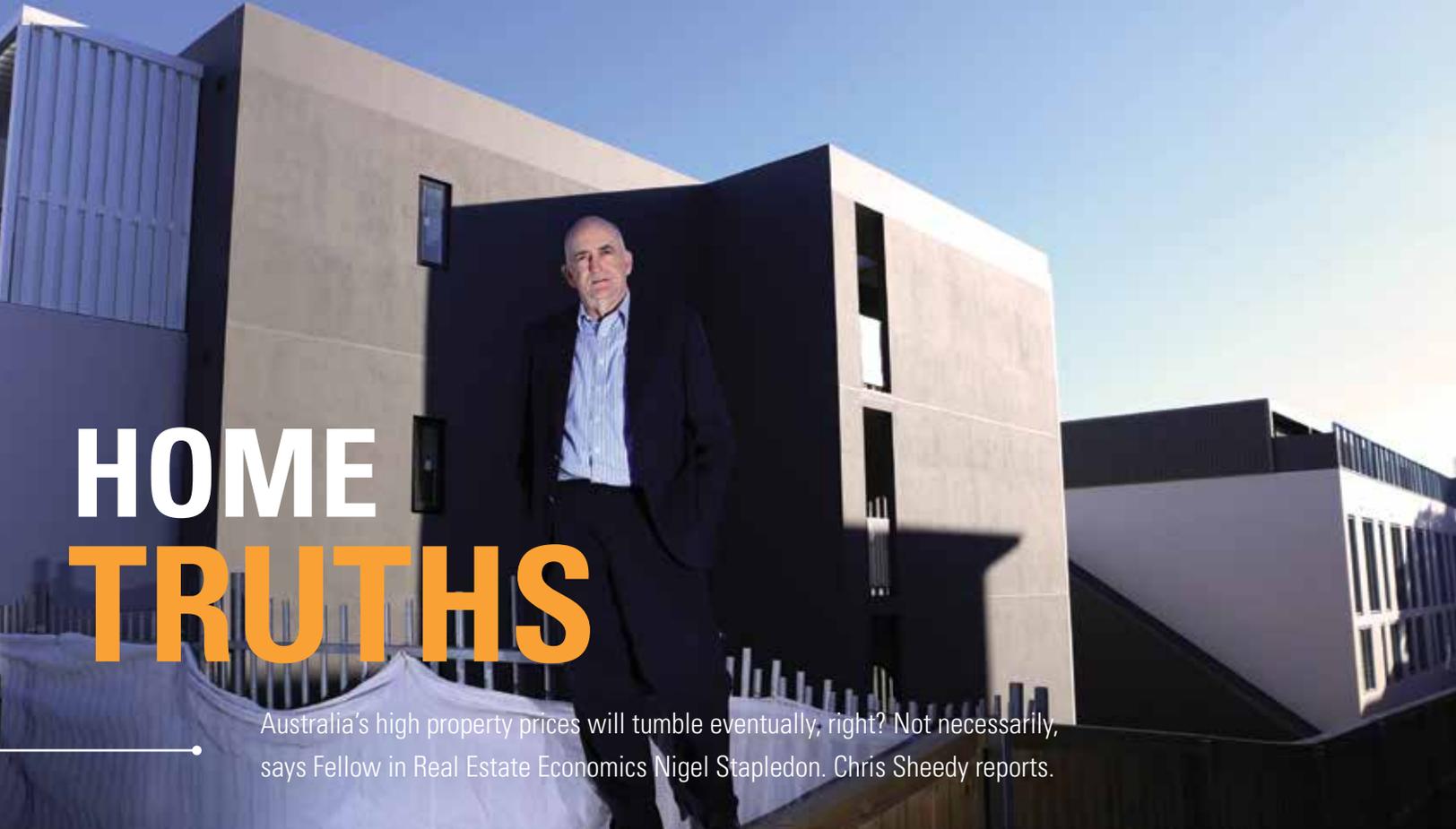
Like some veterans today, many of the wounded World War I soldiers became estranged from their families. “These days we might say they were suffering depression or PTSD. For the grandfather of the man I listened to on the radio, this was most likely the case,” Neale says.

“We have been reluctant to delve into these accounts because we assume they will be only stories of suffering and loss. But many of the men were incredibly resilient. They found jobs, went into relationships and had children. It was very much a personal journey.”

– Chris Sheedy



◀ A medical officer moulds a plate to repair a soldier’s face.
Photos: Australian War Memorial



HOME TRUTHS

Australia's high property prices will tumble eventually, right? Not necessarily, says Fellow in Real Estate Economics Nigel Stapledon. Chris Sheedy reports.

