

3010

melbourne university magazine

EDNA AND ME

Cultural icon
Barry Humphries
goes back to
where it all began

ISSUE 2, 2015



THE UNIVERSITY OF
MELBOURNE

EARTHQUAKES STEMMING A FATAL TIDE

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PLAN

Strategy to improve student experience and promote research



A commitment to improve the student experience and increase international research collaborations is part of the University's latest strategic plan, *Growing Esteem 2015-2020*.

The plan, published in July, aims to build on the strengths and achievements of the University's past decade while creating a secure future for the institution.

Under the plan, students will benefit from increases in quality accommodation, work-based learning opportunities such as internships, and study abroad options.

Timetables will be made more flexible and new opportunities created for students from all backgrounds, including Indigenous students.

There will also be an increased emphasis on international research collaboration with industry and other partners, and a growth in public engagement with communities in Melbourne and Australia.

Vice-Chancellor Professor Glyn Davis AC says student numbers

will grow in the key areas of engineering and science to ensure the University can be globally competitive. "There will be some programs in other faculties that may grow at the graduate level, but this is going to be done in a targeted and considered way," he says.

"The development of graduate online programs will also play a part, and create a truly global student cohort that will experience the University in different and exciting ways."

Professor Davis says the current environment means the University needs to make some big decisions about how it continues to evolve.

"In many ways we are thriving, but this document isn't about the present. It's a competitive sector. It's about asking ourselves what do we need to do to make sure our future is secure, while staying true to the principles we established 10 years ago."

Visit about.unimelb.edu.au/strategy-and-leadership to read the strategy in full.

PARTNERSHIPS

New opportunities for Indigenous engineers

The University is leading a nationwide initiative to vastly improve opportunities for Indigenous engineering students and increase the number of Indigenous engineers working in Australia.

The Partners for Pathways project aims to create scholarships and devise strategies to promote entry into engineering for Indigenous and other students who do not have the required background in maths and science.

A former Chief Executive Officer of Sinclair Knight Merz, Professor Paul Douglas (BE(ChemEng) 1971), is leading the program, which is backed by a Commonwealth grant of \$700,000.

The first National Indigenous Engineering Summit was held in June and brought together industry, professional bodies, representatives of most of the major Australian university engineering schools and policy leaders to exchange ideas.

Indigenous engineers from around the country also took part.

"We heard from a number of practising Indigenous engineers who agreed that education was the key to a better future for themselves and their families," Professor Douglas said.

"These engineers can now be mentors to current students coming through the ranks and are able to provide advice on what barriers and experiences they had, to help build a tangible pipeline into the profession."

FACULTY FACTS

1553

Number of research and teaching staff within the Faculty of Medicine, Dentistry and Health Sciences.

\$630 million

The faculty's annual revenue, of which about 55 per cent relates to research.

A new face at the helm

The University has welcomed a new Vice-Principal (Advancement). Nick Blinco will lead University of Melbourne Advancement, which includes alumni relations and philanthropic campaigns. He was previously Director of Engagement at the University of Birmingham. Learn more at unimelb.edu.au/3010

SYNTHESISER

A note or two from Dr Who

For the past 20 years one of the world's rarest synthesisers, the EMI Synthi 100, sat idle in a University storage facility. Now, thanks to the passion of Victorian College of the Arts (VCA) Senior Technician Leslie Craythorn, it has been restored to its former glory and will be available for students.

The Synthi 100 was delivered to the University's Electronic Music Studio in 1975. Soon after, Leslie was employed as the studio's technician. "On my first day at work, the first thing I did was walk through to look at it," he said. "I remember thinking it was the best day of my life!"

Nearly two metres long, the Synthi 100 is more of a laboratory piece than a musical instrument. And with an overwhelming number of knobs, joysticks and patch-pins to navigate, 'playing' it is certainly not for the faint-hearted. According to Leslie, you'd need three months to gain a basic understanding; two years to become a master.

The Synthi 100 is most often associated with the *Doctor Who* theme although, as Leslie points out, "there are about 20 different versions of that tune and only one was ever played on it".

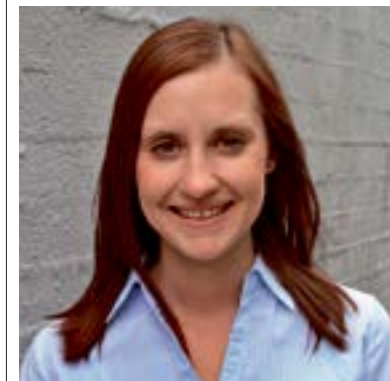
The restored instrument is housed within the VCA's new Brian Brown Recording Studio. It joins a number of other remarkable vintage synthesisers in the University collection. To watch the Synthi 100 in full-flight visit: unimelb.edu.au/3010



Rare instrument: Leslie Craythorn with the Synthi 100 at the Victorian College of the Arts.

CAMPAIGN

Alumni back students in need



Students in need have received new support, thanks to the generosity of alumni and friends of the University.

More than 1400 donors contributed a record \$940,557 to a fundraising appeal held over just a few weeks in May and June.

The money raised by the campaign, part of the University's Annual Appeal, will provide scholarships, bursaries and fellowships to students facing financial problems.

The Annual Appeal has been running since 1989 and over the years has helped thousands of students to continue their studies.

Master of Teaching student Courtney Rose (pictured above) is among those who have benefited. "Last year I considered giving up my studies due to financial pressures," she says.

"However the generosity of donors meant that I was able to access a crucial bursary, giving me the opportunity to continue my education at Melbourne and make the most out of my studies."

Donations to the Annual Appeal count towards the target of *Believe – the Campaign for the University of Melbourne*. More than 19,000 donors have supported the Campaign, which aims to raise \$500 million by 2017 to address three main priorities: educating tomorrow's leaders, finding answers to the world's grand challenges, and enriching communities.

Visit campaign.unimelb.edu.au to learn more.

EXHIBITION

Rare prayer book goes on show

One of the world's most exquisite manuscripts is on display at the University until November 15.

The 500-year-old Rothschild Prayer Book is one of the most valuable illuminated manuscripts and is considered one of the most important books of its type in existence.

The 16th century prayer book is at the centre of a free exhibition, *An illumination: the Rothschild Prayer Book & other works from the Kerry Stokes Collection c 1280-1685* at the Ian Potter Museum of Art.

On loan from the Kerry Stokes Collection, the exhibition contains rare masterpieces of breathtaking beauty and power including the monumental work of *Calvary* by the Flemish artist Pieter Brueghel the Younger. The exhibition is accompanied by a series of public lectures and floor talks.

The Rothschild Prayer Book was made in the Belgian cities of Bruges and Ghent in the early 1500s. It is illustrated with gold and contains 67 full-page miniature paintings, each considered a masterpiece.

These types of manuscripts were created in monasteries and used by priests and monks for liturgical purposes. They were often commissioned by people of means such as emperors and princes, and in the 13th and 14th centuries private persons bought and used "books of hours", which contained prayers to be recited throughout the day. The Rothschild is one of about 30 remaining illuminated manuscripts made as private worship books between 1500 to 1510.

For more information visit events.unimelb.edu.au/rothschild



Shifting ground

As the world's population soars, millions of people are at risk from earthquakes. University researchers are working to identify the risks and minimise the losses.

BY **TIM THWAITES**
(BSc(Hons) 1974,
TRINITY COLLEGE,
JANET CLARKE HALL)

David Norrish was getting ready for a costume party when the Earth moved. Resplendent in baggy green hippie pants and a tie-dye shirt, he was on the roof of his four-storey apartment building in Kathmandu, Nepal, when the first jolt sent him staggering. It was April 25, this year, and an earthquake had struck.

"Struck really was the right term for what the earthquake did," says the University of Melbourne genetics researcher, now working with the Nepal Health Research Council. "There was no warning or gradual increase in intensity. One moment the world was sane and stable, and the next the whole building was shuddering back and forth. I stumbled and caught my balance, and my brain needed a few seconds to figure out what was happening and how I should feel about it."

"All the earthquake training we had done was only relevant for being inside a building. I ended up just dropping down where I was and crouching in a ball in the centre of the roof. Right before I hit the ground I caught a glimpse of the city and this surreal image is burnt into my mind: a swarm of black rising. It was thousands of crows taking flight in a wave of panic."

When the shaking stopped, Norrish (BSc 2009, MSc 2011) grabbed a first aid kit from his apartment and rushed out into the street. "I bumped into a nurse friend of mine who was on her motorbike heading to the local hospital, and I gave her the first aid kit. She told me later that the hospital had been so under-resourced that that first aid kit, by being there at that time, ended up saving several lives."

He wore his party costume for the next few days, as he came to terms with a catastrophe that devastated the city and killed more than 8500 in the region.

"Hundreds of thousands of people were left living in the scary uncertainty of a dying city, with no electricity or running water and rapidly dwindling access to food and transport," he recalls.

CONTINUED PAGE 8

Preparing victims for
cremation after the
earthquake that struck
Kathmandu in April.

PICTURE: DANIEL BEREHULAK/
THE NEW YORK TIMES/HEADPRESS

FROM PAGE 7

It's a scene likely to become increasingly common, says Associate Professor Mark Quigley (PhD 2007), who has forged a worldwide reputation in earthquake science at the University of Canterbury in Christchurch. He will be returning to a specially created position at the University of Melbourne in October, adding significantly to a research area of growing importance in science and engineering.

Earthquake damage to humans and infrastructure is on the increase as the world's population grows and settles over more and more of the planet, he says. Researchers from the US Geological Survey predict that the number of earthquake-related deaths could more than double in the 21st century to 3.5 million.

But it's not urban areas such as Los Angeles and Tokyo where lives are most at risk. As populations centres in well-to-do nations, their infrastructure is relatively prepared to withstand any shock. The real problems are in the burgeoning, crowded cities of less developed countries.

And living in Australia, seemingly one of the seismically quieter parts of the Earth's surface, is no reason to be complacent. Two of Australia's most recent earthquakes – at Tennant Creek in 1988 and Newcastle in 1989 – were of a magnitude similar to or larger than the recent Christchurch earthquakes.

In New Zealand, Mark Quigley – aka Dr Quigs – and his partner Candice became caught up, literally, in the earthquakes of 2010 and 2011.

Their house was in one of the most vulnerable areas, and the sandy soil underneath it erupted to the surface, in a process known as liquefaction, resulting in serious damage and the property's eventual demolition.

But the two earthquakes were very different propositions for Quigley, as geologist-participant. "On September 4, 2010, Christchurch hosted the perfect earthquake. Details of the rupture process were captured by a dense array of instruments. And the surface rupture itself was a sight to behold – a geologist's dream. While there was some damage, no lives were lost. And we did as scientists should do. We conducted research, tested hypotheses, collaborated with colleagues, spoke to the media, gave public talks, published papers and told our story to the world.

"On February 22, 2011, Christchurch hosted a much different seismic event. This one caused many deaths, unbelievable destruction and mass evacuations from the city. The science response has been different, sombre and more subdued.



David Norrish in Kathmandu.



"Some of the public has lost

trust in our abilities. It was

a difficult, but important,

time to be an earth scientist."

DR MARK QUIGLEY (ABOVE)

Some of the public has lost trust in our abilities. It was a difficult, but important, time to be an earth scientist."

In the aftermath, Quigley became a household name in New Zealand and worldwide. For months, he appeared almost nightly on New Zealand television as the voice of science and evidence-based information. Among other honours for his efforts, he was awarded the 2011 New Zealand Prime Minister's Science

Media Communication Prize and the 2014 Geological Society of America Public Service Award.

"My shift to Melbourne is not surprising," Quigley says. "It's building recognition in the field and has a strong engineering school. Many of the world's leading earthquake scientists live in intraplate settings. But that comes with a responsibility to tackle earthquake-related challenges that transcend regional boundaries, and with a particular focus on assisting nations with a higher seismic risk and lower science capacity."

One urgent need, he says, is information on where the greatest risks are, how resistant we need to make buildings, and where we should avoid construction altogether. And that information has to be solid enough to resist the pressure of inappropriate development in places where there may have been little sign of an earthquake for many years.

"We need to work hard to plan and develop cities and infrastructure that are informed by geologic information," he says. "The use of the geological record to understand the location, size, frequency and effects of past earthquakes for the purpose of reducing our vulnerability to future earthquakes is what underpins the fields of paleo-seismology and earthquake geology.

"For example, our research in New Zealand has demonstrated virtually all of the worst effects of the 2010-11 earthquake sequence had prehistoric geologic predecessors of similar severity and extent that could have been better incorporated into land use planning policy. This is the field in which my expertise lies and the work I will be continuing with vigour at the University of Melbourne."

At the University Mark Quigley will rejoin his PhD supervisor, Professor Mike Sandiford (BSc(Hons) 1978, PhD 1985), who holds the Chair of Geology in the School of Earth Sciences, and with whom he has worked previously, examining earthquakes and the formation of mountain ranges in central Australia and the Himalayas.

Of all the tectonic plates, says Sandiford, the Indo-Australian plate is moving the fastest and is the most highly stressed. This puts Australia among the areas most prone to intraplate earthquakes. One of those who knows most about Australia's seismic activity, particularly with respect to the rest of the world, is Gary Gibson (BSc 1968), a principal research fellow in seismology and president of the Asian Seismology Commission. He has been contributing to the Global Seismic Hazard Assessment

Earth's fault lines put big cities at risk

The thin, solid skin or crust on which we live is only five to 70 kilometres thick, or about 1 per cent of the distance to Earth's centre. But by the time you reach the mantle underneath, the temperature has risen to more than 600 degrees, and the material you are passing through is becoming plastic. By the outer core, it has become liquid. The Earth's core is hot – about 6000 degrees at the latest estimate.

The crust and upper mantle is broken into a jigsaw of moving tectonic plates. Their movement crushes them together, pulls them apart, and forces them to slide past each other.

Some are pushed under neighbouring

plates in a process known as subduction.

These motions are jerky. The friction of huge tectonic plates pressing and rubbing against each other is immense.

