

UNSW

UNIKEN AUTUMN 2015

magazine

Setting the pace

President & Vice-Chancellor
Ian Jacobs on his ambitious
agenda for UNSW

EVERYBODY'S BUSINESS

Helping PNG employers
lead the fight against
domestic violence

SHIPPING MEWS

Low-cost, sustainable
housing you won't be
afraid to call home



UNSW
AUSTRALIA

Autumn 2015

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From the Vice-Chancellor



It gives me great pleasure to introduce this first issue of UNSW's flagship publication for 2015 – and my first issue as President and Vice-Chancellor.

This year marks the magazine's 40th anniversary, and you might notice it has undergone something of a facelift. The masthead has morphed into the *UNSW magazine* – with its former title, *Uniken*, now a subhead to identify the magazine more closely with our institution.

But it is still the same great publication. When I was first considering this new role, I set out to discover as much as I could about the work and the ethos of UNSW. *Uniken* provided an invaluable window into the institution: its people, its priorities and the breadth of its endeavours and achievements.

I know the magazine has evolved quite dramatically since its inception in March 1975 – from what was essentially a fortnightly staff bulletin, intended to be a “vital channel of communication within the University”, to the more polished outward facing quarterly it is today.

I understand ‘ken’ in ‘Uniken’ can be taken to represent either knowledge or the suburb of Kensington – a combination of the lofty and the prosaic that is quintessentially Australian! I'm pleased the name will be retained as a reminder of the magazine's proud history.

The masthead may have changed, but the *UNSW magazine* will continue to focus on the very important work undertaken at this University. The stories in this issue include a report on a project to help women in Papua New Guinea deal with domestic violence in the workplace; another on empowering the elderly and their carers at the end of life; and a story on a mobile app that monitors its owner's mental health. Plus a report on our national award-winning teaching staff.

I hope you enjoy the coverage in this issue – and I wish the magazine all the best on its 40th!

Professor Ian Jacobs
President and Vice-Chancellor



Uniken: The magazine of The University of New South Wales

UNSW magazine is the University's flagship publication. Published quarterly, it reports on issues affecting the tertiary education sector and the latest developments in UNSW's research and teaching. The 24-page magazine is distributed primarily to staff, students and visitors to the University.

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Video



Audio



Slideshow

Architecture to transform lives

UNSW has attracted major philanthropic support from two of Sydney's most respected names in art and design to boost architecture education and improve the lives of displaced people.

An “extraordinary act of philanthropy” is how Professor Alec Tzannes described Judith Neilson's \$10 million endowment to the Faculty of Built Environment.

“Her generous gift to UNSW represents a groundbreaking commitment of global significance for the research, teaching and public debate of architecture with the specific social purpose of improving the lives of displaced and disadvantaged people,” the Dean said.

The Judith Neilson Chair in Architecture will take the lead in researching the design of affordable housing for the tens of millions of people displaced by natural disasters, geo-political conflicts, and economic and environmental factors.

Ms Neilson – founder and director of Sydney's White Rabbit Gallery, which is home to one of the world's most significant collections of Chinese contemporary art – said she was motivated to invest

in research to investigate how architecture and design could be used as a powerful force for change.

“We have massive populations who move to temporary housing that they end up living in for years and that in no way meets their needs. Giving people whose lives have been shattered the opportunity to live in affordable dwellings that have been thoughtfully and sustainably designed with enduring materials can help improve their quality of life.”

The donation closely followed the announcement of the Seidler Chair in the Practice of Architecture, funded by a gift from architect, businesswoman and arts patron Dr Penelope Seidler. UNSW's Pritzker Prize-winning lecturer Professor Glenn Murcutt is the inaugural recipient of the Chair.

“We salute Penelope's philanthropy in funding the first endowed Chair of its kind in Australia dedicated to advancing design education through

It is important for me to ensure the next generation of architects has as many opportunities as possible to learn from the best.

– Penelope Seidler

leadership in professional practice,” said Professor Tzannes.

“This investment is recognition at the highest level of our commitment to excellence in design studio education and to ensuring our students have access to the best practitioners and inspiring teachers.”

Dr Seidler, whose husband, Harry Seidler, was UNSW's first Visiting Professor in Architecture in 1980, has also funded a PhD scholarship and an international design studio for graduating students. ■

Below: Founder and director of Sydney's White Rabbit Gallery, Judith Neilson.
Photo: Peter Braig/Fairfax



In focus

THE JUDITH NEILSON CHAIR IN ARCHITECTURE

UNSW's research record in the Built Environment, along with the Dean's vision of the power of research to transform lives, made the faculty a natural fit for this endowment, Judith Neilson says.

“Architecture is often the domain of the very privileged, but it's much more than that. We're talking about socially transformative design and bringing about policy change.

“I feel very strongly about contributing to a greater culture of philanthropy in Australia. There's a big element of luck in being wealthy – I believe people have a responsibility to give back,” she says.

Professor Alec Tzannes says the Chair positions UNSW as a centre of excellence in Australia and internationally for architecture for a social purpose. “The level of funding gives UNSW the opportunity to recruit at the highest levels and build a critical mass of scholars and students in a way not currently seen in Australia.”

The faculty is honoured to be entrusted as the “custodian of Judith's vision to build new knowledge in architecture and to promote the education of future generations of architects”, he says.

Ms Neilson's gift will also fund an annual public lecture.

Read more about the motivation behind Judith's philanthropy in Conversation with Edmund Capon at newsroom.unsw.edu.au

Briefs

TOP 5 UNDER 40

After a national call-out that attracted 250 applicants, five early-career researchers have been selected as the Top 5 Under 40, an initiative of UNSW and ABC Radio National (RN) to mark 40 years of *The Science Show*. The winners will produce programs for RN as 'Scientists in Residence'. "They applied learnings from their disciplines in ways you would never predict," said Professor Fiona Stanley (UWA) of the five successful STEM researchers. Stanley was a member of the judging panel alongside Robyn Williams, presenter of *The Science Show*, and Professors Lesley Hughes (Macquarie University) and Merlin Crossley (UNSW).

GANDHI'S TEACHINGS A SALVE FOR MODERN ILLS

The teachings of Gandhi are more relevant than ever, with Islamophobia, terrorism and climate change standing in the way of peace, his granddaughter Ela Gandhi says. A peace activist and former South African MP who spent nine years under house arrest during the anti-apartheid struggle, Ms Gandhi delivered UNSW's fourth Gandhi Oration, held each year on the anniversary of the Mahatma's assassination. Ms Gandhi stressed her grandfather's ideals of non-violence and simple lifestyle which, she believes, hold the key to solving some of modern society's biggest problems, including the cycle of extremist violence and environmental destruction.

STUDY TRACES FORGOTTEN AUSTRALIANS

The Chair of the Royal Commission into Institutional Responses to Child Sexual Abuse has launched a landmark UNSW-led study into the long-term impacts of growing up in care. Justice Peter McClellan said the 'Forgotten Australians' study, led by Professor Elizabeth Fernandez, is an important step in strengthening the voice of the estimated 500,000 Australians who were raised in care, and to improve modern-day service provision.



Google investor snaps up solar innovation

"If someone can't explain a business in less than 60 seconds without a pen, paper and PowerPoint ... I don't invest," says Alberto Chang-Rajii.

The founder of Chile-based private equity firm Grupo Arcano was in Sydney in March to see first hand a 'breakthrough' solar cell technology being developed at UNSW. Chang-Rajii believes the organic-perovskite tandem solar cell represents the next generation of solar technology, and the simplicity of its application will transform lives.

Developed by the School of Photovoltaic and Renewable Energy Engineering's Associate Professor Ashraf Uddin, the technology uses 'organic' thin-film solar cells, which can equal the performance of high-efficiency silicon cells (>20%) at lower cost. Their flexibility and durability allows them to be 'painted' onto surfaces such as roofs, car bonnets and mobile phones, or as coatings on cheaper standard solar panels.

Chang-Rajii has invested \$1.5 million in start-up company Future Solar Technologies, which aims to develop and commercialise the cells. The

intellectual property was made available through UNSW Innovations' Easy Access IP scheme.

As a technology investor, Chang-Rajii has an enviable track record. In 1996, while an MBA student at Stanford, he paid US\$10,000 for a 1% stake in Google, an investment he still holds. Google's market capitalisation is now close to US\$375 billion.

Chang-Rajii said he first became aware of UNSW "as the home to the father of the solar cell", Professor Martin Green. "But in the end, I was attracted to this technology by its global appeal. This is world-scale; it could change the way we build houses, power cars and produce electronics. It's a game changer."

Above: Grupo Arcano's Alberto Chang-Rajii (left) and Ashraf Uddin. **Photo:** Anthony Johnson/Fairfax

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NSW Woman of the Year

Professor Minoti Apte has been named the 2015 NSW Woman of the Year for her contributions to medical research, tertiary education and the Indian community.