FOR SOMEONE who would end up working in Australian banking, Nigel Stapledon didn't go out of his way to make friends with the industry early in his career. In his role at Treasury in the early 1980s he torpedoed the Commonwealth Bank's push for greater government funding (during its commercialisation process) by running through their books with a fine-tooth comb.

"I had figured out they had a huge amount of property on their books that had been valued 15 to 20 years earlier, and those values had not been updated," Dr Stapledon, the Australian School of Business' Andrew Roberts Fellow in Real Estate Economics, says.

"As a result of fresh valuations, it worked out the government did not need to give the bank anything."

Despite these efforts, Stapledon gained work with Westpac, from 1986 to 2003 – a period encompassing the "recession we had to have" in the early 1990s.

Watching things unfold from within a major bank presented a fascinating point of view, Stapledon says.

"From 1989 it was a disastrous time. I was connected to the credit teams and witnessed the inside story," he says. "The problems were all to do with property and mostly to do with commercial property.

"The crash really began in 1989 [but] it took a while to unfold because commercial properties take several years to build, and once you start building you don't stop. By the depth of the recession all of the cranes began disappearing from the skyline and there was huge unemployment in the construction sector."

Australia's next test would come in 2008 with the global financial crisis. Part of the reason the country came through this relatively unscathed, says Stapledon, is because of the cutbacks and conservatism within Australian banking that had come as a result of the previous recession.

Recent corporate memory is very important in facing current challenges and preparing for the future, he says. And a lack of that memory is just as important. If the major US banks had faced a more recent recession as ours had, for instance, they may have been less likely to have played the hand they did in the GFC, he suggests.

A large part of Stapledon's motivation to provide informed commentary is to influence better market decisions.

"I was involved in the push for the new Major in Real Estate Studies here at UNSW," Stapledon says. "The industry was the real driver, though. Investors, builders, property trusts, they all want people who understand the sector and they

want to make better-informed decisions."

So what about current arguments around a real estate bubble ripe to pop in the Australian market?

"Doom and gloom has been predicted in Australian real estate for 15 years and popular commentators make a lot of noise but it's not particularly good economics," Stapledon says.

"The *Economist* magazine looks at price to income ratios in terms of real estate and ours is high. But they also look at the price to rent ratio, which is akin to dividends or earning yields for stocks and is a lot more useful and justifiable as an economic measure.

"Looking at the price to rent ratio and allowing for the level of real interest rates, there is no reason why prices should be seen as particularly special or alarming."

Rises in prices can develop momentum that detaches them from economic fundamentals, Stapledon says. "That's what happened in the US in the lead-up to the GFC. Australia's different economic story courtesy of the resources boom justified the rise in prices here.

"I'd be concerned if people believed our market is somehow different and can't fall. It certainly can. But at the same time, our market doesn't have to behave as the US market did."

▲ Bursting the bubble ... Dr Nigel Stapledon. Photo: Grant Turner/Mediakoo



IS THE WORLD CUP WORTH DYING FOR?

The abuse of migrant workers in Qatar is an issue for all who love the “beautiful game” write Justine Nolan and Bassina Farbenblum.

IT IS KNOWN WORLDWIDE as the beautiful game, yet a recent report by the International Trade Union Commission has highlighted football’s uglier side. The ITUC report, *The Case Against Qatar*, claims construction for the Arab nation’s 2022 FIFA World Cup will claim the lives of 4,000 migrant construction workers before a ball is even kicked.

The report alleges 1,200 migrant workers have already died since Qatar won the right to host the World Cup in 2010, but regardless of the toll, construction continues unabated. Despite worldwide pressure from media, and labour and human rights movements, FIFA and the Qatari government seem unwilling to act. Qatari representatives have said they are “taking the problem seriously” yet little has changed in the treatment of the migrant

workers who make up 96% of Qatar’s workforce – the highest proportion of migrants of any country in the world.

In the past 20 years, global labour migration has increased exponentially. Approximately 90 million migrant workers now toil around the world providing essential services in construction, domestic work, care-giving, agriculture, fisheries, manufacturing and service. Low-wage migrant workers routinely encounter hazardous and unsafe work conditions, unpaid wages, low to non-existent social security guarantees, inadequate rest, inhumane housing conditions and employers’ confiscation of their identity and travel documents. Accounts of exploitation, abuse, human trafficking, debt bondage and death are common.

After visiting Qatar in April 2014, the UN Special Rapporteur on the human rights of migrants confirmed migrants in Qatar often pay exorbitant recruitment fees and arrive heavily indebted. Employers then confiscate the workers’ passports on arrival and replace contracts the workers signed in their home country with new ones that pay the workers a significantly reduced salary and often change the nature or conditions of their work. According to the UN envoy, migrant workers in Qatar are frequently exploited, often working without pay and living in substandard conditions.