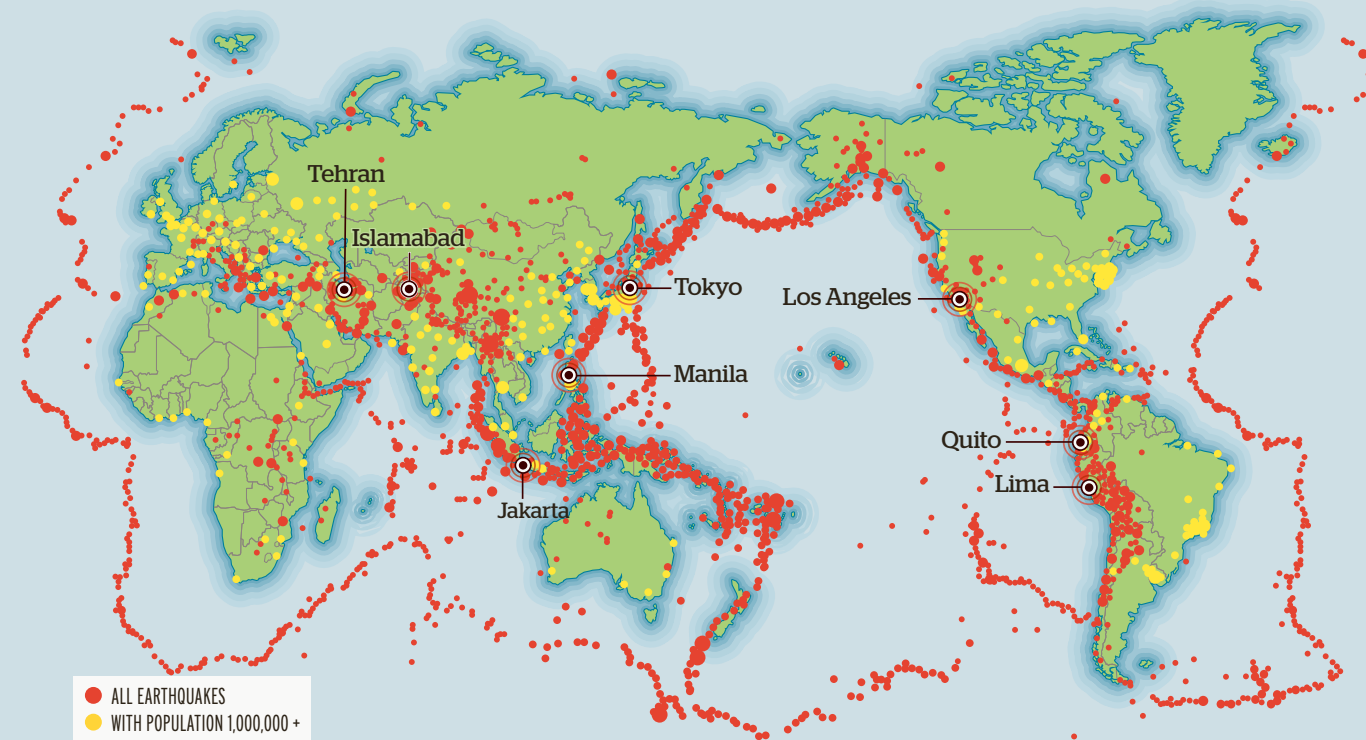
Along active plate boundary faults, such as the San Andreas Fault in California, the pressure builds up until it exceeds the strength of the fault and the earth slips rapidly, moving metres in a matter of seconds. In the case of Nepal's recent earthquake it moved about three metres.

That rupture causes an earthquake as it cascades along the fault until the friction becomes too great to overcome and the rupture is terminated. But that concentrates stress on the fault further down the line, which is why earthquakes

along fault zones are likely to cluster.

About 95 per cent of earthquakes occur at plate boundaries. The people most at risk live in these regions, particularly at the edges of the Pacific Ocean and across Asia, from central China, along the Himalayas and extending through Iran and Turkey into Europe.

The cities where most death and damage is likely to occur are in developing countries – Islamabad, Tehran, Quito, Manila. But 5 per cent of earthquakes occur intraplate. These are the ones that affect Australia, and while neither as frequent nor typically as big as those at the plate boundaries, they can still be significant and destructive.



Program, which is bringing together historical seismic data from all over the world to create earthquake hazard maps.

It's not an easy task. Precise measurements of earthquakes go back less than a century – a mere blink of geological time, although techniques are being developed to gain indications of much earlier events. Earthquakes play out differently in different geological environments, Gibson says, so comparisons become difficult. "A magnitude-5 quake in Western Australia may be felt 400 kilometres away, but only 150 kilometres away in Victoria, given its softer, more absorbent rock."

While the maps are preliminary and constantly being updated, they show the areas of greatest earthquake hazard in

Australia are the south-east and south-west corners of the country, as well as central Western Australia.

Our complacency doesn't help. In the past few years, several insurance industry executives have expressed concern at the lack of basic earthquake risk mitigation by business and government in Australia. That's a situation that researchers in the School of Engineering and its associated Centre for Disaster Management and Public Safety, such as Associate Professors Helen Goldsworthy (PhD 1990) and Nelson Lam (PhD 1993) and Dr Elisa Lumantarna (BE(CivEng)(Hons) 2001, MEngSc 2004, PhD 2012), are trying to change. They are working on earthquake-resistant building design and the development and implementation of

building codes that address the risk.

Buildings can be engineered and retro-fitted to resist earthquakes, Goldsworthy says. And we now know quite a lot about resistant materials and construction, from investigating the reaction of buildings to events such as Christchurch and also from the latest research work on damage-resistant technologies.

Meanwhile, David Norrish has decided to stay on in Kathmandu as it gets back on its feet.

"After a couple of months, things are only superficially back to normal," he says. "The traffic's back to full bore. But you can still see where the houses are damaged. And the tourists have completely emptied out of the country. That's seriously affecting livelihoods."

Time is ripe for fruitful ventures

Australia needs a new generation of entrepreneurs, and the University is working hard to generate them.

BY VAL MCFARLANE

Emma Welsh's first foray into the fruit trade wasn't a huge success. As a young girl she developed a plan to raise enough money to buy a saddle for her horse by picking strawberries. "I thought I was going to make a fortune!" she laughs.

But after calculating she had earned \$1.50 for three hours' back-breaking work, she abandoned the plan and didn't even bother going back to collect her pay.

It's fair to say her next fruity venture has been more productive. She and childhood friend Tom Griffith founded Emma & Tom's in 2004, after Tom spotted a gap in the Australian market for additive-free bottled fruit smoothies.

They've gone from an initial range of just four flavours – developed in Welsh's home kitchen – to an array of drinks and snacks that's stocked in cafes, delis and supermarkets across the country. Griffith might describe Emma & Tom's as "the grown-up version of the kid's lemonade stand" but it is now a serious player in the Australian market, with plans to expand overseas when the time is right.

And it's exactly the kind of business that Australia needs, with manufacturing jobs disappearing and the economy over-reliant in the eyes of some on a few big names too focused on the domestic market. The small business sector – which accounts for half of private sector employment – is under pressure too, with more firms going under than launching.

But Griffith (BCom 1986, Ormond College) and Welsh (BAgrSc 1988, Trinity College) are proof that it is possible to succeed with the right product and approach.

Both had successful corporate careers after graduation – Tom as a chief financial officer and adviser to the UN, and Emma as a commodities trader and marketer – and both had run start-ups in London before setting up Emma & Tom's.

That didn't mean it was all smooth sailing. "The experience we had made us avoid some mistakes but I think it also

made us make some mistakes," says Welsh. They hired people to do jobs they should have done themselves. They were thrifty, but not thrifty enough.

But slowly they found their way around their new industry. "It was like pulling at a thread," Welsh says. "You just follow along all the things that need to be done – what's the bottle going to be like, what are the ingredients going to be, what's the recipe going to be ... you just keep talking to people and following it along."

Relationships have been key. "We've learned a lot from talking to other people," says Griffith. "Really everyone has the same issues and challenges, whether you are selling hamburgers, fruit juice or insurance. It's about pricing, dealing with new types of customers, what margins should we be aiming to achieve ... all the things you just don't know by instinct."

A decade on, they still have external advisers. Welsh says: "It's really important to have people who can look critically at your business to help you see the wood from the trees as well as to make the most of other people's experiences."

"As an entrepreneur you have to be an optimist and you have to be driven. That can be a weakness because you are so hell-bent on making it succeed, you actually don't see that you are going down the wrong path."

Having learned on the job what works and what doesn't, Griffith is an enthusiastic advocate for the new Wade Institute for Entrepreneurship at Ormond College. Established with a \$10 million gift from entrepreneur and Ormond alumnus Peter Wade, it aims to give budding entrepreneurs the tools they need for success. From 2016 it will offer a Master of Entrepreneurship degree, delivered in partnership with the Faculty of Business and Economics and the Melbourne School of Engineering.

The teaching will be practical, blending academic study with advice from entrepreneurs like Griffith. Students will graduate with a business plan that is hopefully strong enough to attract venture capital.

Associate Professor Rufus Black, Master of Ormond, says students will come from a range of backgrounds, but will share a passion for creating something with impact: "Finding ideas is not the hard part – turning those ideas into something that will be a successful, competitive business is."

Some of those ideas will likely come from areas in which the University already excels – medical research or engineering, for example – but Black (BA 1990, LLB(Hons) 1991, Ormond College) is keeping an open mind. "Disruptive players are almost always black swans – they come up with innovative and unexpected ways to meet the world's needs."

Between the new Masters and the Melbourne Accelerator Program, which provides a place for entrepreneurs to grow their businesses, Black says the University can make a major contribution to creating a much-needed "entrepreneurial ecology" in Australia.

"Other mid-size economies have recognised that they have got to create the next generation of globally competitive businesses that will provide the future wealth and jobs. We need to do that here. We need a new generation of entrepreneurs," he says.

"This is a really big issue for Australia. We've tended to look to big business or government to provide an economic future – that has got to change."

That's a view shared by alumna and entrepreneur Susan Oliver (BBldg 1973), co-founder and chair of female-led angel investor network Scale. Its aim is to develop a group of savvy investors who can support early-stage ventures, particularly those led by women



Long-time partners:
Emma Welsh and
Tom Griffith.

PICTURES: CHRIS HOPKINS



How to make an entrepreneur

Can you teach entrepreneurship? The rise of academic entrepreneurship programs would suggest so. But entrepreneurs need more than a great idea and business know-how: they also need the right personality to deal with the risks inherent in starting something from scratch. So what do you do if you've got the great idea, but not the personality traits to go with it?

Dr Luke Smillie, Director of the Personality Processes Lab in the Melbourne School of Psychological Sciences, says all is not lost. He says that while our personality is relatively stable over time, it's also possible to change it – particularly if you set yourself the goal of doing so.

"One way it seems to work is that by simply engaging in the behaviours you are cultivating habits – fake it until you make it. There's also the idea that you can redefine who you are and begin to behave more in accord with that self-concept. If you do that for a while it does calcify into a more enduring characteristic," he says.

And he believes perceptions of entrepreneurs as risk-takers can be wrong. "People use the word risk in different ways," he says. "What a lot of people are talking about is functional risk-taking – seizing an opportunity, acting quickly, doing something that they might not be most comfortable with, taking calculated risks. Risk-taking is not necessarily about recklessness."

and mixed teams, and it's working. Since its launch in 2013, Scale has recruited 75 members who have invested more than \$3 million in six start-ups.

Oliver believes a change in attitude is critical. "Everybody thought the US was on its knees post-GFC but they hoisted themselves up through their confidence and their 'can do' culture. Here we're doubting Thomases and it can be a reason why our start-ups move to the US," she says.

She welcomes new additions, like the Wade Institute, to the entrepreneurial landscape. "We need as many players contributing as possible," she says. "And we also need to recognise that we are a small, small voice in a big, big world and if we don't work collaboratively and dynamically we are wasting the opportunity."

She'd like to see Australia follow the UK's example and allow individuals investing in start-ups to claim it as a tax deduction. "We subsidise real estate investment through our taxes. Why don't we subsidise technology or start-up investments?" she says.

She's also wary of government policies that seek to "pick winners" in the entrepreneurial market. "I always feel really doubtful about governments that say they are going to back med-tech, or pharmaceuticals, or whatever else. What that is really saying is that they are going to institutionalise the research base and endow this group of people, whether there is something fabulous there or not. It just makes it bureaucratic and stodgy," she says.

"There are going to be bursts of energy all over the place and you can't institutionalise that. You have to allow that burst of energy to flourish wherever it is."

Meet young entrepreneurs making their mark at unimelb.edu.au/3010

In the shadow of the firing squad

After a long legal struggle, two Australian drug smugglers were executed in Indonesia earlier this year. For their team of defence lawyers, the journey was both harrowing and uplifting.



"With the luxury of quality education comes the responsibility to show courage and to lead," says Julian McMahon.

PICTURE: CHRIS HOPKINS

BY IAN MUNRO

It was when all was lost and their plight was at its worst that the condemned men were at their best.

With their deaths by firing squad imminent, Myuran Sukumaran and Andrew Chan, once alleged by police to be the "strongman" and the "Godfather" respectively of the Bali Nine drug smuggling operation, confirmed the truth of their rehabilitation with deeds of compassion.

"It's well documented that the process of execution is deeply traumatic for all involved," says Julian McMahon (BA(Hons) 1987, LLB 1990, Trinity College), the longest serving of the team of Australian lawyers who represented the condemned men.

Chan and Sukumaran knew that they were being watched, and their integrity was being assessed to the last, he says. They faced death caring for their fellow prisoners and their executioners.

"They held everyone else together. The prisoners as a group died praying and singing, and I saw most of them at length in the days leading to their death. They were composed, and for the most part..." – here, McMahon pauses for a long moment to find the right word before concluding – "serene."

Though their case had rolled on for 10 years, dropping in and out of Australia's national consciousness, the nation was transfixed when the two convicted Australians were executed in Indonesia earlier this year.

Standing in their corner for eight of those years – largely unseen – was that band of volunteer human rights lawyers, committing their time, skill and emotional energy to trying to save the pair as their case wended its way through the Indonesian judicial system.

The deaths of Sukumaran and Chan would ultimately leave some in the legal team feeling raw and frustrated, while insisting none of it was really about them. McMahon, for one, resists any focus on himself and refuses to discuss the case in personal terms.

The long road to Nusakambangan Island, where the Indonesian government conducts its executions, began at Bali's Denpasar Airport on April 17, 2005 when four young Australians were arrested with heroin strapped to their bodies. Three others in possession of heroin were arrested at a Kuta Beach hotel.

Chan and Sukumaran – "the boys" to their lawyers – were also arrested in connection with the smuggling

operation. In February 2006 they were found guilty of heroin trafficking and sentenced to death.

Almost immediately legal networks in Melbourne and overseas were tapped to provide a defence. It began in 2006 when the Chan and Sukumaran families sought out Lex Lasry QC, who was known for trying to save another Australian, Van Tuong Nguyen, who went to the gallows in Singapore in 2005.

Lasry recruited McMahon, another who had acted for Nguyen.

Over time the team would grow and change as circumstances and career shifts dictated. In 2007 Lasry was made a Justice of the Supreme Court of Victoria, leaving McMahon as the sole barrister.

He in turn recruited eight barristers and solicitors to the collective, but along the way two more left to take up senior appointments: John Champion SC (LLB 1973, GDipArts(Crim) 1974, GDipCorp&SecLaw 1994), who became Director of Public Prosecutions; and Mark Taft SC, who became a County Court judge.

Other recruits were prominent defence barrister Peter Morrissey SC (BA(Hons) 1981, LLB(Hons) 1991), and Michael O'Connell SC, who has lived in Indonesia and is fluent in the language.

Just like the shifting membership, there was a touch of improvisation in the way each lawyer's role played out. Morrissey became local and international media spokesman, while McMahon, O'Connell, and solicitor Veronica Haccou, who is also fluent in Indonesian, worked on the ground in Indonesia.

Despite the desperate nature of the exercise there was no lack of lawyers willing to try to save the men. None would be paid, but that is not unusual, says McMahon.