Based at the Ingham Institute, Apte is director of the Pancreatic Research Group and is an acknowledged world leader in alcohol-induced pancreatic injury and pancreatic cancer.

She was the first in the world to develop a method to isolate pancreatic stellate cells, a technique that provided a much-needed tool for studying the path that scarring of the pancreas takes. She is leading pre-clinical studies to suggest new treatments for the fifth leading cause of all cancer deaths in Australia.



Left: Minoti Apte.
Photo: Jamie North



RECORD FULBRIGHTS

Adolescents with substance abuse problems could benefit from a new treatment approach developed by a UNSW researcher awarded a prestigious Fulbright scholarship. Dr Emma Barrett (pictured), from the National Drug and Alcohol Research Centre, is one of five staff and graduates selected to study in the United States.

UNSW has the highest number of 2015 Fulbright affiliations. Other UNSW recipients are: Isaac Donnelly from the School of Mathematics and Statistics; Renxun Chen from the School of Chemistry; Sean O'Toole from the NSW Department of Family and Community Services and a graduate of UNSW's Master of Arts; and UNSW Conjoint Associate Professor Stuart Tangye of the Garvan Institute.



HISTORIAN HARVARD-BOUND

Scientia Professor John Gascoigne (pictured) will have a new audience at Harvard. He's been awarded the esteemed Gough Whitlam and Malcolm Fraser Chair in Australian Studies, alongside fellow historian Penny Russell. The year-long position will commence in 2016.

Previous recipients include former Prime Minister Whitlam, historians Manning Clark and Geoffrey Blainey, and former Australian of the Year Tim Flannery. Gascoigne will teach a course on Australia and the Pacific, and another on science, the state and society. He will also pursue three research projects including an ongoing ARC-funded investigation into Australia as a secular state.

We can't keep going with one-year bandaid solutions. We need a strategy to support and manage research infrastructure long term, over its whole life cycle.

Deputy Vice-Chancellor (Research) Professor Les Field, commenting in *Nature* on the federal government's approach to research funding.

In focus

War in the digital age

UNSW and ABC Radio are collaborators in a unique digital production providing unprecedented access to the personal experiences of Australian veterans who served in Afghanistan.

Retrospect is a major ARC Linkage-funded project encompassing a dedicated website, six radio documentaries and an immersive exhibition at UNSW's iCinema.

The project is led by iCinema director Scientia Professor Dennis Del Favero and includes co-researcher and UNSW Canberra historian Dr Craig Stockings. It features interviews, previously unseen footage shot on location for ABC TV, and striking portraits by internationally renowned photojournalist Stephen Dupont. Personal photos and videos have also been shared by veterans to create a nuanced portrayal of how war is experienced in the era of digital communication.

Visitors to iCinema's award-winning 360-degree 3D cinema will have access to a vast digital database of veteran and family memories, which can be collated using artificial intelligence.



Download the *Uniken* app for video or go to the *Retrospect* website retrospect.abc.net.au

Right: One of the donated war photos by veteran Martyn Ansell, Afghanistan December 2011.



Transformative teaching

UNSW academics don't just do outstanding research, they also excel at passing on their knowledge to students.

Louise Lutze-Mann is determined to convey to her students the excitement and wonder of science.

“My teaching philosophy is inspired by W.B. Yeats,” she explains. “Yeats said ‘education is not the filling of a pail, but the lighting of a fire’. If I can ignite students’ enthusiasm, they will pursue knowledge of their own volition and my task will be to further their education, rather than to force it.”

Dr Lutze-Mann and Associate Professor Chris Tisdell, both from UNSW Science, received prestigious Teaching Excellence Awards in the latest round of honours from the national Office for Learning and Teaching (OLT).

Also recognised was a team from UNSW Medicine that received an award for Innovation in Curricula, Learning and Teaching. OLT citations were given to a further five UNSW staff – Dr Kar Ming Chong, Professor Sami Kara, Dr Sue Morris, Associate Professor Jacquelyn Cranney and Dr Rachel Thompson.

Lutze-Mann, of the School of Biotechnology and Biomolecular Sciences, is a highly engaging



teacher of molecular and cell biology whose innovative approaches help stimulate critical thinking and independent learning. Lutze-Mann also teaches in engineering and medicine.

Her scientific research focuses on the potential of new and existing drugs, including anti-psychotics, for the treatment of cancer, and on the side effects of using ionising radiation to kill cancer cells.

As a teacher, Lutze-Mann has developed tools and techniques that allow students to explore the scientific process, think like scientists and solve problems. These include innovative practical classes, sophisticated virtual laboratories, use of video animation and demonstrations in lectures, and learning tasks such as designing an informative game or web page based on the features of cells.

Tisdell, from the School of Mathematics and Statistics, has inspired millions of students in Australia and around the world through his innovative online approach to mathematics education.

His free e-textbook, *Engineering Mathematics: YouTube Workbook*, has exceeded one million downloads in more than 200 countries since it was launched in 2012. He has also attracted a global fan club for his hundreds of other free YouTube university-level maths videos, which have exceeded five million downloads since he began making them in 2008. This has made his virtual classroom the top-ranked learning and teaching website in Australia on the education hub YouTube EDU, and among the top 40 in the world.

New initiative challenges gender stereotypes in science

The Science 50:50 initiative has a simple premise – since half of the population is female, why not also half the scientists and technologists?

Launched by UNSW Scientia Professor Veena Sahajwalla, the program aims to inspire young women to pursue degrees and careers in science and technology. It will provide internships, scholarships and mentoring to girls so they can succeed in an innovation-driven future. The initiative is supported by Professor Sahajwalla’s Australian Research Council (ARC) Laureate Fellowship and UNSW, along with scientific and industry partners.



Girls are under-represented in the STEM subjects – science, technology, engineering and mathematics. The number of female high-school students taking advanced maths, for example, is half that of boys and only 1.5% of Year 12 girls study the STEM trio of advanced maths, physics and chemistry.

This has a lot to do with their perception of science as a career, says Sahajwalla, who is director of the Centre for Sustainable Materials Research and Technology in the Faculty of Science (SMaRT@UNSW), and who was the only girl in her engineering course at university. “If we want to secure Australia’s future prosperity, challenging the stereotype of the scientist as a man in a white lab coat is a good place to start,” she says.

Science 50:50 was launched at the National Youth Science Forum in Canberra, where a gathering of Year 12 students who are interested in science heard Sahajwalla highlight the exciting and varied opportunities provided by scientific careers.

“I’m passionate about free education and making sure people anywhere in the world, at any time, can have access to the mathematical skills that are critical for careers in science, engineering, technology and finance,” says Tisdell, who is also Associate Dean (Education) in UNSW Science.

The prize awarded to the team from UNSW Medicine recognises the transformation, over the past decade, of the faculty’s undergraduate medicine program. The new curriculum is far more focused on preparing students for real-world professional practice. It supports a range of learning styles and encourages independent learning, critical thinking and the sorts of teamwork skills that are central to contemporary medical practice.

One of the particular strengths of the curriculum is the way it brings together students from different stages of the program, says Professor Philip Jones, who shares the award with Professor Tony O’Sullivan, Dr Peter Harris and Professor Patrick McNeil.

“Bringing students from different years together has resulted in a powerful culture of peer teaching and collaborative learning, and prepares them for working in healthcare teams where clinicians with differing levels of expertise and experience work together,” Jones says.

Fourteen UNSW staff were also honoured in the UNSW Vice-Chancellor’s Awards for Teaching Excellence for 2014. For a full list of winners go to teaching.unsw.edu.au/awards. ■

– Lissa Christopher

Left: Louise Lutze-Mann and Chris Tisdell.
Photo: Grant Turner/Mediakoo

Speakers at the launch’s panel discussion on women in science included ARC chief executive officer, Professor Aidan Byrne; vice president and chief operating officer of Lockheed Martin Australia, Laura Frank; and chief executive corporate affairs at Arrium, Gillian Burrows.

Sahajwalla was awarded a prestigious Laureate Fellowship worth \$2.37 million over six years last year, to undertake her research on transforming toxic electronic waste into high-value-added metals and alloys. It included additional funding to help promote female participation in science. ■

– Deborah Smith

Left: Veena Sahajwalla with some of the 50:50 students.
Photo: Gary Ramage/NewsPix



Kids talk about dementia

The next generation is the focus of a new anti-stigma program.

Psychologist Jess Baker is sitting in a hall in Sydney’s west with a group of Scouts watching DVDs. But these aren’t videos you’d expect a group of nine and 10 year olds to be interested in. Instead across the screen run vignettes about people living with dementia.

In one scene, a woman in an aged-care home becomes agitated after an offer of assistance from a nurse. In another a woman forgets where she lives while travelling in a taxi.

Worried, scared, confused, amused and annoyed are some of the words the children use to describe their reactions. Ten-year-old Thomas says he feels sad for the people “because they are sick”. But he knows it isn’t their fault. “One lady was angry,” he says. “She was doing very mental things and screaming at the nurse ‘get outta here.’”