The supply of migrant labour is greater than the demand, and many countries have little incentive to better protect migrant workers. The workers’ countries of origin, and businesses within them, also profit significantly from workers’ remittances, recruitment fees and insurance costs. Indeed, in 2012, global remittances from migrant workers to their origin countries amounted to \$534 billion – triple the amount of global development aid. Though some origin countries are improving their practices, the economic importance of this sector tends to incentivise income maximisation at the expense of worker protection.

Migrant worker protection is not only a challenge for governments in origin and destination countries. It also involves the companies that recruit and employ

▲ Socceroo
Tim Cahill celebrates victory over Iraq to qualify for the 2014 World Cup.
Photo: Toby Zerna/News Ltd/Newspix

these workers and the organisations such as FIFA for which they are ultimately “working”. Migrant workers routinely fall into an accountability vacuum with so many involved entities along a complex global supply chain – governments and the private sector – potentially responsible for their working conditions, but each placing the blame elsewhere.

Some might argue this is an issue for governments to regulate. Indeed, construction for the World Cup is portrayed as a problem for the Qatari government. Yet, as globalisation has expanded our ability to source products and labour from all over the globe, so too has the responsibility for migrant workers’ working conditions become dispersed. If we are concerned with the quality of the products we buy or the stability of the hotels in which we stay, should we not also be concerned about the quality of conditions in which the soccer balls were made or the hotels built? Responsibility can and should accrue to governments, but the many and varied private actors who profit from migrant labour should not be immune from assuming some responsibility. This includes institutions such as FIFA, an organisation which bears no direct legal responsibility for the conditions under which these migrant workers labour, but which will benefit financially from a successful event.

Not many aspects of global dynamics these days escape the reach of global supply chains, and the roles and responsibilities of the various actors in this chain are becoming more clearly delineated. In 2011 the United Nations Human Rights Council endorsed a new set of Guiding Principles for Business and Human Rights designed to establish a global standard for preventing and addressing the risk of adverse impacts on human rights linked to business activity. While the Guiding Principles assert all companies have a responsibility to respect human rights, the means of enforcing this responsibility is largely left to national governments to devise. The Guiding Principles appear to be having limited impact in Qatar. With pressure on the Qatari government to prove critics of the process in which it was awarded the World Cup wrong, its primary emphasis is on building world-class facilities. How, and under what conditions the stadia, hotels and accompanying infrastructure are being built appears to be of secondary importance.

This lack of concern and weak regulation of the working conditions of low-wage workers is not confined to the construction industry. On 24 April last year a nine-storey factory collapsed in the industrial outskirts of Dhaka, the capital of Bangladesh, killing more than 1,100 garment workers and crippling thousands more. Most of these workers were internal migrants, struggling with local unemployment and moving from the country to the city in search of a better life.

The collapse of the Rana Plaza building was the worst industrial accident anywhere since the tragedy in Bhopal, India nearly 30 years ago. The disaster dominated global headlines for a few weeks and, finally, it has forced some changes in the way garments are now sourced and produced in Bangladesh.

Thirty years ago in Bangladesh there were less than 400 garment factories employing about 120,000 workers. Today there are more than 4,000 factories with more than 4 million workers and these jobs have lifted many workers out of the destitute poverty village life might otherwise offer them. Garment workers routinely toil in factories for long hours for low wages and although the jobs can often offer a glimpse of a better life than the one they left behind, at what cost? There is no doubt the garment business has been a driving force for societal development in Bangladesh, but “development” also has come with significant costs, especially for the health, safety, and wellbeing of workers.

“Migrant workers routinely fall into an accountability vacuum with government and the private sector each placing the blame elsewhere.”

The global garment manufacturing industry and the construction sector are businesses built on low wages and too often, lax regulation. While wages for workers in Bangladesh have risen in the past year they are still the lowest-paid garment workers in the world and no one can pretend a family can live on a single salary. But in the 12 months since the Rana Plaza building collapse, there have

been two significant initiatives established to improve working conditions in Bangladesh’s garment factories. These innovative collaborations are a step in the right direction in a country where the government regulatory scheme is woefully inadequate and lacking resources to improve anytime soon. However even though progress in the last year has been slow it is a positive sign to find global brands and local factories working together to improve working conditions – and global consumers demanding they do so.

It took the death of more than 1,100 garment workers in Dhaka for the Bangladeshi government, international apparel brands, the International Labour Organization and local factory owners to come together to develop plans to improve factory conditions. How many more workers’ deaths will it take in Qatar for governments, construction companies, recruitment agencies, FIFA and global soccer spectators to step up and say “enough”?