"Barristers in criminal law operate under the cab rank principle – you take the next case that comes along if you have the time and it's appropriate that you do it, for example, if you don't have a conflict of interest," he says.

"Often barristers try to apply that principle whether or not a brief is a paid one. It's also common for barristers to carry multiple briefs at the same time.

"You don't have one case and work on it until you have another case, so the pro bono case is just another case you are working on."

McMahon tells students at the University that the privilege of studying brings the obligation to share their skills pro bono. He told a student publication

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in 2012: "With the luxury of quality education comes the responsibility to show courage and to lead."

Peter Morrissey says working unpaid on deserving cases is "good for the soul".

"We all do a lot of pro bono," he says. "With me, it's all mixed in. I was doing (paid) work along with this at all times. It's really your own principles at work. For me it's really a joy to be in the thick of legal life. It's nice to live a life where altruism and self-interest complement each other."

Does it take a personal toll?

"There is a sadness in the loss, if you lose a case," says Morrissey. "And very frequently that happens, but that's part of the lot of being a defence lawyer. If you are playing at the top level of criminal law you have people who are going to get 20 years."

"During the running of the case the toll is on your family. I don't have any complaints. I wish I had done more."

While the Australian lawyers drafted appeal and clemency applications for Sukumaran and Chan, in court the work fell to Indonesian human rights lawyer Todung Mulya Lubis, who was recommended to McMahon as he built the team.

"At this point (August 2006) they had lost in the Supreme Court and had been sentenced to death three times in eight months. Their profile in the media was disastrous and there was a real expectation that execution was a strong chance in the foreseeable future," says McMahon.

"All of my contacts in a number of countries identified senior commercial lawyer Mulya Lubis. He has a lifelong history of fighting for human rights in Indonesia."

Yet representing accused drug offenders carries a stigma in Indonesia. "He was submitting himself to enormous personal criticism in order to act for people on death row," says McMahon. "He is a person I hold in the highest regard."

Michael O'Connell had studied Indonesia's language and literature, had taught legal aid lawyers there and was familiar with its legal system. Trying to save the lives of Chan and Sukumaran was a collaboration, he says.

"We would write draft papers ... send them to Indonesia saying these are the types of arguments we think are open. They would look at them and accept them or not. They would Indonesian-ise the arguments they wanted and would work those up. It meant going there two or three times a year to see the clients and talk to the lawyers."



For the defence: Peter Morrissey, SC (above); and Julian McMahon visits Myuran Sukumaran and Andrew Chan in the Denpasar court (below).

PICTURES: JULIAN KINGMA/DANNY ARCADIA

Once President Joko Widodo unexpectedly refused clemency for the pair in December 2014 and January 2015, the lawyers had to try to fight that decision in the courts. They took the case to each of the courts where it might have been possible to have the merits of the case or the President's decision reviewed, but were unsuccessful in obtaining a full hearing in each instance. A further complication emerged with allegations of judicial corruption. O'Connell recalls: "Even on the day of the executions we were arguing with the Judicial Commission, saying that they should summon Andrew and Myuran as part of their investigation into the corruption allegations. Right up until they were killed we had those arguments running. It's impossible not to be touched by the intensity of it."

Following such tortuous legal paths burnt up untold nervous energy and creative thought. "He will not tell you, but Julian was astounding in those months," says Morrissey. "He was almost full time from December (2014) while taking zero paid work here in Australia."

And why do they speak of the condemned men as boys? "They were 21 and 24 when arrested," says Morrissey, "and there is a sort of arrested development

thing that happens in jail. And you come to feel very protective towards them."

Over time, he believes, the public perception of the pair shifted, but only once they shifted first. Says McMahon: "About seven years ago they made a decision to lead good lives. They not only stuck with the commitment, but they showed tremendous integrity and courage in holding to that ideal so that by leading good lives themselves and encouraging others to lead good lives through education, in Myuran's case, and religion in Andrew's case, they could help other prisoners and improve themselves, and have anyone who chose, notice that they had reformed and were good people."

"And the proof of the depth of that transformation was exhibited in the manner of their dying, which was essentially an exercise in taking care of the other prisoners who were to be executed, and the guards and their executioners."

For Morrissey, the truth of their rehabilitation was its emergence under trying circumstances. "By the time I met them each had a good name in prison," he says. "They changed their lives and they sustained that change. You are under such pressure in a prison that you can't fake it."

Ultimately, they were executed with six others, their final legal case unresolved.

As McMahon describes it, it is almost accidental that he campaigns on the death penalty. "I just take the briefs that come into my room. People know I do the work so they send it to me. I am involved because I never say 'no' if someone wants me to speak about the death penalty."

Morrissey likewise says he would not hesitate to take on a similar case: "It's not an abstract career move where you think, 'Oh, it's time I did a death penalty case.' It's more that the story comes to you."



In the deep end: Tara Crivari has spent the year honing her teaching skills at Kambrya College.

PICTURE: CHRIS HOPKINS

A fresh generation of educators is being schooled in a different approach to the classroom.

By **Maxine McKew**

It's a hard business. Intellectually demanding, physically exacting, and emotionally full-on.

That's what a new generation of student teachers at the Melbourne Graduate School of Education has discovered after full immersion in the first phase of their training in the Master of Teaching (MTeach) course.

From the start, these students test the theory of university lectures against the experience of being in front of a school class two days a week. It's not dissimilar

to the way trainee doctors or nurses test their skills in teaching hospitals, hence the term "clinical practice" – the requirement that teachers assess and diagnose the individual learning needs of students.

"The whole experience has underlined for me just how hard teaching can be," says one of the student teachers, Tara Crivari.

But it's an approach that's paying off. Graduates of the MTeach program – which only accepts the highest achievers

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– are highly sought after by school principals. And these newly-qualified teachers are able to hit the ground running: more than 90 per cent report that they feel well-prepared for what they find in the classroom.

Just as well.

A level of professional self-confidence is the only defence these days against the assaults of politicians, the demands of parents, and the expectations of young digital natives, long accustomed to instant gratification. The arguments about schooling and what teachers “should do” run the gamut – from the call for back to basics to a view that, in the age of Google, the role of the teacher should be more scribe on the side than sage on the stage.

All this is set against highly publicised global measures that rank countries according to educational performance. As a result, it’s not surprising to see that debate now centres on whether it’s reform that’s needed, or a completely new form of educational delivery.

The pressure on universities offering degrees in education has never been greater. The core business remains – the training of teachers who will have a transformative effect on the lives of students. But in the 21st century, there is a premium on educators who know how to challenge and constantly extend the learning capacity of those in their care.

Program Co-ordinator Dr Daniela Acquaro (MEd 2005, PhD 2013), a teaching veteran herself, is the first to say that the Master of Teaching course is “miles in front of anything I studied over 20 years ago”.

She says the feedback speaks for itself. “We have principals contacting us all the time. It’s because they are seeing the different way these graduates think.

“And that’s because of what we do here. We explicitly teach them to think about their practice in the classroom.”

That means a program heavily focused on “differentiated teaching” – the art and science of adapting lessons to meet the needs of individual students, rather than simply expecting them to keep up regardless of their circumstances.

Through a network of partner schools, MTeach candidates are constantly testing what they learn at university with what they encounter in the classroom.

For those who may approach teaching with a somewhat romanticised view – that it will be an opportunity to star in an updated version of *Goodbye, Mr Chips* or *Welcome Back Kotter* – the course’s rigour provides an instant corrective.

Acquaro is unapologetic about the demands. “The course is damned hard

and it needs to be because teaching is hard work. You are always thinking about how best to address the needs of students and how to help them become successful learners,” she says.

“If you are doing the job well, you are constantly assessing, implementing strategies and evaluating, which is demanding. But the one thing that teaching has over all the other professions is that it is hugely rewarding and uplifting.

“You are always thinking about how best to address the needs of students.”



Dr Daniela Acquaro, Program Co-ordinator

“Spending time with young people and helping them find a piece of the puzzle that connects to something else, well, that’s a gift.”

The Graduate School’s 2015 intake has weathered the first shock and awe phase of being thrown in the deep end. Trainees have to quickly come to terms with the huge variability among school students, particularly in the first years of high school.

This is certainly true of Kambrya College, a large comprehensive high school in Berwick, in outer eastern Melbourne.

Under Principal Michael Muscat, Kambrya has dramatically lifted from being one of the state’s poorest performers, to one where Year 12 VCE students are in the top 25 per cent of the state school cohort.

That success has been built on a model of instruction that puts the stress on subject clarity, differentiated teaching, monitoring of data, and clear learning

intentions. Kambrya has simultaneously addressed under-performance and stretched the best.

As a result, it’s a near-perfect fit for Crivari and fellow student Dr Sarah Avitabile, part of a small team of trainees who have spent the year honing their skills in extended classroom sessions.

At 48, Avitabile is a mid-career changer. She spent 20 years as a nurse, before returning to study and completing a PhD in fire ecology. She brings a high level of science expertise and significant life experience to teaching and, with only a few months’ exposure to boisterous teenagers, she knows she has found her true vocation.

“I love it,” she says. “I love the instant feedback from the class. The relationship you have with students and the general busyness of the day. That said, it’s the hardest thing I’ve ever done and I’ve done a lot of hard things.”

For Avitabile, that includes time spent nursing terminally ill children, combining work and study as a mature-age student, and the demands of a doctorate. None of it compares, she says, with the challenge and thrill of teaching a Year 8 class about particle theory and “watching a student demonstrate their understanding by being able to explain the concept to someone else”.

After teaching a Year 10 English class, Crivari, 23, feels much the same. She says the experience of being in the classroom has made her “much more reflective about my practice”. In setting out to demystify Shakespeare’s *Much Ado About Nothing* she quickly realised that her own love of the text meant she was taking too much for granted. She slowed down, focused on students who were struggling with comprehension, and got the whole class to act out the play. “The best thing I have learnt this year is the importance of adjusting my teaching. Being set in your ways or being stubborn should never come into it.”

But what about the application of clinical practice, based as it is on the notion of diagnostic intervention and the ability to promote intellectual growth for every student? How do novices get a handle on this?

The Graduate School’s reputation for excellence, confirmed again in the past year with its ranking as the number one graduate school of education in Australia, is the key. Under the leadership of Dean Professor Field Rickards (BSc(Hons) 1970, PhD 1984, Queen’s College) and with globally recognised researchers such as Professor Patrick Griffin (BSc 1968,



Making science relevant: Dr Sarah Avitabile oversees an experiment at Kambrya College.

PICTURES: CHRIS HOPKINS

MEd 1976) and Professor John Hattie, the school devotes immense resources to defining what it is that constitutes excellence in teaching.

As Daniela Acquaro emphasises, students are exposed to a range of subject material that has been refined over the years. “The starting point for us is to focus on the research that works. We’re conscious there is a lot of misinformation out there. A lot of contradictory advice.”

Professor Hattie’s seminal insight is that teachers need to “know thy impact”. It’s a mantra that Avitabile and Crivari probably recite in their sleep. It’s also central to how they prepare for a key part of their MTeach assessment – the clinical practice exam. The CPE, daunting for many, is an oral presentation that

requires candidates to demonstrate their understanding through a case study.

Crivari offers up an example of a female student, on the surface a confident, conscientious member of the class, but one who struggled with comprehension. Crivari noticed that she failed to write a single note during lessons and as a result retained little of what was taught. Crivari persuaded the student to take dot points of key messages and then to use this material to help clarify her writing.

Avitabile has had similar challenges with her science students, some of whom fail to see the relevance of what they are being taught. “I think we’ve lost our way on this,” she says. “We need to value the teaching of science and that means getting experts into primary school so we can start early.”

The hope is that the mindset and training embraced by the Graduate School has a contagion effect, promoting an Australia-wide shift toward high-quality graduate qualifications and a generation of teachers who can accommodate challenge and complexity.

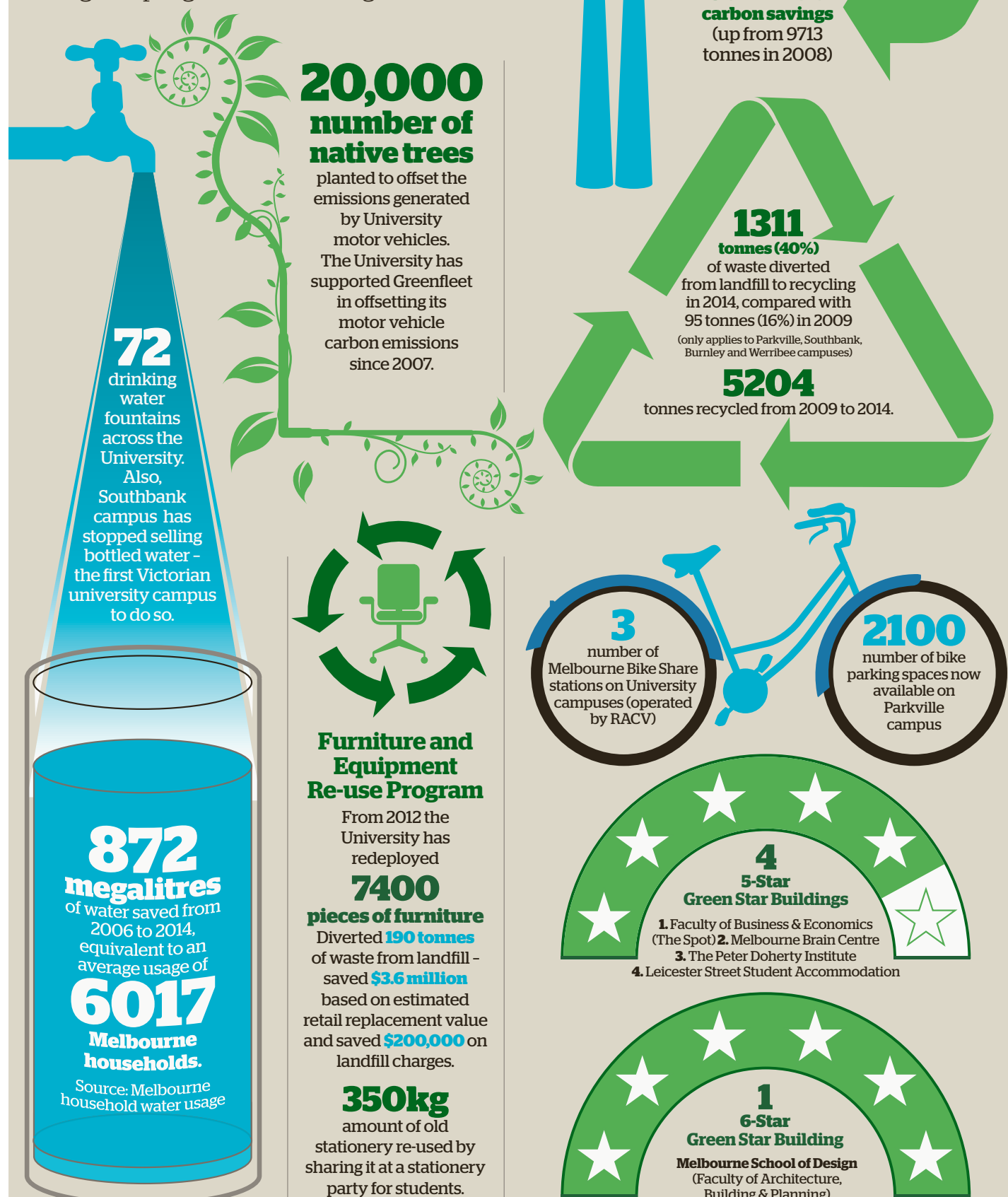
A bonus would be in achieving something close to what we see in high-performing Finland and Singapore, where teachers are prized professionals, on a par with doctors.