The video forum is part of a UNSW-led project that aims to create a more dementia-friendly society by educating the next generation.

Backed by \$75,000 funding from the National Health and Medical Research Council and the Dementia Collaborative Research Centre, the project engages children in a series of focus groups, like the recent video nights, and speaks extensively with people living with dementia, and their carers.

Information gleaned from the children will be used to develop an online education program, designed to align with Australia’s education curriculum. A pilot program – the first of its type in the world – will be rolled out later this year.

Removing ignorance and stigma starts with education, but Australian children’s attitudes towards dementia have never been measured.

“Of the children I’ve interviewed, about 70% didn’t know what dementia was and 60% had never heard of the word,” says Baker, the study’s leader from the School of Psychiatry. “Some of the things the Scouts said reflect the misunderstandings we see in the broader population.”

By 2050, more than 900,000 Australians are expected to be living with the disease. Yet Alzheimer’s Australia’s first national survey last year found community awareness and understanding of the illness was low.

More alarmingly, a 2012 survey by the University of Wollongong found 60% of Australians would feel a sense of shame if they were diagnosed.

Having worked in aged care, Baker is unsurprised. “I encountered many adults caring for someone with dementia who sometimes behaved in less than helpful ways. I believe this was mainly down to ignorance.

“We know that children are more responsive than adults to anti-stigma education because their beliefs are not as firmly developed,” says Baker.

But the impact of mass media and popular culture should not be underestimated. A group of 11–14 year olds interviewed for a British dementia study made repeated references to the “dementors” in the Harry Potter movie series – half-dead creatures that feed on happy thoughts and memories leaving their victims in a mindless state.

Lessons can also be learned from a dementia education program in the UK involving 22 schools. The program demonstrated a significant improvement in attitudes. Children’s confidence meeting a person with dementia rose to 76% from 27% within a year.

“However that approach was very labour intensive,” Baker says. “An online education program, as short as one hour, would be more cost-effective and easier to roll out.” ■

– Dan Wheelahan



Download the *Uniken* app to watch the vignettes.

Above: Jess Baker and the western Sydney Scouts.
Photo: Grant Turner/Mediakoo

Setting the pace

New President and Vice-Chancellor Professor Ian Jacobs talks to Judy Brookman about social engagement, global ambitions and how a three decade-long love affair with Sydney helped bring him back to Australia.

You were born and educated in the UK and built an outstanding career as a researcher and senior academic there. How difficult was it to up sticks and come to Australia?

Not at all! My wife, Chris, and I have wanted to live and work in Australia since we came here in our 20s. There's actually quite a romantic story behind that. We weren't married at that stage and Chris had taken off on a round-the-world trip. The minute she got on that plane I knew it was the worst thing that had happened to me. So I chased after her and caught up three months later in Sydney. I remember we stood at Circular Quay and promised ourselves we'd come back one day to work here. That was 30 years ago.

So when I was ready for a President/Vice-Chancellor job, among the approaches from recruitment agencies UNSW Australia stood out, and the more I discovered about this amazing University – impressive history and trajectory, wonderful campus and great people – in what I think is the best city in the world, it became an easy decision. When the moment arrived it was a bit harder than we had expected to move across the world – leaving behind our parents, our children (though they're grown up), our close friends and our dog (who is with our parents). But they're all planning visits (except the dog). There are of course some challenges, but now we are here, we know we made the right decision.

Your most recent position was as Vice-President and Dean at the University of Manchester. How would you compare UNSW and Manchester?

I have observed an exciting similarity. Manchester was the birthplace of the Industrial Revolution and despite the fact there's been a lot of economic and social change, the entrepreneurial spirit still runs through the City of Manchester and its university. Here at UNSW, there is a similar pride in the fact that although UNSW is no longer young in years, it remains young in spirit – innovative and entrepreneurial, prepared to take on new challenges and break

the mould. You could speak to many academics and other staff in Manchester and hear a similar ethos and approach. In addition, the campuses are remarkably similar in terms of size. Manchester has close to 40,000 students, the biggest in the UK, but not quite as big as UNSW. The scale of Australian universities is certainly different. In both cases there are a lot of students on campus and that creates a fantastic atmosphere.

The government is proposing to deregulate higher education in Australia. Universities in the UK have also faced major change. Are there lessons from the UK experience?

It's interesting to arrive in Australia and find what was a fairly stable system is now also on the verge of radical change. But I don't think too much should be extrapolated from the UK experience. While the government there withdrew almost all public funding for students, and fees have risen significantly, there is a cap, equivalent to around A\$16,000. Despite the fact that all universities have gone to the cap, and there was an initial brief blip in student demand, the data is reassuring. There's been no drop in student numbers. In fact demand has increased and, importantly, enrolment of students from low socioeconomic background has also gone up as a percentage of all student numbers.

Although there seem to be few if any alternatives to fee deregulation in Australia, there is real concern it might deter students from more disadvantaged backgrounds from going to university and I think we need to watch that very carefully. I'm a passionate believer in equality of access to higher education for all in society, regardless of ethnic group, Indigenous background or socio-economic group. I'm also concerned about students accumulating excessive debt that becomes a financial and psychological burden later in life.

A priority in your early days at UNSW has been an intense round of engagements with staff, as part of developing a 10-year strategic plan. What are your most vivid impressions?



Above: Passionate about social equity ...
Professor Ian Jacobs.

Photos: Grant Turner/Mediakoo



I'm delighted that the three, high-level strategic priorities I've proposed – academic excellence in research and teaching, social engagement and global impact – really seem to resonate with staff. People here have a very strong sense of social responsibility, and embrace the idea of global impact, but realise we can't achieve any of this unless we have academic excellence as the foundation.

I sense excitement about moving us up the international league tables, not for the sake of boasting about where we stand, but because our staff and students recognise the great universities in the world – the top 25 or 50 – have an enormous impact on society and humanity. There is a willingness among the UNSW community to be ruthlessly honest about what we need to do to improve our position – in terms of publication output, the number of highly cited publications, how we nurture and support existing staff and bring in new staff. I am also pleased with the response to the idea that UNSW should take the lead in introducing new technologies to improve the way we deliver our massive teaching load and improve quality of teaching, while enhancing assessment, monitoring, mentoring and feedback. All of this can help to personalise and enhance the student experience.

In terms of social engagement, we've set up a working group on gender equality. I'd like this University to be a leader on that. But it's not just about gender: we'll also be developing action plans for Indigenous groups, ethnic groups and low socio-economic groups.

There's also been an enthusiastic response to ensuring that UNSW becomes a national and

UNSW is a top-quality institution that has been run incredibly well and is on a great trajectory.

– Ian Jacobs

global forum for discussing, debating and developing policy on the grand challenges facing society. We need to choose areas where we have the most expertise. One obvious example is our fantastic research into renewable energies, but there are many others.

You've emphasised the role UNSW could play in the developing world. You established and still chair the Uganda Women's Health Initiative. How has your work in Africa influenced your thinking?

I set up the initiative 10 years ago, bringing together academics and clinicians in Uganda and the UK to improve aspects of women's health. It has included a range of projects including prevention of death from haemorrhage after childbirth, resuscitation of the newborn, palliative care, provision of medical equipment and building a radiotherapy facility and cancer screening. The focus now is on rolling out screening for cancer of the cervix – a completely preventable disease – to make it available to all women. I have had the privilege of visiting Uganda three or four times a year. It has been

one of the most fulfilling things I've done in my career because our work has saved many lives. I know UNSW staff are doing important work in many parts of the developing world and I hope we can expand the impact. We are in the process of mapping activity so we can plan further developments. I want our links with Asia to be developed, but I would also like to see our partnerships extend into Africa. Africa is developing very quickly and there are great opportunities for us to be involved there and make a positive difference.

Finally, how would you sum up what you bring to UNSW and what you hope to achieve?

I am driven by a wish to use the privileges I have had in my education and career to make a positive difference to the lives of others. What I've always tried to do, whether as a clinician, researcher or in leadership, is to add value by bringing together talented people to set ambitious goals and achieve great things. UNSW is a top-quality institution, which has been run incredibly well and is on a great trajectory. Leading this organisation is a dream come true and an enormous opportunity. My hope is I can help accelerate UNSW's trajectory and take it to the next level of academic performance so that it makes an even bigger contribution as one of the world's great universities. ■



To watch a welcome message from the Vice-Chancellor, download the *Uniken* app.



MOBILE MOOD CHART

Powered by a new app, your mobile phone could soon know you're depressed before you do. Linda McSweeney reports.

Depression has a sly way of creeping up on you. One minute it takes no effort to deflect negative thoughts and disappointment. The next, sadness begets woe. And we don't always remember how we got there.

Now smart phones are being touted as potentially powerful tools to help mental health workers identify those who may need help.