Justine Nolan is Deputy Director of the Australian Human Rights Centre (AHRCentre) and a Senior Lecturer at UNSW Law. Bassina Farbenblum is a Senior Lecturer at UNSW Law and Director of the AHRCentre’s Migrant and Refugee Rights Project. She is the author of the recent report *Migrant Workers’ Access to Justice at Home: Indonesia*. A version of this essay first appeared in the AHRCentre’s *Human Rights Defender*. Footnotes appear on the *Uniken* website.



THE ECONOMICS OF FEAR

“Even when the risk of violent crime is relatively small – less than 1% – individuals may adjust their behaviour by as much as 30–50%.”

The shock waves from violent crime are having an economic impact far beyond the people directly involved, writes Chris Sheedy.

WHEN HE WORKED IN AFRICA, development economist Ariel BenYishay noticed small-scale entrepreneurs were often unable to grow their businesses beyond the initial stage, even when the opportunities were obvious.

“They told me they could do so much more if they had a piece of machinery – a car, a motorbike, or a sewing machine,” says the 33-year-old lecturer in the Australian School of Business.

He assumed the urban street-sellers and small-service providers simply couldn’t afford the items or they were unavailable.

But it turned out robbery was common in many of the communities and people were reluctant to invest in new items.

“Why would they invest if it was likely to be stolen?” BenYishay says.

The realisation spurred the Israeli-American on to his next project, looking at the impacts of crime on micro-economic activity, especially the behaviours crucial to business growth.

Together with Dr Sarah Pearlman from New York’s Vassar College, BenYishay began comparing crime

statistics with data on the behaviours of poor people in urban Mexico.

Based on BenYishay’s observations in Africa, the researchers first looked into robbery as a possible explanation for sluggish micro-enterprise growth in Mexico. As expected, higher rates of property crime in urban areas were associated with significantly lower rates of business expansion.

But what of other forms of crime, like homicide? Were they also having an effect? Again Mexico was an ideal case study.

Violent crime in certain Mexican regions has surged in recent years, largely as a result of a 2006 federal government crackdown on drug cartels. Five Mexican cities now rank among the top 10 most violent cities in the world, according to the Citizens’ Council for Public Safety and Criminal Justice.

“The gruesome and public nature of many of the killings as well as the perception that cartel members can operate with impunity has generated a high level of fear within the population,” BenYishay says.

This fear has a tangible economic impact, the researchers found, with an increase of 10 homicides per 100,000 in a year (or 0.01%) associated with a 1% drop in the number of hours worked per week. The effect was even greater on the self-employed, specifically those who worked from home.

The correlation is significant given that drug-related homicides in Mexico increased 480% between 2006 and 2011 (from 2,120 to 12,366) and homicides overall increased 45% from 25,780 to 37,375.

The results were even more pronounced in states most affected by drug cartel violence, where average hours worked by the self-employed had declined by up to two and a half hours a week.

The research is some of the first evidence that fear of violence leads to individual behavioural changes that lower economic activity.

“Even when the risk of violent crime is relatively small over a given year – less than 1% – private individuals may adjust their behaviour by as much as 30–50%. The marginal hours are the riskiest: going home in the dark, for example. Instead people leave work early.”

BenYishay says we’ve long known violent internal conflicts like Mexico’s war on drugs have serious impacts on short-term and longer-term economic development, largely due to effects on public services and institutions.

“But when it comes to the wider impact of violence and crime – in this case on productivity and labour market participation – it’s not all about the state. It’s also about the individual.”

▲ Images of San La Muerte (Saint Death) at the entrance to the town of Arteaga, in Mexico’s Michoacán State – home to the leader of the notorious Knights Templar drug cartel. Photo: Ronaldo Schemidi/Getty Images



SEEING IS BELIEVING

An animator is helping patients come to terms with their diagnosis through the creation of 3D images of their disease. Fiona MacDonald reports.

TEN YEARS AGO, Scottish 3D CGI animator John McGhee was working in web design, TV and advertising when a family member reported feeling frustrated with the information they were getting from their doctor. It wasn't the first time he'd heard such complaints; in fact, he'd made them himself.

"I saw it happen more and more," says McGhee. "You don't understand what your doctor has told you so you go home to Google more information, but then you end up more confused."

As someone who used technology to help bring stories to life, McGhee decided to see if he could use his skills to help people better understand their illnesses.

Now the director of the new 3D Visualisation Aesthetics Lab within the National Institute of Experimental Art at UNSW's College of Fine Arts, he is pioneering a field at the junction of medicine and design.

His work involves using technology to turn patients' data into visual representations of their disease to help them come to terms with their diagnosis.

"There are definitely benefits in terms of understanding what's going on and how the disease works," says McGhee. "But my work ... can also help patients understand how they feel about their diagnosis and communicate that back to the health professional."