But ultimately, the beneficiaries will be future generations of children – an incalculable return on investment.

Maxine McKew is an Honorary Fellow at the Melbourne Graduate School of Education and author of *Class Act* (MUP).

A GREENER UNIVERSITY

Sustainability is more than a subject for study at the University of Melbourne – it's a way of life for many staff and students. The University is committed to reducing its impact on the environment. And it's making good progress, as these figures show...



GRAPHIC: FRANK MAIORANA

A mega star is born

It's 60 years since Australia's greatest satirical character, Edna Everage, made a reluctant stage debut at the University. Her creator, Barry Humphries, had no clue of the triumphs that would follow. Michael Shmith reports.

It is hard to believe that Edna Everage, who did not study at the University of Melbourne, actually made her stage debut there. On the night of December 13, 1955, a demure Melbourne housewife from Humoresque Street, Moonee Ponds, was an unexpected performer in a show called *Return Fare*, the annual revue of the fledgling Union Theatre Repertory Company. Mrs Norman Everage appeared opposite the late actor Noel Ferrier in a two-hander, *Olympic Hostess*.

It is even harder to believe that Edna's almost-as-famous artistic assistant, Barry Humphries AO CBE, who *did* study at the University of Melbourne ("I did law, then I did British history for a bit, then English and philosophy, and finally fine arts"), was not keen at all at putting Edna on the boards. But then Edna and Barry have seldom seen eye to eye.

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“I employed a falsetto, which I discovered I had.

I called her Edna, after a sort of nanny who looked after us.”

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This is a story that needs to be told, and Humphries is just the person to tell it. Before that, however, it is important to place matters in perspective.

In 1955, the University was a smaller and vastly different place than what it is today. “Even then, it had a collection of some of the ugliest buildings in Melbourne,” Humphries says. “But it did have the Gothic-Revival Law School. The Wilson Hall had just been burned down, but there were bits of lawn that hadn’t been built over yet, and students could be seen sitting under the trees, reading.”

Humphries was a member of the Union Theatre, the forerunner of the Melbourne Theatre Company. “It was housed in the Union Building. On the left, as you went into the Union, was a bas-relief, a marble thing, of an oriental scene, ‘The Wheel of Life’. It was frequently disfigured with what only later came to be known as graffiti.

“I was very bad at learning my lines, and getting smaller and smaller roles. I knew I was being phased out when I finally got a job in a play, *Of Mice and Men*. I had to be a dog, barking offstage. I was very good at it. I managed to bark correctly, with textual fidelity. But I knew it was the end. My only salvation was going to be the annual revue.”

The revue’s content, written by all the company members, was determined at a series of meetings held in a little office next to the Wheel of Life. Humphries recalls: “The director of the company was Ray Lawler, who on the quiet had written something called *Summer of the Seventeenth Doll*, which sounded like a Tennessee Williams pastiche. No one expected much of it. Anyway, he asked me, ‘Would you write something? Why don’t you do something like that woman you do on the bus?’”

The woman on the bus was invented by Humphries during one of the Union Theatre’s excursions into country Victoria. “We were touring *Twelfth Night*, and everyone sang and did things to cover the boredom. At every town we played,

local ladies would give a little supper. Then one of the ladies made a speech, thanking Mr Lawler and his company for bringing culture to, say, Benalla. She would say how lovely it all was. When I did my little monologue at the back of the bus, I impersonated some such lady – the dentist’s wife, or whoever she was – and what speech she might make. It got more elaborate and absurd.

“I employed a falsetto, which I discovered I had. The company heard just the voice of this lady. I called her Edna, after a sort of nanny who looked after us. I liked her very much.”

Back to the revue, and this pithy interchange between Lawler and Humphries.

“Why don’t you do her?”

“No, it’s just a voice. I don’t want to dress up.”

“It’s a revue. You know, you could do it like a pantomime dame.”

“I’ll write something, but get Zoe Caldwell to do it.”

“Look, she’s got three songs in Act I and two in Act II and so far you’ve got nothing.”

So Humphries, with some reluctance, but spurred on by simple practicalities – “I wasn’t considered either very funny or very good” – wrote a sketch featuring the hitherto invisible Edna. Subject: the approaching 1956 Melbourne Olympic Games.

“There were big ads in *The Herald* asking housewives to put up athletes or tourists. Because we’d been in a mad scramble to appear international, we had demolished all the hotels. There’s only the Windsor left. So they asked housewives to give up their spare bedrooms for visitors. You had to go into the Melbourne Town Hall and describe your house to some official. They’d come and look at it and they would billet someone there when the games came.

“The Edna sketch was a dialogue between me and an Olympic official, who was played by Noel Ferrier. It was all really Edna describing her house in great detail to this man. In minute detail. It ended with Edna saying she was very happy to put up an athlete, but she drew the line at foreigners.”

Sixty years on, it is almost impossible to equate the luridly and globally omnipresent



MAIN PICTURE: NIC WALKER



“My mother had a twin-set with a big fur. She’d bought it at George’s. So I wore that, with a very large dress.”

Dame Edna we all know and fear with the mousey Mrs E who traipsed on to the tiny Union Theatre stage. For a start, she *looked* so un-Edna-like.

“I had to get something to wear,” Humphries says. “My mother had a twin-set with a big fur. It was blue and she’d bought it at George’s. So I wore that, with a very large dress. Flat shoes, no tights. I had unshaven legs. The hat was pointed yellow. I combed my own rather dank brown locks down the middle and wore just a little bit of red lipstick. It was really no attempt. Edna didn’t even have the glasses, which were introduced in the early 60s.”

Olympic Hostess was very successful. So much so, Humphries believes it might have restored his reputation, even if he still thought he wasn’t meant to be an actor after all. This was more or less consolidated when, not much later, he was asked to join the Phillip Street Theatre in Sydney, a company specialising in revues.

“I suddenly realised that’s what I meant to do: get out of Melbourne. So I went to Sydney, very apprehensive. No nice cream brick homes there.”

Up to then, Edna’s appearances had been sporadic. There were a few more sketches and, indeed, an appearance on a live Christmas variety show on ABC Television. But Humphries says the prevailing mood of the time was that Edna was a limited talent. “They did warn me in Melbourne, don’t take her to Sydney, she’s too Melbourne, they won’t get it. And when I finally left Sydney, they said don’t take Edna anywhere else; she’s too Australian.”

Humphries was himself still uncertain. “I never thought I’d keep this character in my repertoire,” he says. So he put her away in a box for a few years, until the early 1960s. “By the time Edna was brought out and dusted off for another show, she had undergone a transformation. She had slightly wavy hair, although it wasn’t yet tinted mauve. But she did wear butterfly glasses and tights, so she had smooth legs. And small

heels on her shoes. She was a little more knowing, a bit more confident, and not that shrill, shy irritating figure of the 50s. She’d become a little more authoritative, a little more [pause] *insistent*.”

The myth of Dame Edna (the damehood was “conferred” upon her in the early 1970s by the then Australian Prime Minister, Gough Whitlam) has, over the years, reached astounding proportions. She has performed in London’s West End, on Broadway, on radio, television and in film. Edna, although recently and officially retired, keeps making surprising comebacks – most recently in June, at the Adelaide Cabaret Festival, directed by Humphries.

He looks back with mixed feelings at his time at the University, which awarded him an honorary degree of Doctor of Law in 2003. He is now a patron of *Believe – the Campaign for the University of Melbourne*.

“I didn’t do that much there, really,” he says. “I went with great promise, with scholarships and exhibitions. I did very well at school. But by the time I got to university, all the desire to study left me. I had that priggish feeling that I knew more than they did.

“My literate tastes had been formed, my artistic interests were established. I used the time by holding Dada exhibitions – I was very interested in cultural anarchy. You know, Melbourne was a very smug little town, a very self-satisfied town. I found that rather frustrating and naively thought I might be able to change that.”

In a way, it could be said, Humphries did change things by holding a mirror up to society. In the process, he also changed himself.

“I think that’s another purpose of university, don’t you think? It got me going. And thank goodness for that. I would not have been invited to join the Union Theatre if I hadn’t been in some student shows. I was allowed to stage a revue I wrote, *Call Me Madman*. It was only one lunchtime show and it caused great offence.

“I’m pleased to say that even today, as rather a staid figure, I still manage to offend some people. Good, isn’t it?”



PROFESSOR DON HENRY, PUBLIC POLICY FELLOW
AT THE MELBOURNE SUSTAINABLE SOCIETY INSTITUTE

Signs of hope on the road to Paris

In November last year the leaders of the United States and China made what may well be a truly historic statement.

Releasing the US-China Joint Announcement on Climate Change, President Barack Obama and President Xi Jinping committed to work together, and with other countries, to “adopt a protocol, another legal instrument or an agreed outcome with legal force” at the United Nations Climate Conference in Paris later this year.

The announcement went on: “They are committed to reaching an ambitious 2015 agreement that reflects the principle of common but differentiated responsibilities and respective capabilities, in light of different national circumstances.”

Whether or not the leaders of the world’s largest economies, and the two largest greenhouse gas-emitting nations, provided the leadership needed for a new global agreement to limit global warming will largely depend on negotiations in Paris in the first two weeks of December.

What are these negotiations about? What are some of the key elements under discussion? And what are the prospects of success?

In May the Intergovernmental Panel on Climate Change finalised a Synthesis Report of their latest findings for all governments. Written by more than 800 scientists from 80 countries, and based on an assessment of over 30,000 scientific papers, the report tells policymakers what the scientific community knows about the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.

The key findings are:

- Human influence on the climate system is clear;
- The more we disrupt our climate, the more we risk severe, pervasive and irreversible impacts; and
- We have the means to limit climate change and build a more prosperous, sustainable future.

It is one thing for governments to accept the urgency of reducing greenhouse emissions, but the challenge has been in getting them to agree on a way forward. The Paris negotiations are occurring under the United Nations Framework Convention on Climate Change, first adopted in 1992.

Of course, many countries now have policies to limit emissions and to stimulate renewable energy. However, because emissions

from any one country affect the climate of us all, global action is required. Two years of intense negotiations have delivered a draft text for the Paris negotiations. Each country is now putting forward indicative commitments of their proposed emission reductions and actions.

Significantly, November’s US-China announcement included targets. The US intends to achieve an economy-wide emission reduction of 26 to 28 per cent below its 2005 level by 2025. It agreed to make “best efforts” to reduce its emissions by 28 per cent.

China expects its CO₂ emissions to peak about 2030 and undertook to make “best efforts” to peak earlier. It intends to increase the share of non-fossil fuels in primary energy consumption to about 20 per cent by 2030. In the announcement both sides intend to continue to work to “increase ambition over time”.

Overall, governments have now agreed to the goal of keeping warming below an additional 2 degrees on pre-industrial temperatures to try to avoid the most dangerous impacts of climate change.

Some of the outstanding issues in the negotiations include what additional actions to reduce emissions can be encouraged if the sum of the national commitments does not adequately close the gap on what is needed to keep warming below that 2-degree goal. The important role that cities and state governments around the world can play in addition to the efforts of national governments is another focus of discussion to assist with this challenge.

There is also considerable debate about whether there should be a goal for decarbonising economies around the world. A recent meeting in Germany of the major industrialised

countries that form the G7 built momentum for this. At the conclusion, German Chancellor Angela Merkel said the meeting had agreed on the goal to “decarbonise the global economy in the course of this century”.

Experience in Germany, California, and more recently in China, shows that economic prosperity can be decoupled from growth in emissions and pollution. In essence, cleaner and more efficient economies can continue to deliver growing economic benefits while cutting emissions.

Another key element of the Paris negotiations is how to ensure sufficient funding is available to help vulnerable countries adapt to

some of the damaging impacts already locked into climate systems. The effects of increasing storm intensity because of warming oceans and sea level rise associated with this are already being felt in many tropical island nations, including Australia’s Pacific Island neighbours, the Philippines, Indonesia, and south-east Asia.

Related to this is the need to scale up and encourage private-sector investment in cleaner technologies. A recent commitment by the Indian Prime Minister to substantially boost his country’s renewable energy is most encouraging, but highlights the need for a rapid increase in private-sector investment. With the costs of renewable energy dropping rapidly – in particular solar and wind – a transformation of energy systems in many parts of the world is now occurring. Globally the level of investment in new renewable energy projects has now exceeded investments in new fossil fuel projects in energy generation.

So what is the relevance of the Paris negotiations to Australia and the Asia-Pacific region? People across the region, including in Australia, support action on climate change and cutting emissions. Policy settings vary across governments, but in most countries in the region there is an increasingly rapid uptake of renewable energy and a mix of policies is being put in place to start the job of cutting emissions.

For example, in Australia more than one in seven households has rooftop solar panels. Bangladesh has the highest rate of solar installation in the region, while China and more recently India are dramatically scaling up manufacturing and use of renewable energy. China is on track to introduce legal restrictions on emissions and an emissions trading scheme next year.

The position that Australia takes into the Paris negotiations is significant. At preliminary negotiations in Bonn in June, China pointed out to the assembled nations that Australia had received more questions than any other country on its commitment to cut emissions.

Interestingly, international negotiations are now demonstrating that there are two strong drivers of change. One is the need to reduce emissions because of the damaging impact on climate; the other is the opportunity to develop new pathways to economic prosperity and well-being based on highly efficient and cleaner economies.

The continuing work of universities around the world, including the University of Melbourne, is important to the Paris outcomes

and their implementation. The disciplines of climate science, engineering and technological development, the social sciences with their understandings of human behaviour, political science and international affairs, climate policies, law and international governance, economics and business, are all informing decision-making and action.

What are the prospects of success at Paris? Because the negotiations follow the United Nations consensus approach they can be fraught. Finding common ground among so many countries and competing interests is always difficult.

But the leadership of the US and China is highly significant and has built momentum for an agreement at Paris. In their joint announcement, the leaders said the intent of their countries was to build the impetus for a successful agreement.

“The United States and China hope that by announcing these targets now, they can inject momentum into the global climate negotiations and inspire other countries to join in coming forward with ambitious actions as soon as possible,” they said.