It's the next step in a rapidly progressing field of research. Already social media can reveal our collective feelings of happiness, sadness, anger or rage in relation to big events such as the death of a celebrity or how we react to a new prime minister. One site, wefeel.csiro.au, gauges global emotions based on the language of Twitter. It was set up in partnership with the Black Dog Institute at UNSW, Amazon and the CSIRO to better understand the drivers of our collective ups and downs.

But Black Dog Institute chief investigator Scientia Professor Helen Christensen believes a new mobile app could also identify individual social media users who are at risk of depression.

It's widely accepted that changes in our normal behaviour, like loss of appetite, difficulty sleeping and social withdrawal, can be indicators of depression. Christensen and her team think mobile phones could alert experts to mental decline long before an individual is even aware there's a problem.

Put simply, when we withdraw from our social networks on our mobile devices, the app raises the alarm.

"It's a whole new world that we need to understand," says Christensen, whose team of psychologists, engineers, philosophers and technical experts are analysing how best to help people via social networks, while taking into account the ethics of accessing this personal information.

"Business people do it all the time in marketing and advertising to sell things to people. We want to do it to improve people's mental health," Christensen explains.

"There's all this data out there being released by the community indirectly. We want to use these data sources to understand how the individual feels."

The researchers have a platform – a prototype app that can monitor social media activity, for example how many times people are in and out of Facebook – and can use Bluetooth capability to tell what mobile phones the person might be linking up with, all in real time.

It requires only limited awareness by the person involved – the app sits in the background on a phone, tracking activity, so people don't need to actively input data, Christensen says.

One member of the Black Dog team, engineer Dr Mark Larsen, says in essence the app tracks social connectivity.

Business people do it all the time. But we want to access people's personal information to improve their mental health.

– Helen Christensen

"We're using mobile phones to try and build up a picture of what a person's normal pattern of connectivity might be in order to detect when withdrawal takes place and whether we would be able to intervene somehow if help is needed," he says.

The researchers have been testing the technology on their colleagues. Ten people at the Institute were asked to download the app, which looked at their connections to fellow participants and others on Facebook over a one-week period.

"Even with this relatively small amount of data, we could start to see interesting patterns," says Larsen.

The team aims to have a larger trial under way among workers at an Australian IT company later this year. ■

Photo: David Ramos/Getty

WHAT THE APP DOES:

- > sits in the background of your phone
- > builds a picture of your usual social connectivity
- > de-identifies all data and makes it anonymous
- > looks for and connects to other nearby phones with the app
- > detects and potentially reports any withdrawal from usual social networks.



The Q-fly and I

A quest to map the genome of a fruit fly has delivered international recognition for this high-school science teacher, writes Myles Gough.

Stuart Gilchrist didn't mind the overtime that was needed to help his research team sequence the complete genome of the Queensland Fruit Fly, or Q-fly.

For two years, the geneticist turned high-school science teacher spent his days in his Sydney classroom, his evenings poring over data on his computer at home, and his school holidays furiously writing.

"Sometimes my students would be whingeing about having to write one-page reports, so I would put it in perspective by telling them that I had to write an even bigger report," he recalls.

Gilchrist also spent several weekends in his office at UNSW, where he's an honorary senior lecturer in the School of Biological, Earth and Environmental Sciences.

Thankfully, all his hard work paid off. In February, Gilchrist and his team published their results in the journal *BMC Genomics* becoming the first group internationally to successfully map the genome of a 'true' fruit fly.

The Q-Fly (*Bactrocera tryoni*) is one of Australia's costliest horticultural pests and is considered a true fruit fly – the larger cousin of the little flies you might see buzzing around the fruit bowl in your kitchen.

The Q-fly attacks and destroys ripening fruit and vegetables – including apples, citrus fruits, stone

fruits, mangoes and tomatoes – by laying eggs inside. They're also highly invasive.

Gilchrist says they pose "a big problem for international trade, with quarantine services in overseas countries keen to avoid infestation".

Vietnam recently stopped importing Australian table grapes, for example, citing concerns they might be contaminated with Q-fly larvae.

The sequenced genome could enable more rapid DNA testing, allowing quarantine officials who intercept fruit with larvae inside to rapidly identify the species to determine the risk, rather than having to wait weeks for the larvae to mature, explains Gilchrist.

And from a purely scientific perspective, it will help researchers pinpoint when the Q-fly diverged from some of its closest relatives. "These changes have happened in the last few million years, which is incredibly recent on an evolutionary scale," says Gilchrist. "We can almost catch them in the act of speciation."

His journey with the Q-fly began as a postdoctoral researcher at the University of Sydney investigating the behaviour and genetic profile of the insect. Initially this involved DNA fingerprinting to identify and track the spread of Q-fly populations across Australia. In 2010, his team was given funding from the citrus industry and UNSW to map the entire genome of the insect.

Gilchrist says the Q-fly team consists of only one scientist working part-time and at least three already retired. "None of us was getting rich off the work, but we were all itching to get it done," he says. "It was a bit of a personal quest for us."

In 2013, Gilchrist landed his first teaching job at Sydney Grammar School and now works at the Shore School, where he is tasked with teaching science to boys in Year 7 up to HSC

level. Nevertheless, his focus on the Q-fly genome project was undeterred – and because most of his work was relating to bioinformatics, he was able to work at home on the computer.

"You're pretty exhausted after a week of teaching," he admits. "If I needed to be doing wet-lab work it would have been impossible."

While he intends to continue his research for some time yet, he's also settling into the role of teacher and says the "dynamic nature of the classroom" is vastly different from the often solitary, unchanging environment of the lab.

"Working in a school is on the opposite end of the spectrum," he says.

"It's great because you're going back to really basic science ... and that's helped to remind me why I love science so much." ■



Main image: Stuart Gilchrist. **Photo:** John Feder/Newspix. **Above:** One of Australia's costliest pests – *Bactrocera tryoni*



EVERYBODY'S BUSINESS

UNSW researchers are helping PNG employers lead the fight against the nation's domestic violence epidemic. Susi Hamilton reports.

Ruth had always been diligent and reliable at work. The 40-year-old mother of two had missed a few days, but her Port Moresby employer was willing to turn a blind eye. After all, they knew Ruth was in a physically abusive relationship and some days they suspected she was simply incapable of coming to work. They didn't want to lose her.

But when her partner brought the violence to her workplace, threatening Ruth and other staff she stopped coming in altogether. She was soon replaced.

Stories like Ruth's are commonplace in Papua New Guinea, where humanitarian aid group Médecins Sans Frontières has described the prevalence of family and sexual violence as a public health crisis. More than half of PNG's women experience marital rape and 68% will be beaten at home, according to the country's health minister.

It's not uncommon for abusive spouses or other family members to follow women to work, wielding machetes and knives. A recent survey found 94% of PNG businesses were affected by such violence, but until now little has been done.

"Many businesses know instinctively they are not getting it right, and this is hurting their business," writes Amy Luinstra, senior operations officer for Gender for East Asia and the Pacific at International Finance Corporation (IFC), a member of the World Bank.

Using seed funding from the Australian Government, IFC recently teamed up with PNG's business community to launch the Business Coalition for Women, a group focused on empowering women in the workplace.

Business Coalition members include Australian firms operating in PNG, such as Origin Energy and Westpac Bank PNG, and a wide selection of domestic firms. Several recently took part in UNSW-led research aimed at creating the country's first culturally appropriate and gender-sensitive workplace policy to address family and sexual violence. The Model Policy on Family and Sexual Violence will be implemented by a trial group of companies later this year.

"There is enormous interest and goodwill from employers," says Associate Professor Jan Breckenridge, one of the authors of the strategy and co-convener of UNSW's Gendered Violence Research Network (GVRN).

"Those involved said this was the first initiative that really took into account the PNG context and made sense to them," says Breckenridge. The UNSW team worked closely with the PNG Pacific Adventist University and government agencies and service providers to get the cultural context right. It is based on a review of best practice around the world and draws on key principles from UNSW's own workplace program *Safe at Home, Safe at Work* (see box opposite).

UNSW's Shabnam Hameed was senior researcher on the PNG project: "What touched me most was the people's resilience and the fact they wanted to help," says Ms Hameed, who went to PNG twice last year and who has also worked in Timor-Leste and Australia in the fields of domestic and family violence, and social protection.

"This PNG work is definitely the most interesting and important I've done – both for individuals and the community at large," she says.

The initiative comes at a critical juncture for PNG: the parliament recently passed legislation aimed at addressing family and sexual violence. The laws, which came into force last year, criminalise domestic violence, strengthen protection orders and direct police to pursue all reports of violence.

"The government has passed legislation but what we are doing is more targeted," Hameed says. The new policy includes a suite of measures that can be tailored to each workplace, such as contact teams at work and information for staff about how to inform authorities, negotiate leave and plan a safer work environment.