The work uses the patient's own data, so each experience is unique. "When we're creating these visualisations, we're presenting it in a way that helps people connect emotionally. What colour do you make it? What texture?" he says.

In one project, McGhee rendered a model of a diseased kidney, aorta and right renal artery from a glass-like material to help the patient understand the fragility of their condition ("*Stenosis*", pictured above).

In another, he created 3D images of cancer cells to help patients visualise the disease spreading – without the fear. The pictures were so beautiful one ended up on the front page of *The Guardian's* education supplement.

"There's nothing worse than fighting the unknown," says McGhee. "If you've got a picture in your head, at least you can hold on to that when you're going through tests and procedures."

One of McGhee's first projects at UNSW will be with the Children's Cancer Institute, where he's hoping to find better ways of displaying cellular information to young patients and their parents. He's also working with St Vincent's Hospital to help stroke patients visualise their MRI data and understand their rehabilitation process.

McGhee is also working with virtual reality headsets to allow people to "jump in" and walk through their bodies. "They could actually explore their arteries, look at their blood clots – that's the roadmap of where I want to take this," he explains.

Quantifying what benefit the work brings is important – anecdotally doctors and patients report the visualisations help empower patients and encourage discussion.

What's clear is we're still only realising a fragment of the ways that design can benefit society, McGhee says. As part of his lecturing role, he'll be teaching students to apply the techniques to broader data sets.

One day we might even see long-term residencies for digital artists and designers in hospitals, McGhee believes.

"This work might define a new type of role within clinical care. It's not just about doctors in white coats telling you what's going on anymore. These visualisations are helping patients contribute to their own story."



NOVEL APPROACH

Will computers one day have the emotional intelligence and sophistication to write fiction? Ry Crozier investigates.



IMAGINE SWITCHING ON a computer and having it independently churn out a bestselling novel replete with plot twists and complex characters, showcasing the full suite of human emotions.

While such an intelligent author-computer is still a long way off, Australian Research Fellow and artificial intelligence expert Dr Malcolm Ryan predicts “computers will be making interesting and meaningful contributions to literature within the decade”.

“They might be more experimental than mainstream,” concedes Ryan, who is based in the School of Computer Science and Engineering, “but the computer will definitely be doing some of the work of writing.”

While today’s computers are very smart, they still can’t compete with the human brain in terms of imagination and creativity.

“Most people can tell a story without having to consciously think about what goes into it – the characters, events, sequencing, language and level of detail,” says Margaret Sarlej, one of Ryan’s PhD candidates. “That’s an innate talent that computers just don’t have. They need detailed instructions for every step of the process, which is not easy to provide when, to a large extent, we don’t even understand how people do it,” she says.

It’s easy to underestimate just how much effort is required to make computers more human-like and autonomous, Ryan says.

The enormity of the challenge was apparent in 2007 when he tried to get a computer to understand, and then reproduce, a page from Beatrix Potter’s children’s classic *The Tale of Peter Rabbit*.

Though the story-line appeared straightforward, Ryan found the level of complexity in the characters and their emotions was simply beyond what the artificial intelligence at the time could handle.

“Humans have remarkable ability to do complicated things and see them as being quite simple,” he says. “It’s only when you have to program a computer to do the same thing that you realise how much knowledge is required.”

Rather than show off the computer’s limited storytelling abilities, Ryan set about describing everything it couldn’t do. “It was a far more instructive approach,” he says.

Seven years on, Ryan and his PhD students believe they are at the stage where they can concentrate their research on what can be done. Sarlej recently developed a program that allowed a computer to write simple Aesop-like fables.

The program – the MORal Storytelling System (MOSS) – resulted in stories more “alive” than previously considered possible. It structured a plot around characters imbued with up to 22 different emotions, allowing multiple plot development possibilities and the creation of coherent, interesting and useful stories in their own right.

Ryan and Sarlej see it as a significant advance in capability. “While it’s still very early stages, it’s an important step up for what these artificially intelligent storytelling systems can do,” Ryan says.

The group is hoping authors, game designers and other creators will see the value of the research and get on board.

“For us this is a serious literary project, and we want to find artists who can help direct it to that end,” Ryan says. “How will this technology be used? It is impossible to predict. We hope artists will take it up and create things we’d never even imagined.”

What the computer wrote about retribution ...

“Once upon a time there lived a unicorn, a knight and a fairy. The unicorn loved the knight. One summer’s morning the fairy stole the sword from the knight. As a result, the knight didn’t have the sword. The knight felt distress that he didn’t have the sword anymore.

“The knight felt anger towards the fairy about stealing the sword because he didn’t have the sword anymore. The unicorn and the knight started to hate the fairy.

“The next day the unicorn kidnapped the fairy. As a result, the fairy was not free. The fairy felt distress that she was not free.”