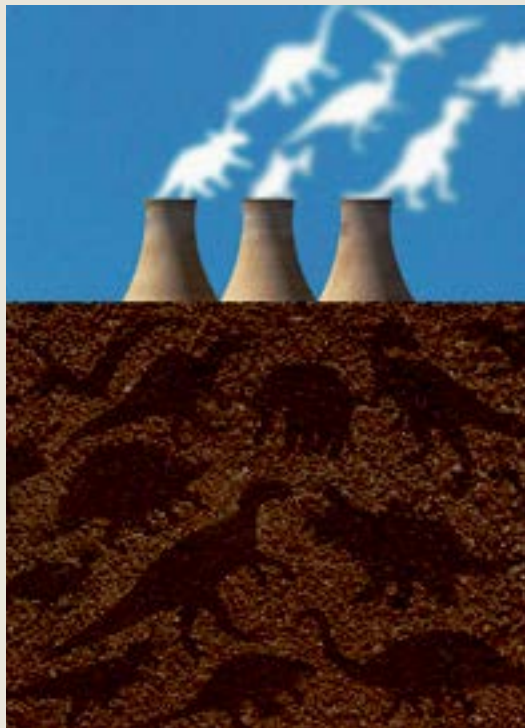
Apart from any agreement, the current focus on climate change action around the world is creating the opportunity for the development and deployment of innovative technologies, continued public education, the advancement of science, and implementation of new policies, all of which are delivering significant advances for societies everywhere.

The key question remains, can our agreements and actions globally and nationally meet the great challenge of the urgency of emission reductions and the development of cleaner economies that our scientific community is so clearly pointing us towards?

A substantial portion of the greenhouse gases being emitted are long-lived in the atmosphere. Action today to bring down emissions is urgent. We have seen many years of very slow progress on global action to tackle climate change.

The compelling nature of the science and the great opportunities for economic prosperity and jobs growth through new cleaner economies should encourage every nation to strive for success at Paris.

Professor Don Henry is a Public Policy Fellow for Environmentalism at the Melbourne Sustainable Society Institute. He was formerly Chief Executive Officer of the Australian Conservation Foundation.



“In essence, cleaner and more efficient economies can continue to deliver growing economic benefits while cutting emissions.”



“Finding common ground among so many countries and competing interests is always difficult.”

WORKING IN THE THIRD DIMENSION

FIVE QUESTIONS FOR 3D PRINTING EXPERT BERNARD MEADE

It's the stuff of science fiction: printers that can create not just plastic or metal objects, but food and even body parts. Bernard Meade (BA, BSc 1996), organiser of the University's annual 3D printing showcase, explains how this technology will change how we live. **Val McFarlane** reports.

What exactly is 3D printing and how does it work?

3D printing is another term for additive manufacturing, which in some ways is more descriptive. To get a good idea of how it works, imagine a piece of paper that you put through the printer, and you print words on it. You then put the same piece of paper through the printer again and again. The toner starts to build up in the same places and you eventually end up with something in three dimensions.

A lot of traditional manufacturing is what we might now think of as subtractive manufacturing. For example, when you create a wooden chair you have to have a piece of wood that's bigger than each component. You take away the parts that you don't want and what you are left with is the product.

With 3D printing you add only what you need, and you can manage the structural integrity of a product much better than with traditional techniques. It's incredibly efficient.

Engineers from the University were involved in the creation of a 3D printed jaw joint this year (see breakout). What other medical uses might 3D printing have?

It was thought we'd never be able to print living tissue, that we'd never print an organ, but researchers have been able to print out tiny livers that live for about 40 days – long enough to do specific drug testing. They've even printed a small heart – just a few cells

– but they can make it beat. That's a really big step. A company in China is actively working with printing bone material, and cosmetics companies are using printed skin to test for reactions.

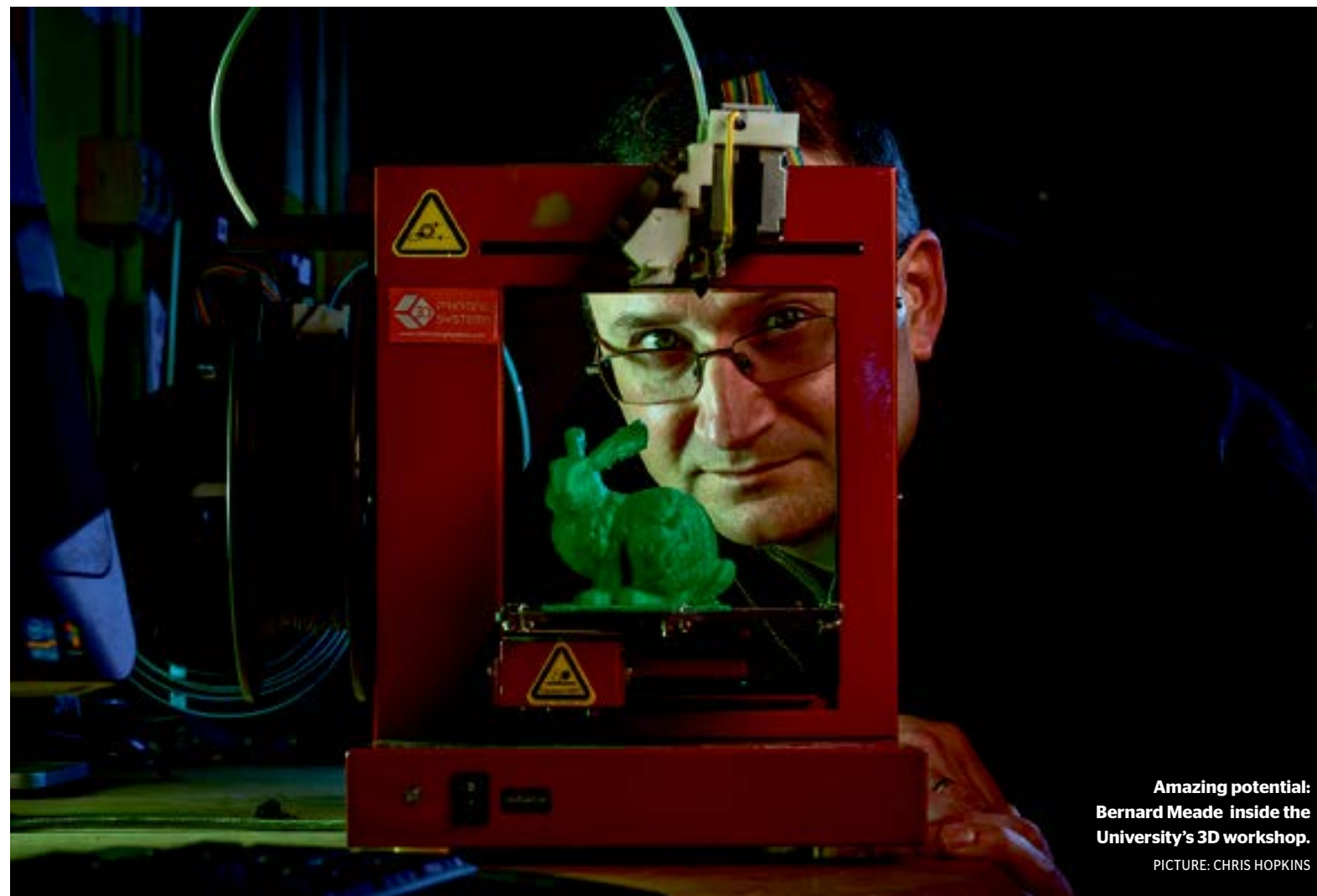
Immediately after they publicised the operation, the Melbourne company that produced the titanium jaw joint got an order for 25 more. And that's just a jaw – the same process will be applicable to pretty much any other bone. Eventually a patient will be able to have a cancerous bone cut out, and a replacement printed and put straight in, in only a few hours, instead of in two or three surgeries lasting much longer.

A US defence research organisation is looking at doing MRI scans of soldiers, and separating out the scans of each part of the body. The hope is that in the future, if one of the soldiers is injured in battle, they can print out the replacement part they need to help them.

What about other uses?

In defence, there's a design for an aeroplane with a 3D printer inside that can print drones as required. They will be programmed to self-destruct so they will fly, do their job and then the inside will disintegrate, leaving no useable components behind.

When astronauts on the International Space Station needed to fix something last year, they printed a tool out, using a design emailed to them from earth, and it did the job that they wanted it to do more effectively than the toolset they had. This is exciting because as you can imagine, the toolkit on the ISS has to be enormous. With 3D printing, they can just print out what they need then recycle it.



Amazing potential:
Bernard Meade inside the
University's 3D workshop.

PICTURE: CHRIS HOPKINS

University of Melbourne alumni are at the forefront of developments in 3D printing medical technology.

This year Dr David Ackland (BE(Mech&ManufEng)(Hons), BSc 2003, PhD 2009, GCertUniTeach 2014) led the engineering design and testing of a titanium jaw joint implanted to correct a patient's rare congenital jaw deformity. Dr Ackland is a senior lecturer and researcher in experimental muscle and joint biomechanics at the University of Melbourne.

And in 2014 a team including St Vincent's Hospital surgeon Professor Peter Choong (MB BS 1984, MD 1993) implanted a titanium-printed heel bone into a man whose own bone was cancerous. Without it, the patient would have had to have his leg amputated below the knee.

Dr Ackland and Professor Choong will be among speakers at the University's 3D printing showcase, to be held at Parkville campus on October 9 and 10, 2015. The event is aimed at everyone from school students to researchers and aims to highlight the potential of 3D printing.

For more information visit showcase2015.3dprinting.edu.au

There's even a printer being developed by NASA and others that will print food for astronauts, and it could be that eventually you will be able to print your food at home. When we eat, a fair amount of the experience comes from the appearance and smell of the meal. A 3D printer can replicate a lot of those things and we know it works – a trial was carried out in an aged care facility where the residents had to have soft food, which looked unappealing. They printed out food that looked like steak and broccoli, and it was much more enjoyable.

Ninety-nine per cent of the Smithsonian's collections are not available to the public because they are so precious. The museum is now going through those artefacts and printing them so that the public can enjoy them.

3D printing has the potential to impact on so many things – it's probably easier to identify the industries on which it will have little impact.

Will we all have 3D printers at home in the future?

I think it will be similar to how we use 2D printers at the moment. Most of us have a 2D printer at home but if we wanted something professionally done we would send it to a professional printer. It could also change the way we shop. At the moment, if you need to buy a bracket from a hardware store, for example, you pick from a standard set of sizes, and the store has to have a whole inventory available for purchase. It's possible that in future you will go into the store, order the bracket you want from a catalogue and print it out.

It's going to change education too. Engineers will spend less time trying to perfect a design on paper or in a computer and more time developing prototypes. Medical students won't necessarily have to learn their anatomy on cadavers – they will have a 3D printed version of the body.

In the beginning 3D printing was very expensive. Now you can buy a printer for \$500. A kid in the US built one using Lego. Most of us will want something more robust but it shows that the development is really active. There are so many people working in this space and it's not limited to engineers, universities, big businesses – it's anybody.

Is there a downside to 3D printing?

The fear of people printing guns is played on a lot, particularly here in Australia. But people can get guns already with a licence, and you can already make a gun without having a licence. But even though people *can* make guns, they typically don't. Ultimately 3D printing allows clever people to overcome obstacles and if you are trying to overcome the obstacle of making a better gun you'll figure it out.

Some people might choose to replace certain bones with titanium, for example, because imagine how hard you could hit if you had a fully metal arm. Or if you could put titanium flakes throughout your skin – you would be almost bulletproof. There is also always the risk that we will think we can fix things when they don't need fixing. It could exacerbate body dysmorphia problems.

Ultimately there is real benefit to 3D printing but there has to be some wisdom applied to the way we use it.

A work in progress for women

Many women are frustrated by the slow pace of change in the gender balance in corporate Australia.



BY KIRSTY SIMPSON

Dr Jackie Fairley has built a career ignoring gender stereotypes, rising to the top of Australia's corporate elite on determination and hard work.

Fairley, chief executive of biotech firm Starpharma and a board member of the Melbourne Business School, started working life as a vet. After first studying science, where more than 50 per cent of the graduates were female, she was surprised to find only a quarter of her fellow students at the Melbourne Business School's MBA program were women.

"At that time there were certain stereotypes in the views of students. One of the things that motivated me was to prove a fellow student wrong. [He said] that girls can't do finance," Fairley recalls.

"The fact that I had beaten him in finance all the way through was irrelevant. This was 1992, and another [male student] said that no companies should have women on their boards. There were some pretty extreme views, you know the sort of thing, that you shouldn't get a scholarship because your husband is a doctor."

In the best response to such beliefs, Fairley (BSc 1982, BVSc(Hons) 1987, MBA 1992) went on to win the Clemenger Medal for highest overall marks throughout the Melbourne Business School's MBA program, the third woman in a row to do so. Given the program's gender skew, this was more than against the odds.

But glass-ceiling breakers remain in the minority. Across Australia, women make up barely a quarter of the top echelon

of management of larger organisations (those with 100 or more employees), and the gender pay gap remains stubbornly higher here than in other OECD countries.

Neither Fairley nor Naomi Simson (BCom 1984) – entrepreneur, motivational speaker and 'Shark' on Network TEN's business reality program *Shark Tank Australia* – feels that overt sexism has held her back. They found it more a motivating factor than a hurdle.



Advocates for change: Naomi Simson...

Yet it is far from easy to pinpoint the reasons why the journey to equality in the top ranks of business has been so slow. Many initiatives have been taken to lead by example in addressing this imbalance in executive ranks and boards, notably through the Male Champions of Change mentoring program, which aims to level the playing field.

Latest figures from the Australian Institute of Company Directors show that 20 per cent of board positions in the top 200 listed companies are now filled by

women, compared with a mere 8.9 per cent in 2009. And, in the first six months of 2015, 26 per cent of new positions were filled by women. While this is a substantial improvement, many still find progress agonisingly slow.

The 2014 World Economic Forum's Global Gender Gap Report ranked Australia 24th out of 142 countries when judging equality against economic, political, education and health criteria.

And though the principle of equality may be sufficient motivation for most of us, it's worth noting that gender diversity – not just on boards but throughout business – is linked to increased productivity and work satisfaction, according to the Workplace Gender and Equality Strategy Project at the University of Melbourne's Centre for Workplace Leadership.

The research fellow in charge of the project, Dr Jesse Olsen, says he suspects gender imbalance is due more to embedded sub-conscious cultural biases than any widespread cases of overt sexism.

"There's a lot going on and the complexity is what makes it hard to address," he says. "Culture is a really big piece and we really need to examine how the Anglo-Saxon culture has viewed gender roles. I think it's less about explicit discrimination, but there is stuff going on in our heads about what men and women are supposed to be like. We still have this idea about the women being the care giver, and while it's getting weaker over time, it still persists."

Growing up, both Fairley and Simson had strong women around them, and

both note the importance of role models. Simson's mother, Lorna Elms, worked in the mathematics department at Monash University in the 1960s.

Fairley's mother was Professor Priscilla Kincaid-Smith AC CBE (MD 1968, LLD 1991, University College), renowned for finding a link between headache powders and kidney damage and campaigning against their use. She was also a past president of the Australian Medical Association and, in 1975, became the University's first female professor.

While their mothers were clearly shining examples, both women also cite the importance of other mentors and role models within the business community. When Fairley was younger, giving birth to her now-teenage children, it was during a period of rapid promotion. With 120 staff to manage, she took only a few weeks of maternity leave for each of her children. For her, it was important to see that other women in business were also able to sustain a career while rearing children.