To succeed, the project will have to counter entrenched scepticism about the ability and will of PNG's law enforcement to tackle family and sexual violence. One employer told a focus group that "police are not responsive" and it was futile contacting them with concerns "unless it's a policeman you know personally".

Making the situation even more difficult is a culture of silence around violence and a fear of discrimination.

If the pilots go well, the strategies could be adopted by as many as 54 members of the PNG Business Coalition for Women.

Paula Bennett, manager of research and development at UNSW's GVRN, is hopeful the

What touched me most was the people's resilience and the fact they wanted to help.

– Shabnam Hameed

work can be replicated around the world: "While this project is focused on PNG, the research has global significance because it provides a developing country perspective which informs international good practice."

The research attracted significant interest when it was presented at the Inaugural Asia-Pacific Conference on Gendered Violence and Violations at UNSW in February. Among the high-profile speakers at the event were Professor Rashida Manjoo, the UN Special Rapporteur on Violence against Women, its causes and consequences, and Australia's Ambassador for Women and Girls, Natasha Stott Despoja. Australian Human Rights Commissioner, Gillian Triggs, also contributed via video.

During her keynote address, Manjoo called for the adoption of a binding international instrument on violence against women and girls, with its own monitoring body.

"The lack of accountability at national, regional and international levels, has resulted in a culture of impunity for crimes against women, and this in turn has led to the normalisation of violence against women in many societies."

At the end of the three-day conference, the 330 delegates from 20 countries – including PNG – unanimously passed a resolution calling



for the United Nations to address the gap in the international human rights legal framework.

Back in PNG, the legislative gap is all too clear, according to Manjoo, who visited the country in 2012. Despite the recent changes, the Constitution lacks a specific definition of discrimination and there is resistance to legislation for the equal participation of women in public and political life.

The UNSW-led work could go some way towards addressing women's participation by highlighting the implications of failing to support women who experience violence, says the IFC's Luinstra.

Business Coalition for Women chairwoman Lesieli Taviri sees change more generally for female workers: "[The Coalition] is the private sector standing up and saying we realise there are further economic opportunities for empowering women. The real question is, is this country prepared to settle for half the potential it has to offer?" ■

Opposite page: A young PNG woman at the Antenatal Clinic at Port Moresby in 2012 after having been sexually assaulted by her ex-boyfriend.

Photo: Vlad Sokhin/Panos Pictures.

Above: Shabnam Hameed (far right) with GVRN project partners in PNG.



STRENGTH THROUGH DIVERSITY

Anyone can be the subject of gendered violence, but women and children are overwhelmingly affected, says Associate Professor Jan Breckenridge (pictured right).

The co-convenor of the UNSW Gendered Violence Research Network – an initiative of

UNSW's faculties of Arts & Social Sciences and Law – leads 30 academics with wide-ranging experience in sexual assault, domestic and family violence, intimate partner violence, child sexual abuse, trafficking for domestic and sexual slavery and exploitation, and conflict-related sexual violence.

"Our applied research focus is the common thread in our work," says Breckenridge of the network, which has been operating for a little more than a year and succeeds the Centre for Gender-Related Violence Studies. That approach means engaging with key communities, especially service providers and the individuals and families using them.

The network's fellow convenor, UNSW Law's Associate Professor Annie Cossins, (pictured left) says the group's strength comes from its diversity: "We offer a unique interdisciplinary perspective. The network enables social

workers, social scientists, criminologists, lawyers and others to meet and explore the reasons behind, and solutions to, gendered violence".

One of the network's best-known initiatives is *Safe at Home, Safe at Work*. This globally pioneering program has raised awareness of the link between domestic violence and the workplace, and prompted the introduction of domestic violence entitlements in industrial awards and agreements.

Around 1.6 million Australians are now covered by these workplace provisions. UNSW was one of the first supporters of the scheme along with other major employers including National Australia Bank, Queensland Rail, the NSW public service and the Tasmanian Government.

The University has adopted some of the initiative's recommendations and has also committed to developing further policy in this area. ■

Fire from the sky

Aboriginal oral traditions are giving scientists rich information about meteorite strikes and millennia-old natural disasters, writes Amy Coopes.

Thousands of years before British settlers arrived in Australia, a fireball lit up the Central Desert, blasting a series of craters into the blood-red sands with atomic force. The local Luritja people described it as a fire-devil seeking vengeance for a breach of sacred law, and the site – now known as the Henbury Meteorite Conservation Reserve – was declared taboo.

A detailed account of the event was handed down through more than 200 generations – a period of some 4,700 years – before western science described the site in 1931. Dr Duane Hamacher from UNSW's Indigenous astronomy group is studying meteorite events in Aboriginal oral traditions and says the Henbury legend is evidence of a vast record of natural history that predates British settlement.

“There are similar stories in Aboriginal traditions across Australia of fiery stars falling from the sky, producing a deafening sound, blowing debris across the land and setting the ground on fire,” says Hamacher, an astrophysicist. In some instances Aboriginal stories led to the discovery of an actual meteorite, according to a paper Hamacher has published in the latest edition of the journal *Archaeoastronomy*.

It's a phenomenon that extends beyond the heavens, with Aboriginal stories about tsunamis, earthquakes and volcanic eruptions also dating back tens of thousands of years.

“Aboriginal oral traditions contain detailed knowledge about the natural world,” says Hamacher, whose group of nine researchers within UNSW's Nura Gili Indigenous programs unit is unique in Australia.

“By merging scientific data with descriptions in oral tradition we can show that many of the stories are accounts of real-life events. So Aboriginal stories could lead us to places where natural disasters occurred.”

For example, volcanic eruptions created a series of rainforest-cloaked crater lakes in Queensland more than 10,000 years ago. Local Aboriginal legend describes an explosion in the area felling tall eucalypts. Pollen sampling has revealed the stories are accurate. The rainforest was only 7,000 years old – prior to the eruptions the area was eucalyptus scrub.

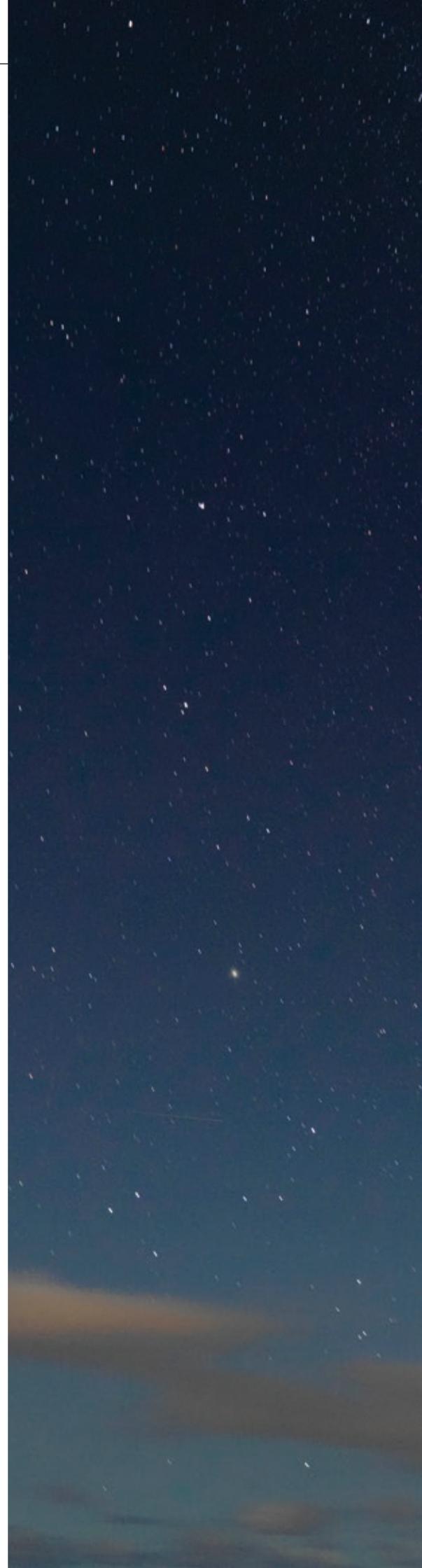
In Portland, Victoria, the local Gunditjmara people tell of a giant wave of water roaring inland, sparing only the people who took refuge on the mountaintop. Hamacher says the area is known to be prone to tsunamis, and core drilling has revealed a thick layer of ocean sediment, which is now undergoing geochemical analysis.

Even in modern times, folklore about natural disasters has been central to the survival of Indigenous peoples. When the 2004 Boxing Day tsunami swept across South-East Asia, little hope was held for the people of the Andaman Islands because they didn't have an early warning system.

Rescuers were astonished to find most islanders had survived because traditional lore dictated that when the ocean receded, you should head for higher ground. The one group who had suffered heavy casualties had been converted to Christianity and had lost touch with their traditions, Hamacher says.