▲ Bringing computer-generated stories to life ...

Margaret Sarlej and Dr Malcolm Ryan.

Photo: Britta Campion

THE CONQUEST OF SPACE

The sublime and the uncanny are the basis for a new exhibition at the intersection of art and science fiction, writes Anabel Dean.

DR ANDREW FROST remembers being entranced as a young boy by the cover images of *Science Fiction Monthly*, the imported UK magazine that was a pocket money must-buy.

Later, when he stumbled across an enthralling television interview with Forrest Ackerman, an obsessive American “Super Fan”, he realised he was not alone in his galaxy of strange fascination. His world had a name and a whole genre behind it.

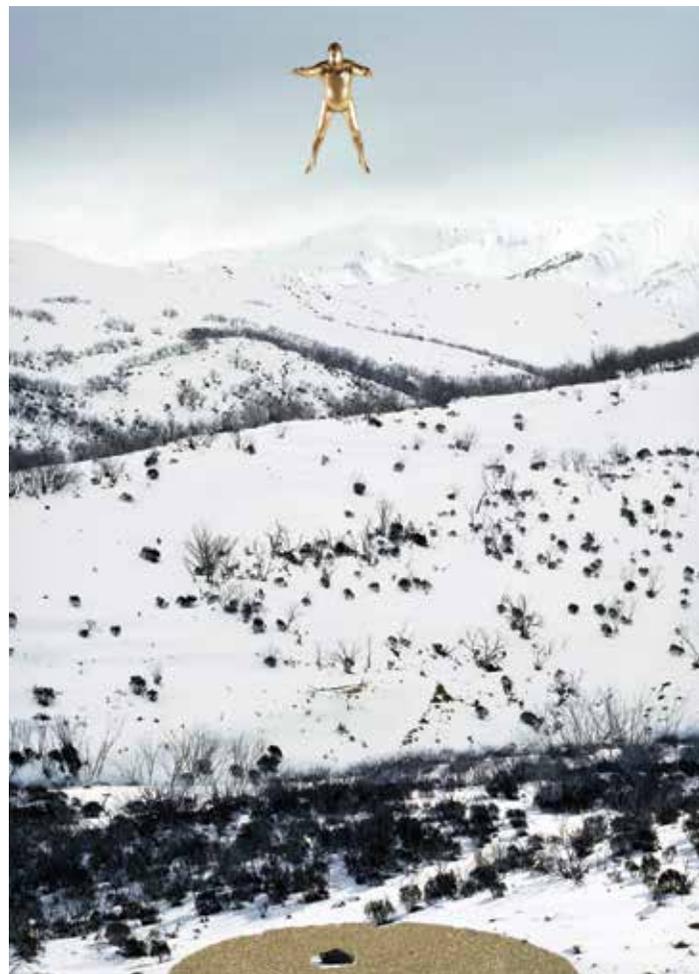
“I had been vaguely aware of the genre as a kid in the ’60s with all those commercial TV programs: *Time Tunnel*, *The Land of the Giants*, *Star Trek* and so on,” the COFA lecturer recalls. “But by the time I was 14, I was totally in the zone. I was a ’70s teenager seriously into science fiction, rock, surrealism and modern art. It all seemed to be part of the same adult world of art and literature. It was just really cool and it opened my mind to the universe and everything beyond.”

Frost came to reject his childish fantasies as “an art-school snob” by getting rid of his sci-fi posters and novels and started to move onto more serious things. “I sold the entire collection for about \$10,” he laments. “It was about a decade later that I realised I had made a terrible mistake.”

Today Frost is a leading researcher in the field of science fiction as manifested in aspects of the visual arts. Curating the *Conquest of Space*, now on exhibition at the new Galleries UNSW until 5 July, has provided a precious opportunity for the art critic, writer and broadcaster to revive his first passion.

“The science-fiction author Theodore Sturgeon once famously said ‘90% of everything is crap’ and he was probably right,” Frost smiles. “That’s as applicable to contemporary art as it is to science fiction. We treasure the 10% that is good and that’s what has been brought to light in the new gallery space at COFA.”

The exhibition firmly locates contemporary Australian art at the intersection of science fiction, and is built around three main themes: the



sublime; the uncanny; and the exploration of time and space. But there are no flying saucers among the seminal works. Frost has created a dialogue across a range of media from early invocations of John Glover and Eugene von Guérard through to Robert Klippel, James Gleeson, Jeffrey Smart and some of Australia’s most inventive current generation. Many of the works are on loan through a hallmark partnership with the Art Gallery NSW.

Frost hopes it will encourage visitors to share in the sense of intrigue discovered through the unexpected connections of the two major genres of cultural expression.