"Recent research from Harvard found that the daughters of successful women earn more and the sons tend to have more stable relationships. [My mother] was very important to me [as a working female role model]," she says.

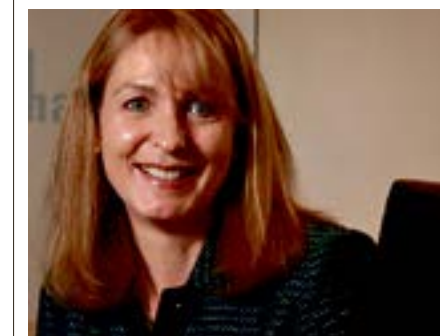
But determining what equality actually looks like is vexed.

"For me gender equality is not about numbers but opportunity," says Fairley. "There are sometimes reasons why some workforces have more or less. Numbers are more a surrogate for equality. If you

look at engineering classes you are likely to find fewer women, and I suspect much of that is not sexism, but self-selection.

"There are probably sectors that are better and worse than others. The health sector is better. There are some sectors, like mining, that are not so good. In my experience, and when I look around, I can't see any [vestiges of sexism]. I wouldn't tolerate it."

At Starpharma, 53 per cent of the staff



... and Dr Jackie Fairley

are female, while 37 per cent of executive positions and 42 per cent of leadership roles are held by women.

So what should be done across the business world to improve diversity? While Fairley disagrees with setting quotas for the number of women who must be employed in senior ranks, Simson and other high profile women believe a more even gender balance won't be achieved without firmer action.

Another prominent business figure, Elizabeth Proust AO (LLB 1985), who

is now chairman of Nestlé Australia and the Bank of Melbourne, recently told the ABC's AM program: "Who would have thought we'd still be talking about this in 2015? I think, whether you call it quotas or targets: without some mandating of or for gender diversity – and remember, diversity is much more than gender – then I think we probably still will be talking about it in 2025 and beyond.

"So I think that we need targets or quotas to ensure that companies and all organisations focus on how they comprise their top teams: both boards and senior management."

Simson goes further. She advocates "naming and shaming" the worst performers to spur more employers into action.

"We already have that information," she says. Since 2012 all businesses with more than 100 employees are legally required to report their gender equality performance to the Workplace Gender Equality Agency.

After the recent launch of an ANZ Bank report into financial gender equality, Simson noted that one of its most alarming findings was that women earn 4 per cent less in their first graduate job than men with the same qualification.

"A full-time working woman will earn \$295 per week less on average than a full-time working man," she blogged. "That is \$15,000 over the course of a year. Extended over the course of a typical 45-year career, that gap becomes a staggering \$700,000."

Body of evidence

When disasters strike, forensic scientist Pamela Craig is often one of the first on the scene, using her dental knowledge to identify victims.

BY LIZ PORTER

October, 2002: Clad in a heavy plastic apron and gumboots, Dr Pamela Craig is part of an Australian Federal Police forensic team working in the mortuary of Denpasar's Sanglah Hospital. The forensic odontologist is examining, charting and X-raying the teeth of victims of the terrorist bombing of two Kuta Beach nightclubs, an atrocity that killed 202 people.

It is hot and exhausting work, but less emotionally draining than the alternative: working in the hospital's "reconciliation room". There she would be matching these charts and X-rays with the dental records of Australians missing since the bomb blasts. She would be looking at the victims' photographs and personal details – and thinking of their families.

The non-expert might assume that working in the mortuary is the most confronting aspect of her work, especially when victims' bodies are decomposing or bear the signs of violent death.

But clinical examination allows Craig (BDS 1966, MDSc 1973, GDipForenOdon 1991) to focus on the abstract details of anatomy. Her expertise in this area is important because body parts are all that remain of some victims. It is their photographs and personal belongings, the trappings of their individual humanity, that she finds most confronting.

Thirteen years on, the details of her final case in that 10-day tour of duty in Bali stay with her. The only examinable part of this victim was a small part of his upper jawbone.

"There was almost nothing to go on, except a knowledge of anatomy," recalls Craig, still an honorary lecturer in oral



Beyond comprehension: Tourists offer flowers at Kuta Beach in 2002.

PICTURE: CHOO YOUN-KONG/AFP/GETTY IMAGES

anatomy and radiology at the Melbourne Dental School.

Studying an X-ray of the victim's maxilla, the front part of his upper jawbone, she noticed the roots of the teeth were growing outwards, in a V-shape, with a wide gap in between – suggesting a tooth had once been there.

Trawling through the dental records of the missing, she came across a 21-year-old man from Perth who, at the age of nine, had an extra tooth extracted from between his two central incisors. But first she had to wait for the dental records to be flown in from Perth. When the X-rays arrived on Craig's last day, they confirmed that the victim was that man.

"Having seen so much death

I have a more practical

attitude toward it than

most people."

Craig has worked on enough cases to make several seasons of a *CSI*-style TV series, including one horrific Queensland murder in which a man with protruding teeth was accused of strangling and murdering 17-month-old Deidre Kennedy, whose body was found with bite marks.

Talking about that case remains a painful experience for Craig. While the details of the crime were horrific enough, she then faced an aggressive defence

barrister while giving evidence in court – the kind of experience that persuades some forensic scientists to add a law degree to their qualifications.

Other cases have been less confronting. In 2007 she was consulted by a Singaporean businessman concerned about the authenticity of a tooth, supposedly one of the Buddha's molars, just installed as the centrepiece of a new and expensive Buddha Tooth Relic Temple. This time nobody argued with her expert opinion: the tooth belonged to a cow or a water buffalo.

As a research partner to forensic Egyptologist Dr Janet Davey, Craig has also worked on some of the oldest "cold cases" imaginable. In one, she examined scans of the teeth of a child mummy from Egypt's Graeco-Roman period. She concluded that the child had died as the result of septicaemia after an orthodontic procedure in which teeth were removed from an overcrowded mouth.

She has also spent more than 20 years as a part-time consultant in insurance and worker's compensation cases.

Yet this impressive career in forensics was never part of Craig's life plan. In fact, she believes if she had graduated in an atmosphere of equal opportunity she would have become an oral surgeon.

Enrolling in dentistry in 1962, she heard comments such as "it's a scandal, training a girl!"... "she's taking the place of a man" ... "she'll never work (as a dentist)". Worse followed when she enrolled for postgraduate study.



"Nobody would give me a place in the graduate surgery program because I was a woman," she says. "The only thing I was offered was paediatric dentistry because that was 'suitable' for women."

Then in 1974, while a registrar, she was offered a place in the PhD program. When she divulged that she was pregnant, the offer was withdrawn.

"It was the most rotten time," says Craig. Forced to build a new life, she started part-time in a clinical practice in Camberwell, continuing there until 2005 when her wrist "wore out" and needed reconstruction.

By 1989 she was a mother of two, busy combining the Camberwell work with sessional university teaching, but hankering for an intellectual challenge.

Then she heard news that would change her life. University of London forensic specialist Dr John Clement was joining the Melbourne Dental School and starting a forensic odontology diploma.

"He was barely off the plane when I was on the phone to him," recalls Craig.

By 1993 she was a permanent part-time lecturer in anatomy and radiology and, along with fellow forensic odontologist Tony Hill (GDipForenOdon 1991), who died in 2013, working as a consultant to the Victorian Institute of Forensic Medicine.

It is Craig's work in the highly specialised area of disaster victim identification that has made her reputation as one of Australia's top forensic scientists.

On Boxing Day 2004, when news broke that a tsunami had devastated coastal areas of South East Asia, from Thailand to Sri Lanka, she was among the first to be called by the Australian Federal Police. She subsequently served four stints with the Thai-based multi-national team of forensic scientists.

In 2009 Craig worked on identifying victims of a different kind of disaster:

Dr Pamela Craig has worked on enough cases to make several seasons of a *CSI*-style TV series.

PICTURE: CHRIS HOPKINS

Victoria's Black Saturday bushfires. Fortunately for the identification effort, most victims had been to the dentist and none of the local dental surgeries had been burnt out.

This identification process offered its own unique difficulties, including "comingled" skeletal remains, with some people dying huddled together with their pet animals.

The process of identifying victims will always be harrowing for the forensic specialists involved, says Craig. But, as she discovered in her first case, in 1991, there is a satisfaction in being able to offer relatives an end to the terrible uncertainty about the fate of a loved one.

In that case, involving a jawbone found on Cape Woolamai beach, Craig worked with Tony Hill to establish that it belonged to a local youth who had been washed out to sea while surfing nearly a decade earlier. No dental X-rays were available. The scientists had only a school photo, in which the boy wore a blue-checked shirt, to guide them

Using the checks as a scale, they were able to enlarge the photo to life size. They then superimposed a photo of the jaw bone, lining it up with the chin cleft, teeth and bite line, as seen in the photo.

The forensic scientists never met the boy's family. But they received a message of thanks from them, via the police. "It gave them closure," says Craig. "After that they were able to have a funeral."

While outsiders often dwell on the confronting nature of forensic work, Craig points to the positives. Death, for example, holds fewer fears for her.

"Having seen so much death I have a more practical attitude toward it than most people, in that I accept it as an inevitability at the end of life," she says. She also believes her work has given her an increased appreciation of the sheer delight of human existence.

"I know that one has a very tenuous hold on this mortal coil and it takes very little to push us over. It makes me think that life is very precious. So I am more careful and safety-conscious perhaps than I should be."

Craig also talks of the need to keep an emotional distance from her work.

"You have to build a wall and become dissociated from it," she says. "But it gets you in the end." Yet, if there is another mass disaster in coming years, she will get the call. And she will go.

Australia's Rio Olympics team is eyeing a top-five finish in the 2016 medal rankings, and chef de mission Kitty Chiller is pulling out all stops to achieve it.

BY MARTIN BLAKE

When the Olympic Games are held in Rio de Janeiro in August next year, Kitty Chiller will be out front of the Australian team carrying the elaborate title of "chef de mission".

So, what's with the French connection? Well, it is one of the two official languages of the Olympic movement, along with English, and all the team leaders carry that title. As for Chiller (BA 1984), she is happy with plain old "chef", although her business in Brazil will have nothing to do with culinary skill.

Rather, she will be the one doing the explaining if some pubescent swimmer or bike rider punches a random drinker in a bar at 4am. That's not the way she likes to think of her job, but it is also one of the realities. "I see myself as CEO of the team," she says, by way of explanation.

That puts her in charge of 470 athletes and nearly 300 officials from Australia at Rio, about 750 people over the fortnight of the Games. For many of them, these will be the most significant weeks of their young lives; emotions will be running high.

It is also a test for 50-year-old Chiller, hand-picked by the Australian Olympic Committee for the task after impressing as deputy chef de mission at London in 2012, when the former Oarsome Foursome rower Nick Green OAM (DipAppSci (Horticulture) 1993) was head of the team, and through her success in group training projects.

Chiller is a former Olympian herself. A world No. 1-ranked athlete in the modern pentathlon – the combination of fencing, running, swimming, shooting and show jumping that simulates the experience of a cavalryman behind enemy lines – she competed at the 2000 Sydney Olympics. This was a story in itself. Chiller



Kitty Chiller is preparing to head Australia's Olympic team; during her years as a pentathlete (inset).

PICTURE: MICHAEL AMENDOLIA

had come out of retirement to qualify, fractured her kneecap a short time out from the event, but ended up finishing 14th.

It was Franz Stampfl, the University's legendary track coach, who first suggested she try the pentathlon back when Chiller was a student with an interest in athletics and a love of all sports. Chiller followed Stampfl's advice, and made it her career.

But her appointment as Rio team head has more to do with her work since retiring as an athlete, particularly as head of workforce training for the 2006 Commonwealth Games in Melbourne through Holmesglen TAFE College.

After that success, Holmesglen and Chiller won the contract to deliver the same service for the Asian Games in Doha, where about 50,000 volunteers and 5000 paid staff were trained.

More recently she has worked as head of a community program at the Australian Sports Commission and then as general manager of Surf Life Saving Australia in Canberra. She left that role to take up

the Olympic position, even though it is effectively an honorary job with a small honorarium. "It's a choice I made," she says. "I am not complaining."

Chiller sees it as a full-time position. She has made four trips to Rio already, sorting out accommodation and security

"That's what I'm trying

to connect, that they're

in the same team as

Dawn Fraser, John Landy

and Betty Cuthbert."

and setting up "The Edge", a drop-in centre for athletes, families and friends, working through copious briefings about security.

She has also travelled around Australia for a series of functions that tell a lot about her approach: the "Ignite the Dream"

MISSION: POSSIBLE

series of 12 lectures by past Olympians. Chiller is about culture; it was part of her pitch for the role that the Olympic team needed to be seen as one team, not a collection of individuals or a set of many teams from different sports. It was a notion that rang true to the AOC, well aware of the cultural issues that afflicted the Australian team in London.

"For three years and 50 weeks they operate in their own little bubble, as they should do," says Chiller. "They go to their world championships and world cups but it's just rowing or athletics or swimming.

"It's important for athletes to fully understand that the Olympic Games is not just another world championships that happens to be going alongside 27 other world championships. So they're given that understanding of what it means to be part of the Australian Olympic team, the history and the tradition and the culture of that team, and the respect that the team has around the world.



Kitty Chiller's favourite sporting memory

"It would be the appointment as deputy chef before London. I remember the phone call from John Coates (Australian Olympic Committee president). To be honest, that was probably more of a thrill for me than qualifying to compete at Sydney (in the 2000 Olympics). That was memorable, for sure, because I had a broken nose, I'd retired but came back when the news came through that the modern pentathlon was going to be in for Sydney. I'd been at the IOC meeting when they voted to put it in, and I'd been involved in the movement to get the females put on to the program. I fractured my kneecap the week before the Sydney Games, and the fact it was an 18-year journey to get women on to the program, that was a huge thing."

A University memory

"It would be working with Franz Stampfl. I probably spent more time on the running track and in his little hut than in the lecture theatre. I was a swimmer and then I started running, and Franz was my coach. It was him who said 'why don't you start this modern pentathlon? It's going to be in the Olympics in 1984!' I joined the fencing club at Melbourne University, that's how I started fencing, so Melbourne Uni for me was more memorable from a sporting point of view."

That is what we are there for. We can't make Sally jump cleaner or Anna ride better. All I'm trying to do is to develop an environment that's based on sound values and one team, a united team, a supportive team, and one that from every appointment to every room that we have, everything is based on performance for the athletes."

The AOC has a stated aim of finishing in the top five on the Rio medal table, a tough ask given that Australia came 10th in London, with its fewest gold medals for 20 years. Kitty Chiller, leader of the Australian pack, has a target.

"It's an aspirational goal," she says. "I think we can do it, it's realistic but it's going to be bloody hard. What's important to me is that I'm responsible for a team that is provided with the best opportunity to reach that top-five outcome. If they don't reach that, but they do their best and walk away proud of what they've done and respectful of their teammates, that's a good result."



“It becomes an unsustainable cycle of killing, breeding and killing, with rabies not changing in its rate of incidence. It may even get worse.”