The findings challenge the view that oral traditions only last a few generations. “A lot has been lost but you'd be surprised how many people retain this knowledge; far from being dead, Indigenous knowledge is alive and thriving,” he says. ■

UNSW Media's Artist-in-Residence and former Fairfax photographer Tamara Dean captured this image of Hamacher under the night sky in Bundeena. The portrait will feature in a photographic series *Wild Researchers*, showcasing UNSW academics working in the 'elements'. The series will be exhibited on campus later this year.







A little help from their friends

Toy maker LEGO has demonstrated the awesome power of crowdsourcing ideas from its fans, writes Cameron Cooper.

When the *LEGO Movie* swept all before it at the box office last year, it also briefly helped the Danish toy maker pip its rival Mattel for the first time as the world's biggest toy manufacturer.

Sales rose to a record \$5.5 billion in 2014, with double-digit growth in all regions. It was a striking turnaround for a company that in 2003 was on the brink of bankruptcy as children stopped playing with its famous plastic bricks and turned to video and computer games.

Yet Hollywood alone doesn't account for this business miracle. Instead the company has also harnessed the creativity of its loyal fan base and the potential of crowdsourcing ideas.

In 2008 LEGO teamed with the online crowdsourcing company Cusoo to trial the concept in Japan, leading to a global rollout of the platform three years later.

Now known as LEGO Ideas, the platform complements the work of scores of in-house designers at the company's headquarters in Billund, Denmark and has led to such product launches as the LEGO Ghostbusters 30th anniversary set, conceived by Queenslander Brent Waller.

Would-be toy developers get a percentage of sales royalties if their idea goes to market, but as Waller points out that is hardly the motivation. "It's any LEGO fan's dream to have an official set they created," the 35-year-old told Bloomberg.

LEGO is at the forefront of a corporate shift to crowdsourcing that includes the likes of Starbucks, IBM, PwC and even the US Department of Defense. Companies such as Kettle Chips have even used crowdsourcing to determine new flavours.

In their paper, *Organizational Learning with Crowdsourcing: The Revelatory Case of LEGO*, researchers Daniel Schlagwein and Niels Bjørn-Andersen say crowdsourcing has become a legitimate form of organisational learning – the area of knowledge relating to how organisations adapt to market changes.

Schlagwein, a lecturer in the School of Information Systems at UNSW Business School, says the embrace of such an open-innovation model represents a total shift in how organisations look for new ideas and opportunities. Larger companies, in particular, are well placed to benefit in this space.

"It's much easier for brands like LEGO because it ... not only has a large number of customers, [it also has] a large number of customers for whom LEGO really matters," Schlagwein says.

While academic and business knowledge has always recognised the value of external ideas, those ideas have typically been seen as just part of the landscape in which companies operate.

"But crowdsourcing, such as with the case of LEGO, shows how you can actively create this landscape because all the ideas are not just somehow found by LEGO – they are purposefully created for LEGO," Schlagwein says.

Global IT research company Gartner predicts by 2017, more than half of consumer goods manufacturers will receive three-quarters of their consumer innovation and research and development capabilities from crowdsourced solutions.

Australian futurist Ross Dawson, the author of *Getting Results from Crowds: The definitive guide to using crowdsourcing to grow your business*, says for major organisations such innovation creates a competitive edge.

"They do need to find new products, new business models, new ways of working. So those organisations that do use crowds are demonstrably getting an advantage over those organisations that only rely on their internal resources."

UNSW's Schlagwein however warns organisations need to be open about intellectual property issues, the rights of external product developers and the nature of any royalties they may receive.

"It really needs to be transparent to the crowd what is going to happen, otherwise you might just upset the crowd."

Just as importantly, he argues, the company must have a credible commitment to following through. A key to LEGO's crowdsourcing success is that it has a clear and systematic approach to the generation, collection and rollout of ideas.

"You cannot engage crowds, but then not act on their ideas," Schlagwein says. And he believes LEGO provides a blueprint for other organisations to follow.

"It's a way of systemising the whole ideas process from somebody having a hunch to actually having a LEGO product on the shelves worldwide." ■

– with Dani Cooper

Read a longer version of this story at businessthink.unsw.edu.au

Photo: Shutterstock



Shipping mews

Inspiration from shipping containers is creating sustainable dwellings you won't be afraid to call home, writes Myles Gough.

For decades Australians have been sold the dream of owning a house on a quarter-acre block. The 'dream', however, is somewhat at odds with the reality of high-density city living, says Bruce Edward Watson, Interior Architecture director at UNSW Built Environment.

For the past three years, he's been the chief investigator on an industry-funded research project to design compact dwellings modelled on steel shipping containers. These unconventional structures have the potential to form low-cost apartment-style accommodation and configured to create communities – a practice that's already taking off in several European cities, says Watson.

The project, coordinated by the Cooperative Research Centre for Low Carbon Living, is a partnership between the UNSW faculties of Built Environment and Engineering, and Nova Deko, a manufacturer of modular, shipping container-style houses, or pods.

Watson says Nova Deko wanted to tap into the university's expertise in renewable energy systems and architecture and design to improve its existing structures, but also asked UNSW researchers to get creative and design an entirely new, more sustainable model.

It was this 'blue sky' thinking that informed the company's latest transportable home: a fully off-

grid structure known as the Green Pod – the first prototype of which will be built this year and showcased at UNSW's Kensington campus. These small homes (6m long by 3.4m wide) are built with sustainable ideologies and life-cycle analysis as central to their production. They generate their own electricity from solar panels, use sunlight to heat water, and employ grey-water recycling, rainwater collection systems and composting toilets.

"The Green Pod will allow a customer to literally drop the house on to their land without needing to connect to the electricity grid, sewer services or water supply," says Nova Deko Australian national manager Matt Chernishov. "There are no additional features on the home that need to be installed or connected on site. It is completed in the factory and ready for use."

UNSW engineers, led by Associate Professor Alistair Sproul from the School of Photovoltaics and Renewable Energy Engineering, worked out how to optimise energy efficiency and improve heating and cooling. In the end, they created a design that worked well across a range of Australian climates. This is important, says Chernishov, as the houses of the future "need to be able to work in all environments and in all locations" so they can be easily manufactured.

If designed well, small spaces will be beautiful spaces to live in.

– Bruce Edward Watson



Watson and project team members Malay Dave and Jose Bilbao, meanwhile, tackled the formidable challenge of transforming a structure modelled on a shipping container into a dwelling. They attempted to make the pod look "less industrial" by incorporating timber and more natural elements into the design, using house-like features, such as "awnings and a more dynamic roof shape".

It's likely the Green Pod will initially be better suited to regional locations, but Watson says shipping container-style dwellings could eventually become more prevalent in big cities. "People are beginning to consider other options for housing – particularly if they want to live affordably within a few kilometres of a city centre," he says.

If designed well, "small spaces will be beautiful spaces to live in", says Watson.

Nova Deko agrees and believes the market will continue to grow. The company has sold more than 90 pods in Australia since 2012, and several more units to buyers in Germany, the UK, and China. "We are confident that with UNSW having its finger on the pulse for developing and emerging technologies that we will be at the forefront of modern home manufacturing," says Chernishov. ■

Above: UNSW Built Environment's Bruce Edward Watson.
Photo: Grant Turner/Mediakoo
Main image: Nova Deko's San Marino home that will incorporate UNSW's Green Pod technology.



Sense of an ending

Death is one of the final taboos in medicine, but UNSW researchers are proposing a practical rethink around end-of-life care for the elderly. Amy Coopes reports.

A quiet revolution has taken place in the kind of people admitted to intensive care since Dr Ken Hillman first started working in the field 35 years ago.

Then, the vast majority of patients in high-support units were young people with acute but reversible conditions. Now, typically, they are the frail elderly – 80+ year olds with dementia and urinary tract infections.

Such an infection would once have been the “natural, painless way that people just drifted away”, Hillman says, but remarkable advances in antibiotics and medical technology mean the lives of terminally ill elderly patients can now be prolonged.

For Hillman, professor of Intensive Care and founding director of UNSW Medicine’s Simpson Centre for Health Services Research, these changes have brought a new dilemma for medical staff.

“Doctors are programmed to treat and cure, they’re not programmed to stand back,” he says. “Yet increasingly I saw that what I was doing in intensive care was perverse.”

As the population ages, debate about how much we should prolong life – and in what settings – has intensified.

A Grattan Institute study published in the *Medical Journal of Australia* earlier this year found death in Australia was now “highly institutionalised”, with 54% of people dying in hospital and 32% in residential care. Only 14% of people died in their homes or elsewhere.

Yet, according to Hillman, two out of three Australians want to die at home in a dignified way.

He says there is a ‘conveyor belt’ of factors driving terminally ill elderly people into hospital for ever-increasing, and costly, interventions.

Doctors fear becoming the target of litigation if there’s a perception they haven’t done all they can for patients. Also, medical specialisation has meant specific organs and systems are treated in isolation, often to the detriment of the patient as a whole.