Science fiction isn’t only about aliens. “It can be about time and space and mortality, intelligence and ethics,” Frost says. “It can be cool and minimal and beautiful in a way that is classic. It’s not just ’50s kitsch. It’s ’60s minimalism, it’s ’70s maximalism, it’s ’80s bad taste, it’s ’90s cyber. It’s a multiple world idea of reality.”

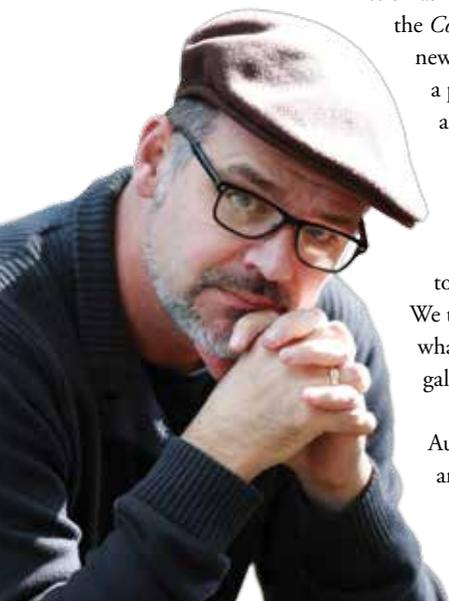
Frost believes science fiction, probably more than any other genre, reflects the world back to you. “It’s an idea, extrapolate that idea, whether it’s possible or not, it’s still a metaphor for talking about who we are and where we are in the world.”

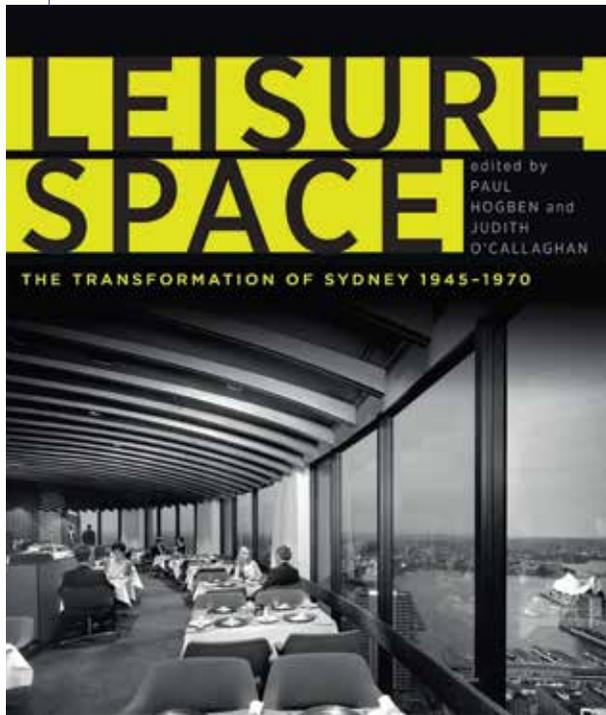
A documentary, presented by Frost and investigating the *Conquest of Space* exhibition, will screen later this year on ABC TV. The exhibition is also complemented by the *Conquest of Space Future Screen* film program, at the Art Gallery NSW.

► John A Douglas,
Body Fluid – Ascension
(detail), 2012.

C-Type photograph
on aluminium, 100
× 100 cm. Courtesy of
the artist and Chalk
Horse Gallery, Sydney.

▼ Dr Andrew Frost.
Photo: Britta Campion





LEISURE SPACE: THE TRANSFORMATION OF SYDNEY, 1945–1970: EDITED BY PAUL HOGBEN AND JUDITH O'CALLAGHAN, FBE

DINNER AT Australia Square's revolving Summit Restaurant, sipping cocktails at the Chevron in Potts Point, hanging out at a Skyline drive-in ... by the 1970s Sydneysiders had embraced leisure like never before. Sydney was alive with fashionable venues all within a few kilometres' radius of the city centre. They weren't the older, internalised places of pre-war times, but new spaces that embodied modern design languages. They were part of the "new Sydney", manifestations of the pleasure-seeking made possible through greater amounts of free time and disposable income.

Leisure Space details the architecture and design that transformed the city – through its new hotels, motels, restaurants, bars, clubs, shopping centres, drive-ins and golf courses, including landmark buildings such as the Gazebo and the Wentworth Hotel.

With stunning images from Max Dupain, Mark Strizic and other outstanding Australian photographers, *Leisure Space* explores a dynamic period in Sydney's history and the dramatic impact of modernism on the city's built environment.

Although *Leisure Space* focuses on the decades following the end of World War II, it recognises these spaces continue to play a significant role in the way Sydney is defined and constructed.