Taking the bite out of rabies

CHARMAINE THAM
(BAnimSc 2002, BVSc 2004)

When Dr Charmaine Tham was a small girl growing up in Singapore, dogs were anything but her best friends. They were frightening. They also carried diseases, like rabies, something that worried her even more.

“As kids we would tease each other about getting rabies, whether or not it existed,” she recalls.

How things changed. Tham conquered her fears and went on to become, of all things, a veterinarian.

And then she fell in love. Her name was Pepe and she was a Pomeranian-Chihuahua cross that had been rescued from a local shelter.

But it was while working as a volunteer for Vets Beyond Borders Australia that Tham got the opportunity to do important work in communities where stray dogs are a danger to people, spreading diseases such as rabies.

“I happened to speak to someone who was going on a Vets Beyond Borders trip to China to teach the vets over there and he asked, ‘Would you like to come along? You speak Mandarin and would be a great help.’

“And I said, ‘Yes, absolutely, for sure.’

“And so that was my first experience with Vets Beyond Borders (VBB). That’s pretty much how the journey started.”

Today, Tham is chair of the group, overseeing funding and management of projects throughout Asia. Much of the work concentrates on India, a country with a high incidence of rabies.

“What we know about rabies and dogs in these communities is, if you cull the dogs they just breed and it becomes an unsustainable cycle of killing, breeding and killing, with rabies not changing in its rate of incidence. It may even get worse.”

Since 2003, VBB estimates it has vaccinated more than 65,000 cats and dogs and sterilised more than 30,000 street dogs, which has led to more stable populations and a better appreciation of animals in local communities.

No longer a practising vet, Tham’s career now is as a technical manager at a complementary medicine company, Blackmore’s, overseeing the development of natural health products for dogs, and speaking up for VBB. The latter, she says, is a skill she can trace to her days at the University.

“I learnt to speak up more during tutorials, which was quite different to my previous experiences in secondary education in Asia and that has helped me hugely in my career since.”

Sadly, Pepe the Pomeranian-Chihuahua died last year.

These days Tham shares the love and affection of her housemate’s dog, Benji, a spitz cross.

JENI PORT

Conduct becoming

NICHOLAS CARTER
(BMus 2007)

When Nicholas Carter was at the University in the mid-2000s, he was already deeply involved in the profession that would shape his life. Between his singing and piano studies, Carter was part of a small team that helped establish the Victorian Opera company. “I was loyal to the University, though,” he says, “I stayed three-and-a-half to four years, and actually graduated.”

Almost 10 years later, Nicholas Carter is one of Australia’s most exceptional and busiest conductors. He has conducted most of the state orchestras, including three years as assistant conductor of the Sydney Symphony. He’s quite busy in Germany, too, as Kapellmeister (resident conductor) at the Deutsche Oper Berlin, where he is musical assistant to its music director, Donald Runnicles, and conducts about four operas each season. Before then, Carter worked at the Hamburg State Opera, as assistant to its then music director, Sydney-born Simone Young.

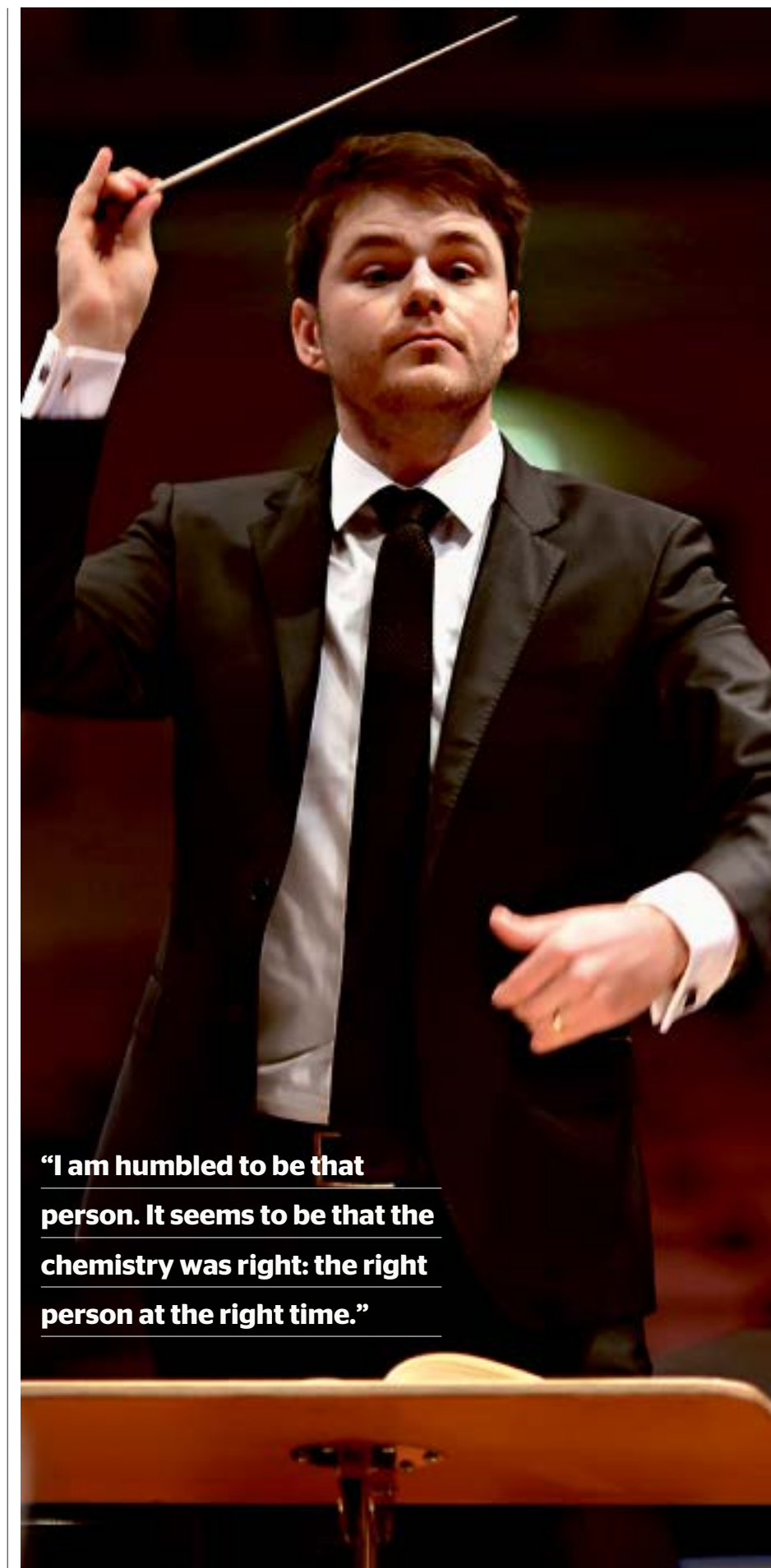
But it’s at home that Carter is making news. In April, at the age of 29, he was named principal conductor of the Adelaide Symphony Orchestra. He takes up the appointment next year. Intriguingly, Carter is the first Australian to be appointed to such a post with a mainstream Australian orchestra since the late Stuart Challender AO (BMus 1968) a quarter of a century ago. “I am humbled to be that person,” Carter says. “It seems to be that the chemistry was right: the right person at the right time.”

Carter will be joined at the ASO by two most distinguished musicians: violinist and conductor Pinchas Zukerman as artist-in-association; and the British maestro Jeffrey Tate as principal guest conductor and artistic adviser. Carter recently caught up with Tate in Berlin. “He’s the most extraordinary human being who’s had a remarkable career,” he says.

Conductors, though, also have to be communicators about fine music in all its forms. The knack, Carter says, lies in bringing your audience along with you, especially with contemporary music. “But in trying to convert them, I’m not going to ram it down their throats. Trust is vital. If we put together a good program with contemporary music in context, they’re more likely to accept that than smashing them over the head with a Xenakis cycle.”

Carter will have the best of two possible worlds: the mighty culture of Berlin, which has seven orchestras and three opera houses, and the smaller but, to him, just as thriving culture of Adelaide, which, he says, has “one of the finest orchestras not only in Australia but, as I am starting to realise, the world”. He can’t wait to get started. “My experience living in both cities is that each complements the other.”

MICHAEL SHMITH



“I am humbled to be that person. It seems to be that the chemistry was right: the right person at the right time.”



PICTURE: MATT LYNN

Trading on a milk run

DAVID ZHU
(BE(ElecEng)(Hons) 2009)

When David Zhu decided to start a business in Shanghai, he knew he wanted to stay connected to the country he calls his second home. “I love Australian culture,” he says. “I lived in Australia for several years, so I wanted to bring Australian products back to China.”

After graduating in 2009, he set his sights on the dairy industry, seeing a “huge demand” for imported dairy in China, especially since 2008, when a deadly toxin called melamine was found in Chinese milk and infant formula.

Zhu registered his imports company, Henger, in 2011, and began importing dairy products from Australian companies such as A2 Milk and Gippsland’s Longwarry Food Park. The company also sells its products online, through e-commerce sites such as Amazon China and Alibaba, and through offline channels, like Wal-Mart China.

His work allows him to travel to Australia several times a year. “It’s not like I’m going to a different country,” he says. “It’s familiar to me.”

Zhu, who was born near Shanghai, moved to Australia in 2003 to attend high school in Brisbane, where he stayed with a local family. Initially, he struggled with the English language and other cultural differences. He still remembers feeling shocked by his first lunch in Australia, when his homestay family gave him a humble sandwich, a far cry from China’s more elaborate midday meals.

After high school, he moved to Melbourne to study electrical engineering – with the encouragement of his job-minded parents – but soon discovered that entrepreneurship was better suited to his gregarious personality. “I like to talk to different people,” he says. “I like social networking. I like making friends.”

Zhu, who met his wife at the University, grew to love Melbourne, its trams and its diverse food culture. Though he knew he didn’t want to be an engineer, he says he learnt critical, logical thinking and problem solving skills that have proved useful in his business.

He now mentors young University of Melbourne students studying business or finance who want to enter the Chinese market.

So what’s his advice? “Talk to people, make lots of friends and be ambitious,” he says. “And of course, work very, very hard.”

Zhu is only 30, but he has big plans for the future of his company. “I want to be listed on the Australian stock exchange,” he says. “That’s my goal.”

KATE STANTON



PICTURE: DAMIEN WHITE

A higher calling

ROBYN SHACKELL
(BA 1977)

Robyn Shackell is a trailblazer, but a patient one. She waited decades for the Anglican Church’s Ballarat diocese to welcome women to the priesthood. When they finally did in 2013, she was one of the first two women ordained and became Warrnambool’s first and only female priest.

“It was really wonderful,” she says of her inaugural Sunday service in her parish, when she celebrated the Eucharist and wore the vestments, the traditional robes of the priesthood.

Shackell, a grandmother of two, says she brings a “different perspective” to a male-dominated profession. Though some people were uncomfortable having women in church leadership, she says her community has been overwhelmingly supportive.

She recalls a woman in her 80s who approached her after a recent service and told her, “I’ve been waiting all my life for this”.

Shackell had too. “I guess I always felt that God was calling me to something but I didn’t quite know what,” she says.

Shackell grew up in Sydney with three younger brothers and parents who thought educating a girl would be a “waste of time”. But she was determined.

She successfully applied for a scholarship to teachers’ college, and later moved to Melbourne to study theology at Melbourne College of Divinity, where she received a Licentiate in Theology and a Diploma of Religious Education.

Shackell eventually enrolled in a bachelor’s course in psychology and Middle Eastern studies at the University of Melbourne.

After graduating, she moved to Koroit, where her husband, Denis, worked as principal at a local primary school.

She was 40 when she finally found her calling, in 1986, during a trip around Australia with her husband. In Tennant Creek they met parishioners at a small church lamenting the departure of their priest.

It was then that she knew what she wanted to do, though it would be years before she could fulfil her ambition in her home diocese.

She became a workplace chaplain in 1988, counselling employees of companies such as Nestlé, Fletcher Jones and VicRoads, and in 1998 she received a Master of Ministry from Melbourne College of Divinity. In 2008, the Ballarat diocese voted to ordain women as deacons. Several years later, at age 67, she was ordained a priest.

KATE STANTON

NEW ALUMNI DIRECTOR

Meet the man from Deep River

BY EMMA BRIMFIELD-WALSH

Nobody grows up wanting to be a Director of Alumni Relations. Not even James Allan. Born and raised in Canada, James started his career as a lecturer before deciding to change direction.

“I was teaching and enjoying it, but a lot of the work I was doing was pretty lonely,” he says. “The nice part about alumni relations is that I get to meet people and support higher education without having to grade all the undergraduate essays.”

He looks forward to meeting as many Melbourne alumni as possible.

Allan is a strong advocate for the value of a university education. His parents were among the first generation of their families to attend university and their lives were very different because of it. “My dad graduated with a PhD and went on to some significant roles in the nuclear industry and my mum studied physical education and ran community programs for the whole town on health and fitness.”

The town he’s talking about is Deep River, a remote scientific community in the Ottawa Valley. It was the first planned community built by the Canadian government in 1945 to accommodate employees of the nearby Chalk River Nuclear Research Laboratories.

“It was a weird little place to grow up,” Allan says. “It’s a suburb without the ‘urb’. There’s winding cul-de-sacs, forests and rivers but there’s no city – just nuclear reactors.” With a population of 4000, Deep River may have been small, but it was far from parochial: it had the highest number of PhDs per capita in Canada for many years.

Perhaps unsurprisingly, Allan went on to graduate with a PhD, but not in science – in communications and media studies. He led the alumni relations program at York University, Toronto, for eight years before becoming Director of Alumni Relations at Melbourne.

He was attracted by Melbourne’s constant willingness to explore new ideas, like the recently announced For Thought partnership between the University, Sydney Opera House and the Wheeler Centre. The partnership promises to deliver a series of scintillating events for alumni and the wider community.

“For Thought is a three-hour deep-dive into a topic that puts phenomenal thinkers from around the world in conversation with



James Allan: From Toronto to Melbourne.

the best and brightest from the University,” Allan says.

At the inaugural event in June, thinkers included academic “rock star” and world-renowned cosmologist Lawrence Krauss and astrobiologist Paul Davies.

But Allan says the best is yet to come. “June marked the beginning of a three-year program, and the calibre of speakers they’re considering is extraordinary. I encourage our alumni to pay close attention to Alumni eNews for further updates.”

Go to unimelb.edu.au/alumni/enews to view and subscribe to Alumni eNews. For more on For Thought visit events.unimelb.edu.au/forthought

Prominent graduates share experiences in video series



Alumni at the top of their careers have shared their experiences in a series of video interviews aimed at inspiring current students and new graduates setting out on their own career path.

The *Career Journeys Worth Sharing* videos feature Oxfam Australia Chief Executive Helen Szoke (pictured above), Melbourne City Councillor Arron Wood, Australian College of Optometry CEO Maureen O’Keefe and Speak Percussion Artistic Director Eugene Ughetti.

They are part of a range of career resources for alumni, which also includes webinars, discounts on future study and networking opportunities. Watch the videos at alumni.unimelb.edu.au/career-journeys and learn more about the career support available to alumni at alumni.unimelb.edu.au/career-centre.