Most importantly, Hillman says, there is a stubborn reluctance to talk about death.

“It’s seen as taboo; doctors aren’t trained to talk about it, and they think perhaps patients don’t want to know these things,” he says. “It’s a mindset. With cancer, you talk prognosis. With the elderly frail, you just have to keep treating.”

Dr Magnolia Cardona-Morrell, an epidemiologist from the Simpson Centre, says medical practitioners are taught to do everything possible to save this life, but at what cost?

“It’s okay to do everything when we know the chances of survival and quality of life for the person will be preserved,” she says. “But when we know this is unlikely and there will only be suffering and stress for everybody involved, we need to reconsider how ethical it is to continue.”

Cardona-Morrell and Hillman are proposing a radical rethink about the way terminally ill elderly patients experience medical treatment, hoping to spark end-of-life conversations they believe are currently happening too late.

This is about empowering the patient to make an informed decision with their doctor.

– Magnolia Cardona-Morrell



Using a checklist called CriSTAL – Criteria for Screening and Triaging to Appropriate Alternative Care – they hope to predict how likely a terminally ill elderly patient is to die within the next three months.

Based on 40 years published research, it contains 29 parameters covering vital signs, frailty and multiple conditions such as chronic heart failure, chronic kidney disease or advanced cancer.

It is designed to get the elderly, their caregivers and loved ones talking about how far they would like to pursue medical treatment to prolong life when their condition deteriorates, including admission to intensive care, rescue surgery or futile chemotherapy.

“What we don’t want,” says Cardona-Morrell, “is what we see all the time: people coming to hospital many times in the last months of life, and the family still doesn’t know they’re dying. They go into a coma and the family suddenly has to make these difficult decisions without knowing what the patient would have preferred.

“This tool may prevent the distress of the family and the suffering of the patient by giving them information. This is about empowering the patient to make an informed decision with their doctor, about their preferred time to discontinue aggressive treatments and where they prefer to die. And it’s empowering the doctor to be more confident about their prognosis.”

CriSTAL will be trialled at a number of hospitals across Australia and overseas as the research team fine-tunes its metrics with a view to determining if the tool is useful and accurate enough to be used routinely.

A study describing CriSTAL was published in *BMJ Supportive & Palliative Care* in January. It was welcomed by clinicians in Australia but met with fierce criticism in the US where opponents dubbed it a ‘death test’ that could be used to deny patients insurance or treatment.

Cardona-Morrell says the point of the study was to generate debate within the community but she never anticipated such a firestorm.

“I think it’s because many people didn’t have the courage to talk about it openly before,” she says.

“We understand it is a very emotional subject for everybody – nobody wants to lose a relative and you want to feel that you did everything within your reach. But at some point we have to accept that they’re old, they have limited reserve in their organs, they have advanced chronic illnesses, they’re frail and they aren’t going to survive.”

It’s an issue that has touched both doctors personally. Cardona-Morrell’s father died at home from a terminal illness after refusing to return to hospital, a decision she supported but which divided her extended family.

Hillman had the opposite experience with his mother, who died aged 86.

“She was scoring maximally according to the CriSTAL project but I still went along with the increasing hospitalisations, because I was a son, not a doctor,” he says.

“It wasn’t until a geriatrician said, ‘Look, what we’re doing is madness, your mum’s really suffering’, that there was this huge relief – but of course it had to come from him.”

Hillman is a pioneering figure in intensive care. He is the architect of a system known as the Medical Emergency Team (MET), a high-tech, specially trained taskforce that responds to deterioration and cardiac arrests in hospital.

Since its introduction in 1994, the MET has reduced mortality and saved thousands of lives. It has been exported worldwide.

Despite the end-of-life controversy, Hillman feels there is an inevitability around more openness on death. He believes the baby boomer generation will drive the dying process out of hospitals in the same way they reclaimed childbirth.

“We need to overcome our own reluctance to talk about death. It’s important to people who want to know,” he says. ■

Above: Magnolia Cardona-Morrell and Ken Hillman.

Photo: Grant Turner/Mediakoo

Previous page: AFP/Getty

THE CriSTAL PARAMETERS

The patient is 65 years or older

AND admitted via the emergency department

AND exhibiting two or more signs of severe deterioration of vital signs

AND has personal history of at least one active advanced chronic illness

AND/OR evidence of frailty

PLUS:

> evidence of cognitive impairment

> hospitalisations in the past year

> repeat admission to ICU at previous hospitalisation/s

> is a nursing home resident or in supported accommodation

> has protein in urine on a spot test

> has abnormal ECG



The exhibition explores our relationship to the things humans have engineered and the natural world.

– Josh Wodak

Shape of things to come

How much of our natural environment will be artificial in the future? Artist Josh Wodak is applying a new lens to the world of synthetic biology, writes Fiona Macdonald.

In a big wooden cabinet in Munich's Deutsches Museum sits a perfectly preserved piece of coral from an Australian tropical reef. Floating in formaldehyde, the organism is frozen in time. But this is no ordinary coral. It grew out of a coral nursery that produces reefs 'designed' by humans, and is arguably more artificial than natural – just like the other objects lining the cabinet shelves.

All have been carefully selected to highlight the way humans have changed the planet, and for Dr Josh Wodak, an associate lecturer with UNSW Art and Design, this segment of artificial reef perfectly represents our bittersweet relationship with the environment.

"It's not nature anymore – it's synthetic biology that's been designed. The coral speaks volumes about what's going on in the world," he explains, referring to the Anthropocene, a term used to describe the current epoch, dominated by humans impacting the Earth's ecosystems in a manner akin to the great forces of nature.

"We created environmental conditions that are detrimental to the coral, and now scientists are attempting to design coral that can tolerate the conditions humans have created," says Wodak. "The scale of the changes we're making to the planet are literally unprecedented, both in their extent and their rapidity."

Wodak's fragment of coral is now being shown alongside 24 other objects from around the world in a 'Cabinet of Curiosities' that sits in the entrance to the Deutsches Museum's *Welcome to the Anthropocene* exhibition – the first of its kind in the world.

"The exhibition," explains Wodak, "explores our relationship both to the material world – the things humans have engineered – and the natural world. Because the Anthropocene hypothesis suggests those distinctions are quickly fading."

Wodak won a coveted spot in the cabinet after pitching his artificial reef in a poetry-slam competition at the University of Wisconsin-Madison in November last year.

But despite his success in the arts, Wodak's background is in anthropology and philosophy. He became involved in the art world during his PhD on environmental ethics, when he looked into how interactive installation art could change the way people think about environmental responsibility.

His research uses a range of artistic mediums to explore the ethical and moral implications of synthetic biology and geo-engineering – and get people thinking about the role they can play in the planet's future.

"Art can make geo-engineering relatable and interesting to a much wider audience than just scientists and engineers, and with that, public discussions about the ethics of its use can develop," says Wodak.

Overall, his research is concerned with how art, particularly in the context of museum exhibitions, can open up conversations about the environment that aren't limited to the science world – he believes that awareness of the Anthropocene needs to be incorporated not just into humanities, but across all fields of society.

He says cultural and research institutions internationally are already leading the way. On a trip to Europe last year, he participated in *The Anthropocene Curriculum*, an intensive nine-day workshop at Haus der Kulturen der Welt in Berlin, involving 100 early-career researchers from across the physical, natural and social sciences, humanities, art and design fields to collaboratively develop university curriculums on the Anthropocene.

As the only Australian participant in this workshop, he's now bringing these experiences back to develop the subject of the Anthropocene with his students at UNSW Art and Design, and to collaborate with social and ecological researchers, such as Dr Matthew Kearnes and Dr Thom van Dooren from UNSW's Environmental Humanities program. Last year, Kearnes and Wodak co-convoked the first conference in Australia on the ethics of geo-engineering.

"I hope that my work can give the activists and academics in this area another lens to see things with," Wodak says. ■

Above: Art & Design's Josh Wodak. **Photo:** Beau Vardos

Here and now

I'm standing on a rock surrounded by water. The smell of damp earth hangs in the air along with the sound of bellbirds and cicadas. In the distance, I see two naked figures moving through the bush. Their reflections, and mine, reach into infinity.

For a meditative moment I've been transported to the Australian bush from Studio One in UNSW's Creative Practice Lab.

Welcome to *Here and Now* – a multi-sensory art installation created by Tamara Dean, UNSW Media's Artist-in-Residence.

The acclaimed artist and former Fairfax photojournalist's experiential work aims to explore the relationship between humans and nature in our technologically saturated world.

"We are all so caught up in our phones and our computers. *Here and Now* is an invitation to participate in a conscious act of arriving in the present, contemplating our place in infinite time and space," Dean says.

"I'm encouraging the viewer to take an intimate moment to breathe, wonder, observe and reflect. The smells, textures and sounds of the bush are a visual reminder of life, death and renewal that brings us into the moment."