The health of the tourism, entertainment and hospitality industries is critical to the economic health of the city. After a lull in the years following the Sydney 2000 Olympics, visitor numbers have risen again and the NSW Government has committed to large leisure and entertainment-based projects on the western edge of the city centre. This idea is not new, the campaign mounted in the 1950s for the construction of first-class hotels in Sydney as a way of attracting tourists being an obvious example. This book provides, for the first time, a cross-section of the leisure environments of this important period in the history of Sydney. *NewSouth*

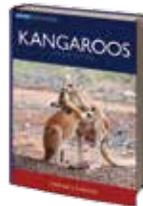
BOOKS



GLOBALIZATION AND SOCIAL TRANSFORMATION IN THE ASIA-PACIFIC: THE AUSTRALIAN AND MALAYSIAN EXPERIENCE: EDITED BY CLAUDIA TAZREITER, ARTS AND SOCIAL SCIENCES WITH UNSW CONTRIBUTORS

As the Asia-Pacific region develops in economic strength in the twenty-first century, a deeper understanding of the differences and commonalities of this region is needed.

This timely volume compares these two societies on key issues and tensions relating to globalisation and social transformation, including foreign policy and national security; multiculturalism and citizenship; the middle class; global governance; migrants, human rights and international students. The contributors explore the contested and lively debates that emerge from the mobility of ideas and people in this so-called "Asian Century". *Macmillan*



KANGAROOS – BIOLOGY OF THE LARGEST MARSUPIALS: TERENCE DAWSON, UNSW SCIENCE

Kangaroos may be the strangest of mammals – not so much because they keep their babies in pouches and look like a cross between a giant rat and a deer – but because they alone among the large vertebrates can hop. This appealing natural history by an internationally known expert is the only up-to-date book on these unique

animals. Illustrated with colour photos and black-and-white drawings, Dawson makes recent research on the biology, locomotion, behaviour and ecology of kangaroos accessible to readers. The author also documents the uneven history of coexistence between kangaroos and their human neighbours – both Aboriginal and European. *CSIRO Publishing*



EXPRESSIVENESS IN MUSIC PERFORMANCE – EMPIRICAL APPROACHES ACROSS STYLES AND CULTURES: EDITED BY DOROTTYA FABIAN AND EMERY SCHUBERT, ART AND SOCIAL SCIENCES, AND RENEE TIMMERS

How have performers expressed themselves across various time periods and musical practices? This book explores expressiveness in music performance starting with the philosophical and historical underpinnings relevant

to Western classical musical performance. It then considers cross-cultural issues and finally how to teach expressive music performance skills. This is a valuable new book for those in the fields of music, music psychology and music education. *Oxford University Press*



VISIONS AND REVISIONS – PERFORMANCE, MEMORY, TRAUMA: BRYONI TREZISE AND CAROLINE WAKE, ARTS AND SOCIAL SCIENCES

How do performance and trauma studies come together to "envision" and "revision" one another in relation to crucial themes such as trauma, testimony, witness and spectatorship? Performance provides a unique model for witnessing events that are both unbearably real and beyond

reason's ability to grasp – traumatic events like the Holocaust. This book explores the potential insights that performance studies and trauma studies might bring to one another. *Museum Tusulanum Press*



SOUND LUR AND SERPENT

“Four years ago I came across a wonderful collection of ancient musical instruments in the Deutsches Museum in Munich,” says Professor Andrew Schultz, Head of UNSW’s School of Arts and Media. “They included a Lur from the Bronze Age and some more recent Serpents.

“These old brass instruments have extraordinary primal shapes drawing on the horns of great beasts and the curves of snakes. While at the Museum I wrote a short poem in my sketchbook:

Sound lur and serpent. Strike drum and gong. Run! Fire breathes to swallow. Flee, while flee you can.

“A few months before that, the weather bureau issued Australia’s first ‘catastrophic’ bushfire rating. The two things – the presence of fire and the signalling power of brass and percussion – merged in my mind. The result is my most recent composition *Sound Lur and Serpent, for brass and percussion, Opus 98 (2014)*.”

The Sydney Symphony Orchestra, conducted by new Chief Conductor, David Robertson, will present the first performance of *Sound Lur and Serpent* during their tour of China in June and July.

SMOKE FREE ZONE

Tobacco smoke contains a deadly mix of more than 4,000 chemicals. A huge number of them are toxic and can harm your body. About 70 are carcinogenic. As an institution that prides itself on promoting health and wellbeing, conducting world-leading medical and cancer research, and providing the safest possible environment for its students and staff, we are proud to announce that as of 31 May 2014 (World No Tobacco Day) all UNSW campuses have become completely smoke-free. Breathe easy. sustainability.unsw.edu.au/news/smokefree



UNSW
AUSTRALIA

UNSW is now smoke-free.
Breathe easy.

Never Stand Still