BOAT RACE

The Australian Boat Race returns to Melbourne in 2015, with top-class rowers from the Universities of Melbourne and Sydney hoping to take home the trophies on Sunday, October 25.

The Universities’ rowing clubs first competed against each other, on the Yarra, in 1860. The tradition was reborn 150 years later, in 2010, when the first head-to-head men’s and women’s crew races were conducted on Sydney Harbour. Show your support this year by heading to the banks of the Yarra to watch this historic event. More: australianboatrace.com

WINNER

Janet Brown (BSc(Ed) 1978) has won a \$250 book voucher after opting to receive future editions of *3010* by email.

If you would prefer to have the magazine delivered to your inbox, sign up for the digital version at unimelb.edu.au/3010

AWARDS, HONOURS & ACHIEVEMENTS



Immunologist and virologist **Professor Anne Kelso AO** has been appointed as the new Chief Executive Officer of the National Health and Medical Research Council (NHMRC). Professor Kelso (BSc(Hons) 1975), PhD 1980, St Hilda's College) has had a distinguished career in medical research and an impressive track record in immunology and influenza research.

PICTURE: NHMRC/IRENE DOWDY



Immunologist **Professor Ian Frazer AC** (MD 1988) has won an international award from the European Patent

Office for developing the world's first cervical cancer vaccine. Professor Frazer, of the University of Queensland, shared the European Inventor Award with his late Chinese colleague, Jian Zhou. The pair developed the Gardasil vaccine, which is now used in 121 countries and has been administered more than 125 million times.

Two Melbourne alumni have received Australia's second highest civilian honour, the Companion of the Order of Australia (AC), in the 2015 Queen's Birthday Honours.



Professor Nathan Efron (BOptom 1976, PhD 1982), one of Australia's leading optometrists, was recognised for his work in creating

two life-changing inventions - daily disposable contact lenses and an eye test that can give early diagnosis of diabetes. Professor Efron, president of the Australian College of Optometry since 2012, is based at the Queensland University of Technology. He is a Type 2 diabetes sufferer who has used his own experiences to influence much of his research into diagnosis and treatment of the condition.

The Hon Justice Christopher Maxwell (BA(Hons) 1974, LLB 1983, Trinity College), President of the Victorian Court of Appeal, received his honour for eminent services to the law and the judiciary. Justice Maxwell is best known for leading administrative reform of the Victorian appeals process, helping the Victorian Government to develop jury law reforms that have improved the quality of admissible forensic evidence - a move that has sped up the criminal appeal process. Justice Maxwell was previously president of civil liberties advocacy group Liberty Victoria and commissioner of the Legal Aid Commission (currently known as Victoria Legal Aid).

In all, more than 60 Melbourne alumni and staff received Queen's Birthday Honours.

Eminent professor of neuropsychiatry **Christos Pantelis** (MB BS 1979, MD 2004) has been awarded an honorary doctorate by the University of Athens. Professor Pantelis is an NHMRC Senior Principal Research Fellow, Foundation Professor of Neuropsychiatry and Scientific Director of the Melbourne Neuropsychiatry Centre at the University of Melbourne and Melbourne Health. He holds an Honorary Professorial Fellow position at the Florey Institute for Neuroscience and Mental Health and heads the Adult Mental Health Rehabilitation Unit at Sunshine Hospital.

The designers of the Melbourne School of Design building on Parkville campus, John Wardle Architects and NADAAA, have won the United Nations Association of Australia World Environment Day Green Building Award for 2015. It's the latest in a long line of accolades for the environmentally-friendly building.

Associate Professor Prudence Francis (BMedSc 1980, MB BS 1983, MD 2008) has won the Medical Oncology Group of Australia-Novartis Oncology Cancer Achievement Award for 2015. The award recognises her contribution to the improvement of cancer control nationally and internationally. Associate Professor Francis is the Head of the Medical Oncology Breast Service at the Peter MacCallum Cancer Centre.



Matthew Tyler (BA, BCom 2006) has been awarded an RG Menzies Scholarship to Harvard, Australia's most prestigious national award

for postgraduate study in the United States. During his Masters in Public Policy at the John F Kennedy School of Government, Matthew will explore how innovative partnerships between the public and private sectors can overcome rising inequality in Australia.

Andrew Heggie (BDSc 1977, MDSc 1981, MB BS 1991), Associate Professor in the Department of Paediatrics at the University of Melbourne, and Head of the Section of Oral and Maxillofacial Surgery at the Royal Children's Hospital, has been awarded the fellowship ad hominem of the



Dr Helen Durham (BA 1989, LLB(Hons) 1991, SJD 2000) was one of the inaugural recipients of the Australian

Peacewomen Awards, presented by the Women's International League for Peace and Freedom. Dr Durham received the award in recognition of her efforts as Director for International Law and Policy at the Geneva-based International Committee of the Red Cross.

Royal College of Surgeons of Edinburgh. The honour reflects his contribution as surgeon, researcher, educator and mentor to his trainees and colleagues.



Academic and author **Dr Tony Birch** (BA(Hons) 1991, MA(CrWrtg) 2000, PhD 2003) has joined Victoria University as the first recipient of

the Dr Bruce McGuiness Indigenous Research Fellowship. The Fellowship is named for one of Victoria's most respected Aboriginal elders and a long-time activist in the struggle for Aboriginal justice. Dr Birch's research will explore the implications of climate change on Aboriginal communities, and the value of Aboriginal knowledge of land and the natural environment to inform the wider community. Dr Birch is also a highly respected novelist and author of many books and short stories, including *Shadowboxing*, *Blood* (shortlisted for the 2012 Miles Franklin Award) and *The Promise* (shortlisted for the 2014 Victorian Premier's Literary Award). He was a writer-in-residence at the Wheeler Centre in 2014.

Allan Myers AO QC has been named the inaugural recipient of the Fellow of the University of Melbourne award in recognition of his community leadership and significant contributions to the University. Mr Myers (BA 1969, LLB(Hons) 1970, LL.D 2012, Ormond College, Newman College) is Chairman of *Believe - the Campaign for the University of Melbourne*.

AWARDS, HONOURS & ACHIEVEMENTS

For more Milestones visit unimelb.edu.au/3010



Professor Peter Doherty AC (LLD 2012) tackles climate change, one of the most polarising topics of our time in his latest book. In *The*

Knowledge Wars, the Nobel Prize-winning scientist makes a passionate case for citizens to become informed and evaluate the facts of the climate change debate for themselves.

Heather Merrylees (BSc 2014) was selected for the Jim Willis Studentship at the Royal Botanic Gardens Melbourne. The studentship offered Ms Merrylees the opportunity to work on a project capturing pollen diversity in the buckwheat family Polygonaceae, a plant family including around 1200 species.

Several alumni received honours from the Australian Veterinary Association (AVA) at the 2015 Pan Pacific Veterinary Conference. **Dr David Beggs** (BVSc 1990, MVS 1997), Lecturer in Cattle Medicine at the Faculty of Veterinary and Agricultural Sciences, received the President's Award in recognition of his outstanding practical contribution to veterinary science in Australia.

Emeritus Professor Bruce Parry (BVSc 1976, PhD 1982) was made a Fellow of the AVA, the Association's most senior award for service to the organisation. Professor Parry was a member of the Melbourne Veterinary Science faculty from 1985 to 2011, and has been a member of many committees of the AVA. **Dr Sam**



Morgan (DVM 2014) received the Don Kerr Veterinary Student Award for his strong academic record and his exceptional commitment to

cattle medicine. **Dr Trish Stewart** (BVSc(Hons) 1980, MVS 1987, Janet Clarke Hall) received a meritorious service award for long-term service to the AVA. Dr Stewart teaches veterinary nursing at Box Hill Institute and has previously been a small animal surgical resident and surgical registrar with the University, and president of the Victorian division of the AVA.

Dr Milinda Pathiraja (BArch(Hons) 2001, PhD 2011) won a Bronze award in the 2014 Holcim Awards for Sustainable Construction in the Asia Pacific region. Dr Pathiraja's project, Post-War Collective, is a community library and social recuperation building near Colombo, Sri Lanka, which aims to reintegrate former soldiers into post-civil-war Sri Lankan society.



Award-winning director **Gary Abrahams** (PGradDipPerf-Creation 2007, MThPract 2008) created *The Lonely Wolf* (or an

incomplete guide for the unadvanced soul), presented as part of Melbourne Theatre Company's NEON season in June. The dance-theatre production was inspired by the Herman Hesse novel *Steppenwolf* and the writings of philosopher and psychoanalyst James Hillman.

Professor Michael Goddard (BVSc(Hons) 1972, PhD 1979) of the Faculty of Veterinary and Agricultural Sciences has been awarded the prestigious Royal Society Fellowship. Professor Goddard is known for his research into quantitative genetics and the genetic improvement of livestock. The Fellowship of the Royal Society is made up of the most eminent scientists, engineers and technologists in the Commonwealth. Past Fellows and Foreign Members have included Newton, Darwin, Einstein and Hawking.

Award-winning director and theatre-maker **Peta Hanrahan** (PGradDipPerfCreation 2013) has been appointed Artistic Director of actor training centre Verve Studios. Ms Hanrahan was the founder of The Dog Theatre in Footscray.

Shanghai: Decadence with Chinese Characteristics, an exhibition by Shanghai-based photographer, writer and cinematographer **Dave Tacon**, was featured in the sixth Ballarat International Foto Biennale. Portrait and photo-documentary work by Mr Tacon (BA(Hons) 2000), is held in the permanent collections of the National Portrait Gallery of Australia, the National Library of Australia, the State Library of Victoria and the Royal Melbourne Institute of Technology.

A notebook filled with drawings by **Jo Buckland** (BFineArt 2014) was included in The Sketchbook Project, a crowd-sourced art project based at the Brooklyn Art Library in New York. Ms Buckland was one of thousands of artists who contributed sketchbooks to the project, with each being catalogued and added to the library's shelves. Some of her drawings have now been published in a book on the project, *The Sketchbook Project World Tour*.

Alumni **Charles Ferrall** and **Dougal McNeill** analyse the literary response to the 1926 General Strike in their new book, *Writing the 1926 General Strike*. The strike not only drew writers into political action but inspired literature that served to shape 20th century British views of class, culture and politics. Mr Ferrall (BA(Hons) 1983, MA 1986) and Dr McNeill (PhD 2008) both work at the Victoria University of Wellington.

VCA alumni featured heavily in *Macbeth*, one of the films selected for competition at the 2015 Cannes Film Festival. It was directed by **Justin Kurzel** (GDipFT 2004), known for *Snowtown* and *The Turning*; cinematography was by **Adam Arkapaw** (BFT 2006), known for *Animal Kingdom*, *Lore*, *Snowtown*, *True Detective*, and *Top of the Lake*; and it stars **Elizabeth Debicki**



(BDramArt 2011), who appeared in *The Great Gatsby*, as Lady Macduff. *Under the Sun*, a film by **Qiu Yang** (MFT 2014), was selected for the

Cinéfondation section, which is for works by film school students.

Two exhibitions of the work of artist **Richard Lewer** (MVisArt 2000) have been staged in Auckland, New Zealand. *It's More Than a Game* at the Gow Langsford Gallery celebrated Mr Lewer's love of rugby, while *Custom of the Sea* at ST PAUL St Gallery, AUT University, was inspired by the true story of yachtsmen stranded off the coast of Africa.

Anna O'Byrne (BMusPerf(Hons) 2008) starred as Maria in *West Side Story*, presented by The Production Company in Melbourne in July. Her performance followed successful lead roles in *Love Never Dies* and *Phantom of the Opera*.



Sofie Laguna (DipDramArts (Acting) 1992) has won Australia's top fiction prize, the Miles Franklin Literary Award, for her novel *The Eye of the Sheep*. The book is her second novel for adults but she has written 20 children's books, plays and a screenplay based on her first adult novel, *One Foot Wrong*. That book was longlisted for the Miles Franklin and shortlisted for the Prime Minister's Literary Awards in 2009. Previous Miles Franklin winners include alumnae Michelle de Kretser (BA(Hons) 1979) and Dr Anna Funder (BA(Hons) 1988, LLB(Hons) 1991, MA(CrWrtg) 2002).

Narrowing the reality gap

BY **SIMON CORONEL**
(BA, BE(SoftEng)(Hons) 2004)

In April 1999, I began the first year of a combined BA/BEng in Psychology and Software Engineering. On a whim, I also joined the Melbourne University Magicians' Society. It was one of the 200 or so clubs and societies on display at first-year orientation week, and one of about 15 I joined with a desire to connect with interesting-sounding things on campus.

I had no background in magic whatsoever. Like many people, I'd had a magic kit when I was about 12, but nothing about it particularly resonated with me back then. The few magic shows I'd seen in my life had just seemed like vaguely baffling show-off sessions that I couldn't really connect with.

However, the people at the magic club seemed cool, and were offering to actually teach beginner-level tricks to people who joined. I figured learning a card trick might be fun, so I paid the \$5 sign-up fee. I turned up to a meeting and, to my surprise, discovered a fascinatingly deep art and craft.

Most people have never actually seen a really good magic performance. I don't even like using the word "magic" to describe what I now do professionally, because it carries a lot of the wrong connotations. I've spent almost my entire life, at heart, as a truth-seeking scientist/engineer. My initial interest in magic stemmed purely from a desire to understand what I'd just seen, and then later to share it in a way that leaves the audience understanding more, not less, about reality.

It was oddly fortuitous that just as I was starting to learn about magic I was also studying psychology and software engineering. The links between psychology and magic are well-documented. Illusions, in the "magical" sense, literally happen in the mind of the observer. You don't make the coin disappear; you provide

a set of visual stimuli that will create the impression in the audience's minds of seeing a coin disappear. Making a coin disappear is impossible. Making someone "think" they saw it disappear is a complex and interesting challenge.

The links with engineering are more subtle. A good illusion, when performed properly, looks effortless. It's easy to forget that there's a huge amount of complexity behind the scenes. Some illusions are based on sleight-of-hand dexterity. Some are based on incredibly clever optical principles. Some are based on the subtle use of secret devices or obscure physics principles.

All of them, however, have a method. A method that needs to be designed, developed, tested, and executed near-flawlessly each time. To this day, when working on a new show, I still find myself thinking in terms of the lessons I learned when studying software deployment. Design, test, deploy ... and iterate.

Throughout university, magic was simply something that fascinated me. When I graduated, I briefly considered trying to do it professionally. Instead I got a graduate position at a business consulting company, which lasted six years. In those years though, the magic hobby grew. I started to win awards, and to get paid gigs. After six years of business consulting, I leapt from the safety of a corporate career into the maelstrom of professional showbiz.

That was five years ago. Since then I've performed in seven countries across four continents, and had far too many stranger-than-fiction experiences to even begin to describe here. Now, ironically, the majority of my income comes from corporations booking me to entertain, MC, or speak at their events – sharing the insights I've gained about perception, innovation, and things that seem impossible but aren't.

"The links between psychology and magic are well-documented," says Simon Coronel.



Bridget Loughhead
Current student and
scholarship recipient

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