To help create an immersive experience Dean collaborated with award-winning fragrance artist Ainslie Walker to tap into the most primitive and primordial sense – smell.

"When Tamara and I discussed the idea for an ambient fragrance for the installation, the vision was water drenched, earthy, muddy, cool, musky, sexy and unconventional," says Walker.

The installation marks an artistic metamorphosis for Dean whose photographic practice hasn't previously extended to "a four-dimensional space".

"This is a huge shift from the way I've worked before in terms of the physicality and theatricality of my work," she says.

Founder of the Bell Shakespeare theatre company, John Bell, was among numerous high-profile members of the Sydney arts scene at the *Here and Now* opening. He said the installation had "extraordinary visual impact".

"I felt as if I was walking into a sacred space. It was beautiful and calming."

Dean will take *Here and Now* to New York later this year to feature in an exhibition curated by Associate Professor Simone Douglas, Master of Fine Arts Director, Parsons (The New School for Design).

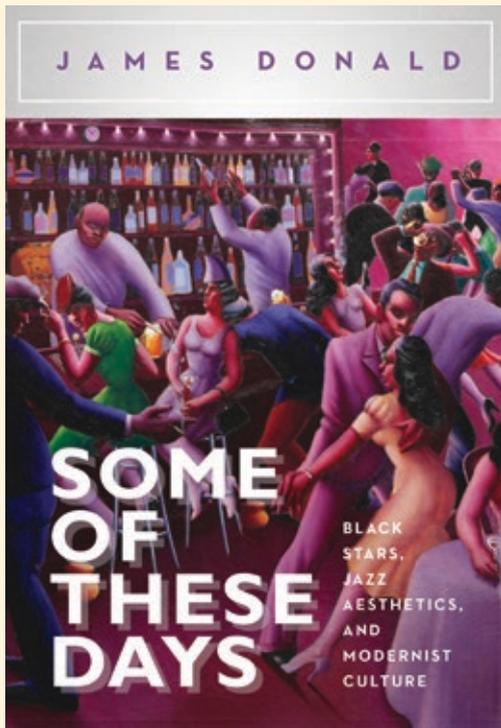
Tamara Dean was UNSW Media's Artist-in-Residence earlier this year. The residency is supported by the Creative Practice Lab in the School of the Arts and Media.

She is represented by Olsen Irwin Gallery. ■



To experience Dean's installation, download the *Uniken* app.

Right: A sensory experience – artist Tamara Dean with her installation *Here and Now*. **Photo:** Heidrun Lohr



Some of These Days: Black Stars, Jazz Aesthetics and Modernist Culture

James Donald, *UNSW Arts and Social Sciences*

Professor James Donald offers a compelling cultural history of the Harlem Renaissance and its vast influence abroad, with a dual focus on the world's first two major African-American screen stars: Josephine Baker and Paul Robeson.

But *Some of These Days* extends beyond pure biography to recreate the rich community of actors, architects, poets, directors, and musicians who interacted with – and were influenced by – each other.

Donald highlights how the sense of excitement and artistic renewal ushered in with the 'New Negro Movement' reverberated far beyond Harlem and its surrounds, to major international cities such as London, Paris, Berlin and Vienna.

He underscores the relationship of African-American aesthetics to the modernist movement that flourished from the 1920s until the end of World War II. Vivid portraits of eccentric and

Some of These Days illustrates the immense cross-cultural collaboration of film, song, dance, and literature.

popular artists like T. S. Eliot, André Gide, Carl Van Vechten, Marlene Dietrich, Josef von Sternberg, Jean Gabin and Adolf Loos animate the sweeping narrative.

Some of These Days illustrates the immense cross-cultural collaboration of film, song, dance, and literature that coalesced to create modernist culture – where the new rhythms of the machine age were gleefully embraced, allowing art to consider the new possibilities of cosmopolitanism in a modern world.

Oxford University Press

Inside Australia's Anti-Terrorism Laws and Trials

Andrew Lynch, Nicola McGarrity
and George Williams, *UNSW Law*



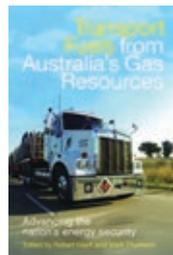
Threats of domestic terrorism exist – as was demonstrated by the Sydney siege in late 2014 – but are Australia's exceptional

national security laws really necessary? This timely book is a clear-eyed guide to Australia's vast body of anti-terrorism laws enacted since 2001, and asks some fundamentally important questions: have these laws been effective in protecting the community or do they represent a long-term threat to the health of Australian democracy? And perhaps most importantly, it asks whether accepting these laws as normal is a danger in itself.

NewSouth

Transport Fuels from Australia's Gas Resources

Robert Clark (*UNSW Engineering*)
and Mark Thomson



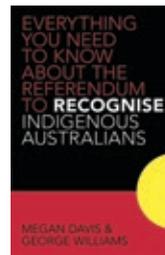
Written by Australia's leading experts in the field, this book reveals the findings of a comprehensive, cross-institutional

study into how our gas resources can be converted into fuel for transport. The transport sector in Australia depends heavily on imported oil-based fuels. Natural gas, however, can be converted into a conventional liquid fuel at a modest cost. This study shows its use as a fuel could increase our self-sufficiency by 50-70% by 2030. And with three-quarters of our freight being moved by road, it's clear that these developments will have major benefits for Australian transport efficiency.

NewSouth

Everything You Need to Know About the Referendum

Megan Davis and George Williams,
UNSW Law



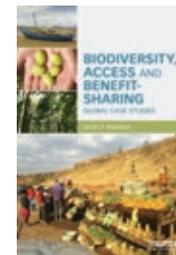
This book explains everything Australians need to know about the proposal to recognise Indigenous peoples in the

Constitution. It details how the Constitution was drafted, and shows how Aboriginal and Torres Strait Islander peoples came to be excluded from the political settlement that brought about the nation. It explains what the 1967 referendum – in which over 90% of Australians voted to delete discriminatory references to Aboriginal people from the Constitution – achieved, and why the Constitution still permits people to be discriminated against on the basis of their race. Written by two of the country's foremost legal experts, it is essential reading on what will be a landmark moment for the nation.

NewSouth

Biodiversity, Access and Benefit-Sharing: Global Case Studies

Daniel Robinson, *UNSW Science*



There is money to be made from cosmetics, medicines and health foods generated from plant extracts. Unfortunately, this money usually doesn't

return to the local communities where the resources grow. The Nagoya Protocol to the Convention on Biological Diversity could help control this practice of bio-piracy, as it sets out a legal framework for the 'fair and equitable sharing of benefits' arising from the use of genetic resources. However, there is still considerable confusion about how it can be implemented. This book, full of case studies, will help policy makers design effective implementation strategies in order to benefit conservation and indigenous peoples.

Routledge

The Institute of Environmental Studies director talks to Fran Strachan about growing up in Argentina, her work with the UN and her love of maté and red wine.

What was it like growing up on a farm in outback Argentina?

I rode my horse to school every day and tied it up outside our tiny classroom. There were only 30 children and one teacher. Then my father died when I was 11 years old and we had to leave the farm.

How do you stay connected with Argentina?

Mostly through Latin American music and literature, and drinking good Argentinian red wine keeps me in touch with the land. I've also continued drinking maté. It's a Spanish drink like green tea and has a similar effect to caffeine, but it's not as addictive.

Almost 20 years ago you sent more than 100 letters trying to find work in Australia. Why here?

The political and economic situation in Argentina wasn't stable enough for me to apply my expertise. My first job was as a lecturer at Curtin University. Now Australia is my adopted country and my daughter was born here. This is my home. This is my place.

How did you become a leading authority on land degradation and environmental management?

My work encompasses earth observation science, physical geography and environmental monitoring. I've been particularly interested in using geospatial technologies for the management and analysis of natural resources. I've worked in international agencies and in academia. There's baggage that comes from 25 years experience that sometimes makes you worthy of being an 'authority'.

Your career began with the study of mapping – cartography – why did that appeal to you?

I started studying cartography in 1983, a decade after satellite images first became available for commercial use and I just loved the idea of mapping from space. My first job was for a government program in Argentina that aimed to encourage land tenure in slums to help people overcome poverty.

You've described your five years working at the UN as a "fantastic learning curve". Why?

I learned the importance of being savvy about selling my messages and navigating political interests. As regional coordinator at the UN Environment Programme for Latin America and the Caribbean there was no room to be opinionated, I had to be neutral and back myself with scientific facts. It was during this time I made significant contributions to global and regional environmental reports. I also learned about the importance of communicating science to policy makers. It's something we definitely emphasise to our students.

What are the major environmental issues facing Australia?

There are so many ongoing issues across the region – the loss of biodiversity, the degradation of our soils and forests, and addressing our waste generation. We are also yet to understand the full impact of environmental degradation on human wellbeing. ■



Photo: Quentin Jones

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